

**LOOKING NORTH:
HOKKAIDO'S FARMS, LANNA'S FORESTS, AND THE COLONIAL NATURE OF
KNOWLEDGE IN NINETEENTH-CENTURY JAPAN AND THAILAND**

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This dissertation presents a comparative enviro-colonial history of the northward expansion by Japan and Siam between the late-nineteenth century and the early-twentieth century. The term “enviro-colonial history” connotes the entanglements between environmental history and colonial history that are enabled by the practices of knowledge production and mobilization. In the case of Japan’s colonization of Hokkaido, the promotion of “scientific agriculture” became a means to transform the unfamiliar environment of the northern island into a thriving settler colony for Japanese migrants. Meanwhile, in Siam, the institutionalization of “scientific forestry” was aimed at reconfiguring the relationships around the flourishing timber trade in the northern frontier, to facilitate both the annexation of the Lanna states and the centralization of forest regulation. As I will elaborate in the chapters that follow, the production and mobilization of agricultural science in Hokkaido and forestry in Lanna enabled the imagination of “enviro-colonial rule” – a form of governance that entangled environmental management with colonial administration as if they were part of the same process.

BIOGRAPHICAL SKETCH

Tinakrit Sireerat received his bachelor's degree in history from Chulalongkorn University, Thailand. He later joined the Ph.D. program at the Department of Asian Studies, Cornell University, to pursue his interests in the modern history of Japan and Thailand. While at Cornell University, his interests have expanded to include the fields of environmental history, animal studies, history of colonialism, and science and technology studies (STS). After graduation, Tinakrit will return to Thailand and continue his research on the environmental history of Thailand and its intersections with other parts of Asia.

To my beloved family and friends

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TABLE OF CONTENTS

BIOGRAPHICAL SKETCH	IV
ACKNOWLEDGEMENTS	VI
TABLE OF CONTENTS	X
LIST OF FIGURES	XII
LIST OF TABLES	XIII
INTRODUCTION	1
PART I ENVISIONING ENVIRO-COLONIAL RULES	25
CHAPTER 1 INSCRIBING NATURE, OTHERING GOVERNANCE: Knowledge Production and the Formation of Enviro-Colonial Rule in Hokkaido	30
CHAPTER 2 SAVING ALMA MATER: Sapporo Agricultural College and the Transformation of Enviro- Colonial Entanglements	67
CHAPTER 3 FORESTED ENCOUNTERS: Commercial Teak Logging, State Forestry, and Anglo-Siamese Collaborative Colonialism in Lanna	122
CHAPTER 4 IN FORESTERS WE DON'T TRUST: British Foresters, Siamese Bureaucrats, and the Politics of Expertise	156

PART II	ENACTING ENVIRO-COLONIAL RULES	192
CHAPTER 5	SOWN IN GRASSES AND GRAINS: Remaking Hokkaido for Livestock	197
CHAPTER 6	PAPERED FORESTRY: Leases, Laws, and the Enactment of Forest Administration	231
CONCLUSION		282
REFERENCES		288

LIST OF FIGURES

Figure 1	An Illustration of the Model Barn at Sapporo Agricultural College	214
Figure 2	The Model Dairy Barn Today	215
Figure 3	A Western-Style Farmhouse Built by the Machimura Family	223
Figure 4	Slade's Thirty-Year Rotational Extraction (1896)	240
Figure 5	The Flow of Forestry Paperwork according to Slade's Vision	266
Figure 6	The Flow of Forestry Paperwork Enacted by Mong Pan Yo	271

LIST OF TABLES

Table 1	The Temperatures of Hakodate and American Cities in Similar Latitudes	47
Table 2	The Survey Groups, Their Itineraries, and Activities (1877)	50
Table 3	The Curriculum of Sapporo Agricultural College during Its Early Years	78
Table 4	Speeches Given by Sapporo Agricultural College Students (1877)	90
Table 5	Courses Offered for the Senior-Year Students in 1880, 1886, and 1893	106
Table 6	State Revenue from Stump Fees, Timber Taxes, and Other Fees (1896-1910)	173
Table 7	Slade's Proposal on the Power of the Forest Conservator and the Ministry of the Interior	175
Table 8	The Number of British and Siamese Officials in the Forest Department	186
Table 9	The Number of Forestry Students Sent by the Forest Department to Study Abroad	186
Table 10	Cultivation Plan for Makomanai Farm (1876)	217
Table 11	The Five Classes of Teak Trees	240
Table 12	Structural Comparison of Three Versions of the New Forest Leasing Form	250

INTRODUCTION

Towards A Comparative Enviro-Colonial History

During the second half of the nineteenth century, the northern region of today's Japan and Thailand experienced similar historical trajectories. The northern island of Japan, which had been called "Ezo" by the Japanese and "Ainu Moshir" by the Ainu people, was officially annexed as part of the new Japanese nation and renamed as Hokkaido (literally "Northern Sea Circuit"). Between 1869 and 1882, the Kaitakushi (Hokkaido Colonization Office) served as the headquarters for both local (colonial) administration and agricultural development, and in 1876, the office also established the first agricultural school in the country, the Sapporo Agricultural College (SAC), which was modeled after the Massachusetts Agricultural College. Meanwhile, the Lanna states in the north of Siam similarly experienced intensifying political interventions from the Siamese government, which aspired to tighten its control over its vassal states in the north as well as their forest resources. Though initially informal and temporary, the Siamese interventions were gradually legalized during the 1870s and the 1880s as Siam tried to replace tributary relations with a new form of local administration called Monthon Thesaphiban. Then, in 1896, Siam also established the Royal Forest Department (RFD) and put all the forests under the control of the central government.¹ In both places, there emerged a hybrid form of governance that interwove colonial and environmental modes of governance.

The formation of this hybrid governance in Hokkaido and Lanna sheds light on the role of knowledge in mediating the interplay of colonialism and the environment. Claiming to

¹ It is worth noting that the forest department had its headquarters in Chiang Mai, unlike other national institutions, which were all based in Bangkok.

“modernize” Hokkaido’s agriculture and Lanna’s forestry, Japan and Siam used the realm of environmental management to reconfigure power relations and to establish their political supremacy, which later informed the formulation of colonial administration in the north. Meanwhile, the modernization (colonization) of agriculture and forestry was shaped by the colonial nature of knowledge production, in which Western science tried to dominate other environmental knowledges and practices elsewhere. In Hokkaido, American agriculturalists played an important role in turning Hokkaido into a node within the transatlantic network of agricultural science. Similarly, in Lanna, British foresters gradually brought Siam into the transnational network of scientific forestry. Nevertheless, the American and British advisers were not passive conduits for the transfer of knowledge from the West to Hokkaido and Lanna. These foreign advisers mobilized their own “expert knowledge” to establish authority and distinguish themselves from “non-expert” officers, thereby reconfiguring the ways in which state power was to be exercised.

Using Hokkaido and Lanna as starting points, I ask three interrelated questions about the ways in which historical processes were shaped by dynamic interactions between colonialism and the environment: 1) Why and how did Japan’s and Siam’s northward expansion become entangled with attempts to manage the environment? 2) How did the construction of expertise shape the formation of new governance? 3) How did the new governance work in Hokkaido and Lanna? By asking these questions, I aim to highlight the significance of the politics of knowledge as a common thread that brings comparative studies of Japan and Thailand into conversation with the fields of colonial history, environmental history, and science and technology studies (STS). All of these fields of inquiry share an interest in the role of knowledge, both in the making of societies and in the making of our understandings about those societies and their changes. In early Japan-Thailand comparative scholarship, knowledge, especially Western science and

technology, has been hailed as a driving force of modernization. In colonial history and postcolonial studies, knowledge is not only something that existed in history but also what has shaped the way we make sense of the past. Recent postcolonial critiques have shown that historical knowledges are usually produced to serve political aspirations. Hence, a task of decolonization is to revisit such knowledges to recover other historical aspects and experiences that have been silenced by the grand narratives of the colonists or the ruling elites. For environmental historians, “nature” is simultaneously a historical reality and a product of knowledge production, just like political entities such as nation, colony, or empire. Since the cultural turn in the field, environmental historians have sought to show that the way we define something as “nature” or “natural” always changes and is closely intertwined with how we conceptualize “society.” This attention to nature as a form of knowledge connects environmental history with STS scholarship, which has shown that all forms of knowledge, science, or technology are not value-free entities. Rather, they are produced and mobilized in relation to social and historical changes. Ultimately, by engaging how scholars from different fields study and explain knowledges, this dissertation highlights the theme of co-production among state, nature, and knowledge --- all of which do not exist freely or independently from one another.

Modernization, Coloniality, and Japan-Thailand Comparison

Previous comparative studies of Japan and Thailand usually focus on historical developments in the national centers of Tokyo and Bangkok. This historiographical trend unfairly privileges the perspectives and experiences of the people at the national centers, especially the ruling elites, and claims them to be representative of the lives of those living in other regions such as Hokkaido and Lanna, despite the fact that these two regions were not always part of the

Japanese and Thai nations.² In addition, existing Japan-Thailand comparisons tend to focus on the two nations' modernization processes, which allegedly "saved" both countries from being colonized by Western colonialists.³ This comparison of modernization, in turn, has formed the basis of Japan and Siam's exceptionalism and isolated the studies of both nations from those of the West and other post-colonial regions.⁴

Modernization discourses usually claim Japan and Siam to be victims of external colonial threats but obscure the colonial violence which the national centers inflicted on the people of Hokkaido and Lanna in the name of civilization and progress. In Hokkaido, colonial violence

² Several classical works on Thai history are also written from the Bangkok perspective; some use the name Bangkok for periodization. For example, Pasuk Phongpaichit, *Sētthakit kāmūrang Thai samai Krung Thēp*, (Chiang Mai: Silkworm Books, 2539); and Nithi 'Ieosiwong, *Pen and Sail: Literature and History in Early Bangkok Including the History of Bangkok in the Chronicles of Ayutthaya*, ed. Christopher John Baker et al. (Chiang Mai, Thailand: Silkworm Books, 2005). This also applies to previous urban studies scholarship, in which Tokyo and Bangkok dominate urban imaginaries of Japan and Thailand, respectively. For examples of urban studies of Japan, Edward Seidensticker wrote a few authoritative books on Japanese intellectual and cultural history that draw mainly from the history of Tokyo culture. See Edward Seidensticker, *Low City, High City: Tokyo from Edo to the Earthquake* (New York: Knopf, 1983). See also, Maeda Ai, *Text and the City: Essays on Japanese Modernity*, ed. James A. Fujii (Durham: Duke University Press, 2004).

³ For example, Boonsanong Punyodyana, "Thai Selective Social Change: A Study with Comparative Reference to Japan" (Ph.D., 1971); Likhit Dhiravegin, *The Meiji Restoration (1868-1912) and the Chakkri Reformation (1868-1910): A Comparative Perspective* (Bangkok, Thailand: Research Center of the Faculty of Political Science, Thammasat University, 1984); Andrew J. L. Armour, ed., *Asia and Japan: The Search for Modernization and Identity* (London: Athlone Press, 1985); Surangsri Tonsiengsom, "Western knowledge and intellectual groups in Japan and Thailand in the nineteenth century: The 'Meirokekusha' and 'Young Siam'" (Ph.D. Diss., Ann Arbor, United States, 1990).

While modernization theory began to lose its former prestige in academia, the discourses of modernization, (economic) development, and national independence can still be found in comparative studies of Japan and Thailand until today. For example, see Sukanya Nitungkorn, "Education and Economic Development during the Modernization Period: A Comparison between Thailand and Japan," *Southeast Asian Studies* 38, no. 2 (2000): 142-64; Randal Shon Batchelor, "Borrowing modernity: A comparison of educational change in Japan, China, and Thailand from the early seventeenth to the mid-twentieth century" (Ed.D., 2005); Chawin Leenabanchong, "Economic Development of Japan and Thailand: An Historical Perspective," *International Journal of East Asian Studies* 21, no. 2 (2017): 35-60.

⁴ As Taylor Easum, a historian of Chiang Mai, has pointed out, "[t]he fact that Siam was never formally colonized [...] encouraged certain comparisons and obfuscated others. It encouraged comparisons between Siam and Japan, or the Chakri kings and anticolonial nationalists, while minimizing any similarities between Siamese elites and the Dutch in Java, or the British in India." Taylor M. Easum, "Urban Space in the Colonial Margins: Chiang Mai from Lanna to Siam" (Ph.D. Diss., University of Wisconsin-Madison, 2012), 4.

took the form of forced agriculture and intensive assimilation. Some colonized subjects could gain some benefits from Japan's assimilation and settler colonial policies, which were tied to ways of everyday living, and those who participated would be provided with facilities and various means of support. Yet, as David Howell has pointed out, the decision to participate in Hokkaido colonial projects was immensely shaped by the government's criminalization of other forms of livelihood in the attempt to transform colonized subjects into "useful citizens," who should cultivate land and follow the Japanese ways of life.⁵ Hirano Katsuya has added that the useful citizens were categorized into two groups: the important ones that the government had to preserve, and the "dispensable" ones that the government could exploit and dispose when no longer needed.⁶ Moreover, according to Michele Mason, memories of violence were – and have continued to be – overshadowed by dominant narratives of Hokkaido history, which glorify the achievements of the Japanese pioneers and the Kaitakushi.⁷

In the case of Lanna, the Siamese annexation of the north usually advances a royal-nationalist narrative that tells a story of the civilized Siamese kings displacing the incapable rulers of Lanna, thereby rescuing the land from the British and the French Empires. In such a narrative, the Lanna rulers are usually portrayed as lazy and ignorant, whose irrational rule brought about the increase in international disputes with foreign powers. By representing the rule by Lanna

⁵ David L. Howell, "Making 'Useful Citizens' of Ainu Subjects in Early Twentieth-Century Japan," *The Journal of Asian Studies*; *Ann Arbor* 63, no. 1 (2004): 5–29. For a close reading of the Ainu law, Komori Yōichi, "Rule in the Name of 'Protection': The Vocabulary of Colonialism," in *Reading Colonial Japan: Text, Context, and Critique*, ed. Michele Mason and Helen J. S. Lee, trans. Michele Mason (Stanford, California: Stanford University Press, 2012), 60–75.

⁶ Hirano Katsuya, "Thanatopolitics in the Making of Japan's Hokkaido: Settler Colonialism and Primitive Accumulation," *Critical Historical Studies* 2, no. 2 (September 2015): 204.

⁷ The original meaning of the word 開拓 '*kaitaku*' is to open up or develop (new) lands, which should be distinguished from 植民地化 '*shokuminchika*,' a more commonly used term for colonization. Hence, the name Kaitakushi literally means a development agency, exemplifying how modernization and development discourses were employed to shape public understanding of this part of history. Michele Mason, *Dominant Narratives of Colonial Hokkaido and Imperial Japan: Envisioning the Periphery and the Modern Nation-State* (New York: Palgrave Macmillan, 2012), 31.

princes as arbitrary, the narrative aims to justify the Siamese interventions in Lanna by replacing inefficient rule with a more “rational” means, which refers to the practices accepted by Euro-American powers only. Together with the administrative transformation in other fields, the establishment of the forest department has been hailed as part of the national reform led by King Chulalongkorn (reign: 1868-1910) to make Siam *siwilai* (a Thai transliteration of the English term *civilized*), which eventually saved the country from being colonized by European powers.⁸ This glorification of King Chulalongkorn’s reforms has become a grand narrative of Thailand’s national history, which highlights the repeated threats of European colonization and the role of the Siamese monarchy as the savior of the Thai people. What has been omitted from this grand narrative are the expansionist endeavors by Siam itself. Later scholarship on Thai studies has called into question the never-been-colonized myth in Thai historiography. For example, Lysa Hong stresses Siam’s colonial condition by highlighting the existence of extra-territoriality and, by extension, the privileged status of foreign subjects, which in effect undermined the claim of absolute power by the Siamese monarch.⁹ Still, the mainstream narrative of Thai national history

⁸ On the Siamese elites’ discourses on *siwilai*, see Thongchai Winichakul, “The Quest for ‘Siwilai’: A Geographical Discourse of Civilizational Thinking in the Late Nineteenth and Early Twentieth-Century Siam,” *The Journal of Asian Studies* 59, no. 3 (2000): 528–49. For early scholarship on the administrative reform and changes in Siam’s policies towards Lanna, see Prompong Na Chiang Mai, “The Administrative Reform of the Lao Chiang States in the Reign of King Chulalongkorn, 1886-1895” (M.Ed. Thesis, Bangkok, Thailand, Srinakharinwirot University, 1975); Vanlapa Kreuthienthong, “The Administrative Reforms of Lanna Thai during the Reign of King Chulalongkorn” (M.A. Thesis, Bangkok, Thailand, Chulalongkorn University, 1976); Sarasawadee Prayoosathian, “The administrative reform of Monthon Payap (B.E. 2436 -2476)” (M.Ed. Thesis, Bangkok, Thailand, Srinakharinwirot University, 1980).
⁹ Lysa Hong, “Invisible Semicolony: The Postcolonial Condition and Royal National History in Thailand,” *Postcolonial Studies* 11, no. 3 (2008): 317–19. See also Akiko Iijima, “The ‘International Court’ System in the Colonial History of Siam,” *Taiwan Journal of Southeast Asian Studies* 5, no. 1 (2008): 31–64; Lawrence Chua, “The City and the City: Race, Nationalism, and Architecture in Early Twentieth-Century Bangkok,” *Journal of Urban History* 40, no. 5 (September 1, 2014): 933–58.

continues to posit how Thailand defended itself against foreign threats while avoiding the language of colonial encounters.¹⁰

To capture the ambiguity of colonial identities in places like Japan and Siam, scholars have proposed various terms such as colonial modernity, semi-colonialism, internal colonialism, crypto-colonialism, auto-colonialism, competitive colonialism, or collaborative colonialism, etc.¹¹ In spite of their conceptual differences, these terms similarly serve as a reminder that colonial relations cannot be easily pinned down with a binary thinking that presupposes only one colonizer and one colonized party. Building on these conceptual works, my dissertation will explicitly engage with the coloniality of both Japan and Siam by comparing their northward expansions into Hokkaido and Lanna. Acknowledging Philippa Levine's caution that comparative histories sometimes assume rather than historicize the nations being compared, I do not intend to claim Hokkaido as representative of Japaneseness, or Lanna of Thainess.¹² Rather, my dissertation is aimed at unsettling the category of the nation, which has been a given entity for comparison in previous Japan-Thailand comparative works. I will show that instead of a natural, pre-existing entity, a nation is better understood as shifting networks of relationships between state and non-state actors; and even within the same state, officials and other state actors

¹⁰ Hong, "Invisible Semicolony," 324. Thongchai Winichakul also makes a similar point when he argues that in Thai historiography of the emergence of Siam's *geo-body*, colonialism is mentioned as a *threat* but the story being told is that of how Thai kings *saved* the nation from being colonized. See Thongchai Winichakul, *Siam Mapped: A History of the Geo-Body of a Nation* (Honolulu: University of Hawaii Press, 1994), 160.

¹¹ Tani Barlow, ed., *Formations of Colonial Modernity in East Asia* (Durham, N.C.: Duke University Press, 1997); Tani Barlow, "Debates over Colonial Modernity in East Asia and Another Alternative," *Cultural Studies* 26, no. 5 (September 1, 2012): 617–44; Peter A. Jackson, "The Ambiguities of Semicolonial Power in Thailand," in *The Ambiguous Allure of the West: Traces of the Colonial in Thailand*, ed. Rachel V. Harrison and Peter A. Jackson (Ithaca: Cornell Southeast Asia Program Publications, 2010), 37–56; Tamara Lynn Loos, "Competitive Colonialisms: Siam and the Malay Muslim South," in *The Ambiguous Allure of the West: Traces of the Colonial in Thailand*, ed. Rachel V. Harrison and Peter A. Jackson (Ithaca: Cornell Southeast Asia Program Publications, 2010), 75–91; Easum, "Urban Space in the Colonial Margins."

¹² Philippa Levine, "Is Comparative History Possible?," *History and Theory* 53 (2014): 337–38.

usually have different goals and act in different ways. The focus on internal colonies like Hokkaido and Lanna will serve as a vantage point for observing how such networks were formed and transformed throughout the nineteenth century when both states tried to reformulate the relationship between colonial governance and environmental administration, thereby shedding light on co-production of nations and colonies.

Environmental Histories of Empires

To re-engage scholarship on Japanese studies and Thai studies, this dissertation proposes the concept of “enviro-colonial history” as a new point of entry for comparison. As a perspective, enviro-colonial history brings our attention to the multi-faceted interactions between environmental change and colonization. It foregrounds how the two processes could both compliment and constrain each other, and elucidates how those interactions unfolded as historical changes. The relationship between the environment and colonialism, especially the role of nonhuman nature in the process of colonization, has been a common theme in the field of environmental history. Some classic works on this theme are authored by Alfred Crosby, who tried to explain European conquest of the New World as “ecological imperialism.”¹³ A significant contribution of “ecological imperialism” is to draw a big picture understanding of the movement of biological agents to explain the effects of such movement upon the success or failure of colonization in a certain area. To declare the colonization of an area a success, Crosby pointed to the number of survivors after the conquest – those with the larger populations (or whose populations were on the increasing side) were regarded as the victors, and if the victors were the

¹³ Alfred W. Crosby, “Ecological Imperialism: The Overseas Migration of Western Europeans as a Biological Phenomenon,” in *The Ends of the Earth: Perspectives on Modern Environmental History*, ed. Donald Worster (Cambridge, England: Cambridge University Press, 1988), 103–17; Alfred W Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900-1900* (Cambridge: Cambridge University Press, 1986).

non-native, it meant successful colonization. On the contrary, if the victors were the natives, it meant the failure of colonization in that area. According to Crosby, European human and nonhuman settlers were usually more successful in the temperate zones, where the climate and environmental features resembled Europe. However, Crosby does not provide much detail about the interactions between the natives and the non-natives, or why the non-native species could overpower new environments. Nor does he explain how the society was reorganized to favor domination by a certain group but not the other.

Due to its vague causal explanations, Crosby's notion of ecological imperialism seems to have little use in the debate about colonialism beyond introducing animals, plants and germs as new agents of colonization.¹⁴ The notion fails to adequately conceptualize nonhuman agency or explain why one should care more about these nonhuman actors instead of other actors. This conceptual gap makes it difficult to claim the significance of the nonhumans as historical actors, leading some critics to accuse Crosby of making ecologically deterministic claims. Moreover, the notion of "biological conquest" does not completely invalidate previous narratives that do not consider nonhumans; colonial historians who do not care about nonhumans can simply ignore the contributions of this concept.

Despite many criticisms, Crosby's work has been a crucial steppingstone for later generations of scholars to fill in the gaps in the conceptualization of nonhuman agency and historical causality more broadly. Several environmental historians have tried to reveal how colonialism shaped both physical landscapes and perceptions of nature. Elinor Melville and Virginia DeJohn Anderson, for example, show that colonial activities, such as the import of livestock from Europe, drastically modified the landscape and ecology of colonial America, such

¹⁴ For a recent critique of this concept, see Eric Pawson, "Ecological Imperialism," in *International Encyclopedia of Geography* (John Wiley & Sons, Ltd, 2017), 1–9.

as in the forms of “virgin soil epidemics” and “ungulate irruptions.” Melville further argues that the environment and its transformation significantly constrained the choices and expectations of the Spaniards in forming their colonial regime in Mexico.¹⁵ Similarly, Virginia DeJohn Anderson’s study of colonial New England demonstrates how nonhumans – in this case, the livestock – brought changes not only to the lands but also to the hearts, minds, and behaviors of the people who dealt with them.¹⁶ According to both Melville and Anderson, colonists brought to the New World not only biological allies but also the Old World’s practices and perceptions of the environment. The transfers of organisms, ideas, and practices altered the ecology and material landscape of the new world. At the same time, the physical changes generated new perceptions of the environment and further transformed social practices and structures according to these varying perceptions of nature.

Other environmental historians have emphasized that environmental changes do not happen in the same way everywhere. For example, David Igler argues that the outbreaks of diseases brought by the Europeans affected the indigenous populations unevenly due to differences in the trade and social networks of indigenous people pre- and post-contact with the Europeans.¹⁷ Similarly, Brett Walker proposes the idea of “hybrid causation” to explain the mediated ways in which environmental crises are happening in Japan. He shows that industrial toxins travel through cultural norms, nation-building policies, local topographies, and agricultural practices to poison human bodies, which results in uneven effects upon the Japanese population. As Walker has argued, “[N]ature’ such as insects or even chemicals in heavy metals,

¹⁵ Elinor G. K Melville, *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico*, Studies in Environment and History (Cambridge: Cambridge University Press, 1994), 161.

¹⁶ Virginia DeJohn Anderson, *Creatures of Empire: How Domestic Animals Transformed Early America* (New York: Oxford University Press, 2004).

¹⁷ David Igler, “Diseased Goods: Global Exchanges in the Eastern Pacific Basin, 1770-1850,” *The American Historical Review* 109, no. 3 (2004): 693-719.

is not dependent on networks for real agency. Rather, networks shape how humans, the constructors of these elaborate networks of meaning and power, understand how natural agency functions.”¹⁸

Building on the post-Crosby environmental history of empires, I propose the term enviro-colonial history to stress the mutual influence between colonialism and environmental change. As a perspective, enviro-colonial history brings our attention to the multi-faceted interactions between environmental change and colonization. It sheds light on how the two processes could both compliment and constrain one another, showing how those interactions unfolded as historical changes.

Knowledge and Enviro-Colonial Entanglements

To explain how environmental change and colonial governance became entangled, the concept of enviro-colonial history also draws upon scholarship in the field of science and technology studies (STS), especially the deconstructivist approach.¹⁹ To be precise, enviro-colonial history emphasizes the need to trace how “nature” was constructed as knowledges, and how such knowledges were enacted to facilitate enviro-colonial rule in both Hokkaido and Lanna. In Hokkaido, the Japanese northward expansion had propelled new studies and surveys of the island’s unique environment as well as the possibility to reproduce rice-based agricultural settlements by Japanese migrants from the main island. The results of surveys and experiments on the island further reinforced the otherness of Hokkaido and redirected the direction of

¹⁸ Brett L. Walker, *Toxic Archipelago: A History of Industrial Disease in Japan* (Seattle: University of Washington Press, 2010), 228.

¹⁹ Sara B. Pritchard, “Joining Environmental History with Science and Technology Studies: Promises, Challenges, and Contributions,” in *New Natures: Joining Environmental History with Science and Technology Studies*, ed. Dolly Jørgensen, Finn Arne Jørgensen, and Sara B. Pritchard (Pittsburgh, Pa.: University of Pittsburgh Press, 2013), 10.

settlement policies towards an “American” agricultural model. Similarly, Siamese efforts to control Lanna and their forest resources led to the rise of forestry as a specialized field of state administration and the employment of British foresters, who then engaged Siam in the trans-imperial network of scientific forestry. Yet, enviro-colonial entanglements were never static. The specialization of environmental governance – of agriculture and of forestry – led to increased contention and the reconfiguration of power relations among the actors involved in the enviro-colonial rule of each place. By “unpacking” the enviro-colonial entanglements in Hokkaido and Lanna, my dissertation highlights the value of the focus on knowledge production as a lens to examine both national and imperial state formation.

In addition to the deconstructivist approach, STS scholarship also informs the ways in which this dissertation engages with previous discourses on colonial sciences. Several scholars, both in and outside the field of STS, have already explained the significance of the *use* of scientific knowledges as instruments of power. Later works, on the other hand, emphasize the need for seriously considering the *production* and *circulation* of those knowledges to examine the configuration of power relations in colonial societies. Building on these conversations, this dissertation aims to revisit the notion of knowledge transfer, which has been taken for granted both in studies of Hokkaido agriculture and Lanna forestry. The notion of knowledge transfer usually assumes the one-way exportation of science – and by extension, modernity – from the origin in the West (Europe and America) to other parts of the world, including the formal and informal colonies in Asia. Even though local knowledges and practices had existed in the area, they would soon be displaced by their Western counterparts. This diffusionist approach is part of the larger modernization theory that claims Europe as the origin of modernity; Europeanization, therefore, is assumed to be the universal path for climbing up the ladder of civilization. Tackling the discourse of “the West and the Rest” in his reflection on modernity,

Naoki Sakai argues that the West is “a name for a subject which gathers itself in discourse but is also an object constituted discursively.”²⁰ In its incessant self-gathering, the unity of the West is putative; it would expand and shift and would never be fixed, and hence, here lies the paradox in the proclaimed universality of the West. As Sakai has noted, the West is a particular entity that seeks to establish itself as “the universal point of reference in relation to which others recognize themselves as particularities.”²¹ Such oscillation between universalism and particularism underlines the developmental discourse of the modernization theory.

In historiographies of Hokkaido, examining the transfer of knowledge and modernity has been a convenient, simplistic approach to explaining how Japan “developed” Hokkaido during the late nineteenth century. Early historical studies on Hokkaido usually emphasize the introduction of American agricultural knowledge and technology as key factors that made Hokkaido settlement possible. These works tend to highlight transcultural transactions between the United States and Japan, though mostly from the former to the latter, and celebrate the roles of American advisers as the “pioneers” who brought civilization to Japan’s northern frontiers.²² David F. Anthony, for example, regarded Hokkaido development as the result of “the merging of the ideas of Japan’s leaders like Kuroda Kiyotaka and of their American advisers.”²³ According to Anthony, the foundation of Sapporo Agricultural College in 1876 reflected such merging of

²⁰ Naoki Sakai, “Modernity and Its Critique: The Problem of Universalism and Particularism,” in *Postmodernism and Japan*, ed. Masao. Miyoshi and Harry D. Harootunian (Durham: Duke University Press, 1989), 95.

²¹ Sakai, 95.

²² For example, see Hokkaidō Teikoku Daigaku Nōgakubu., *American Influence upon the Agriculture of Hokkaido, Japan* (Sapporo, Japan: College of Agriculture, Tohoku Imperial University, 1915); Hokkaido Prefectural Government, General Affairs Department, Archives Section, *Foreign Pioneers: A Short History of the Contribution of Foreigners to the Development of Hokkaido* (Sapporo, Japan: Hokkaido Prefectural Government, 1968); Fumiko Fujita, *American Pioneers and the Japanese Frontier: American Experts in Nineteenth-Century Japan* (Westport, CT: Greenwood Press, 1994).

²³ David Forsyth Anthony, “The Administration of Hokkaido under Kuroda Kiyotaka, 1870-1882: An Early Example of Japanese-American Cooperation” (Ph.D. Diss., New Haven, Yale University, 1951), 65. Yet, Anthony also noted that Kuroda did not always listen to his advisers. (p. 91)

ideas, which had begun as early as 1871 while Kuroda was visiting the United States as a member of the Iwakura Mission.²⁴

While America is usually claimed to be the “model” for modern agriculture in Hokkaido, the “center” of modern forestry has generally been attributed to Europe. Henry Lowood, for example, has argued that modern forestry (or *Forstwissenschaft*) was developed in Germany during the nineteenth century, and it was characterized by the emphasis on “sustained yield, regulation according to age-classes and wood mass, and construction of the ‘normal forest’ as an artifact of mathematical reason applied to quantitative data.”²⁵ By the end of the nineteenth century, this German model of quantitative resource management was then transferred to France, England, India (via the Indian Forest Service under Sir Dietrich Brandis), and the United States.²⁶ According to Gregory Barton and Brett Bennett, Siam’s forest department can be considered “an extension of the forestry conservation laws and management programmes that began in British India and Burma in the 1840s-1860s.”²⁷ Hence, they have implied that state forestry in Siam might have inherited this tradition from Germany, also via the Indian Forest Service.

Indeed, some works have acknowledged local variations and how diverse actors “adapted” the Western models for specific conditions and purposes. Ogura Takekazu, for

²⁴ On September 14, 1871, not long after his return from the United States, Kuroda, in collaboration with Higashikuze Michitomi, submitted a memorandum to the government regarding the necessity of founding an agricultural school in Hokkaido. However, the organization of such a school did not start until Capron’s arrival, and a temporary school was established in Tokyo later in 1872. See Anthony, 98–102.

²⁵ Henry E. Lowood, “The Calculating Forester: Quantification, Cameral Science, and the Emergence of Scientific Forestry Management in Germany,” in *The Quantifying Spirit in the Eighteenth Century*, ed. Tore Frangmyr, J. L. Heilbron, and Robin E. Rider (Berkeley: University of California Press, 1990), 341.

²⁶ Ravi Rajan, “Imperial Environmentalism or Environmental Imperialism? European Forestry, Colonial Foresters and the Agendas of Forest Management in British India 1800-1900,” in *Nature and the Orient: The Environmental History of South and Southeast Asia* (Delhi: Oxford University Press, 1997).

²⁷ Gregory A. Barton and Brett M. Bennett, “Forestry as Foreign Policy: Anglo-Siamese Relations and the Origins of Britain’s Informal Empire in the Teak Forests of Northern Siam, 1883–1925,” *Itinerario* 34, no. 2 (2010): 74.

example, emphasizes the theme of adaptation to push back against previous characterizations of the Meiji Period (1868-1912) as mere imitation of the West while foregrounding the agency of Japanese actors. According to Ogura, agricultural development during the Meiji Period can be divided into two phases: the transplantation of Western agriculture, which promoted Western crops and large-scale farming (1868-1880s), and the selective adoption based on Japan's conditions in order to improve indigenous farming.²⁸ Despite his acknowledgement of the potential incompatibilities between local conditions and foreign knowledges and practices, Ogura fails to apply his critique to his own discussion of development in the early Meiji period and perpetuates the assumption that American agriculture was imported wholesale to Japan. Moreover, Ogura's claim reinforces a misunderstanding that the Japanese had just discovered such knowledge in the 1880s, erasing the memory of the several years of work put into the creation and naturalization of the new knowledge into a "fact." Ogura's argument demonstrates a common limitation in works that try to advance the idea of adaptation. In their recognition of context-specific diversity, there is an underlying notion of Eurocentrism that continues to assume the existence of only one true model of modernity as the only point of reference for imitation. Imitators will produce either the exact same form or deviated forms that are inferior to the original, but it is not possible for the imitators to transcend the original.

In response to Euro-American-centric historiography, postcolonial scholarship has sought to revisit knowledges and discourses on colonial societies, urging scholars to reconsider metropole-colony relationships and to pay more attention to the agency of the colonized.²⁹ As several scholars have pointed out, knowledge production was an indispensable tool for the

²⁸ Ogura Takekazu, *Agricultural Development in Modern Japan* (Tokyo: Fuji Pub. Co., 1963), 109–10.

²⁹ Ann Laura Stoler and Frederick Cooper, "Between Metropole and Colony: Rethinking a Research Agenda," in *Tensions of Empire: Colonial Cultures in a Bourgeois World*, ed. Frederick Cooper and Ann Laura Stoler (Berkeley, C.A.: University of California Press, 1997).

colonists to make sense of – and to formulate a means to rule – their colonies. For example, Bernard Cohn asserts that the production of grammars, dictionaries, treatises, class books, and translations about and from the languages of India were an apparatus of the British to discursively transform Indian forms of knowledge into European objects, which were ultimately aimed at facilitating colonial rule.³⁰ Cohn calls this process as a “conquest of knowledge” or “epistemological conquest.” Yet, subsequent generations of postcolonial scholarship have raised questions about the notion of epistemological conquest and its accompanying assumption that all significant changes were only initiated by colonial rule or undertaken within colonial frames of reference. As Anne Blackburn has argued in her study of Buddhism in Sri Lanka, Buddhist individuals during the colonial era “grappled with the enduring problems and possibilities of local politics and patronage that were shaped – but not wholly determined – by colonial rule.”³¹

Meanwhile, STS scholars have begun to problematize both the idea of Europe being the only origin and the nature of knowledge production, many of whom have strived to represent knowledge and technology as dynamic entities. Unlike what Bruno Latour calls “immutable mobiles,” knowledge and technology are always in-the-making, not finished products to be delivered elsewhere.³² For example, in his contribution to the debate regarding the role of the colonies in the production of environmental consciousness, Richard Grove has contended that environmental thinking is not post-Rachel Carson enlightenment, and pointed to the existence of a large global “invisible college” of proto-environmentalists. He argues that colonial

³⁰ Bernard S. Cohn, *Colonialism and Its Forms of Knowledge: The British in India* (Princeton, N.J.: Princeton University Press, 1996), 21.

³¹ Anne M. Blackburn, *Locations of Buddhism: Colonialism and Modernity in Sri Lanka* (Chicago: University of Chicago Press, 2010), 196.

³² According to Latour, an “immutable mobile” is the information that is made into a “thing” so that it can be moved elsewhere without changing its contents. Bruno Latour, “Visualization and Cognition: Drawing Things Together,” in *Knowledge and Society: Studies in the Sociology of Culture Past and Present*, ed. Henrika Kuklick, vol. 6 (Oxford, UK: JAI Press, 1986), 7.

environmental policies between 1660 and 1860 resulted from highly structured tensions between the “colonial periphery and the metropolitan centre and between the insecure colonial state and the environmentalism of new scientific conservation elites.”³³ Modern institutions and new structures of governance are not simply portable models brought from the metropole to the colonies. Rather, the structures in the colonies were co-produced by both convergence and contention between external and local forces. And even though broader trends seemed to be shared among the localities within the empire, variation was a common dynamic, which gave each locality a unique form of rule.

By attending to the transnational and trans-imperial network of knowledge production and circulation, STS scholars as well their colleagues in the field of environmental history drive home the idea that science is not only a European phenomenon.³⁴ Asian science is not a derivative of European science, nor is modern science a simple appropriation of indigenous knowledge by European colonizers. In his study of knowledge in South Asia, Kapil Raj argues that knowledge is formed through the circulation of knowledge, artifacts, interests, and expertise.³⁵ Such circulation enabled a global network of science, including forestry. For instance, Ravi Rajan argues that professional forestry has been shaped by training and participation in trans-empire networks of professional forestry. By examining the empire forestry conferences (held from the 1920s to the 1950s) as well as the academic forestry journal *Indian Forester* and technical

³³ Richard H. Grove, *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1860* (Cambridge, UK: Cambridge University Press, 1995), 485. See also Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin, 1962).

³⁴ For example, in contrast to the Eurocentric historical explanation of the emergence of forestry, Conrad Totman has shown that intensive management of the forest resource had taken shape in Japan even before the arrival of European experts. Conrad D Totman, *The Green Archipelago: Forestry in Preindustrial Japan* (Berkeley: University of California Press, 1989).

³⁵ Kapil Raj, *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650-1900* (New York: Palgrave Macmillan, 2007). See also Bruce Edsall Seely, “Historical Patterns in the Scholarship of Technology Transfer,” *Comparative Technology Transfer and Society* 1, no. 1 (2003): 7-48.

publications by the government and professionals, Rajan has shown how these conferences and publications created an institutional frame for empire forestry that informed colonial forest governance in different regions.³⁶ However, as Peter Vandergeest and Nancy Peluso have argued, “European models for practising professional forestry were transformed into hybridised practices through interactions with local ecologies, economies and politics.”³⁷ Therefore, instead of an introduced set of knowledge and practices, forestry was produced and circulated across multiple sites that were usually linked to networks of colonies and empires.

More recently, many STS scholars have noted that the colonies sometimes served as laboratories for the metropolises. For example, Sara B. Pritchard’s study of the French water history reveals that “*Casiers* appear to have been developed in French Indochina, yet were implemented in southern France by hydraulic managers, some of whom had worked in the Maghreb.”³⁸ Pritchard emphasizes that such movements of knowledge and technology were not as smooth as implied in terms like “flow” or “circulation.” Rather, historical contingencies and power dynamics enabled certain movements but not others. In this sense, they colonized other places first before returning to colonize the metropolises. Other scholars build on the Foucauldian notion of governmentality to conceptualize new forms of environmental subjectivity – such as environmentality, environmental rule, etc. For example, Arun Agrawal and Pamela McElwee examine the relationship between subjectivity and the management of natural resources in the

³⁶ S. Ravi Rajan, *Modernizing Nature: Forestry and Imperial Eco-Development 1800-1950* (Oxford: Clarendon Press, 2006).

³⁷ Peter Vandergeest and Nancy Lee Peluso, “Empires of Forestry: Professional Forestry and State Power in Southeast Asia, Part 2,” *Environmental History* 12, no. 4 (2006): 384.

³⁸ Sara B. Pritchard, “From Hydroimperialism to Hydrocapitalism: ‘French’ Hydraulics in France, North Africa, and Beyond,” *Social Studies of Science* 42, no. 4 (August 1, 2012): 605. See also

colonies, thereby elucidating why some colonized subjects actively participate in colonial endeavors, though with completely different agendas.³⁹

Building upon these recent conversations and debates in environmental history and STS, the concept of enviro-colonial history aims to show that environmental change might be shaped by colonialism, but not determined by it. I will show that while nature knowledges were products of colonial endeavors, those knowledges also informed the direction of colonization. Through the enviro-colonial history approach, I consider the hierarchical power dynamics of colonial relationships and investigate how colonialism shaped both the interactions and the perceptions of such relationships. Yet, the acknowledgement of colonial influence is by no means an acceptance of the inevitability of colonization. By investigating the myriad ways in which colonial subjects – the colonizers and the colonized – interacted and negotiated within colonial networks of knowledge production, this dissertation aims to foreground the multiple possibilities in which enviro-colonial rule could be enacted, sometimes in ways that their “designers” did not anticipate.

Looking North: An Overview

To examine the formation and transformation of enviro-colonial rule in Hokkaido and Lanna, I divide my discussion into two parts to focus on how enviro-colonial rule was envisioned and enacted, respectively. In Part 1, I scrutinize the ways in which the production and mobilization of knowledge informed the convergence of environmental management and

³⁹ Arun Agrawal, *Environmentality: Technologies of Government and the Making of Subjects* (Durham: Duke University Press, 2005); Tim Forsyth and Andrew Walker, *Forest Guardians, Forest Destroyers: The Politics of Environmental Knowledge in Northern Thailand* (Seattle: University of Washington Press, 2008); Pamela D. McElwee, *Forests Are Gold: Trees, People, and Environmental Rule in Vietnam* (Seattle: University of Washington Press, 2016).

colonial administration. Chapter 1 discusses how Japan's expansion into the northern island was characterized by a series of attempts to come to terms with environmental otherness. I argue that the American agricultural advisers hired by the Japanese government between 1871 and 1882 played a crucial role in compiling knowledges about Hokkaido's environmental features and emphasizing their similarity to the landscapes and climates of thriving settlements in America. By doing so, these American advisers re-presented Hokkaido's differences in a new light and justified a new form of colonial settlement, particularly the introduction of American crops and animals which they deemed more suitable for the unique environment of Hokkaido. Chapter 2 examines the transformation of Hokkaido's enviro-colonial rule, from an agricultural solution for dealing with Hokkaido's unfamiliar environment into a settler colonial model for Japan's colonial expansion into Northeastern Asia. To trace this transformation, I focus on the curricular reforms of Sapporo Agricultural College (SAC) between 1876 and 1893. Founded as a training site for government officers in colonial Hokkaido, SAC embodied the visions and aspirations for Hokkaido. However, the school began to lose its prestige in Hokkaido's administrative structure and was faced with the threat of closure after the abolishment of its home institution, the Kaitakushi in 1882. In order to survive, SAC underwent major reforms in 1886 and 1893, leading to the specialization of its agricultural courses and the creation of Japan's first course on colonial policy studies (*shokumin seisaku gaku*). By revisiting these modifications, this chapter brings nuance to our understanding of the changing significance of agriculture in Hokkaido's colonial history.

Shifting the focus to the Lanna states, the next two chapters investigate the intertwined relationship between forest administration and Siam's northward expansion. Chapter 3 scrutinizes the reconfiguration of the Lanna-Siam relationship, revealing how the flourishing teak industry in Lanna propelled Siam to annex its tributary states in the north which historically had

been outside of Siam's direct rule. While previous works usually take for granted the arbitrary and ineffective nature of Lanna's forest administration as the cause of Siam's interventions, this chapter emphasizes that Siam and Britain actively claimed the arbitrariness of the Lanna princes to justify Anglo-Siamese collaborative colonialism in Lanna. Chapter 4 looks further into the links and cracks within the Anglo-Siamese collaborative project by revisiting the role of British foresters, whom the Siamese government hired to help establish its forest department in 1896. Rather than a passive medium of interactions between the Siamese state and the British Empire, these British foresters actively asserted their authority as scientific experts and sought to redefine the power relations within Lanna's enviro-colonial ruling structures. Unlike the enviro-colonial rule in Hokkaido, where the Kaitakushi was the only institution that oversaw both the environmental (agricultural) and the colonial fields, enviro-colonial rule in Lanna was characterized by the existence of a dual structure in which two authorities were constantly competing for power. On the one hand, there was the Siamese Commissioner of Lanna, who represented the Siamese government in reorganizing the several Lanna states into one administrative unit called Monthon Lao Chiang (Monthon of the Northwestern Lao). On the other hand, there was the Forest Conservator, who was responsible for all the forests within Siam's territory, including the forests in Lanna. By examining how the Forest Conservator repeatedly claimed scientific expertise to exclude the Commissioner of Lanna from governance of the Lanna forests, I bring attention to the correlation between the formation of forestry as expertise in Siam and the transformation of what colonial administration meant in the context of Lanna.

Having discussed the myriad ways in which enviro-colonial rules were envisioned, the next two chapters in Part II will delve into the enactment of such visions. In Chapter 5, I follow an American rancher from Ohio named Edwin Dun, who was hired to supervise livestock farming in Hokkaido between 1873 and 1883. Until the mid-nineteenth century, the practice of

raising animals for meat and dairy products could not be found anywhere in Hokkaido, but today, the northern island has become the center of Japan's dairy production, responsible for over half of the milk and dairy output in the country. Due to the success of the industry today, several accounts of Hokkaido dairy farming history have credited the suitable climate and natural features. However, the success of livestock farming was anything but "natural." Based on Dun's reports and official letters that describe his work to the Kaitakushi, Chapter 5 delineates the major transformation of Hokkaido's environment, including the introduction of foreign grasses, the intensive cross-breeding program for farm animals, and the construction of farm infrastructures and facilities. I underline the physical changes that were needed to turn the enviro-colonial vision of a livestock-friendly Hokkaido into reality.

In contrast to the emphasis on the physical and reproductive transformations in Hokkaido, Chapter 6 argues that the enactment of enviro-colonial rule in Lanna primarily took place on paper. By tracing the documents left behind by foreign advisers, I seek to illuminate the ways in which Herbert Slade, a British forester and the first leader of Siam's forest department, created a new regime of papered forestry. More specifically, I discuss how Slade mobilized Siam's bureaucratic practices to reconfigure the relationship among human actors involved in the teak trade and to reassign them new roles as his assistants in forest conservation. Yet, the new regime was never under the complete control of the forest department, because other actors had their own ways of inhabiting the paper-mediated network that Slade had created.

My discussion of the advent of Japan's and Siam's enviro-colonial rules is based on official correspondence, surveys, and scientific reports by foreign advisers in Japan and Siam. Most of the primary sources were obtained from archives and libraries in Japan, Thailand, and the United States. On the Hokkaido side, I rely on official reports and letters archived at the Northern Studies Collection in Hokkaido University Library, especially the writings by the American professors

who taught at SAC and the American advisers who worked for the Kaitakushi between the 1870s and the 1880s. Some of these materials, such as the report compiled by Horace Capron, have been published and made available outside of Japan. Other publications, including the published letters of Edwin Dun written while he served as livestock farming supervisor, are less easily accessible outside of Japan but fortunately found on the shelves of the Northern Studies Collection. In addition to these main sources, I also draw upon governmental and colonial documents available at Hokkaido Prefectural Archives in Sapporo and Japan's National Diet Library. The digital collections of the National Diet Library were my savior while conducting my archival research remotely during the COVID-19 pandemic between 2019 and 2020. For Lanna history, my primary sources consist of governmental documents and official letters by King Rama V, Siamese officials, and foreign advisers – most of which are archived as the Ministry of Interior Papers at the National Archives of Thailand in Bangkok. Particularly, my discussion is based on two collections in the Ministry of Interior Papers, the Monthon Lao Chiang papers (u.58) and the forest department papers (u.16). To supplement these materials, I have also made use of the collections at Northern Thai Information Center at Chiang Mai University Library and the Payap University Archives, both in Chiang Mai, Thailand. Other secondary sources and relevant literature for both research sites are from Kroch Library Asia Collections at Cornell University and other university libraries in the United States through the Borrow Direct and Interlibrary Loan services.

Notes on Terminology

Japanese names are written in the order of family name-first name when they appear in the main content, the footnotes, and the references. From the second mentioning forward, the person will be referred to by the family name. Thai names are written in the order of first name-family name, and from the second mentioning forward, the person will be referred to by the first name. Names in English and other languages are written following the conventions for English names.

For Japanese terms, I generally adhere to the modified Hepburn romanization system, except for common names such as Tokyo (instead of Tokyō) and Hokkaido (instead of Hokkaidō). For Thai terms, I rely on the system of the Royal Society of Thailand, except for common names such as Chulalongkorn (instead of Chulalongkon). When Japanese or Thai terms are Romanized differently, especially in English-language primary sources, I will rely on the spelling as written in the source and I may place my own Romanization in [] if needed. In the references and notes, I have tried to use the preferred Romanized spelling of each author where possible. For Burmese names, I will Romanize based on how they are written in Thai-language primary sources. (For example, Maung Pan Nyo is Romanized as Mong Pan Yo)

Abbreviations

MFA	Ministry of Foreign Affairs, Thailand
MOI	Ministry of Interior, Thailand
NAT	National Archives of Thailand
RFD	Royal Forest Department of Siam
SAC	Sapporo Agricultural College

PART I

ENVISIONING ENVIRO-COLONIAL RULES

Part I presents a comparison of how enviro-colonial rules were envisioned in Hokkaido and Lanna. The first two chapters flesh out the entanglements between colonialism and agriculture during Japan's expansion into Hokkaido. In Chapter 1, I discuss the role of American agriculturalists in re-inscribing and re-presenting Hokkaido's environmental differences more favorably for agricultural settlement, though not necessarily in the form of rice cultivation that the Japanese government had initially planned for. Then, in Chapter 2, I examine how the Hokkaido model of agriculture began to acquire new meanings as Japanese imperialism in Northeast Asia became more aggressive, thereby emphasizing the dynamic nature of enviro-colonial entanglements in Hokkaido. The next two chapters offer a comparable case of Siam's colonization of Lanna and its rich teak forests. Chapter 3 delineates early changes in the relationships among Lanna, Siam, and the British Empire, especially as a result of legal disputes pertaining to the thriving teak business in Lanna. Chapter 4 continues tracing the transformation of the tripartite relations after forestry was made into a specialized field of administration, focusing on the roles played by British foresters in negotiating and reconfiguring the power hierarchy within Lanna's enviro-colonial rule.

Central to this comparison is the role of knowledges in mediating the convergence of environmental management and colonial administration, which are closely related but also seemingly separable fields of governance. To discuss the relationship between knowledge and state-making, I draw upon a few conceptual tools from science and technology studies (STS) scholarship, particularly Bruno Latour's concept of "inscription." To counter the assumption that

scientific knowledge is a product of the unique scientific mind and special sets of knowledge-producing procedures, Latour argues that what scientists are actually doing in their laboratories is writing – a mundane activity that has been overlooked in narratives that celebrate scientific exceptionalism. According to Latour, laboratory work involves active, continuous production of multiple forms of “inscriptions,” which can be combined, superimposed, or integrated as figures in the text of other inscriptions that other scientists from the same or different laboratories are writing. As Latour has asserted, “[r]ealms of reality that seem far apart (mechanics, economics, marketing, scientific organization of work) are inches apart, once flattened out onto the same surface.”¹ When placed within the paperwork culture, the writings of scientists and inscriptions from different social worlds and fields of expertise can operate on the same plane – the paper.

Even though the convergence of different “realms of reality” is a possibility, the process is by no means “flattened out” in a way that situates all actors as politically equal. Critics of Latour’s ideas and the actor-network theory (ANT) usually comment on his naïve take on the power dynamics involved in the processes he discusses.² Particularly, ANT has been criticized for its overt emphasis on the role of “spokesmen” – the scientists who bring together relevant actors and stabilize their relationships. As Susan Leigh Star has argued, “Power is about whose metaphor brings worlds together, and holds them there.”³ Hence, if we only focus on the

¹ Latour, “Visualization and Cognition: Drawing Things Together,” 26.

² Similar criticisms are also extended to his colleague, Michel Callon, who together with Latour are credited for developing the concept of ANT. Michel Callon, “Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay,” in *Power, Action, and Belief*, ed. John Law (London: Routledge & Kegan Paul, 1986), 196–233; Bruno Latour, *The Pasteurization of France* (Cambridge, Mass: Harvard University Press, 1988); John Law and John Hassard, eds., *Actor Network Theory and After* (Oxford: Blackwell, 1999); Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2005). For sample critiques of ANT, see Susan Leigh Star, “Power, Technology and the Phenomenology of Conventions: On Being Allergic to Onions,” *The Sociological Review* 38, no. S1 (1990): 26–56; Marilyn Strathern, “Cutting the Network,” *The Journal of the Royal Anthropological Institute* 2, no. 3 (1996): 517–35.

³ Star, “Power, Technology and the Phenomenology of Conventions: On Being Allergic to Onions,” 52.

networks that get stabilized, we will end up reinforcing the idea that such spokesmen are the most powerful figure to determine how things should be in those networks – not dissimilar from the Great Man Theory that describes historical changes as the impact of the small number of influential individuals who have extraordinary attributes. As I will show in the cases of Hokkaido and Lanna, the joining of environmental management and colonial administration might be temporarily stabilized, only to be reconfigured, again and again.

By highlighting the dynamic nature of enviro-colonial entanglements, Part I unpacks the “state” by revisiting the roles of foreign advisers as they tried to institutionalize their scientific expertise in the bureaucracy. Previous scholarship has regarded foreign advisers as conduits of knowledge transfer, presuming the existence of a universally applicable model in the West which the foreign advisers simply reproduced elsewhere. However, few have paid attention to the multiple affiliations of these foreign advisers. On the one hand, these advisers were employed by the Japanese and the Siamese states, and so they were expected to act for the benefit of their employers. On the other hand, they also preserved their national identities (and prejudices) as American or British, and they sometimes claimed this identity to negotiate for power. Moreover, to maintain their statuses as “experts” who studied and worked with the farmlands and the forests, these advisers might envision and enact policies that did not always prioritize the interests of the states. Sometimes, these experts claimed to have acted for the interests of nature or science as a way to advance their own political aspirations. The need to juggle these identities sometimes put these advisers in awkward positions. What would they do if the aspirations of their employers contradicted those of their home countries? What if the goals of the states contradicted their own scientific principles or the laws of nature?⁴ Although concepts like

⁴ The question that environmental historian Paul Sutter asks in his study of American entomologists in Panama proves equally insightful to discuss the situation of foreign advisers in Hokkaido and Lanna.

collaborative colonialism or competitive colonialism have emphasized that there could be more than one colonizer, such concepts tend to focus on the interactions at the state-level (Japan and America, or Siam and Britain). In so doing, they fail to seriously consider the agency of foreign advisers themselves and the possibility that they would act in ways that would benefit neither of the two states. Part I aims to address this gap by reconsidering the agency of these foreign advisers, especially with regard to their production and mobilization of knowledges. By following how the foreign advisers interacted with other bureaucrats and non-state actors, I argue that a state is never a single, homogeneous entity; neither do the actors that compose the state necessarily act towards only one shared goal.

This reevaluation of the foreign advisers also calls for reconsideration of what makes a body of knowledge attain the venerable status as expertise. Just like the people who produce and mobilize them, scientific and other specialized knowledges do not naturally or automatically gain acceptance everywhere. In addition, such knowledges do not always guarantee absolute authority for actors who claimed their identities as scientists or experts. The privilege has to be made and claimed, and by doing so, experts can carve out a space for themselves within the state and formulate how they can assert their authority.⁵ Previous STS scholarship on expertise calls for a reconsideration of the assumption that experts, who supposedly possess special knowledge and skills, should have a privileged position in shaping public policies. Scholars such as Steven Shapin and Simon Schaffer have shown that the rise of expertise is intertwined with the attempt

Were they nature's agents or the agents of empire? And in cases like Hokkaido or Lanna where more empires were involved, we can further ask: Which empire should they be working for – the empire of their employer or that of their home country? Paul S. Sutter, "Nature's Agents or Agents of Empire?: Entomological Workers and Environmental Change during the Construction of the Panama Canal," *Isis* 98, no. 4 (2007): 724–54.

⁵ Thomas Gieryn calls this mechanism "boundary-work." According to Gieryn, actors who are involved in boundary work have high stakes to rework these boundaries in a way that will benefit them. Thomas F. Gieryn, "Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists," *American Sociological Review* 48, no. 6 (1983): 781–95.

to distinguish the *technical* from the *political* performance.⁶ Sheila Jasanoff further contends that experts' privileged status arises from not only their knowledge but also their abilities to negotiate contentious social mechanisms. Examining the source of experts' authority, Jasanoff argues that the status of "expert" can be attributed to one's ability to juggle multiple sets of relationships, including some and excluding others, and reordering them in a way that privileges one's own position.

Joining the scholarly conversations on experts and expert knowledges, my dissertation will trace the increasing specialization of agriculture and forestry and the implications for the drawing and redrawing of the boundaries between environmental rule and colonial rule as well as the relationship between the two realms of governance. As I will discuss in Chapter 2 and Chapter 4, both agriculturalists in Hokkaido and foresters in Lanna had to constantly prove the value of their knowledge to the states that employed them, and their privileged positions were the result of the efforts to situate their expertise within the changing demands of the states that employed them. As the stakes of governance changed, the enviro-colonial entanglements had to be redefined, which in turn necessitated a reconfiguration of expertise and its relevance for the state.

⁶ See Sheila Jasanoff, *The Fifth Branch: Science Advisers as Policymakers* (Cambridge, Mass.: Harvard University Press, 1990); Steven Shapin and Simon Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton, N.J.: Princeton University Press, 1985). For an overview of scholarship on expertise and its implications for historical studies. Christelle Rabier, "Introduction: Expertise in Historical Perspectives," in *Fields of Expertise: A Comparative History of Expert Procedures in Paris and London, 1600 to Present*, ed. Christelle Rabier (Newcastle, UK: Cambridge Scholars Publishing, 2007), 1-15.

CHAPTER 1

INSCRIBING NATURE, OTHERING GOVERNANCE:

Knowledge Production and the Formation of Enviro-Colonial Rule in Hokkaido

Introduction: Representing Hokkaido for Agricultural Settlement

In 1871, Horace Capron, an American businessman and agriculturalist, was hired by the Kaitakushi (Hokkaido Colonization Office) to supervise Japan's colonization of Hokkaido.¹ Over the next five years, Capron headed a team of American agriculturalists and scientists and conducted several surveys and agricultural experiments in Hokkaido, hoping to determine the best way to settle in this northern island. In March 1875, as he was wrapping up his work in Japan, Capron wrote a letter to the Kaitakushi's director, Kuroda Kiyotaka, to express his concerns about a newspaper article that contained "certain erroneous statements in regard to the climate and resources of Yesso [Hokkaido]."² Reemphasizing his argument on the suitability of Hokkaido for settlement, Capron suggested that Kuroda should take care of this matter soon to prevent "erroneous understandings" about the island and the Kaitakushi's projects. According to Capron:

Successful experiments in the cultivation of the various grains, fruits and vegetables commonly grown in all mild climates throughout Europe and America should alone be sufficient to settle all doubt. But we have, in addition, the record of meteorological observations for the past nine years, which prove beyond question that the climate of Yesso is milder even than *the climates of corresponding latitudes in other parts of the world.*³

¹ The Japanese used to call the northern island "Ezochi" (also written as Yesso in reports by American employees), which literally means the land of barbarians. The Ainu people, the native populations of this island, called it Ainu Moshir (the land where the Ainu live). In 1869, the Japanese state officially claimed this island as part of its territory and renamed it as Hokkaido (the Northern Sea Circuit).

² Horace Capron to Kuroda Kiyotaka (17 March 1875), in Capron, *Reports and Official Letters to the Kaitakushi*, 582.

³ Horace Capron to Kuroda Kiyotaka (17 March 1875), in Horace Capron, *Reports and Official Letters to the Kaitakushi* (Tokei: Kaitakushi, 1875), 583. [My emphasis]

The production of knowledge about settling in Hokkaido – as well as for refuting any claims that Hokkaido was unsuitable for agriculture – characterizes the work of Capron and other American advisers in Hokkaido between 1871 and 1875, and prompts further consideration about the role knowledge in mediating the entanglements between Japan’s colonial endeavors and environmental management.

The Japanese northward expansion into Hokkaido, which had begun since at least the eighteenth century, was shaped by two contradictory images of Hokkaido’s nature. On the one hand, there was a strong belief that Hokkaido was rich in natural resources, not only in terms of agricultural prospects but also mineral, forest, and fishery resources. On the other hand, an image also existed of Hokkaido as a place of scarcity and environmental challenges. Except for a few small settlements in the south and along the coastlines, most of Hokkaido remained outside of the Japanese rule until 1869, when the Japanese officially claimed the whole island as part of its territory. The limited success of early Japanese settlers’ expansion into Hokkaido was usually explained as a result of Hokkaido’s inhospitable climate and landscape, which made it difficult to grow rice – a main food staple of the Japanese.⁴ These two images of Hokkaido – as a fertile land and as an uninhabitable place – became a major puzzle that the Kaitakushi had to deal with since its establishment in 1869.⁵ To come to terms with Hokkaido’s environmental features, the Kaitakushi drew upon surveys and descriptive accounts by officials and travelers from the late eighteenth and early nineteenth centuries. Meanwhile, they also set out to gather information

⁴ I will discuss early agricultural settlements and the changes made during the late nineteenth century in Chapter 5.

⁵ For a detailed account of the representations of Hokkaido in the late eighteenth and early nineteenth centuries, see Michael Alan Thornton, “Settling Sapporo: City and State in the Global Nineteenth Century” (Ph.D. Diss., Harvard University, 2018), 45–78.

about Hokkaido and hired Capron and American advisers, who were expected to help them establish thriving agricultural settlements in this northern island.

The intertwined relationships between Hokkaido's colonization and agricultural development have already been established in previous works on Hokkaido history.⁶ Since the Tokugawa regime (1603-1867), the Bakufu (the military government led by the Tokugawa clan in the city of Edo) started sending settlers to Ezochi, first to control the Ainu populations, and later to defend the northern frontier from territorial encroachment by Russia. However, the colder climate and different environmental features were unsuitable for rice cultivation. Therefore, settlers during this early stage repeatedly suffered from food insecurity and only managed to settle around the southern parts of the island, where the climate was not too different from what they were used to on the mainland. To ensure their survival, the Bakufu had to constantly deliver rice and other life necessities for the settlers. The succeeding Meiji government similarly attempted to turn this northern island into Japanese settlements, leading to a series of migration campaigns and the establishment of the self-feeding army called the *tondenhei* (farming militia).⁷ However, early efforts of the Meiji government were not any more successful than the previous attempts by the Bakufu. Hokkaido's unfamiliar climate and environment continued to be a major challenge for incoming settlers. In later recruitments, the government still had to provide for the

⁶ The writings of Takakura Shinichirō are among the pioneering works on Hokkaido history. Yet, Takakura tended to frame this northward expansion within the trope of modernization and national consolidation, sidestepping the violence that the settlers from Honshū inflicted upon the indigenous populations in Hokkaido. For some of his notable works, see *Ainu Seisakushi [A History of Ainu Policies]* (Tōkyō: Nihon Hyōronsha, 1942). For one of the earliest works in English language, see Anthony, "The Administration of Hokkaido under Kuroda Kiyotaka, 1870-1882: An Early Example of Japanese-American Cooperation"; John Armstrong Harrison, *Japan's Northern Frontier: A Preliminary Study in Colonization and Expansion, with Special Reference to the Relations of Japan and Russia* (Gainesville: University of Florida Press, 1953).

⁷ Matsushita Yoshio, *Tondenhei Sei Shi [A History of the Tondenhei System]* (Tokyo: Satsuki shobō, 1981); David L. Howell, "Early Shizoku Colonization of Hokkaidō," *Journal of Asian History* 17 (1983): 40-67; Shiina Shigeaki, "Migrants in Agricultural Development: A Study of Intrarural Migration," in *Migrants in Agricultural Development*, ed. J. A. Mollett (London: Palgrave Macmillan UK, 1991), 92-110.

settlers and offer other economic benefits so as to give incentives for migration. In addition, most of the early construction and development in Hokkaido were financed or subsidized by the government, which put a great burden on the fledgling, financially insecure Meiji state. Forced to find a better approach for settling in the new environment, the Meiji government turned to the United States and eventually introduced American agriculture to Hokkaido.

In contrast to Anthony's celebration of the role of American advisers, Ebina Kanzō held a more ambivalent attitude towards the changes during the early Meiji Period. For example, in his study of Hokkaido dairy farming, Ebina argued that even though American advisers laid the foundations for livestock farming in Hokkaido, the impacts were rather minimal. Foregrounding the role of Japanese farming families, he asserted that it was Machimura Hirotaka who actually built up the structure of dairy farming that became widely practiced in Hokkaido. Particularly, Ebina noted that Machimura was the first person who popularized the Holstein cattle, which has become one of the most preferred breeds of dairy cattle in Japan today.⁸ In addition, despite the initiatives during the late nineteenth century, dairy farming did not become firmly established until after the First World War. Nevertheless, Ebina's argument on the role of local farmers does not completely deny the notion that American agriculture had been the model for Hokkaido since the early Meiji period.

The emphasis on the indispensable roles played by American advisers seem to suggest that the enviro-colonial rule in Hokkaido is a process of Americanization. Such an idea assumes that a somewhat definite "model" existed in the U.S., and the advisers simply worked to reproduce such a model in a new place. However, what happened in Hokkaido demonstrated

⁸ Ebina Kenzō, *Hokkaidō ushi-zukuri hyakunijūgo-nen: Machimura Hirotaka to Machimura-nōjō* [A Hundred and Twenty Five Years of Hokkaido Cattle Making: Machimura Hirotaka and Machimura Farm] (Tokyo: Nishida shoten, 2000), 28–30.

that such a fixed, reliable model might not exist. Rather than knowing for certain what they were supposed to do, the American advisers and their Japanese colleagues proceeded with their work through trials and errors before they could determine what the best options were. It was only then that they could have a “model” to set as the goal of their endeavors. In other words, they had to envision and create a new model for their work in Hokkaido.

More recent scholarship on Hokkaido history has begun to build on such conversations on the nature of knowledge production. Michael Thornton, for example, has resituated Sapporo within the transpacific network of botanical science.⁹ Unlike Thornton’s emphasis on transpacific circulation and Hokkaido’s contributions to other places, this chapter calls for more attention to the process of knowledge production within Hokkaido and how it shaped the course of Hokkaido colonization. As I will demonstrate in the following sections, the development of agriculture in Hokkaido relied as much on imported knowledge as on the knowledge being produced *within* the island. Particularly, I will show that the inception of Hokkaido development plans drew heavily upon the accumulating knowledge about Hokkaido’s climate and natural features, from a series of surveys and explorations that had started before the nineteenth century and continued through the works of the Kaitakushi and Sapporo Agricultural College (SAC).

Based on the reports and correspondence by Capron and other American advisers during the early 1870s, I will examine how knowledge about Hokkaido’s nature was produced and later mobilized into policies. I will show that in order to successfully settle in Hokkaido, the Japanese government and settlers had to “know” more about the island and its resources as well as other agricultural possibilities that promised more success than what had been practiced elsewhere in Japan. By studying the process of producing and claiming knowledges about Hokkaido’s nature,

⁹ Thornton, “Settling Sapporo: City and State in the Global Nineteenth Century,” 310–15.

I emphasize the theme of co-production between environmental knowledge and colonial governance. I argue that new knowledges about nature (particularly what nature is and what it should be) shaped agricultural development and informed the making of “enviro-colonial rule,” which in turn, reshaped and institutionalized certain practices of knowing and interacting with nature.

From Ezochi to Hokkaido

The Meiji transformation of agriculture is owed immensely to the legacy of the Tokugawa regime. As Michael Thornton has asserted, the Meiji government’s expansion into Hokkaido was a continuity from the eighteenth-century attempts to increase Japanese political presence in Ezochi (as Hokkaido used to be called until 1869) and to extract natural resources from the island, especially fish resources. Although the expansion of the Japanese communities was concentrated in Southern Ezochi and coastal areas, other parts of Ezochi had begun to be surveyed and mapped before 1868, notably by the missions of Kondō Jūzō in 1798 and of Shima Yoshitake in 1856.¹⁰ Aside from remarks about the island’s cold climate, assertions were made about Hokkaido’s fertility and its suitability for agriculture, which prompted some officials in Edo to propose plans to establish agricultural settlements and to expand trade networks in Ezochi. According to Thornton, “[T]he first serious proposals for agricultural settlement date to Tanuma Okitsugu’s 1780s plans to promote rice cultivation in Ezochi as part of comprehensive economic reforms to stabilize the shogunate’s finances and reinvigorate the economy.” However, the plan was discontinued after Tanuma fell from power in 1786. Later proposals came in the early nineteenth

¹⁰ For more detailed account of early surveys and the plans to create settlements in Hokkaido, see Michael Alan Thornton, “Settling Sapporo: City and State in the Global Nineteenth Century” (Ph.D. Diss., Harvard University, 2018), especially Chapter 1 “Envisioning a Capital: The Urbanization of Ezochi and Hokkaido, 1785-1882,” pp. 37-97.

century, such as a recommendation by Kondō Jūzō, who encouraged agricultural settlements in Ezochi for securing wartime food supplies. Other suggestions include the Ishikari Reform in 1858, which introduced a new status category for permanent settlers (*zaijū*) who engaged in agriculture, and a plan to use profits from fisheries to subsidize agricultural projects.¹¹

The Japanese expansion brought about more contacts with the Ainu people, who were the indigenous populations of the island. In addition to agricultural settlement plans, proposals were also made about assimilating the Ainu populations by encouraging them to adopt rice cultivation, but early assimilation campaigns were not actively implemented and were not very successful.¹² Yet, as Brett Walker has argued, after the Matsumae domain created the contract fishery system, the increased interaction and exchange between the Japanese and the Ainu made the Ainu increasingly dependent upon trade with the Japanese. Meanwhile, the Ainu communities were weakened by other factors, such as the spread of diseases brought by the Japanese merchants into Ezochi.¹³ The problems around Ainu-Japanese relationships culminated in two major battles: the Koshamain's War (1457); Shakushain's revolt (1669-1672), which resulted in the defeat of the Ainu and the further strengthening of the Japanese presence in Ezochi.¹⁴ Despite the defeat, the Ainu managed to negotiate and maintain their political independence and a degree of control over natural resources until the eighteenth century. Nevertheless, the Japanese merchants ceaselessly attempted to monopolize trade and island resources. Infuriated by such behaviors, the Ainu

¹¹ Thornton, 296-300.

¹² *Ibid.*, 294-95.

¹³ Brett L. Walker, *The Conquest of Ainu Lands: Ecology and Culture in Japanese Expansion, 1590-1800* (Berkeley: University of California Press, 2001), 177-203. On the significance of diseases, Walker builds on Alfred Crosby's concept of "ecological imperialism," which foregrounds the roles of nonhuman agents such as animals, weeds, and diseases in facilitating imperialist projects. Crosby, "Ecological Imperialism: The Overseas Migration of Western Europeans as a Biological Phenomenon."

¹⁴ Walker, *The Conquest of Ainu Lands*, 48-72.

revolted again in 1789, which was the last major battle between the Ainu and the Japanese.¹⁵ Thus, by the start of the Meiji Period in 1868, it had become relatively easy for the Japanese government to spatially imagine Ezochi as an administrative unit of Japan.¹⁶ The new government renamed Ezochi (land of barbarians) as Hokkaido (Northern Sea Circuit) and thereby redrew the national boundaries that would include Hokkaido as part of the new nation.¹⁷

Like in Northern Thailand, the notion of territorial sovereignty became increasingly significant for statecraft in Japan. Maps served as the means to define and redefine Japan's territory as well as the national identity. This broader process of Japan coming to terms with its space and territoriality also gave new spatial meanings to Hokkaido as the Northern frontier. In addition to drawing external boundaries, the Japanese government also tried to claim the spaces within those boundaries and put them under direct control. Unlike Japanese settlements in Ezochi during the Tokugawa period, which controlled only the Southern part and coastal areas of the island, the new government actively expanded its political presence all over the island. After the government established the Kaitakushi in 1869, great efforts were put into the construction of basic infrastructure, especially transportation, to facilitate colonization and so that the Kaitakushi could gain more access into other parts of the island. The Kaitakushi also established a new headquarters in Sapporo and branch offices in other strategic towns, and in 1876, they founded

¹⁵ For the details of the Revolt of 1789, see Takakura Shin'ichirō, *The Ainu of Northern Japan: A Study in Conquest and Acculturation*, trans. John A. Harrison (Philadelphia: American Philosophical Society, 1960), 38–46.

¹⁶ Following the Meiji Restoration and the eruption of Boshin War, Enomoto Takeaki, vice-commander of the Shogunate Navy, led a troop of supporters of the overthrown Tokugawa Shogunate to fight against the imperial forces of the new Meiji government. After his defeat on Honshū, Enomoto's troop fled to Hokkaido and took over Ezo. They established the Republic of Ezo and made Enomoto the first president. At the conclusion of the Battle of Hakodate, Enomoto surrendered, and the Meiji government took over Ezo, changing its name to Hokkaido.

¹⁷ On the history of Hokkaido cartography and the demarcation of the Northern frontiers, see Tessa Morris-Suzuki, "Creating the Frontier: Border, Identity and History in Japan's Far North," *East Asian History* 7 (1994): 1–24; Tessa Morris-Suzuki, "Lines in the Snow: Imagining the Russo-Japanese Frontier," *Pacific Affairs* 72, no. 1 (1999): 57–77.

Sapporo Agricultural College (SAC).¹⁸ All of these activities facilitated the rule of the Kaitakushi through Sapporo as the new colonial capital. Meanwhile, the government also encouraged Japanese migrants to permanently settle in Hokkaido.¹⁹ Although early settlements were concentrated in coastal areas, the settlers gradually expanded inland. The presence of these settlers, in effect, served to strengthen the presence of the Japanese government on the island and insisted on the idea that Hokkaido had become a Japanese space.

Inscribing Hokkaido's Nature

Even though Hokkaido has become a part of Japan today, it is still perceived as fundamentally different from the other parts of Japan, not only socially and culturally but also environmentally. Before the Meiji Period (1868-1912), the accumulation of knowledge on Hokkaido's environment usually took the form of descriptive writing, either as official reports or travelogues. Sometimes, the writers of those accounts also included maps, but those maps were not made with exact measurements or corresponding latitude and longitude coordinates as in modern cartography. Moreover, due to the difficulty of traveling, earlier surveys were usually limited to the southern tip of the island as well as the areas along the coastlines, while information

¹⁸ For SAC's history, see Ebina Kenzō, *Sapporo Nōgakkō: Nihon kindai seishin no genryū* [Sapporo Agricultural College: The Origin of Japan's Modern Spirits], Shohan. (Tōkyō: Shinhyōron, 1991); Hiroko Willcock, "Traditional Learning, Western Thought, and the Sapporo Agricultural College: A Case Study of Acculturation in Early Meiji Japan," *Modern Asian Studies* 34, no. 4 (2000): 977-1017. On the role of the SAC in Japan's imperialism, see John L. Hennessey, "A Colonial Trans-Pacific Partnership: William Smith Clark, David Pearce Penhallow and Japanese Settler Colonialism in Hokkaido," *Settler Colonial Studies* 0, no. 0 (September 11, 2019): 1-20; Inoue Katsuo, "Satō Shōsuke [Shokuminron] Kōgi Nōto: Shokumingaku to Sapporo Nōgakkō [Satō Shōsuke's Lecture Notes on 'Colonial Policy': Colonial Studies and Sapporo Agricultural College]," *Bulletin of the Graduate School of Letters, Hokkaido University* 46, no. 3 (March 31, 1998): 1-39.

¹⁹ On the migration of former samurai and noble families (*shizoku*) and farmer-militia (*tondenhei*), see for example, Howell, "Early Shizoku Colonization of Hokkaidō"; Sidney Xu Lu, "Eastward Ho! Japanese Settler Colonialism in Hokkaido and the Making of Japanese Migration to the American West, 1869-1888," *The Journal of Asian Studies* 78, no. 3 (August 2019): 521-47.

about the inland remained scarce. Two of the most important surveys were conducted during the late eighteenth century. The first one was a survey in 1775 by a group of Japanese officials dispatched by Tanuma Okitsugu (1719–1788), the shogunate’s chief councilor. This survey noted the island’s vast expanse of land and low population, and represented the island as a potential site for agricultural expansion.²⁰ The other survey was conducted in 1798 and led by a young official named Kondō Jūzō (1771–1829). It contained several key elements that became the focus of debates about the Hokkaido’s potentials and limitations. While Kondō admitted the challenges posed by Hokkaido’s distinctive geography and climate, he also stressed the need to strengthen control over the island for both political and economic reasons.²¹

Despite the enthusiastic proposals and initiatives by people like Tanuma and Kondō, the expansion of Japanese settlements in Hokkaido continued to be small, mostly confined to the towns in the south, where the climate was warmer and not too different from that of the mainland, and in small fishing villages scattered along the coast.²² Inland Hokkaido remained relatively unknown and was inhabited by various groups of Ainu people, who were mostly out of the Bakufu’s direct control. Even though early settlements were mostly unsuccessful, the surveys from the late eighteenth century played a crucial role in the accumulation of knowledge about Hokkaido and its environment and contributed to two widespread perceptions. On the one hand,

²⁰ According to David Anthony, Tanuma’s plan was influenced by Kudō Heisuke. Together with two other scholars, Kudō published a two-volume work entitled *Aka Ezo Fūsetsu Kō* (赤蝦夷風説考) between 1781 and 1783, which encouraged the colonization of Hokkaido. Anthony, “The Administration of Hokkaido under Kuroda Kiyotaka, 1870-1882: An Early Example of Japanese-American Cooperation,” 4–5.

²¹ According to Michael Thornton, Kondō was the first person to provide very detailed infrastructural and territorial plans for settling Hokkaido, and his proposal played a significant role in shaping subsequent policies on Hokkaido, especially the proposal for a new administrative center. Thornton, “Settling Sapporo: City and State in the Global Nineteenth Century,” 49.

²² For example, 300 settlers were sent to establish agricultural settlements in important areas in Hokkaido in 1800, but it failed and only 85 survived by 1803. Anthony, “The Administration of Hokkaido under Kuroda Kiyotaka, 1870-1882: An Early Example of Japanese-American Cooperation,” 58.

these surveys propagated the notion that Hokkaido could be a fertile land for future settlement, though not without challenges. On the other hand, they reinforced the otherization of Hokkaido as a foreign land inhabited by groups of people who were different from, and supposedly culturally inferior to, the Japanese in the mainland.

The Kaitakushi and the Re-Inscription of Hokkaido's Nature

After it defeated the last troop of the Bakufu's supporters in the Battle of Hakodate (1868-1869), the Meiji government continued the efforts of the previous regime to expand its political control into the north. The Meiji government similarly put great emphasis on establishing permanent settlements on the island, and enthusiastically promoted migration from several parts of Japan to Hokkaido. In 1869, the Kaitakushi sent 500 men from the Tokyo area to Nemuro, Sōya, and Sakhalin. However, just like previous settlers, this group of migrants was overcome by the cold climate and unable to create self-sustaining communities in those areas.²³ The failure to settle in a different environment in Hokkaido propelled the Kaitakushi to seek more knowledge about the northern island, with a belief that such knowledge would help them find a way to successfully establish Japanese colonies there.

In 1870, Kuroda himself set out to explore Hokkaido and Sakhalin, and after his return to Tokyo, he made a few recommendations for Hokkaido policies and suggested that Japan should employ foreign advisers to conduct surveys and examine the island's potential for agricultural settlements. Kuroda joined the diplomatic mission led by Iwakura Tomomi, who visited the United States and several countries in Europe between 1871 and 1873. While in the United States, the Japanese government managed to recruit Horace Capron and a few American specialists to

²³ Anthony, 59.

work for the Kaitakushi.²⁴ Following the arrival of Capron and his team of American advisers to Japan in 1871, several surveying teams were dispatched to explore Hokkaido and its resources. The results of these surveys culminated in a body of knowledge about Hokkaido and its nature. Echoing Kuroda's view regarding the necessity of knowledge about Hokkaido, Capron argued that surveys were "indispensable" for the planning of successful settlements. On the significance of such knowledge for agricultural development, he asserted that:

It cannot be expected that the soil of Nippon, worked for centuries under the same system of cultivation and without rotation of crops, will be found favorable to all forms of vegetation. Analysis and experiment, however, must determine this, and the difficulty, when ascertained, must be remedied by change in cultivation, the introduction of renovating crops and the application of animal and mineral manures. Such remedy is merely a question of time and of intelligent observation of causes and effects and judicious application of the teachings of experience.²⁵

A crucial set of sources on the production of knowledge about Hokkaido's nature during the early years of the Kaitakushi is an 1875 publication, which concluded Capron's service as the adviser for the Kaitakushi. Claimed by Capron as "the first scientific surveys ever undertaken in Japan," this 748-page publication consists of abstracts of Capron's annual reports, his correspondence with the Kaitakushi, several other survey reports by American advisers, and an abstract of a survey in 1862 by William P. Blake. The latter was conducted before the Kaitakushi was established, but Capron included it here because of "its confirmation, in many particulars, of later observations made under the auspices of the Kaitakushi"²⁶ These surveys by American advisers provided additional details about the quality and characteristics of the land as well as important

²⁴ On the Iwakura Mission and its multifaceted significance for the political and cultural development during the Meiji Period, see Ian. Nish, ed., *The Iwakura Mission in America and Europe: A New Assessment* (Richmond, Surrey, U.K.: Japan Library, 1998).

²⁵ Horace Capron, "Abstract of First Annual Report," in *Reports and Official Letters to the Kaitakushi* (Tokei: Kaitakushi, 1875), 49.

²⁶ Capron, *Reports and Official Letters to the Kaitakushi*, II.

resources in Hokkaido. The Kaitakushi used this information to verify previous assumptions about Hokkaido's environmental features, to support new plans and proposals for the future of Hokkaido, and to justify their request for massive investment and other support from the Japanese government – emphasizing that it would be a highly profitable investment.

The volume starts with Capron's letter to Kuroda, which describes the background of this publication and serves as the introduction to this collection of knowledge. Then, following the abstract of Blake's survey from 1862, the volume presents the survey reports and correspondence, all written in English. All documents are arranged chronologically to document the work of Capron's team between 1871 and 1875. Of these reports, the geological surveys by Benjamin Lyman and Henry Munroe constitute the largest portion, spanning over 300 pages. These surveys present maps and descriptions of available minerals at sites in Hokkaido as well as their suggestions regarding the possibility of opening mines and recommended methods. The remaining reports, except Louis Böhmer's botanical report, were topographical and trigonometrical surveys. These surveys offer more detailed insights into the physical shapes of the island, especially the interior landscapes that had not been sufficiently documented by Japanese officials in the previous regime. These insights were also used for planning new transportation networks inside the island to facilitate the rule of the new capital at Sapporo.

The surveys produced by Capron and his team added more information to what the government already knew about Hokkaido. At the same time, they also reinforced the othering process by making the otherness more legible. The space and territory, the topographical and geological features, the people, fauna and flora were inscribed on paper and rendered into concrete, object-like things that could be managed and manipulated at a later stage. Building on Bruno Latour's concept of "inscription," I argue that the practice of inscription enabled the creation of a shared platform in which American agriculturalists could cooperate with non-

agriculturalist actors towards the goal of transforming Hokkaido into Japan's agricultural colony.²⁷ Like the laboratory scientists discussed in Latour's work, the American advisers in Hokkaido actively engaged in the inscription of various "facts" about Hokkaido's nature onto paper. In this process, the landscape, the weather, flora and fauna, as well as the people were translated and represented through writing, which could take several forms, such as correspondence, descriptive reports, graphs, and tables. According to Latour, inscription, along with the paperwork culture, allows inscriptions from different social worlds and fields of expertise to operate on the same plane – the paper.

It must be reminded that the Kaitakushi itself was not a homogenous group of actors who worked seamlessly as if they were a single entity. Rather, the Kaitakushi consisted of at least two distinct groups of actors – the Japanese officials and the American agriculturalists. While the former's focus was to take control of the land and encourage human settlement, the latter's focus was on the environment and how to produce something through certain forms of human-environment relationships. Indeed, there were overlaps between the jobs of the two groups, but the cooperation between those two groups did not just happen naturally. Japanese officials needed to understand what the environment meant to their work. The agriculturalists in turn had to understand the colonial needs (permanent settlement and food security in a foreign land) of agricultural production. In response to such needs, the practice of inscription was an indispensable way for the two groups of actors with different goals and work routines to collaborate with each other, making it possible to bring about the convergence of colonization

²⁷ Latour proposes the concept of "inscription" to counter an assumption that scientific knowledge is a product of the unique scientific mind and special sets of knowledge-producing procedures. He argues that what scientists are actually doing in their laboratories is writing – a mundane activity that has been overlooked in narratives that celebrate scientific exceptionalism. According to Latour, laboratory work involves active, continuous production of multiple forms of "inscriptions," which can be combined, superimposed, or integrated as figures in the text of other inscriptions that other scientists from the same of different laboratories are writing. Latour, "Visualization and Cognition: Drawing Things Together," 4.

and agricultural development. The progression of such cooperation gradually blurred the boundary between colonial rule and environmental rule, leading one to perceive of the two fields of governance as part and parcel of one another. Ultimately, there emerged an “enviro-colonial rule” – a hybrid form of governance in which both humans and nonhumans became the targets of exercises of power.²⁸

Knowledges do not naturally exist, and they are not always easily grasped by anyone’s natural intuition. Knowledges are claims – or discourses – that are produced and mobilized for a certain purpose. In the case of Hokkaido, the surveys not only produced more knowledge about Hokkaido but also reinforced the othering of Hokkaido as foreign land. By representing Hokkaido’s differences as things that required special treatment, they provided a basis for formulating plans and developmental policies for both the Kaitakushi and the new governing bodies that replaced it after 1882. The American advisers clearly believed in the transferability and applicability of their inscriptions. Benjamin Lyman, a leading geologist in Capron’s team, claimed that topographical maps made by his geologist team were a better means of representing knowledge about Hokkaido’s nature to be used in later analyses and policymaking. In his “Preliminary Report on Geological Survey of Yesso,” Lyman carefully described his methodology, which he claimed to be based on the (widely?) accepted Pennsylvanian topographical method of J. Peter Lesley. According to Lyman, topography allowed humans to geometrically represent nature onto the medium of paper. Although only “roughly exact,” these maps were still better than qualitative observations alone, because these maps were

²⁸ On the formation of governance that targeted both humans and the environment, see for example, Nancy Lee Peluso and Peter Vandergeest, “Genealogies of the Political Forest and Customary Rights in Indonesia, Malaysia, and Thailand,” *The Journal of Asian Studies*; *Ann Arbor* 60, no. 3 (2001): 761–812; McElwee, *Forests Are Gold: Trees, People, and Environmental Rule in Vietnam*. Matthew Hull similarly discusses that the bureaucracy was formed through the enactment of both humans and nonhuman artifacts such as the paperwork. Matthew S. Hull, *Government of Paper: The Materiality of Bureaucracy in Urban Pakistan* (Berkeley: University of California Press, 2012).

representations of “geological facts” from which “inferences can readily be drawn by others independently of the observers’ opinions.” And because these facts were systematically gathered and arranged, “any other geologist can form his own conclusions from them with no need of revisiting the ground, unless a more detailed survey should be desired.”²⁹ With this information available on paper, the Japanese government as well as involved actors could begin to take the environmental features of Hokkaido into account when making and implementing policies.³⁰

Hokkaido as “a Barren Island in the Sub-Frigid Zone”?

One of the most crucial functions of Capron’s knowledge-producing project was to counter the claims within and outside Japan that Hokkaido was “a rough, mountainous, barren country with a sub-frigid climate, which rendered it nearly, if not quite, inhabitable.”³¹ Throughout his five-year service for the Kaitakushi, Capron actively sought to invalidate such claims by resorting to three interrelated forms of knowledge claiming: the use of scientific data, the invocation of his direct experience, and the comparison with successful examples in the United States.

As the basis for the first form of knowledge claiming, Capron emphasized the need for intensive information gathering through scientific methods. In the second annual report, he reported that his team had thoroughly investigated the climate of Hokkaido by keeping

²⁹ Benjamin Smith Lyman, “Preliminary Report on the First Season’s Work of the Geological Survey of Yesso,” in *Reports and Official Letters to the Kaitakushi* (Tokei: Kaitakushi, 1875), 119–20.

³⁰ It is true that not everything was considered; existence on paper did not always guarantee their *enrolment* in the new network of enviro-colonial rule in Hokkaido. On the state’s excessive writing, see Sing Suwannakij and Søren Ivarsson, “Inscribing Siam: The State of Documentary and Spatial Practices,” *Modern Asian Studies* 54, no. 5 (September 2020): 1604.

³¹ Horace Capron, “Abstract of Second Annual Report,” in *Reports and Official Letters to the Kaitakushi* (Tokei: Kaitakushi, 1875), 100. In fact, one of the American employees in Capron’s team also made a similar claim in a report of his survey in 1871. It is worth noting that Capron originally excluded this counterexample in the report he submitted to the Kaitakushi in 1871, and he only mentioned it in a later report when he had more evidence to invalidate it.

meteorological records for a few years and by studying the influence of thermal ocean streams and of natural vegetation.³² Referring to this set of scientific records, Capron concluded that agriculture could thrive in Hokkaido. On another occasion, he made a similar assertion that “neither the indigenous nor the exotic vegetation indicated that Hokkaido was a sub-frigid zone,” and that “the climate is no obstacle to the successful occupation and development of Yesso.”³³ He also contended that, in contrast to prevalent assumptions, “[t]he great fall of snow in Yesso (which is included in the rainfall), is a great advantage, serving, as it does, to protect grains and grasses from the frost and to prevent the freezing of the ground to any depth.”³⁴

For the second form of knowledge claiming, Capron invoked his own experience in Hokkaido. Having travelled around the island on multiple survey trips, he positioned himself as someone who knew the true condition of Hokkaido. In a letter to Kuroda in September 1873, Capron claimed that his two-year experience on the island should be sufficient to settle the question about Hokkaido’s suitability for settlement, which was “at variance with preconceived opinion throughout the world, and the declaration of high professors who pronounced it ‘a barren Island in the sub-frigid zone.’”³⁵ Later in the same month, he repeated his claim and further argued that “all the various food plants grown within the temperate zone on the North American Continent, can be reproduced in perfection on the Island of Yesso.”³⁶

Capron’s insistence that Hokkaido farmers could profitably grow everything that could be grown in the United States along the same latitudes exemplifies the third mode of knowledge claiming – the comparison with America. When referring to native plants, for example, he pointed

³² Ibid.

³³ Capron to Kuroda (22 July 1872), in Capron, *Reports and Official Letters to the Kaitakushi*, 59.

³⁴ Capron, “Abstract of First Annual Report,” 43.

³⁵ Capron to Kuroda (6 September 1873), in Capron, *Reports and Official Letters to the Kaitakushi*, 84–85.

³⁶ Capron to Kuroda, (22 September 1873), in Capron, 87.

out that these plants seemed to thrive even better than their counterparts in American cities.³⁷ More importantly, Capron frequently associated Hokkaido with the prosperous settlements in the United States and asserted that “[i]f the natural products of a soil are any indication of its fertility or climate, this Island will compare favorably in these respects with some of the wealthiest and most populous portions of the United States.”³⁸ Capron had already made this claim in his first annual report to the Kaitakushi in 1871, where he tried to invoke “facts” about Hokkaido’s climate. Such “facts” were the temperature records from Hakodate, a major city in Hokkaido. In the form of a table, Capron compared Hakodate’s temperatures with a couple of American cities that are located on similar latitudes (See Table 1).

Table 1: The Temperatures of Hakodate and American Cities in Similar Latitudes³⁹

The Mean Temperature for Five Years (Fahrenheit)

	Latitude	Spring	Summer	Autumn	Winter
Hakodate	41° 46′	46° 43′	64°	59°	29° 4′
Cambridge, Mass.	42°	44° 57′	70°	51° 7′	23° 9′
Penn Yan, N.Y.	42° 40′	42° 27′	66° 20′	49° 98′	23° 50′

The Mean Temperature for Five Years during June, July, and August (Fahrenheit)

	June	July	August
Hakodate	58° 66′	64° 66′	68° 79′
Cambridge, Mass.	66°	71° 10′	70°
Penn Yan, N.Y.	64° 53′	66° 70′	67° 22′

The Highest and Lowest Temperature in 1870 (Fahrenheit)

	Highest	Lowest
New York	68°	14°
Wisconsin	46° ′	25°
Hakodate	84°	42°

³⁷ According to Capron, “[t]he oak, the beech, the ash, in short all the trees of the forests of New York, Pennsylvania and Ohio, even including the sugar maple, grow in abundance and to perfection in Yesso. In Yesso on the same parallel these trees thrive even on the high mountain slopes, while in America at the same altitudes they are gnarled and stunted.” Capron, “Abstract of First Annual Report,” 41–42.

³⁸ Capron to Kuroda (22 July 1872), in Capron, *Reports and Official Letters to the Kaitakushi*, 59.

³⁹ Adapted from the tables published in Capron, “Abstract of First Annual Report,” 43.

Capron's three modes of knowledge claiming highlight two aspects of knowledge production during this period. On the one hand, they underline how Capron claimed the information generated by a scientific apparatus to be more accurate and trustworthy than earlier observations about Hokkaido, which he often regarded as "erroneous" or "misrepresented." The material forms of descriptive reports, maps, charts, and other inscriptions served to distinguish Capron's information from others produced by earlier Japanese officials, while maintaining the American advisers' status as respectable experts on the subject. On the other hand, they demonstrate that the accumulation of weather records, as well as other reports on Hokkaido's environmental features, were not a value-free, "scientific" desire to learn more about Hokkaido's nature; rather, they were part of the political endeavor to invalidate previous claims while justifying the expansion of Japanese settlement in Hokkaido, which was an indispensable core of the Kaitakushi's work and existence.

Sapporo Agricultural College and the Continuation of Knowledge Production

After Capron left Japan, the task of producing knowledge about Hokkaido's nature for the Kaitakushi was continued by Sapporo Agricultural College (SAC) under the leadership of influential figures such as William S. Clark, the first president of the college, and William P. Brooks, professor of agriculture.⁴⁰ Besides the production of knowledge by the Kaitakushi's requests, SAC professors themselves stressed the importance of knowledge production for

⁴⁰ For a biographical overview of each of the American professors, see Fujita, *American Pioneers and the Japanese Frontier: American Experts in Nineteenth-Century Japan*. For more information on Clark, see William Smith Clark, Satō Shōsuke, and Uchida Kiyoshi, *Kurāku No Tegami - Sapporo Nōgakkō Seito to No Ōfuku Shokan [The Correspondence of W.S. Clark and His Japanese Students]*, ed. Satō Masahiko, Naoki Onishi, and Hideshi Seki (Sapporo: Hokkaido Shuppan Kikaku Center, 1985); John M Maki, *A Yankee in Hokkaido: The Life of William Smith Clark* (Lanham, Md.: Lexington Books, 2002); Hennessey, "A Colonial Trans-Pacific Partnership." After he left Hokkaido, Clark also authored a booklet on Japanese agriculture. See William S. Clark, *Agriculture of Japan* (Boston: Rand, Abery, & Co., 1879).

effective agricultural planning and implementation. In 1878, Brooks noted how his duty as the college farm director was difficult in the beginning due to his lack of experience and knowledge about the farm [and Hokkaido nature].⁴¹ As he put it, “Only when we understand the nature and needs of a country, can we so direct our labor as to produce the most valuable results.”⁴² Brooks tried to validate this claim again in 1881, and asserted that the improved productivity of the farm was owed to the improvement of farm facilities and the knowledge gained by experience of this particular soil and climate.⁴³

SAC’s pursuit of knowledge about Hokkaido’s nature took several forms, including surveying, collecting specimens, recording weather information, and operating experimental farms.⁴⁴ Surveying as a means to know nature continued to be the main approach for SAC during its formative years. The professors occasionally joined the Kaitakushi teams in survey trips around Hokkaido and published the results of these surveys in the first two annual reports.⁴⁵ For example, in “Contributions to the Natural History of Hokkaido,” David Penhallow described his observations of the physical characteristics, such as the climate and the soils, of various parts of Hokkaido.⁴⁶ Using this information, he later affirmed Hokkaido’s potential for development in

⁴¹ *Second Annual Report of Sapporo Agricultural College, 1878* (Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976), 50.

⁴² *Second Annual Report*, 48.

⁴³ *Fifth Annual Report of Sapporo Agricultural College, 1881* (Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976), 6.

⁴⁴ As several scholars have argued, there are multiple ways to “know” nature, and each approach is usually tied to the politics of the producer of such knowledge, no matter if the person is conscious of the political implications of their knowledge production or not. See Dolly Jørgensen, Finn Arne Jørgensen, and Sara B. Pritchard, eds., *New Natures: Joining Environmental History with Science and Technology Studies* (Pittsburgh, Pa.: University of Pittsburgh Press, 2013); Mara J. Goldman, Paul Nadasdy, and Matthew D. Turner, eds., *Knowing Nature: Conversations at the Intersection of Political Ecology and Science Studies* (Chicago: University of Chicago Press, 2011).

⁴⁵ The Data from the weather station continued to appear in the third and the fourth reports, but such information was excluded since the fifth report.

⁴⁶ D. P. Penhallow, “Contributions to the Natural History of Hokkaido,” in *Second Annual Report of Sapporo Agricultural College, 1878* (Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976), 145–71.

the Fourth Annual Report, saying: “Large tracts of the fertile land yet await the improving hand of enterprising men; extensive resources yet to be developed, will certainly call for well educated [sic] and energetic young men.”⁴⁷ In addition to the official survey trips, the college also routinized the surveying practice as part of its curriculum, requiring or encouraging students to spend their summer vacations surveying with designated professors. According to Wheeler, this trip was “an excellent method of uniting thorough recreation with instruction from the best of books – Nature, under the best of teachers – Experience.”⁴⁸ For example, in summer 1877, rising sophomore students went on a survey trip with their professors. The students were divided into three groups, which would travel to different locations for different purposes.

Table 2: The Survey Groups, Their Itineraries, and Activities (1877)⁴⁹

Members	Locations	Activities
Professor Penhallow Ideta Oshima I. Sato Tanouchi Uchida	Up the Ishikari river and some of its unexplored tributaries	Exploration Collection of specimens
Professor Brooks Ito T. Ono Watase Yamada Yanagimoto Yasuda	1. The vicinity of Sapporo and College Farm 2. Coal mines at Muuran [Muroran], Oshamanbe, and Iwanai 3. Yoichi and Otaru	Collection of plants and minerals Assisting in the farm work Inspection of coal mines Collection of specimens
Professor Wheeler Arakawa Kuroiwa Nakashima K. Ono	The location of a new highway through the Kuromatsunai district, from Volcano Bay to Sutsu on the west coast, and the mines at Iwanai.	[unspecified]

⁴⁷ *Fourth Annual Report of Sapporo Agricultural College, 1879-1880* (Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976), 11.

⁴⁸ *Second Annual Report*, 8.

⁴⁹ Based on *Second Annual Report*, 8–9.

These surveys allowed students to gain insight into the natural features of each locality. Meanwhile, by producing drawings and written reports according to standardized formats, students also contributed to the aggregation of knowledge about Hokkaido landscape. The knowledge being obtained from these surveys included both abstract information and physical specimens. The abstract knowledge would be informally inscribed on to paper in the form of journals or study notes. Such informal writings would later be revised and submitted to the Kaitakushi privately via letters and correspondence, or publicly as official reports. Sometimes, the information would be revised into scientific writings to be exchanged with scholars or scientists in America or elsewhere.

For the physical objects, SAC later built a new facility called a “Museum of Natural History” to store the growing collection of specimens in the college’s possession.⁵⁰ These specimens included those that were obtained from both the Kangyōka (Bureau of Production) and the Colonization Department during the earlier period, and the new objects collected by the college’s professors and students. According to Wheeler, the collection and preservation of these specimens served as an effective means for learning about nature. As he has pointed out in the *Second Annual Report*, “The work of collecting, preparing, and arranging will be greatly facilitated through the direct supervision of the officials of instruction, assisted by the students, who will thus acquire a healthy interest, and much practical knowledge in most valuable field of study.” While the majority of the collection would represent the various resources and natural features of Hokkaido, the college also planned to include objects from other parts of Japan as well as from

⁵⁰ The encyclopedic study of natural history in Japan had already begun during the Edo Period (1603-1868). According to Federico Marcon, the practice was inspired by the *Bencao gangmu* (Systematic Materia Medica), a Chinese encyclopedia of medicinal herbs compiled by Li Shizhen. The work was first published in Nanjing in 1596 and was introduced to Japan during the early 1600s, known in Japanese as the *Honzō kōmoku*. Federico Marcon, *The Knowledge of Nature and the Nature of Knowledge in Early Modern Japan* (Chicago: University of Chicago Press, 2015), 28–32.

abroad by purchase or exchange. These specimens provided the students with an opportunity to learn more about “the universal laws and phenomena of the mineral, vegetable, and animal kingdoms, and their relations to the welfare of man.” Given their significance to instruction, these specimens were displayed in a large hall that was conveniently accessible from the proper lecture rooms, and open to the public at designated hours. Meanwhile, some Hokkaido-specific objects were circulated within scientific communities. By actively contributing new objects and knowledges from Hokkaido, SAC strove to become an important node of these transnational networks.⁵¹ In addition to scrutinizing the landscape and the organisms, SAC also paid special attention to knowing the climate of Hokkaido by keeping weather records. The fact that they started building a weather station during the first year of the college confirmed the significance of this mode of knowing nature. Comparing Hokkaido with other places also served as an important means to make sense of the environment. William Clark, for instance, noted that Sapporo had a climate comparable to the American Midwest, with the vegetation of Virginia.⁵² Like Capron, Clark relied heavily on his knowledge and experience of America as a frame of reference for understanding Hokkaido’s climate and landscape.

The final means of producing knowledge about nature occurred through the establishment of experimental farms. Indeed, the idea of operating agricultural experiments was not completely new in Japan. Even in Hokkaido, such a farm had already been created by German foreigners/merchants in Nanae (near Hakodate to the South of Hokkaido) since the 1850s, which the Japanese government eventually bought after the Meiji Restoration. The early 1870s also saw

⁵¹ *Second Annual Report*, 2. On the relationship between the botanical network and the rise of Sapporo, see Thornton, “Settling Sapporo: City and State in the Global Nineteenth Century,” especially “Chapter 5 The Capitol Orchard: Botanical Networks and the Production of Urban Space,” pp. 293-343.

⁵² *First Annual Report of Sapporo Agricultural College, 1877* (Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976), 5-8.

the establishment of the Kaitakushi experimental farms in Tokyo, as well as a few others in several locations in Hokkaido. Hence, it could be said that the College Farm was building on decades of work. As an experimental ground, the College Farm was responsible for sampling and identifying the most suitable plant and animal varieties to be raised in Hokkaido. Some of these experiments, which the Kaitakushi demanded urgently, were conducted by the Farm Director with the assistance of paid laborers on the farm, while others might be undertaken by the students in their agricultural classes.

According to SAC professors, the College Farm was also designed to be a model for non-student farmers, so that they could imitate and develop their own farms. While Brooks, as the Professor of Agriculture, claimed that the farm should make the instruction of the students its most important goal, he asserted that it should strive to accomplish the following: "To make it an exponent of the most scientific and enlightened practice, to make it a model of economy in its use of labor and material of all kinds, to make it a source of supply of the best and purest seeds and the best stock, to make it answer experimentally all questions pertaining to agriculture which require in their solution the application of scientific knowledge and methods, to make it illustrate the best possible manner of doing all kinds of farm work and of caring for stock."⁵³ In other words, Brooks stressed the College Farm's unique position as a representative of scientific agriculture and a center for promoting better approaches to farming.

Othering Governance

As Conrad Totman points out, agriculture in Japan, at least in the mainland (*naichi*), showed signs of intensive cultivation and market-oriented production since the late Tokugawa

⁵³ *Second Annual Report*, 79.

Period. Totman argues that agriculture during this period was characterized by the “maximal use of horticultural know-how, irrigation water, and fertilizer materials,” and by the nineteenth century, there existed numerous treatises that taught peasants how to live as “cultivators, landholders, villagers, and family members.”⁵⁴ The fact that such horticultural manuals existed before the arrival of the American advisers implies that other effective means of using the lands, as well as attempts to discipline the peasants for the growth of market-oriented agriculture, were already being undertaken. Though Totman admits that it is unclear to what extent farmers followed these techniques, it prompts us to question why Hokkaido agriculture had to adopt the “American” way.⁵⁵

From Japan’s Other to Another America

Early attempts to settle in Hokkaido reflect the efforts to reproduce Japanese communities in a foreign land. The continued dependence on rice and traditional farming practices suggests that the settlers expected to make the new land resemble the “homes” from which they migrated.⁵⁶ The government’s initial accommodations of providing rice and farming instruments reveal the official approval of the plan to transform Ezochi into part of another rice-based Japanese space. However, this rice-centric plan began to change after Capron arrived in 1871. Since his first official report to Kuroda, Capron had suggested that the settlers should adopt a new source of food and modify their farming practices. More specifically, Capron tried to

⁵⁴ According to Totman, farm manuals (or *jikatasho*), were developed in Japan during the eighteenth and nineteenth centuries by government officials, scholars, and village leaders. These manuals offer methods and techniques for improving farm operations and maximizing the benefits of the farming families. Conrad D Totman, *A History of Japan*, 2nd ed. (Malden, Mass.: Blackwell Pub., 2005), 257.

⁵⁵ Yet, Totman also explains that the peace during the Tokugawa Period led to the development of small-scale farming that replaced large-scale farms run by local lords. Coupled with the pressure of land-holding, these “microfarmers” had good reasons to make good use of the manuals to make the most of their small lands. Totman, 259–62.

⁵⁶ Howell, “Early Shizoku Colonization of Hokkaidō.”

introduce new grains and other foreign crops, which he claimed to be more suitable to the climate and the environment of Hokkaido. Capron's suggestion was, of course, based on his experiences in the U.S. If Japanization characterized the Kaitakushi's plan at the initial stage, the year 1872 marked the beginning of Americanization, in which the United States became a model into which Hokkaido was supposed to be transformed.⁵⁷

As discussed in the previous section, Capron tried to make sense of Hokkaido's otherness by comparing it with the United States and claiming that American cities could be models for successful development. In fact, such a comparison had already been suggested by Japanese officials during the Iwakura Mission in the United States. As claimed by Mori Arinori, the Japanese envoy to the United States, the climate of Hokkaido "resembled that of New England," which led to the employment of Capron and his team with the hope that the American experience would be useful in Hokkaido.⁵⁸ Some historians of Hokkaido remain skeptical of the American model. Tessa Morris-Suzuki argues that vision was "politely ignored" by the Japanese government, pointing to the persistence of efforts to develop new varieties of rice that could endure Hokkaido's climate.⁵⁹ However, as I will discuss in Chapter 5, the pastoral vision remained quite influential and received a decent amount of financial and material resources to develop livestock farming between the 1870s and the early 1880s.

⁵⁷ Historian Tessa Morris-Suzuki has already made a similar argument about the American model of settler colonialism. She argues that "'America' was seen less as a model of political liberty than as an example of colonial development, centered upon the skill and hard work of migrant family farmers. The prominent agronomist Tsuda Sen, for example, saw Hokkaido as holding the potential for 'the creation of a United States of America within the Japanese Empire,' but the America he had in mind was first and foremost the America of the Pilgrims Fathers - a place where development would be born of diligence, frugality and a pioneering spirit." Morris-Suzuki, "Lines in the Snow," 73.

⁵⁸ Thornton, "Settling Sapporo: City and State in the Global Nineteenth Century," 88. Later in 1880, the Kaitakushi also published an article that compared Hokkaido colonization to New England and other colonial forms, such as the British Dominions, see *Kaitaku zasshi* 2 (14 Feb 1880): pp. 1-8.

⁵⁹ Morris-Suzuki, "Creating the Frontier: Border, Identity and History in Japan's Far North," 14.

The production of new knowledge about Hokkaido's nature became a means through which the Kaitakushi tried to come to terms with Hokkaido's otherness.⁶⁰ Although some associated such otherness with savagery and cultural inferiority, the Kaitakushi and Capron's efforts at knowledge production were aimed at re-presenting such differences more favorably to promote migration. Instead of rejecting any differences from "Japanese-ness" altogether, the Kaitakushi embraced such otherness as the basis for its operation. Meanwhile, the otherness of Hokkaido had to be maintained and constantly emphasized to reaffirm the *raison d'être* of the Kaitakushi, which claimed to be the authority in dealing with Hokkaido's otherness. This reaffirmation was needed to secure authority (relative autonomy) and the constant injection of financial support from the Japanese government, especially at a time when the fledgling Meiji state still had limited budget and resources for implementing other equally (if not more) important projects in other parts of the nation or in other fields of governance.

As Hokkaido's otherness continued to be inscribed and compared with America, that otherness became increasingly visible and tangible on the paper, in forms such as descriptive reports, maps, charts, etc. Consequently, Hokkaido gradually acquired its normalized status as a foreign land whose different climate and environment required a different form of governance and a new way of life for the Japanese settlers who migrated there. The new knowledge of otherness, in turn, became a lens through which the Kaitakushi envisioned its enviro-colonial rule in Hokkaido. The propagation of the idea that Hokkaido was another America led to the idea that perhaps Hokkaido could be settled and governed according to the American way. This also

⁶⁰ For a related approach to coming to terms with Hokkaido's otherness, see Michele Mason's discussion of how writers such as Kunikida Doppo played an important role in representing Hokkaido as a natural space, in contrast to Japan as the center of civilization. As Mason has argued, "[e]ven if they [Japanese authors] did not *literally* open land in Hokkaido, they *literarily* opened space for a collective imaginary of colonial Hokkaido that furthered the state's agenda there." Michele Mason, "Writing the Ainu Out: The Nature of Japanese Colonialism in Hokkaido," in *Dominant Narratives of Colonial Hokkaido and Imperial Japan: Envisioning the Periphery and the Modern Nation-State* (New York: Palgrave Macmillan, 2012), 68.

explains why the Kaitakushi continued to employ predominantly American advisers, including Edwin Dun, an adviser for livestock farming, as well as William Clark and several professors at the newly established Sapporo Agricultural College.

Towards Livestock Civilization

Though it contains exhaustless supplies of valuable timber and excellent coal, marble and other minerals, and though salmon, herring, cod and other fisheries are of immense value, if properly conducted, yet *the greatest wealth of the province is to be derived from its fertile soil. Agriculture is the surest foundation of national prosperity.* It feeds the people, converts the elements into property, and furnishes most of the material for manufactures, transportation and trade. The business of a country can be most profitably done by residents who are intelligently and earnestly devoted to its welfare, and they alone can be relied on for its defense in time of foreign invasion. As soon as practicable, therefore, *the migratory fishermen of Hokkaido should be converted into permanent settlers.* (William Smith Clark, 2 March 1877)⁶¹

Having completed the first semester of Sapporo Agricultural College (hereafter SAC), William Smith Clark, the college's founder and first president, reported the results of his operation to Kuroda Kiyotaka, Minister of the Kaitakushi. In this report, Clark stressed the fertile soil as the most important resource of Hokkaido, thereby reaffirming the potential of the island for an agricultural future. By converting migratory residents into permanent farming settlers, the Japanese government could make Hokkaido a promising place that could contribute both economic profits and the basis for building national defenses against Russian encroachment from the North.⁶²

⁶¹ *First Annual Report*, 2. [my emphasis]

⁶² Michael Thornton has argued that the colonization of the northern territory, from Tokugawa Period to the Meiji Period, shared two similar incentives: economic needs and security concerns. Thornton, "Settling Sapporo: City and State in the Global Nineteenth Century," 32.

The quotation from Clark's report above reflects the centrality of agriculture in Japan's Hokkaido projects. Farming not only enabled people to feed and sustain themselves in a new land, but it was also viewed as a marker of civilization that Japan used to justify their "development" of Hokkaido. The Kaitakushi had envisioned such an agriculture-based notion of civilization, and it led them to invite Clark to establish the college in the first place. At a glance, it may seem that the production of knowledge by SAC simply added to the growing body of knowledges about Hokkaido, thereby reinforcing the same vision already developed by the Kaitakushi and their predecessors. Yet, it must be noted that the accumulating body of knowledges about Hokkaido did not consist only of facts that were mutually complementary; knowledges might be generated for making claims that contradicted one another. As a part of the Kaitakushi, SAC usually made knowledge claims in response to – but not necessarily according to – the Kaitakushi's colonial vision for Hokkaido. In this light, I maintain that it is important to see SAC not only as a fact-producer but also a knowledge-claimer who mobilized a set of information to make a case for the Kaitakushi's agricultural development projects.

Of the several factors that made Hokkaido seem inhospitable for settlers, the harsh, long winter was perhaps the most discouraging challenge. Sharing Capron's standpoint, SAC actively produced information about the weather to invalidate some opposing views. For example, Wheeler used the weather records as evidence to disprove the claim that Hokkaido's climate was unfavorable to agriculture and settlement. Wheeler admitted that the heavy snowfall between October and May and the accumulated snow would not fully disappear until July. However, he argued that Sapporo was still more favorable than some other regions of similar climate (and latitudes), such as New England. As he enthusiastically claimed, "It certainly belies the traditional ideas of a bleak, desolate, uninhabitable region, which have obtained currency in the southern parts of the empire, – ideas which were grounded largely in ignorance of the facts, and not less

perhaps in the inadaptation [sic] of the southern customs of dress, and of house building and warming.”⁶³

Meanwhile, SAC also played an important role in mobilizing knowledges for envisioning Hokkaido’s agricultural future in which farm animals were an integral part. To do so, the college drew upon the new knowledges they were producing in the college as well as the previous knowledges about Hokkaido’s nature and imported agricultural knowledge from America. Like Capron, Clark emphasized the “introduction and use of domestic animals of suitable breeds.”⁶⁴ According to Clark, a farmer should keep animals on the farm for two primary purposes: for labor and for animal products. He eagerly highlighted the benefits of horses and cattle as working animals. On the one hand, these animals provided a means of transportation for both people and farm produce. Even though the use of horses and cattle was rare in Hokkaido before the late nineteenth century, it was not uncommon in other parts of Japan, including the Northeast region of Honshū island, from where the majority of new settlers migrated. On the other hand, horses and cattle could also offer labor for farm work, such as pulling farm implements during the preparing of soil for cultivation. Clark maintained that animal labor was necessary for frontier lands like Hokkaido, where there were vast areas that had to be “broken” – to till the land and remove unwanted trees and vegetation – before settlement and cultivation. Without animal labor, the work would progress rather slowly. Another less common benefit of keeping farm animals was the various products that different kinds of animals could provide, including meat, dairy products, wool, hides, etc.⁶⁵ Clark encouraged the farmers to consume animal products “for the

⁶³ *Second Annual Report*, 136.

⁶⁴ *First Annual Report*, 2–3.

⁶⁵ Paul Hansen argues that even though the Japanese consumed meat and dairy products since premodern times, the consumption was mainly for medicinal purposes, not as a daily staple. Paul S. Hansen, “Hokkaido Dairy Farm: Change, Otherness and the Search for Security” (Ph.D. Diss., University of London, School of Oriental and African Studies, 2010), 83.

increase of their comfort and ability to labor.” In addition to direct consumption by the farmers, these products could also be sold to markets in the country or even exported to foreign countries, thereby offering an extra source of income for each family. Moreover, keeping farm animals also created new jobs. Artisans, for example, could be increasingly employed to make harnesses, horseshoes, as well as other equipment that were necessary for taking care of and extracting products from farm animals. This, according to Clark, was “a source of agricultural wealth [that] had been ignored in Japan.”⁶⁶

William Brooks, who succeeded Clark as the Director of the College Farm, similarly emphasized the benefits of farm animals as important sources of labor. He argued, “Should the labor of the people of this province be properly applied, properly economized, and should they learn to make proper use of animal strength and labor-saving inventions, the productive capacity of its laborers would be largely increased and hence its material prosperity and the comfort possible to its inhabitants would be increased also.”⁶⁷ For Brooks, hard labor should be performed by animals or machines to save human energy for more sophisticated tasks. He claimed to have made it a constant rule “never to employ a man to do what could be done by horse or ox labor with the appliances at my command.”⁶⁸ Moreover, he remarked, “I hope soon to see the day when no laborer can be found in Hokkaido whose time is not too valuable to be employed in transporting heavy burdens long distances, for such work can be better done by horse or steam power.”⁶⁹ With this remark, Brooks envisioned a version of Japan’s future in which animals completely replaced human laborers in the farms.

⁶⁶ *First Annual Report*, 3–4.

⁶⁷ *Second Annual Report*, 53.

⁶⁸ *Second Annual Report*, 52.

⁶⁹ *Second Annual Report*, 54.

Conclusion: Environmental Determinism and American Supremacy?

With such conditions and resources, the settlement of Yesso were an easy matter, had we to deal with the hardy people who settled America. If thrown open to settlement on the liberal terms offered by the government of the United States in similar cases every available acre would be at once occupied. Exclusive settlement by native citizens gives another aspect. *A people reared in the mild climate of Nippon cannot be expected to readily adapt themselves to the more rigorous climate of Yesso.* They must become gradually inured to it, and must learn that it is not only possible to live comfortably in a cold climate, but that the invigorating influences of such a climate, together with a partial change of food, will strengthen the system and enable it to resist the influences of the cold. (Horace Capron, 1872)⁷⁰

Switching to crops and animals that were more suitable for a specific climate and environment seems like a logical solution. But how can one know what kind of crops and animals are suitable for that particular environment? Who gets to decide? Based on what criteria? While Capron's efforts in representing Hokkaido as another America seem to be objectively based on empirical observations, his arguments clearly contain a pro-America undertone. When Capron claimed that "the obstacles to a profitable and permanent development of the resources of the island of Yesso lie neither in the soil nor in the climate," he implied that the problem lied not in Hokkaido's nature but in Japan's approach to agriculture, which he deemed unsuitable for this fertile land.⁷¹ Capron made his disfavor of Japanese agriculture very clear on several occasions. For example, while appreciating the progress of new agricultural settlements in several parts of Hokkaido, he lamented that the farmers continued to stick to rice cultivation instead of growing other foreign crops that he regarded as more climate-appropriate. Claiming to have based his advice on economic and nutritional reasons, Capron argued that rice was the most expensive, yet

⁷⁰ Capron, "Abstract of First Annual Report," 47–48. [my emphasis]

⁷¹ Capron, 43. In the Second Annual Report, Capron repeated his argument that to successfully settle and develop Hokkaido, it was necessary to change from rice-based agriculture to the cultivation of other food plants. He claimed that the reliance on just one variety of food plant would put the settlers in a vulnerable position in times of famine. He claimed that 170 points of rice contain only as much nutrients as 107 pounds of wheat. Capron, "Abstract of Second Annual Report," 100.

the least nutritive, food grain to produce. "It is the cheap production of bread food, together with the great variety of fruits and vegetables," Capron continued, "that enables the American people to enjoy many of the luxuries of life, and leaves many of them free to swell by other pursuits than the production of food the aggregate wealth and commerce of the nation."⁷² He also made a similar assertions in his letter to Kuroda in 1873, repeating the necessity of changing dietary culture not only to make the settlements in Hokkaido more self-sustaining, but also to develop the island's export capacity.⁷³ Although Capron claimed to have based his advice on scientific and empirical explanations, he actually obscured his bias in treating the American experience as a universal model of development.⁷⁴

Instead of working to meet the original demand of the Japanese government to turn Hokkaido into a rice-growing region, Capron and his American team repeatedly pressured the government and Japanese settlers to live without rice. Claiming the drastically different soil and climate, they introduced new crops, which ended up thriving in Hokkaido, and concluded that Hokkaido was suitable for settlement. Yet, the successful cultivation of foreign crops did not truly invalidate the argument that Hokkaido was unsuitable for "Japanese settlers," if such suitability was still based on whether they could grow rice – the main staple for Japanese settlers.⁷⁵ Thus, to

⁷² Capron, "Abstract of First Annual Report," 49.

⁷³ Capron to Kuroda, (22 September 1873), in Capron, *Reports and Official Letters to the Kaitakushi*, 85.

⁷⁴ In addition, Capron also tried to use the new Capitol – the headquarters of the Kaitakushi in Sapporo – as a showcase of the supposedly- awe-inspiring American modernity. He emphasized the importance of constructing the main building as well as official housings in "foreign style," to convince both the Japanese officials and Sapporo residents of their "superior comforts in that climate" over Japanese-style houses while praising the architect of these new buildings for having "broken loose from what may be termed the chronic architecture of Japan." Moreover, the surrounding grounds were to be planted with foreign trees, grains, and vegetables, which would further distinguish the Capitol from the rest of the settlements. See Capron to Kuroda (18 September 1874), in Capron, 265. See also Yujin Yaguchi, "American Objects, Japanese Memory: 'American' Landscape and Local Identity in Sapporo, Japan," *Winterthur Portfolio* 37, no. 2/3 (June 2002): 93–121.

⁷⁵ However, after the introduction of more climate-resistant strands of rice during the early twentieth century, rice cultivation became increasingly common in Hokkaido. On the association of rice with

justify his agricultural advice, Capron had to devalue rice by resorting to economic and nutritional reasons.

Like his team member, A. G. Warfield, who emphasized the significance of latitudinal location as an indicator of civilization, Capron also entertained a kind of social evolutionary theory based on environmental variation.⁷⁶ Particularly, Warfield and Capron were convinced that the temperate climate was more viable for human civilization than the climate in the tropics. Their prioritization of climatic conditions over cultural and dietary preference reflects the view that the environment was a key factor that determined where and how human settlement and civilization would take place – as if that was the universally best approach. In other words, the focus on the environment simply serves as a foil for them to take for granted the superiority of American dietary culture.

In this light, Capron's suggestion was not a factual statement. It was a knowledge claim, based on how he *made sense* of Hokkaido's climate and environment through a comparison with his idea of what an "American landscape" was like. Then, by specifying the crops and animals to keep on farms, Capron narrowed the scope of agricultural possibilities for the land, which was already limited to his American experience and food culture. What was ignored and forgotten was the native fauna and flora that had already thrived there as well as the possibility of converting them into food sources. It therefore seemed that he took for granted the need to

Japanese identity, see Emiko Ohnuki-Tierney, *Rice as Self: Japanese Identities through Time* (Princeton, N.J.: Princeton University Press, 1993).

⁷⁶ Warfield describes a part of Hokkaido during his survey: "The valley of Ishcari is undoubtedly one of the most interesting and inviting portions of the island, and the location of Sapporo, with its unequalled waterpower, and the proximity of that power to the city – together with its comparatively central position between the Japan Sea and pacific Ocean, in the Great Plain that extends from coast to coast, and **lying as it does but little north of the forty-second parallel of latitude, in the Temperate Zone, with a climate most favourable to physical strength and intellectual activity, it must eventually become the great commercial and manufacturing centre of the island.**" Report of A.G. Warfield," in *Reports and Official Letters to the Kaitakushi* (Tokei: Kaitakushi, 1875), 26–27. [my emphasis]

introduce American crops, livestock, and knowledges. While this example shows that nature plays an important role in colonization by shaping the perceptions and actions of human actors, it also sheds light on how the reductionist logic of environmental determinism might be used to claim cultural or racial supremacy.

While previous scholarship has taken for granted the overwhelming influence of American advisers in shaping the direction of Hokkaido colonization, the reports and correspondence under examination reveal that the authority of American advisers was far from absolute. Capron himself directly complained to Kuroda on numerous occasions about how the Kaitakushi officials failed to follow – or simply ignored – his suggestions. Other times, such as during the construction of the Toyohira Bridge, Capron claimed that the Japanese officials took the liberty to act without consulting him first. At the conclusion of his service in 1875, Capron accused the Japanese of lacking the ability to fully digest experts' advice. According to Capron, "It cannot be expected that those who have no practical, nor even theoretical, experience of an undertaking, can gain from a fragmentary conversation or from a glance at a chart or plan such knowledge as will enable them to comprehend it in all its details and to carry it out to successful completion." Hence, it would have been better to "defer to the skill and experience of the person who is employed to give advice, and hold him responsible for results."⁷⁷

Capron's frustration with the Japanese officials' lack of complete submission to his authority was exacerbated by wave after wave of criticism, both from Japan and abroad, that Capron received over the course of his service in Japan. It was also due to this reason that Capron decided to compile his reports and correspondences for the publication in 1875. According to Capron, this publication would serve as "a history of the Kaitakushi and its works, and as an

⁷⁷ Capron to Kuroda (30 April, 1875), in Capron, *Reports and Official Letters to the Kaitakushi*, 649–50.

authoritative account of operations that have been frequently misrepresented or misunderstood.” To justify the inclusion of his official letters, which were not written for publication, he claimed that these letters would serve the purpose of “indicating more fully the progress of our work, and of illustrating in a measure, the difficulties with which we have had to contend.”⁷⁸ Thus, the whole publication reads less like a report than a collection of excuses and explanations as to why Capron’s work was not very successful. It is also worth noting that in this publication, Capron represented his undertakings in Hokkaido as “experimental,” which appears in stark contrast to all his previous forceful arguments about the validity of his advice. According to Capron, his work in Hokkaido “has been *a task without precedent, and amidst novel surroundings, where most undertakings were, necessarily, only experimental*. Under such circumstances, it was but natural that mistakes should have been made, and I hope that in pointing out these I have done something useful for future guidance.”⁷⁹ Viewed in light of how Capron was working under constant criticism, the publication represented Capron’s last chance in Japan to restore his reputation and image in the public’s eyes.

Capron’s preoccupation with public criticism and his numerous self-defensive remarks throughout the publication prompt us to reevaluate the power of American advisers as well as the supremacy of American agriculture. While “American” agriculture – as an idea – continued to influence the Kaitakushi’s enviro-colonial rule of Hokkaido during the latter half of its existence, such influence was clearly not inevitable. Since the eighteenth century, the Japanese state – from the Tokugawa Shogunate to the Meiji government – had been producing knowledge about the northern island in an attempt to come to terms with its environmental differences. The American advisers helped reframe Hokkaido’s otherness in a new light by comparing it to

⁷⁸ Capron, I.

⁷⁹ Capron, II. [my emphasis]

American landscapes and offering options for developing the island, thereby giving rise to a unique enviro-colonial rule. On the other hand, the American advisers sought to assert the supremacy of American livelihood and to displace several aspects of what they saw as inferior “Japanese” practices, especially the adherence to rice as the primary staple. Even though the Japanese officials seemed to accept many aspects of this reasoning, they did not always faithfully follow the instructions, as evidenced in many of Capron’s bitter complaints. Thus, rather than a mere transfer of knowledges and practices from America to Hokkaido, these movements are better understood as a contentious process of knowledge claiming by both the Japanese officials and the American advisers. As I will demonstrate in Chapter 2, even though Capron’s contract ended in 1875, the theme of experimentation continued to characterize the enviro-colonial rule in Hokkaido.

CHAPTER 2

SAVING ALMA MATER:

Sapporo Agricultural College and the Transformation of Enviro-Colonial Entanglements

Introduction

In Chapter 1, I discussed how the Japanese government created a special administrative body called the Kaitakushi to deal with Hokkaido, whose otherness demanded a different approach to establishing new settlements, and seemed to require a form of governance that was different from what was being practiced elsewhere on the Japanese mainland. To come to terms with Hokkaido's otherness, the Kaitakushi hired American advisers to explore Hokkaido and to make it legible through multiple forms of inscription. The accumulated knowledge about Hokkaido eventually made it possible to combine two seemingly separate fields of governance – colonial administration and agricultural development – and gave rise to what I call “enviro-colonial rule” in Hokkaido.

In this chapter, I examine the emergence of Sapporo Agricultural College (hereafter SAC) as a key institutional actor in the formation and transformation of enviro-colonial entanglements in Hokkaido. As I have explained in Chapter 1, among the various development projects, the promotion of agricultural settlements was the primary focus of the Kaitakushi (Hokkaido Colonization Office). Yet, because it had been decided that Hokkaido's distinct environmental features required a form of agricultural development that was different from what was being

practiced on the mainland, the Kaitakushi ended up adding education to its already all-encompassing administration.

Kuroda Kiyotaka, the vice director of the Kaitakushi, expressed his interest in agricultural education since 1871. In his memorandum to Horace Capron dated September 14th, 1871, Kuroda discussed the plans to begin “practical” instruction such as the use of new farming tools both at the experimental farms in Tokyo and for Hokkaido settlers. In addition, he intended to start an agricultural school in Sapporo, which eventually led to the establishment of Sapporo Agricultural College in 1876.¹ Yet, the planning of the school did not officially begin until Capron arrived in Japan and submitted his first report in early January 1872.² Capron described his plan for the school as follows:

It should be the endeavor of this Government to establish by every possible effort, scientific, systematic, and practical agriculture. In no way can this be done more effectively or economically than by connecting with the gardens at this place [Tokyo] and also with the farms at Sapporo, institutions at which shall be taught all the important branches of agricultural science. These institutions should have well appointed laboratories, and should be supplied with professors of acknowledged ability in their several specialties. A Professor of Entomology would, for example, be of incalculable service to the farmer, of this country where the insects annually destroy millions of dollars worth of property.³

Subsequently, on January 20th, 1872, Kuroda addressed his first letter regarding the school to the Dajōkan (Grand Council of State). Due to the lack of facilities in Sapporo at the time, he proposed that a temporary school be established in Tokyo first. The school posted the call for applicants in March 1872 and received its first group of students. According to David Anthony, the temporary school in Tokyo was not successful. The facilities were limited and understaffed, with only

¹ Anthony, “The Administration of Hokkaido under Kuroda Kiyotaka, 1870-1882: An Early Example of Japanese-American Cooperation,” 97–98.

² Anthony, 99.

³ Capron, “Abstract of First Annual Report,” 50–51.

Thomas Antisell, who taught chemistry and arithmetic, and James R. Wasson, who taught English. Moreover, the students were said to lack discipline. Eventually, all students were discharged, and the school was closed down in March 1873.⁴

Eventually, in 1876, the plan for an agricultural school in Sapporo was actualized. William S. Clark, the president of Massachusetts Agricultural College, was invited by the Japanese government to organize a similar school in Hokkaido, Japan's newly acquired territory.⁵ Located in Sapporo, the new capital of the island, the college was named Sapporo Agricultural College (Sapporo Nōgakkō). Modelled after the college in Amherst, SAC was established to serve two main purposes: 1) to train future colonial officials, and 2) to introduce new agricultural practices to Hokkaido. However, following the political crisis and the abolishment of the Kaitakushi in 1882, the government in Tokyo started to consider the college obsolete and expendable, and SAC had to refashion itself to survive this crisis.

Previous scholarship tends to portray SAC as a transparent conduit for transferring American agricultural science to Japan, claiming American advisers as harbingers of "American" agriculture.⁶ Although some recent works on American advisers, such as the works of John

⁴ Anthony, "The Administration of Hokkaido under Kuroda Kiyotaka, 1870-1882: An Early Example of Japanese-American Cooperation," 102. On a temporary school before the establishment of Sapporo Agricultural College, see Christopher J. Frey, "Ainu Schools and Education Policy in Nineteenth-Century Hokkaido, Japan" (Ph.D. Diss., Indiana University, 2007), 72-75.

⁵ Anthony argues that the Japanese government's decision to establish an agricultural college following the model from Massachusetts reflects how Japan quickly caught up with American progress, emphasizing the fact that the idea of creating agricultural colleges or other land-grant colleges was relatively new in the U.S. On a history of land-grant colleges in the U.S., see Roger L. Geiger and Nathan M. Sorber, eds., *The Land-Grant Colleges and the Reshaping of American Higher Education* (New Brunswick (U.S.A.): Transaction Publishers, 2013). Coy F Cross, *Justin Smith Morrill: Father of the Land-Grant Colleges* (East Lansing: Michigan State University Press, 1999); Keith R Widder, *Michigan Agricultural College: The Evolution of a Land-Grant Philosophy, 1855-1925* (East Lansing, Mich.: Michigan State University Press, 2005); Margaret A. Nash, "Entangled Pasts: Land-Grant Colleges and American Indian Dispossession," *History of Education Quarterly* 59, no. 4 (November 2019): 437-67.

⁶ Ebina Kenzō, *Sapporo Nōgakkō*; Willcock, "Traditional Learning, Western Thought, and the Sapporo Agricultural College"; John Hennessey, "Engineering Japanese Settler Colonialism in Hokkaido : A Postcolonial Reevaluation of William Wheeler's Work for the Kaitakushi," *Asia in Focus: A Nordic Journal on Asia by Early Career Researchers* 6 (2018): 2-13; Hennessey, "A Colonial Trans-Pacific Partnership."

Hennessey, have emphasized the exchange of ideas between both sides of the Pacific Ocean, SAC professors have still been regarded as “conduits” of ideas rather than as active producers of both new knowledges and people. To address this issue, this chapter foregrounds the active role of SAC in introducing, modifying, and institutionalizing a diverse body of knowledge that ultimately reconfigured the relationship between colonialism and environmental management in Japan.

Using the year 1882 as the turning point, I chronologically divide my discussion into two periods. In the first period (1876-1882), I argue that SAC did not rely on just the previous knowledge about Hokkaido and the imported knowledge of American agriculture. Instead, SAC continued to actively engage in the practice of “knowing nature” – the production of knowledge about Hokkaido’s environment. Surveying and other knowing-nature activities remained crucial tasks of the college, which functioned as the Kaitakushi’s main producer of new knowledges about the northern island. Moreover, the emphasis on knowing nature was also institutionalized in SAC’s curriculum, reflecting the desire to produce future colonial officials who could read and identify the characteristics of each local environment and transform it for agricultural development. In the second period (1882-1912), I examine curricular changes, especially in 1876 and 1893, to emphasize how SAC continued to adapt its coursework to maintain its leading role as the center of both colonial and agricultural governance in Japan. Most importantly, SAC was the first school in Japan to open a class on colonial policy studies. I argue that after the late-1880s crisis, SAC modified itself from a local school that offered Hokkaido-specific education to an imperial university that used Hokkaido as the model for Japan’s later imperial projects elsewhere.

Sapporo Agricultural College during Its Formative Years (1876-1882)

Between 1876 and 1882, SAC could be considered a knowledge-producing department of the Kaitakushi with two interrelated primary products: knowledge and future officers. Firstly, SAC took over part of the surveying work of previous foreign advisers and centralized the production of knowledge about Hokkaido's landscape, climate, flora and fauna that could be used in agricultural development. In addition, the college was responsible for producing knowledge through agricultural experiments. These production activities altogether enabled SAC to rise as a new authority and main distributor of new agricultural knowledge in Hokkaido. Yet, such authority was far from being absolute. As an educational branch of the Kaitakushi, the college had relatively little power in determining policy for Hokkaido governance as a whole. In the area of experimentation, SAC was also challenged by Edwin Dun, the American adviser on the development of livestock farming who sometimes accused SAC's education of being impractical. The question of what counted as "practical" knowledge continued to be a significant factor that shaped the development of SAC's curricula during the Kaitakushi Period and after.

Secondly, SAC served as a specialized school that would train future officials for the Kaitakushi. In *First Annual Report*, William Clark explicitly stated the objective of this college as "the education and practical training of young men from all parts of the Empire who are expected to become its employès [sic] after graduation, and to remain in its service for the term of five years."⁷ These officials were expected to be capable of using their knowledge and skills to help the Kaitakushi produce more knowledge about Hokkaido, and then to mobilize such knowledge for implementing actual development of the land. This expectation [of producing future officials] was reflected in the college curriculum.

⁷ *First Annual Report*, 41.

Training Colonial Officials

Let every one of you, young gentlemen, strive to prepare himself for the highest positions of labor and trust and consequent honor in your native land which greatly needs your most faithful and efficient service. Preserve your health and control your appetites and passions, cultivate habits of obedience and diligence, and acquire all possible knowledge and skill in the various sciences which you may have an opportunity to study. Thus you will prepare yourselves for important positions, which are always in waiting for honest, intelligent, and energetic men, of whom the supply is uniformly less than the demand in this as in every other country. (William S. Clark, August 14, 1876)⁸

At the opening ceremony of SAC, Kuroda emphasized the central role of this new college in “transforming the state of agricultural studies.”⁹ Clark seemed to agree upon this primary role and claimed that such a transformation could be achieved by nurturing young men to become competent agricultural leaders.¹⁰ As an educator himself, Clark explicitly affirmed the great value of education. In *First Annual Report of SAC*, he brought up an unidentified quotation to stress this point, saying: “[A] country is nothing without men, men are nothing without mind, and mind is little without culture [...] The central point of every wisely administered government is its system of education.”¹¹ In other words, Clark emphasized that the primary mission of this new college was to train young officials who would be expected to stay in Hokkaido and assist in the development of this northern island.

⁸ Sapporo Nōgakko Gakugeikai, ed., “Address of President W. S. Clark,” in *Sapporo Nōgakko* (Sapporo: Hokkaidō Daigaku Tosho Kankōkai, 2005).

⁹ Sapporo Nōgakko Gakugeikai, ed., “Kuroda Kiyotaka kun kaikōshikiji [College Opening Ceremony Address by Kuroda Kiyotaka],” in *Sapporo Nōgakko* (Sapporo: Hokkaidō Daigaku Tosho Kankōkai, 2005), 1.

¹⁰ It must be noted that the education offered by SAC was oriented towards the higher class of the young men. As remarked by William Wheeler, who succeeded Clark as the leader of the school, “[T]he liberal opportunity which the Government has opened to them, conjoined with that receptive turn of mind and the studious habits, which are almost national traits of the better classes of the people, has brought to the new line of study here pursued their best energies” *Second Annual Report*, 5.

¹¹ *First Annual Report*, 1. On Clark’s ideas about education and self-improvement, which seemed to be well accepted in Hokkaido but failed to gain the same praise back in Massachusetts, see Patrick T. J. Browne, “Cultivation of the Higher Self: William Smith Clark and Agricultural Education,” *Historical Journal of Massachusetts* 36, no. 1 (Winter 2008): 1–28.

To “transform the state of agricultural studies” as Kuroda desired, Clark deemed it indispensable to adopt a new approach to education. Clark was certainly aware of the long tradition of schooling in Japan and other “more cultivated nations of the East.” However, he claimed that none of those countries had “greater enthusiasm in the pursuit of useful knowledge and the establishment of educational institutions been manifested by any people than by the Japanese under the intelligent government of His Imperial Majesty Mutsuhito.”¹² Despite such praise, Clark made his bias clear that he considered what was being taught at this new college to be better.

His successor, Wheeler, similarly attempted to distinguish the college’s curriculum from earlier modes of “memory-based” education. For example, in a section entitled “Progressive and Non-Progressive Education in Japan” in *The Second Annual Report*, Wheeler tried to differentiate Japanese students from their Euro-American counterparts. According to Wheeler, “Japanese students have shown greater aptitude for learning than is manifested by those of American and European institutions; but that subsequently, in the active walks of life, they have almost invariably fallen behind the heirs of that practical, progressive, self-asserting spirit which has been the impulse of the fruit of western civilization.”¹³ The cause of this backwardness, Wheeler claimed, was because Japanese students “inherited qualities of mind accruing from peculiar systems of learning and conditions of society which have existed for ages,” which were “vast but inert” and lacking of attention to “the most potent laws and principles of nature, of society, of human capacity.”¹⁴ He argued that such systems depended too much on Chinese classics while giving no impulse to rise above these sources. The result, he lamented, was the students’ cultural

¹² *First Annual Report*, 1–2.

¹³ *Second Annual Report*, 11.

¹⁴ *Second Annual Report*, 12.

habit of memorizing and imitating age-old knowledge rather than exercising the faculties of thought, design, and invention. Like Horace Capron's use of environmental deterministic claims as a foil to assert American cultural supremacy, Wheeler's comparison of two school approaches was imbued with an American-centric vision of education and progress.

Wheeler suggested a change in the "habits which we acquire in getting knowledge," which he claimed to be "as important as the knowledge itself."¹⁵ Such a change was to teach students to exercise their "*thinking* faculties" and make them aware that "[g]eneral principles must be exalted above individual facts." Using the instruction of mathematics as an example, Wheeler wrote that:

The interest and native powers of the students are enlisted and strengthened by exercises in original demonstration, solution, and application. No student should ever be asked to "*repeat* the rule;" or "what is *the rule*;" etc. A rule or process may be required of him ; but too great reverence for, or dependence upon, the one given by an author should be just so far discouraged as the powers of the pupil will enable him to formulate one of his own. No pupil that has learned to read is old enough to learn properly the facts of any branch of deductive science, until he is capable of comprehending the principles upon which our knowledge of it is founded.¹⁶

Wheeler's emphasis on the students' ability to gain more knowledge on their own resonated with Clark's remark about the importance of SAC as an educational institution, which was founded within the context of Japan's pursuit of knowledge about Hokkaido and its nature.

The emphasis on thinking and generating one's own knowledge calls into question the previous assumption that SAC was simply a conduit through which knowledges from America were transferred to the Japanese students in Hokkaido.¹⁷ Indeed, most of the subjects to be taught

¹⁵ *Second Annual Report*, 7.

¹⁶ *Second Annual Report*, 5-7. [emphasis in the original]

¹⁷ On the American influence on modern education in Japan, see Benjamin C Duke, *The History of Modern Japanese Education: Constructing the National School System, 1872-1890* (New Brunswick, N.J.: Rutgers University Press, 2009). For sample works on the history of scientific pedagogy, see Peter Galison,

were supposedly foreign [or American, to be specific]. Except for English and mathematical lessons, which were becoming increasingly common in major cities like Tokyo, SAC's classes had not been widely taught in other Japanese schools. In addition, the content of these subjects was usually based on Euro-American experiences. They used books from Europe and America and sometimes required special equipment and teaching materials. Yet, these foreign lessons were simultaneously regarded as "science" and thereby universally applicable.

Despite the supposedly foreign origins, these subjects were taught not only for "content." As I have elaborated in the previous section, Wheeler emphasized what he called the cultivation of "thinking faculties" of the students. Hence, instead of "facts" (a fixed set of contents to be memorized and followed as in traditional Japanese schools), Wheeler maintained that the instruction at SAC was designed to teach "principles and methods."¹⁸ The description of their pedagogy and modes of teaching in the annual reports reveals that the professors did not simply lecture and deliver content. Rather, they seemed to spend a good amount of time training their students how to study or do experiments in a given discipline, including skills such as drawing, map-making, and some agricultural practices. These skills were institutionalized in a set of formal classes that I propose to call "knowing nature."

Through a combination of content, principles, and methods, SAC claimed to offer "practical" lessons in agriculture. For Clark, practical education meant preparing the students for "important positions" as officials in the Japanese government. In the first annual report, Clark described, "[T]he instruction should be *as practical as possible* in all departments so that the

Michael D. Gordin, and David. Kaiser, eds., *Science and Society: The History of Modern Physical Science in the Twentieth Century* (New York: Routledge, 2001); David. Kaiser, ed., *Pedagogy and the Practice of Science: Historical and Contemporary Perspectives* (Cambridge, Mass.: MIT Press, 2005).

¹⁸Echoing Wheeler, Brooks argued, "Knowing these principles a man can vary his practice as the occasion may require, and a little experience will make success a certain in all cases." *Second Annual Report*, 43.

graduates of the College may ever be *distinguished for their sound judgment, their enterprising spirit, and their strict morality*. Every teacher should make his character and conduct worthy the imitation of his pupils, and should seize every proper opportunity to impart to them useful information in regard to the care and control of their bodies, the discipline and enrichment of their minds, and the dignity and worth of their immortal natures”¹⁹ Although he still emphasized the significance of agricultural knowledge elsewhere in the report, what Clark truly prioritized was actually a more general cultivation of the good mind and morality – the qualities which he deemed most important for future officials.

In this sense, SAC gave practical lessons at two levels. On the one hand, practical lessons meant training that involved hands-on activities and experimental works. On the other hand, it also referred to the insights that could be adapted or modified for further usage. As Brooks noted, the instruction at SAC was “intended to fit those who faithfully complete the course to successfully manage the business of farming in all its branches according to the most advanced scientific and economic methods. It is also the intention to teach them how to conduct accurate agricultural experiments for the solution of questions requiring the application of scientific knowledge.”²⁰ Ultimately, the focus of SAC was aimed at Hokkaido-specific uses. According to Brooks, “While the principal design of these experiments will be the training of the students, it will also be my aim to make them of such a nature that the results will be of practical value to the agriculturalists of Hokkaido.”²¹

¹⁹ *First Annual Report*, 48.

²⁰ *Second Annual Report*, 40.

²¹ *Second Annual Report*, 44.

Teaching Agriculture: From Knowing to Remaking Nature, 1876-81

Early SAC curricula were designed to include both theoretical and practical instruction.²² According to Brooks, this approach would familiarize the students with the habit of “putting observed facts and known principles together, and deducing therefrom the legitimate conclusions.”²³ In general, theoretical and practical instruction might be delivered in a certain combination of three primary modes: textbooks, oral instruction, and practical instruction. Most textbooks were imported, primarily English-language works from America.²⁴ These textbooks served as reference materials for students to review class lessons as well as to continue studying on their own. Oral instruction took the form of lectures and recitations, and required the students to take their own notes, which would be reviewed and corrected by the instructors. For practical training, the college emphasized several hands-on activities, including the required manual labor in College Farm (6 hours/week), experimentation in the farm and the laboratory, and surveying during summer vacations. While undertaking experiential learning, students would be encouraged to hone their intellectual minds. In farming experiments, for example, students would be given questions that required them to design and perform their own experiments under the supervision of the instructor. Having gained farming knowledge and experience to an extent, students would begin farm management lessons and assist the instructor as interpreters while managing the workers on the farm.²⁵

²² This section drew upon the writings of all the professors in the first five annual reports. However, the majority of the content was based on William Brooks’ reports, whose pedagogical description was the most detailed.

²³ *Second Annual Report*, 40–41.

²⁴ Each annual report contains a catalogue of books, magazines and other publications that were available at the college’s library.

²⁵ *Second Annual Report*, 43–45.

On the value of each mode of instruction, it was remarked in *First Annual Report* that “oral and practical teaching are most desirable, though text-books may often be wisely employed in connection with them [...] It matters little what text-books are adopted, provided the teachers are competent, and suitable books of reference are accessible to the students.”²⁶ Brooks similarly gave little significance to textbooks. He claimed that because textbooks included too many details, it was difficult for students to grasp the ideas on their own, and it would require more time than doing so through lectures.²⁷

Table 3: The Curriculum of Sapporo Agricultural College during Its Early Years²⁸

Term	The First Curriculum (1876)	The Actual Courses Taken by the Class of 1880 (1876-1880)
	Subject (hours/week)	Subject (hours/week)
Freshman Semester 1	Chemical physics & Inorganic chemistry (6)	Chemical physics & Inorganic chemistry (6)
	Algebra, incl. Logarithms (6)	Algebra, incl. Logarithms (6)
	Manual labor (6)	Manual labor (6)
	English (6)	English (6)
	Japanese (4)	Japanese (4)
	Military drill (2)	Military drill (2)
Freshman Semester 2	Organic & practical chemistry (8)	Organic & practical chemistry (8)
	Geometry & conic sections (6)	Geometry & conic sections (6)
	Freehand & geometrical drawing (3)	Freehand & geometrical drawing (3)
	Agriculture (4)	Agriculture (4)
	Manual labor (6)	Manual labor (6)
	English (2)	English and Elocution (4)
	Elocution (2)	Military drill (2)
	Military drill (2)	
Sophomore Semester 1	Agricultural & analytical chemistry (8)	Agricultural & analytical chemistry (8)
	Botany (3)	Botany (3)
	Human anatomy & physiology (3)	Human anatomy & physiology (3)
	Agriculture (4)	Agriculture (4)
	Manual labor (6)	Manual labor (6)

²⁶ *First Annual Report*, 47–48. The author for this section of the report is unspecified, but it could be ascribed to Clark, who was the main author of this collected volume.

²⁷ *Third Annual Report of Sapporo Agricultural College, 1879* (Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976), 33. He repeated this claim in *Fourth Annual Report*, asserting that “teacher can give clearer and more definite ideas, less encumbered with irrelevant matter.” *Fourth Annual Report*, 15.

²⁸ Reconstructed from the curricula described in the first, second, third, and fourth annual reports of Sapporo Agricultural College.

	English (2)	English (2)
	Elocution (2)	Elocution (2)
	Military drill (2)	Military drill (2)
Sophomore Semester 2	Quantitative analytical chemistry (8)	[first half] Organic chemistry (6)
	Trigonometry & surveying (6)	[second half] Spectrum Analysis (6)
	Mathematical drawing and plotting (3)	Trigonometry & surveying (6)
	Botany (4)	Mathematical drawing and plotting (3)
	Agriculture (2)	Botany (4)
	Manual labor (3)	Agriculture (2)
	English & Japanese translations (2)	Manual labor (3)
	Military drill (2)	Military drill (2)
Junior Semester 1	Zoology (3)	Astronomy (3)
	Botany (3)	Topography (3)
	Fruit culture (3)	Topographical drawing (3)
	Manual labor as required	Zoology (6)
	Mechanics (6)	Botany (3)
	English (4)	Fruit culture (3)
	Japanese (2)	Manual labor as required
	Military drill (2)	English (4)
		Military drill (2)
Junior Semester 2	Astronomy & topography (6)	Mechanics (6)
	Mechanical and topographical drawing (3)	Mechanical drawing (3)
	Stock & dairy farming (3)	Agriculture (3) [Possibly stock farming]
	Landscape gardening (3)	Practical Horticulture (3)
	Eng. & Jap. compositions & translations (2)	English composition & elocution (2)
	History of English literature (6)	History of English literature (6)
	Military drill (2)	Military drill (2)
Senior Semester 1	Microscopy (3)	Microscopy (3)
	Geology (4)	Geology (4)
	Physics (6)	Physics (6)
	Book-keeping (4)	Book-keeping (4)
	Veterinary science & practice (6)	Extempore debate (2)
	Extempore debate (2)	Philosophy of history (6)
	Military drill (2)	Military drill (2)
Senior Semester 2	Roads, railroads, & hydraulic engineering (6)	Veterinary science & practice (6)
	Mental science (4)	Civil engineering (6)
	Political economy (4)	Political economy (4)
	Original declamations (1)	Original declamations (1)
	Military drill (2)	Military drill (2)

A quick glance at two versions of the curricula reveals that SAC offered a variety of courses that are directly and indirectly related to agriculture. Besides the course on specific types of agriculture, there were also several branches of natural science, mathematics, surveying, supplementary knowledges in the humanities and social sciences, language, and linguistic skills, as well as the required manual labor on the farm and military drills. I have argued that the college put great emphasis on knowing nature (the production of knowledge about nature) and training nature-knowing officials (officials who can produce and make use of knowledge about nature). If we keep in mind these emphases of the college, we may divide SAC's courses into four categories: 1) knowing nature, 2) remaking nature, 3) officer training, and 4) others. The knowing nature courses included all non-life science subjects (chemistry, mathematics, physics, geology, and astronomy) as well as technical courses such as surveying, drawing, and topography. These courses were aimed at providing the "principles" and the "methods" of observing and recording knowledge for future uses. The courses on remaking nature included all agricultural courses, together with the corresponding branches of biology, and some courses on mechanics and engineering. The officer training courses included the courses in languages, humanities and social sciences, and the military drills. The last category was comprised of the non-agricultural engineering courses, which were few in the early curricula but later increased in number after the curricular reform in 1886.

Knowing and Remaking Nature

Early SAC curricula were designed to teach students how to know and remake nature for their respective goals, reflecting the idea that concepts and principles were fundamental, while experimentation and practical works were regarded as advanced lessons. Such an idea was evident in the arrangement of instruction sequences and the distribution of classes in the

curriculum. For the freshmen and the sophomore years, the instruction highlighted the necessity of training students to observe and record new knowledges about nature, especially by conducting experiments and surveys. Then, during the junior and senior years, the students would learn about more specific branches of agriculture, which would require the adaptation of knowledges and skills from the first two years.

The instruction of chemistry was an explicit example of an instruction sequence that required students to “know nature” first before learning to apply their knowledge in later classes. Chemistry was taught only in the freshmen and the sophomore years, and the instruction followed three main steps. Firstly, students had to learn the “principles” from lectures and textbooks. The main lessons included the characteristics and reactions of the principal elements, with special emphasis on teaching the principles of “the true relation of chemistry to agriculture.”²⁹ Secondly, the students had to test out such knowledge and hone their skills through experimentation. In particular, students had to become familiar with the methods of analysis and the composition of minerals, soils, fertilizers and other substances which “a practical man would have frequent occasion to deal with.”³⁰ Lastly, having learned all the principles and cultivated their skills, students had to apply these to agricultural works beyond classrooms and laboratories.³¹

²⁹ *Fourth Annual Report*, 4.

³⁰ *Third Annual Report*, 21.

³¹ This sequence suggests that theoretical instruction preceded practical work. However, in practice, the instruction did not strictly follow this order as both theory and practice were supposed to complement each other. Instruction through lectures and textbooks did not need to precede laboratory experiments and practical works; they could occur concurrently, or the theoretical instruction could come after some practical instruction to explain a set of problems or reinforce certain principles. As Penhallow explained, lectures would accompany the practical lessons to make the students understand the “practical operation of those principles, when applied to industrial arts.” Still, as implied by the emphasis on application, the ultimate goal of chemical lessons was for their practical values. *Second Annual Report*, 25.

The arrangement of mathematical and survey-related classes, which were broken down and taught from the freshmen to the junior years, reflected a similar order of “principles first, application later.” The instruction started off with more abstract, fundamental mathematical lessons, such as algebra, logarithms, geometry, and conic sections, which would become useful when students learned a specialized kind of drawing that required calculations and mathematic precision. The subsequent classes on surveying, including topography and astronomy, gave new principles for observing nature and recording observations in standardized formats. During the summer excursions, when the students went out in the fields, those drawing skills and surveying lessons would be used to create maps, diagrams, and other visual representations of nature, in addition to the written, descriptive reports.

The sequence of agricultural instruction reversed the theory-to-practice order as the students would start working on the College Farm since the first semester and would receive more theoretical instruction from the second semester onward. Because most students did not come from farming families, this arrangement possibly aimed to familiarize the students with the nature of work and labor required on the farm. The first-year inclusion of the instruction of agriculture emphasized the significance of the subject. Such an emphasis shed light on the dual roles of first-year instruction: to inform (teach the students something), and to make belief (convince the students of the value of the lessons). In Latour’s and Callon’s terms, this was a process of “enrolment” in which students (new actors) were being enlisted by the professors (spokesmen) to play a role in the new network of agricultural development in Hokkaido. Students were taught to share a certain set of ideas and practices with the professors in order to work for the network as future officials. The emphasis on the value and significance of their lessons was evidenced in the examination questions posed to the first-year students. For example, during the first semester of the 1877–78 academic year, the freshmen students were asked to “[d]efine

agriculture - its importance as an occupation" and explain "[t]he importance to a farmer of a knowledge of chemistry, botany, entomology, veterinary medicine. Enumerate the other branches of knowledge which it is important for them to know."³² Similarly, during the first semester of the 1878–79 academic year, the freshmen were asked to explain "[t]he influence of agriculture on national prosperity" and "[t]he importance of a knowledge of entomology and veterinary medicine to the farmer."³³

In the sophomore year, students would start learning about specific forms of agriculture together with classes on corresponding branches of chemistry and biology, which served as theoretical foundations for more practical works in agriculture. The earliest classes on agriculture focused on inspecting and preparing the soil for plant cultivation, and would be taught in tandem with inorganic and organic chemistry and botany. By learning the characteristics and reactions of the principal elements, students would be equipped with a means to know the lands and the soils, and to turn that knowledge into other practical uses.³⁴ Then, during the junior year, students would continue to study botany while learning about more advanced forms of plant cultivation, including fruit culture and horticulture.

Together with lessons on knowing and remaking the lands, the students would also start learning about basic plant cultivation and botany. The relationship between plants and soils was the central theme that William Brooks, the agriculture instructor, wanted to emphasize for the second-year agricultural classes. Such a theme was evidenced in the experiment topics that he selected for his students in the 1878–79 academic year:

³² *Second Annual Report*, 118–19.

³³ *Third Annual Report*, 106.

³⁴ *Third Annual Report*, 21.

1. What, if any, is the value of salt as a fertilizer for mangold-wurzels, and how much is it best to use?
2. What is the value of ashes as a fertilizer for potatoes, and how many is it most profitable to use?
3. Is there any difference in the value for planting of the grain from different portions of an ear of corn?
4. What is the proper distance for planting corn?
5. What is the value of herring guano as a fertilizer for beets?
6. Is root-pruning of the corn plant beneficial; and, if so, what should be its degree of severity, and when should it be given?
7. What elements of plant-food are most wanting in the soil of the college farm?
8. Which is the better for turnips and mangold-wurzels, - ridge or level culture?
9. Which is the better for potatoes, - ride or level culture?
10. Which eyes of potatoes are most valuable for planting; and is it of any advantage to plant the unmutilated tubers, or to plant the whole tubers with a portion of the eyes cut out?
11. What is the relative value of wood ashes used alone and in conjunction with herring guano?
12. What is value of wood ashes as a fertilizer for turnips, and what quantity is it most profitable to use; also which will give the best results, ashes or herring guano?
13. What is the value of herring guano as a fertilizer for corn, and what quantity can be most profitably used?³⁵

To elaborate on the procedure of agricultural experimentation, each student would be given 0.2 acres of land to engage in their independent study during their fourth and fifth semesters in the program. After receiving the question from the instructor, each student was required to write up "a full account of a method of experiment which he thought would answer it or, at least, furnish the first step toward an answer."³⁶ Then, each account would be corrected by the instructor, and subsequently, the students would proceed with the experiment under the instructor's supervision. All students were also allowed to assist in other people's plots, thereby learning from other experiments.

³⁵ *Third Annual Report*, 35-36.

³⁶ *Third Annual Report*, 34.

Some of notable results of student experiments were summarized in Brooks' report for the Agricultural Department. While these questions were aimed at teaching some basic principles of plant cultivation and fertilization, it was no coincidence that many of the questions were related to several of the Kaitakushi's agricultural projects in Hokkaido, including the promotion of mangold-wurzel, potato, and corn cultivation. Thus, the publication of these results was not simply to recommend the excellent performance of some students. Rather, it highlighted the fact that SAC was not only a school but also a knowledge-producing institution, which was responsible for providing the Kaitakushi [the main audience of this report] with evidence-based suggestions for the ongoing agricultural development elsewhere in Hokkaido. Moreover, it also underlined the role of the students as key participants in knowledge production.

A close reading of SAC curricula (from 1876-1881) provides insight into the status of animal husbandry in the college's vision of agriculture. Even though the "agriculture" class had been offered since the first semester, students did not get to learn about farm animals and animal-related sciences until the junior year.³⁷ This arrangement seemed to suggest that crop cultivation and other subjects for "knowing nature" were basic knowledges whereas animal husbandry occupied a more advanced level in the academic hierarchy, alongside classes such as book-keeping, farm management, and veterinary science.

Also reflecting the "plants first, animals later" approach, the instruction of livestock farming started with plant-related lessons, particularly the cultivation of grass and production of animal feed. SAC Professors emphasized the importance of grasses and fodder as the foundation

³⁷ It must be noted that the second-generation students started human physiology and anatomy at the start of the second year. While such a class could be claimed to indirectly provide some fundamental knowledge about the bodily functions of organisms in the animal kingdom, conceived in the most general sense in which humans and nonhuman animals belong to the same kingdom, the students still did not have classes that directly dealt with animals until their third year.

of livestock farming. During the sophomore year, which focused on knowing and remaking the land, students would learn to cultivate grasses and create pastures for livestock. This knowledge would be tested in examinations. For example, during the second term of the 1877-78 academic year, the sophomore students were asked to determine the best season for sowing grass-seed; to select varieties to be sown for permanent mowing and to explain the manner of doing the work; and to identify principles in the selection of pasture land and the manner of converting forest land into pasture.³⁸ For animal-related classes, they began with zoology, moved on to stock farming and, eventually, concluded with veterinary science. The instruction featured ideological lessons like the advantages of being derived in the country from stock farming, as well as more technical lessons, such as how to select, breed and take care of cattle, horses, sheep and swine. It also included slaughtering and obtaining specific animal products like meat, milk, or wool.³⁹ The instruction of agriculture concluded with lessons on farm management and book-keeping. These methods and principles were expected to be useful for the students who were required to become officials; the future officials should be capable of using these methods to know the land and nature of wherever they were appointed to work, and to make well-informed choices for developing the place.

SAC Professors, especially Clark and Brooks, had emphasized the benefits and significance of livestock farming for Hokkaido from the outset. For example, Clark ordered the construction of facilities in College Farm No. 2 that were specifically for livestock farming, including the Model (Dairy) Barn, which was designed and constructed by Wheeler. Despite such emphasis, their vision of agriculture reflected a “mixed-farming” approach, in which farmers kept some animals but did not have to exclusively shift to animal husbandry. The roles of farm

³⁸ *Third Annual Report*, 90.

³⁹ *Fourth Annual Report*, 97-98; *Fifth Annual Report*, 3.

animals were to supplement several aspects of farming: to provide labor for plowing and opening up new lands; to produce manure for soil fertilization; and to be turned into various products to be consumed in the household or to be sold for additional income.

The earliest versions of coursework at SAC seemed to be more inclusive, treating livestock farming as only one of many agricultural possibilities. The students were exposed to several other options, including vegetable and fruit cultivation, sericulture and silk production, fishery and forestry, as well as agriculture-related skills and subjects such as veterinary science and economics. Even within the Model Barn, the activities were more a mixed practice of crop cultivation and animal husbandry. In addition to growing grasses and cereals to feed animals, they also cultivated other vegetables. The other experimental farms supervised by SAC were similarly versatile in nature. It might also be possible that SAC actually wanted to focus on livestock farming. However, Clark and other SAC professors were well aware of the near-absence of farm animals before the mid-nineteenth century in Japan. Clark himself remarked that Japanese farmers had to be convinced of the benefits of farm animals, which should occur through oral transmission or by example at the model farm. Yet, Clark expressed his concern over whether the Japanese farmers would be able to take care of the stock. Brooks also wrote that the idea of keeping livestock, both for labor and as a source of food, was too new and unfamiliar to be readily received by Japanese farmers and settlers. The absence of livestock farming meant the lack of not only the experience and necessary skills required to operate such a farm, but also other necessary components and facilities that would enable a livestock farm to exist and thrive. Such necessities included breeding stock with desirable traits, adequate sources of animal feed, suitable markets, product demand, tools, and machinery, to name a few. This also meant extra work for both the Kaitakushi and SAC, and extra need for financial support and investment from the Japanese government. Apparently, the introduction of livestock farming did not involve simply releasing

foreign animals into a new land and watching them grow by themselves. Rather, successful livestock farming required time to grasp the idea and its values, learn necessary skills, secure important implements and facilities, find or create markets, and fix some logistical needs. As a result, they had to tone down their ambitious plan and adopt a slower, more gradual policy, aiming for long-term development.

In *First Annual Report*, Clark had proposed a few methods to promote animal husbandry in Hokkaido. Some of his suggestions included: sending officials to encourage farmers to keep animals on the farm; keeping low prices for service by animal labor to demonstrate that the use of domestic animals will be cheaper than traditional ways of tillage or transportation; distributing breeding stock and providing animal feed at the lowest rate possible or selling them on credit; and building basic infrastructure for convenient transportation and ready markets.⁴⁰ The so-called introduction did not mean mere instruction of some abstract and practical lessons on animal husbandry. Rather, it involved building the industry from the ground up, which I discuss further in Chapter 5.

Becoming Leaders

Besides agriculture-focused lessons, early SAC curricula placed strong emphasis on the liberal arts and offered a wide range of courses in the humanities and social sciences, such as history of English literature, mental science (replaced by philosophy of history in 1880), and political economy. These courses were not explicitly related to agriculture but were deemed as practical lessons for the making of good public servants. Such an approach was based on the understanding that when these students started working for the Kaitakushi, they might not be

⁴⁰ *First Annual Report*, 25.

the ones to exercise their own labor in the fields. Rather, they were supposed to serve as local leaders and supervise farmers in the new farming practices. As pointed out by Wheeler, SAC should engage in “promoting the dissemination of practical knowledge of agriculture for people of Hokkaido,” by which he meant not only SAC students but also lay farmers. Drawing upon his interviews in Nanae in southern Hokkaido, Wheeler claimed that people’s inability to “read the language of the empire” was one main obstacle to the propagation of the new agriculture. To teach non-literate farmers, Wheeler suggested oral instruction as the primary mode of dissemination, which could be accomplished by sending teachers to the places where agriculture could be developed.⁴¹ As future officials for the Kaitakushi who would be stationed in various parts of Hokkaido, the SAC graduates were strong candidates for such positions. Thus, it was indispensable for the college to train its students to also become competent teachers of agriculture.

However, the dissemination of practical agriculture was not limited to technical lessons or practices. Because the new agriculture was considered to be very different from the Japanese approach, there arose the need to build faith and confidence in the new practices. The teachers had to make the farmers believe that the new approach was better and more profitable. To prepare them for leadership, students had to undergo intensive training in thinking and speaking. Brooks, as the instructor of agriculture himself, remarked, “Of more importance than any of the considerations to which I have thus far alluded is the training in thinking and speaking which is calculated to improve the students greatly giving both more ability and more confidence in the expression of ideas.”⁴² Students were required to demonstrate what they had learned through oral exercises. In the first semester of their fourth year, students would participate in

⁴¹ *Second Annual Report*, 19.

⁴² *Fourth Annual Report*, 16.

“Extempore debate,” where they had to use their agricultural knowledge to discuss specific agricultural problems. These debates, according to Brooks, stimulated the students to review what they had learned and to gain new ideas from others. In the following semester, they would turn their knowledge into “Original declamations,” and those who performed best would deliver their speeches and declamations during the college exhibition at the end of the academic year.

Another example of how speaking served as a significant means of communication and dissemination of knowledge was the inclusion of speeches in various forms (salutation, oration, and declamation). Below is a list of speeches, in both English and Japanese, at the College’s first public exhibition on July 4th, 1877:

Table 4: Speeches Given by Sapporo Agricultural College Students (1877)⁴³

Speech Type	Topic	Speaker
Japanese and English Salutation	-	S. Arakawa
English Oration	Is Labor a Blessing or a Curse?	S. Arakawa
English Oration	A Strong Will and a Strong Mind	M. Oshima
English Oration	Individual Enterprise: The Source of National Prosperity	S. Sato
English Oration	The Importance of Agriculture	N. Yasuda
Japanese Oration	The importance of Agriculture	H. Ito
English Oration	Health: Essential to Success	T. Watase
Declamation	On American Affairs	S. Tanouchi
Declamation	Mazeppa ⁴⁴	Y. Kuroiwa

Based on the topics selected for this exhibition, I argue that these speeches were not simply designed to showcase the students’ performance. Rather, it was an occasion to make claims about

⁴³ *Second Annual Report*, 10–11.

⁴⁴ *Mazeppa* is a narrative poem written by the English Romantic poet Lord Byron in 1819. It was probably taught in the first-year English and Elocution classes.

the new agriculture and the nature of education that the college was offering. The orations on “The importance of Agriculture” reaffirmed the intertwined relationships between agricultural development and the promotion of colonial settlement, which in turn justified the existence of institutions like the Kaitakushi and SAC. On the other hand, some of these speeches reflect visions regarding the significance of SAC as an educational institution and their expectations of an ideal SAC graduate. Meanwhile, the same visions were also the new ideologies that they wanted to inculcate in the minds of Japanese settlers, including the emphasis on hard work, the cultivation of individual minds and self-discipline, and the maintenance of a healthy body to ensure the provision of labor for the nation.

To summarize the formation of the college’s early curricula, I argue that the college put great effort into making its students capable of gaining new knowledges on their own (through means such as surveying or conducting experiments) and making use of such knowledges to serve their rather open-ended purposes. While SAC was originally created to train future officials to help reform agriculture in Hokkaido, the agriculture that they would end up promoting was not fixed. The emphasis on the individual pursuit of knowledge and the versatile nature of SAC’s agricultural education seem to highlight the shared notion that none of the knowledges being taught were immediately practical. Rather, they were more like options, which were to be considered along with the knowledge of a particular place to create rational action plans.⁴⁵

⁴⁵ To an extent, the skills that SAC students received from their nature knowing classes and assignments helped prepare them for starting their own pursuits of nature knowledge after graduation. Several of these students, especially those from the first two classes, became authors of books on several topics in natural sciences and thereby played a crucial role in generating new knowledges about the nature of Hokkaido and beyond. Notable alumni who later got teaching positions at their alma mater include Satō Shōsuke, (agriculture and colonial policy studies, class of 1880), Miyabe Kingo (botany, class of 1881), Adachi Mototarō (entomology, class of 1881). In the field of geography, a couple alumni wrote books and articles that introduced new concepts of modern geography.⁴⁵ Uchimura Kanzō (class of 1881) wrote *Chirigaku Ko* (Consideration of Geography, The Earth and Man, 1894), while Nitobe Inazō introduced Meitzen's concept of the morphology of rural settlements for the first time in Japan in his book *Nōgyō Honron* (Main Discourse on Agriculture).

The Experimental Practicality

Although the students are destined to become officers, it is intended to teach them thoroughly all the processes of practical agriculture, including the use of hand implements and of machinery, the care of domestic animals, and the management of teams both of oxen and horses.
(William Clark, 1876)⁴⁶

Thus far, I have discussed the dual role of SAC in producing both knowledge about Hokkaido's nature and future officials who would pursue knowledge production elsewhere. Continuing the task started by their predecessors, SAC continued to engage in the making of information about Hokkaido's environmental features and landscapes. Yet, SAC was not a producer of "facts." The college actively mobilized the accumulated information to reinforce the entanglements between Hokkaido colonization and the propagation of a new form of agriculture, thereby justifying the existence of the Kaitakushi and the college as the only group of experts for governing this foreign frontier. Meanwhile, SAC also institutionalized the practice of knowing nature in its early curricula. In addition to having the students join the survey trips and participate in specimen collection, the college organized its classes to familiarize students with the various practices of observing and recording knowledges about nature, and how to apply them for agricultural development. The students were also introduced to multiple forms of agriculture, especially the cultivation of foreign crops and animal husbandry. With the knowledge of several agricultural possibilities, together with the training in managing and speaking skills, SAC students were prepared for post-graduation responsibilities when they eventually assumed their roles as leaders of Hokkaido farmers. By attending to this academic arrangement, this chapter has highlighted the crucial role of the students in producing and claiming knowledges, which has been overlooked in previous scholarship on SAC.

⁴⁶ *First Annual Report*, 35.

To posit the superiority of the new mode of education, SAC professors produced and maintained discourses that placed Japanese agriculture under American agriculture in the civilizational ladder. The most explicit example was in the introduction of livestock farming. Brooks enthusiastically associated the livestock with civilization, claiming it as a means to rescue the Japanese from their “feudal” baggage. Brooks criticized the Japanese for lacking the desire to improve one’s life and passively relying on the ancient way of life. As he put it, “Contentment is, of course, a very desirable characteristic in a people; but to be contented to live in a miserable hovel and on the very coarsest food, as many of the lower classes appear to be, is evidently not a quality which will ever aid materially in increasing the wealth of a nation.”⁴⁷ According to Brooks, the use of animal labor represented a farming practice that employed the power of “brains” [judgment and common sense] rather than relying on muscular strength “like mere brutes.” For Brooks, “[b]oth brains and brawn are essential to a good workman; the former, if well employed, enabling him to accomplish vastly more with a given amount of muscular force than he could otherwise accomplish.”⁴⁸ Thus, having animals on the farm not only provided extra labor but also distinguished humans from “mere brutes.”

To be a proper human – i.e., to be an American-like human – a farmer should “acquire this habit of striving to do as much possible with a given amount of individual effort.”⁴⁹ Farmers should strive to produce as much as possible, which would ultimately increase the wealth of the nation. Unlike the previous practice of producing primarily for household consumption and taxes, the new agriculture that SAC encouraged was aimed at producing for sale and profits. Clark made it clear in *First Annual Report* that he wanted the College Farm to be a model for

⁴⁷ *Second Annual Report*, 54.

⁴⁸ *Second Annual Report*, 50.

⁴⁹ *Second Annual Report*, 51.

market-oriented agriculture. To facilitate this new mode of production, he stressed the need to improve transportation infrastructure and create markets where farm produce and products could be exchanged. Such a vision was pursued by Brooks, who succeeded Clark as the supervisor of the College Farm from 1877 to 1888. Brooks adjusted the farm operation to instill a new habit of mind that correlated livelihood with work and productivity – something that he deemed essentially different from Japanese feudalism. For example, Brooks decided to adopt a progressive payment rate for laborers as well as monetary rewards for students. Whereas laborers received income according to the amount of work they achieved, all students who worked on College Farms would receive a fixed rate (5 cents/hour). To explain his rationale, Brooks argued that the money given to the students was more for the sake of “cultivating the habits of industry in the use of money than as wages.” Despite the different payments, Brooks’ emphasis on a money economy remained unchanged. Rather than a reflection of different ideologies, the different payments suggested different modes of instructing the same principle to different groups of people. For farm laborers, a reward in the form of money was already granted, so Brooks had to offer different rates as an incentive to make them work harder. For students, their labor in the farm was a requirement of the curriculum, and initially they should not have expected anything more than lessons and practical skills for the work. However, with the payment, Brooks added another meaning to their labor, encouraging the students to regard farming as a profitable career.

Based on these discourses, what these professors wanted to teach the most was not specific techniques or practices, but rather a set of new habits and mentalities that they claimed to be essentially American – and hence, better. Rather than an example of how *American* knowledge was introduced to Hokkaido, this early development of SAC foregrounds the underlying theme of experimentation. The central role of experimentation, both in the instruction

and the Kaitakushi projects, suggested that the work was constantly shaped by what they learned on-site, and it was part of ongoing experimentation to find the best approach and model of agriculture for Hokkaido. By emphasizing on the experimental nature of SAC's agricultural education, I seek to engage with scholarship that has sought to reveal the complexity of knowledge transfers. Francesca Bray has urged scholars to "explore the local meanings of technological systems" in order to reevaluate the "master narrative" that has put the West as the standard and origin of knowledge.⁵⁰ Similarly, Suzanne Moon adapts Arnold Pacey's notion of dialogue to address "a complex and interactive process - negotiation, manipulation, and positioning - as historical actors struggled to assert their respective visions of the proper course of Indonesian development."⁵¹ By acknowledging this on-going dialogue, we can begin to uncover the obscured agency of the so-called "receiver" - an identity which has been imposed upon non-Western actors so as to deny their active innovation and contribution to the development of science and technology. In addition to considering agency, other scholars have stressed that it is also indispensable to attend to the social and environmental conditions in which a certain science or technology is to be situated.⁵² Taking these questions into account, my study of SAC foregrounds the messiness of knowledge transfer and the multiplicity of possible outcomes. As reflected in SAC's curricula and academic structure, there was always more than one *American* way of doing agriculture.

⁵⁰ Francesca Bray, *Technology and Gender: Fabrics of Power in Late Imperial China*, Berkeley (University of California Press, 1997), 11. See also Christopher L. Hill, "Conceptual Universalization in the Transnational Nineteenth Century," in *Global Intellectual History*, ed. Samuel Moyn and Andrew Sartori (New York: Columbia University Press, 2013), 134-58.

⁵¹ Suzanne M. Moon, "Takeoff or Self-Sufficiency? Ideologies of Development in Indonesia, 1957-1961," *Technology and Culture* 39, no. 2 (1998): 189.

⁵² Marianne de Laet and Annemarie Mol, "The Zimbabwe Bush Pump: Mechanics of a Fluid Technology," in *Technoscience: The Politics of Interventions*, ed. Kristin Asdal, Brita Brenna, and Ingunn Moser (Oslo: Unipub, 2007), 179-220; David Biggs, "Breaking from the Colonial Mold: Water Engineering and the Failure of Nation-Building in the Plain of Reeds, Vietnam," *Technology and Culture* 49, no. 3 (2008): 599-623.

What counted as practical education at SAC deserves our special attention. In general, SAC professors seemed to share the notion that practical instruction meant adaptable skills for future officials. By exposing students to a variety of agricultural practices, early curricula were more inclusive than intensive. The lack of in-depth training was admitted by the professors themselves. J. C. Cutter, who taught veterinary science, explicitly noted that the students could not work as veterinarians due to their limited exposure and duration of training.⁵³ With relatively little time spent on each subject, it was impossible for students to become skillful and experienced farmers. Thus, a graduate from SAC could be expected to know a bit about several branches of agriculture, but he could hardly claim expertise or specialization in any fields.

The inclusive but depth-lacking characteristics of agricultural education at SAC were a major point that Edwin Dun, an American rancher who supervised the Kaitakushi breeding farms, criticized and accused SAC of impractical education. In his autobiographical *Reminiscences of nearly half a century in Japan*, Dun claimed that even prior to the establishment of SAC in 1876, he had suggested to Kuroda that a school of practical learning should be established as part of the plan to develop Hokkaido. However, to his disappointment, the Japanese government decided to establish a sister institution of the Massachusetts Agricultural College, which was one of the agricultural colleges in America that did not provide much of what Dun considered to be

⁵³ For his full statement, Cutter wrote that “[w]ith all the advantages afforded, a student in the regular course of this college cannot become a thoroughly trained self-reliant veterinary practitioner, and simply for the want of time, in the midst of his other equally important duties, to become versed in the principles of Comparative Histology, Anatomy, Physiology, Pathology, Therapeutics and Hygiene. These departments of science are all preliminary subjects of study and constitute a necessary and appropriate introduction to the practice of Veterinary Medicine. Each of these branches requires continued, prolonged study for their proper acquisition. A well-balanced knowledge of all these topics is an essential prerequisite to the successful Veterinarian. At present a student of this college can only acquire a *smattering* of the elements. He cannot in 120 hours instruction gain an amount of knowledge which will enable him to understand disease processes, to distinguish morbid phenomena and to intelligently, self-reliantly advise a course of a treatment appropriate to maladies under varying conditions. If the course of study in this college be reviced [sic], would it not be well to allow more time to the important subject of animal medicine?” *Fifth Annual Report*, 24.

“practical instruction.” Dun explained that because most American students who went to agricultural colleges came from farmer families and already had practical knowledge of agriculture, American agricultural colleges tended to aim at providing “technical knowledge” that students could not gain at home. Such technical knowledge, however, was useless to the Japanese farmers because the agricultural methods were too different in the two countries and so the Japanese farmers did not have the same materials as their American counterparts did to build on at the college level. Despite his support of the introduction of American methods to Japan, Dun asserted that such a task “could only be accomplished by practical work in the field,” and thereby, he marked the boundary between his work and that of SAC.⁵⁴

Dun’s definition of practicality in terms of technical skills was partly to distinguish himself from agricultural scientists, whom he called “book-learned expert[s].” Dun had made this distinction earlier when he criticized E.M. Shelton, another American agriculturalist who had worked for the Kaitakushi experiment station in Tokyo. Shelton was a member of the first group of foreign experts led by Capron and was responsible for livestock breeding before Dun arrived in 1873. According to Dun, Shelton was an example of a highly educated scholar who lacked “practical knowledge.” To contrast himself with Shelton, Dun wrote extensively in his autobiographical account about how he spent many years working on his family’s ranches in Ohio and how such experience facilitated his job as a special lecturer at the experiment station in Tokyo. He wrote that this experience enabled him to teach his students “almost without thought, in a thousand details, almost any one of which would have stumped the college-bred, book-learned expert.” He went on to criticize Shelton, claiming that “it was for this reason that Mr. Shelton did not succeed. He was, doubtless, learned in agricultural chemistry, in botany, in plant

⁵⁴ Edwin Dun, *Reminiscences of Nearly Half a Century in Japan*, 1919, 56, <https://archive.org/details/CAT10899295DunReminiscences/page/n1/mode/2up>.

life, *in all that books can teach in higher agriculture, but had no practical knowledge whatever.*"⁵⁵

With this statement, Dun put practical farmers, like himself, above "the college-bred, book-learned expert."

To an extent, Dun seemed to agree that to successfully settle in Hokkaido would require a broader range of knowledge beyond that of agriculture. He admitted that having a full grasp of the environmental particularities of Hokkaido was indispensable knowledge, and he himself also made a few survey trips to various parts of the island during the early 1870s. However, unlike SAC's preference to keep inclusive, open-ended goals for development, Dun clearly had a much more exclusive vision for Hokkaido's agricultural possibilities. For Dun, the need to develop livestock farming was already taken for granted, and the quest for more knowledge about the local environment was simply a means to enhance this single form of agriculture and make it thrive. Hence, his definition of practical knowledge was limited to the knowledge and skills that would make a person a successful livestock farmer.⁵⁶

In contrast to Dun's accusation, agricultural classes at SAC did pay attention to technical aspects. As evidenced in the examination on livestock farming, the exam questions required the students to be able to select grass varieties, season, and method for sowing and harvesting; select a proper site for pasture and know how to transform wild land into pasture; identify breed characteristics and select proper breeds of cattle, horses, sheep, and swine; know how to breed and take care of animals, including delivering, raising, emasculating, curing, and slaughtering; and know the basics of dairy farming.⁵⁷ More importantly, SAC did not see animal husbandry as

⁵⁵ Dun, 14. [my emphasis]

⁵⁶ Given this standpoint, it is unsurprising that historiography on Hokkaido usually celebrates Dun instead of SAC as the pioneer in Hokkaido animal husbandry.

⁵⁷ Admittedly, like other agricultural classes, these lessons only introduced some basics and principles without providing the students with an opportunity to hone certain skills and become expert practitioners of animal husbandry.

the only choice for Hokkaido. In addition, during its formative years SAC positioned itself as a training ground for future officials. While these officials were expected to supervise agriculture *and* other non-agricultural development projects, they did not have to farm or work on the projects by themselves. Hence, their definition of practical knowledge was the “thinking faculty” – the ability to make use of learned principles to gain more knowledge and adapt to solve different problems. Students should be capable of conceptualizing what was at stake and conducting experiments to find solutions. This definition reflected a more open-ended vision of Hokkaido’s future as well as the experimental nature of the enviro-colonial rule during its formative years, when they were still unsure of the best approaches to settle in Hokkaido.

The ambiguous meaning of “practical” agriculture played an important role in the post-1886 curricular reform, when the Japanese government started to turn away from the vaguely defined “American” agriculture. What counts as practical education will come up again in a debate between Satō Shōsuke and Nitobe Inazō – two SAC alumni who held opposing views towards the practical values of technical training in agriculture. In the next section, I examine how SAC had to refashion itself to survive the crisis during the late 1880s, when the government in Tokyo started to consider the college obsolete and expendable. I argue that SAC actively adapted its coursework to assert its leading role as the center of both colonial and agricultural governance in Japan, thereby underlining the indispensable role of knowledge in maintaining this enviro-colonial institution.

The Re-Formation of Enviro-Colonial Entanglements (1882-1912)

We believe that our alma mater is an institution essential *not only for the [sic] Hokkaido but for Japan at large, filling a unique position in the education system of the empire*. It stands for the upholding of higher technical and practical education. It aims to train men for developing the physical resources of the country. In an age like this, when people only talk, and politics and law engross the attention of the rising generation, in a land like this (meaning the Hokkaido), which hides within its bosom inexhaustible treasures, technical education is of inestimable value; and an institution equipped for this special purpose, must either be created anew or, better still, maintained if haply one already exists. (Nitobe Inazō, 1893)⁵⁸

After the abolishment of the Kaitakushi in 1882, the enviro-colonial rule in Hokkaido underwent drastic changes. The governing authority of the island was transferred from a Hokkaido-specific institution (the Kaitakushi) to the prefecture (ken) system, which was the same as the regional administrative system being used elsewhere in Japan. This transition meant that Hokkaido had been incorporated into Japan and became a Japanese locality, which no longer needed to be governed differently as if it were a colony. Meanwhile, the Japanese government started to formally recognize agriculture as a new specialized field of governance, which was to be run by a specialized administrative body. Following the establishment of the Ministry of Agriculture and Commerce (Nōshōmu-shō) in 1881, the new ministry began to replace local administrations as the new authority for determining the national policies for agricultural development. Hokkaido agriculture, which had been almost completely under the local administration like the Kaitakushi, was similarly transferred to the Ministry of Agriculture and Commerce. Even though the three new prefectures were still responsible for supervising development projects in Hokkaido, they did not enjoy the same privilege as the Kaitakushi to form their own policies and had to act according to the national policies created by the central

⁵⁸ Nitobe Inazō, *The Imperial Agricultural College of Sapporo, Japan* (Sapporo: The Imperial College of Agriculture, 1893), 22–23. [my emphasis]

government in Tokyo. Hence, the post-1882 era marked the beginning of new entanglements between agricultural administration and local governance.

The abolishment of the Kaitakushi radically changed the relationship between SAC and the local administration. As a training ground for colonial officials and a center of agricultural science, SAC used to play a crucial role in both local governance and agricultural development. However, when the Kaitakushi was abolished and SAC was transferred to be under the Ministry of Agriculture and Commerce, the college started to be excluded from Hokkaido governance. The foreign advisers, most of whom were Professors or farm advisers, were consequently excluded from performing the administrative responsibilities they used to have under the Kaitakushi. Most of these advisers left Japan while some of them, including William Brooks, continued their jobs under the Ministry of Agriculture. As a result, the previously inseparable relationship between SAC and the administrative authority of Hokkaido began to loosen, with SAC playing less and less of a role in Hokkaido governance. Instead of a means to govern Hokkaido, SAC became an object to be governed – the receiving end of policymaking and implementation.

During the mid-1880s, agricultural development in Japan began to shift in a new direction. In 1884, the Ministry of Agriculture evaluated early Meiji development, which resulted in “The Diagrammatic Explanation of the Agricultural Administration.” The paper concluded that early agricultural models based on American large-scale farming were unsuitable for the natural landscapes and the social structures of Japanese farming communities. Most farming families owned small- or medium-sized lands and farmed by themselves, primarily for household consumption. It was still uncommon for an individual to own a large piece of land and have it worked by farm employees. In addition, the paper also criticized previous attempts to introduce foreign crops and new practices at the expense of the country’s main staples, lamenting, “How can we expect to hold the trust of the farmers if nothing else but the cultivation and production

of foreign crops is encouraged?"⁵⁹ According to Ogura Takekazu, the 1884 evaluation reflected a shift towards "a more practical course for agricultural improvement that could be applied to conditions in Japan."⁶⁰ Since then, the Japanese government began to appreciate anew the value of indigenous practices of small-to-middle-scale farming, which they claimed to be more suitable for the state of landholding in Japan as well as the social structure of Japanese farming communities. Most of the experiment stations that reflected the previous (American) model were sold or closed down. In the place of foreign crops and livestock, staple cereals (such as rice, wheat, rape, etc.) and vegetables were promoted instead.⁶¹ Ogura contended that the government's promotion of the livestock industry until the 1880s failed because of the adoption of foreign techniques that were not suitable for Japan. He marked 1893 as the beginning of a proper Meiji agricultural system that blended Western and indigenous ideas and practices.

At a glance, the shift in the national trend of agricultural development during the mid-1880s seemed to reflect increasing attention to Japan's particular natural features and cultural characteristics. However, instead of an increase, the transformation actually reflected decreasing attention towards the locally diverse environmental features. Most of this attention was focused on the conditions on Honshū, the main island where Tokyo is located. This resulted in a homogenizing national image that was claimed to be the same anywhere within the Japanese territory. By ignoring the previous perception that Hokkaido's climate, environmental features as well as social structure were drastically different from Tokyo and other parts of Japan, the new agricultural policies advanced the idea that Hokkaido could also be developed based on the same models being used elsewhere in Japan. As colonization took a firm root in Hokkaido, the island

⁵⁹ (qtd. in Ogura, p. 322)

⁶⁰ Ogura, *Agricultural Development in Modern Japan*, 322.

⁶¹ Ogura, 571.

ceased to be a subject of debate in the Imperial Diet (Teikoku-gikai), and it was no longer an informal colony that required special treatment and special policies. By extension, these changes suggested that the enviro-colonial entanglements in Hokkaido were undergoing major reorganization – with the colonial aspects removed and the environmental aspects managed by the nation.

The mid-1880s shift in agricultural policies also affected the nature of agricultural education. As agriculture gradually acquired a new status as a distinct field of governance, agricultural schools were expected to train agricultural specialists, not versatile (colonial) officials. The kind of education that SAC offered also seemed obsolete in the eyes of some ruling elites in Tokyo, who began to fix their eyes on the German model as the most suitable for Japan's conditions. The arrival of Oskar Kellner and Max Fesca as well as the growing influence of Komaba Agricultural College in Tokyo played an important role in the Germanization of agriculture.⁶² In 1886, SAC was transferred back to the local governing body – the newly established Hokkaido Government (Hokkaidō-chō). Due to its financial situation, the Hokkaido-chō began to question the necessity of an institution like SAC.⁶³

During the late 1880s, a few SAC alumni returned to take teaching positions in their alma mater after completing specialized training in various fields overseas. The most prominent alumnus from the class of 1880 (the school's first class) was Satō Shōsuke (1856 – 1939). After graduating from SAC, Satō pursued his doctoral degree at John Hopkins University and returned to SAC in 1886 to teach in the Agriculture Department. He served as Acting President of the

⁶² Hiroko Willcock compares SAC with the Komaba Agricultural College in Tokyo, arguing that the former was established for a “practical” purpose, while the Komaba, despite its practical origin, gradually became more theoretically influenced by the German schools. Another key difference is that whereas the Komaba emphasized moral education and tended to be conservative towards Japanese traditions, the SAC curriculum was based on the American model of liberal education. Willcock, “Traditional Learning, Western Thought, and the Sapporo Agricultural College,” 983–85.

⁶³ Ebina Kenzō, *Sapporo Nōgakkō*, 3.

college after Brooks left the position and officially became President in 1893. He continued to serve as the President when SAC became a college of Tohoku Imperial University in 1907, and when the college became Hokkaido Imperial University in 1918, retiring in 1930. Apart from Satō, there were a few professors from the class of 1881, including Nitobe Inazō (1862-1933), Miyabe Kingo (1860 - 1951), and Minami Takajirō (1859 - 1936). Nitobe studied at John Hopkins University and Halle University in Germany and was granted an assistant professorship at SAC while at Johns Hopkins. He was appointed to the post of professor at SAC in 1891, where he taught until 1897.⁶⁴ Miyabe was a plant taxonomist and completed his doctoral degree in botany at Harvard University. He returned to Sapporo Agricultural College and devoted himself to the research of plant pathology and mycology as well as engaging in educational activities. Minami pursued his study in veterinary medicine and agriculture at Komaba Agricultural College in Tokyo. He returned to Sapporo Agricultural College as an associate professor in 1883 to teach agriculture. In 1919, Minami became dean of the Agricultural Department, and was selected as the second President of Hokkaido Imperial University in 1930. These alumni-professors actively protested against the abolition of their college. Satō, who was Acting President of the college, along with fellow professors, made great institutional changes and modified the college's curriculum to save their alma mater from the repeated threats of closure.

By attending to the institutional changes between the late 1880s and the early 1890s, I call for a reconsideration of SAC's place in the transformation of Japan's agricultural education. Previous scholars like Ogura have argued that this period suggested a shift towards the German

⁶⁴ In 1901, Nitobe was appointed technical adviser to the Japanese colonial government in Taiwan, where he headed the Sugar Bureau. Nitobe held successive positions as a professor at Kyoto Imperial University, the principal of Dai-ichi High School, a professor at Tokyo Imperial University and the first President of Tokyo Women's Christian University. He became Under-Secretary General of the new League of Nations in 1926.

model of small-scale farming due to the supposed unsuitability of the large-scale farm model from America. However, I argue that the transformation in SAC represented not the failure of the early Meiji approach. Rather, the college tried to maintain its educational tradition and pushed towards more specialization. The changes in SAC reflected the broader transformation of enviro-colonial entanglements in Hokkaido and Japan. Following the establishment of the Ministry of Agriculture and Commerce, agricultural governance started to become a specialized field of administration, distinguishable from the more general administrative work of local government. Yet, while the institutional changes in Tokyo seemed to promote the separation of agriculture and local government, SAC enthusiastically maintained that Hokkaido governance should continue to take the form of enviro-colonial rule. The opening of the colonial policy studies course made it possible for SAC to keep its identity as an enviro-colonial institution. The new course also meant reorienting the college's goals from Hokkaido-specific development towards the formation of a colonial model that could be adopted elsewhere in the Japanese empire.

The Specialization of Agricultural Education

In the pre-1886 curricula, knowing-nature classes and remaking-nature classes were usually taught simultaneously. However, following the 1886 curricular reform, the course arrangement was changed. Most of the knowing nature courses were taught only during the first two years while the last two years were spent on new, specialized courses on agriculture. Livestock farming continued to be an advanced-level course in the new curriculum. Before starting animal husbandry lessons, students were still required to learn more fundamental modes of farming; that is, plant cultivation. They would learn to cultivate grains and cereals, and then vegetables. Fruits, most of which were imported types, were considered a higher class of plant cultivation, and were not taught until the third year. Livestock farming came in the third year

after students had learned zoology. Agricultural lessons concluded with a class on veterinary science in the last year.

Table 5: Courses Offered for the Senior-Year Students in 1880, 1886, and 1893

1880

First Semester Subject (hours/week)	Second Semester Subject (hours/week)
Book-keeping (4)	Veterinary science & practice (6)
Extempore debate (2)	Civil engineering (6)
Microscopy (3)	Political economy (4)
Geology (4)	Original declamations (1)
Physics (6)	Military drill (2)
Philosophy of history (6)	
Military drill (2)	

1886

First Semester Subject (hours/week)	Second Semester Subject (hours/week)
<i>Home manufacture of agricultural products (4)</i>	<i>Agriculture and sericulture (2)</i>
Veterinary science (6)	<i>Agricultural engineering (6)</i>
<i>Economic entomology (2)</i>	Veterinary science & practice (9)
<i>Forestry (1)</i>	Farm management as directed
Agricultural debate (2)	Agricultural economy and rural law (4)
Manual labor (Experimental)	Political economy (4)
Physics and Meteorology (6)	Original declamations (1)
Military (2)	Graduating essays
	Military (2)

1893

First Semester Subject (hours/week)	Second Semester Subject (hours/week)
Agricultural practice (6)	Agricultural practice (as required)
<i>Special crops and stock farming (4)</i>	Stock farming (3)
<i>Agricultural technology (2)</i>	Veterinary medicine (3)
Veterinary medicine (4)	<i>History of colonization</i>
<i>Agrarpolitik (4)</i>	Graduation thesis
Graduation thesis	Military drill (2)
Military drill (2)	

A comparison of the senior-level courses in the curriculums from 1880, 1886, and 1893 reveals that SAC started to redefine what advanced agriculture could be. In 1880, when Satō Shōsuke was a senior-year student, there were only two agriculture-related courses: Book-keeping and Veterinary Science and Practice, which reflects the idea that animal husbandry was the most advanced form of agriculture being taught at the moment. In the 1886 curriculum, animal husbandry was still emphasized, as evidenced by the extension of veterinary science class into two semesters. However, new classes on other forms of agricultural production were also added, including agricultural manufacture, agricultural engineering, forestry, economic entomology, and sericulture. The 1893 curriculum made the agricultural education even more specialized. By the 1890s, SAC had standardized some of their agricultural classes. Some technical instruction that used to be taught as part of the general “agriculture” class – such as soil improvement and agricultural machines and implements, drainage and irrigation, and manures and crop rotation – were turned into several specialized courses.⁶⁵ In addition to sericulture and forestry, they also added new courses on specialized agricultural production, such as lessons on general and special crops and fishery. Although the senior-level courses featured only livestock farming and veterinary science, which made it look similar to the 1880 curriculum, the whole curriculum clearly demonstrates increasing specialization and a more inclusive definition of agriculture.

The specialization of agriculture in SAC curricula was not limited to agricultural practices. Whereas the previous curricula featured several of the supposedly “universal” liberal arts courses (such as history of English literature, philosophy of history, and political economy), the 1886 and the 1893 curriculums offered more agriculture-specific versions of those courses. The 1886

⁶⁵ While it was not explicitly stated in the curricula, we can discern this based on the examination questions asked in “Agriculture” courses from various years.

curriculum offered agricultural history and statistics in the first semester of the Junior year, presumably to supplement the history course from the previous semester, and agricultural economy and law, which was taught concurrently with political economy. Similarly, the 1893 curriculum featured courses such as agricultural economy, history of agriculture, Agrarpolitik (the German term for agricultural policy), and history of colonization. In addition, the 1886 curriculum offered a new course called “Japanese agriculture” for the first time. The introduction of this course in the curriculum that used to celebrate American agriculture reflected a new attitude towards farming practices and principles from the main island of Japan. Rather than a “feudalistic” and inferior form of agriculture, Japanese agriculture became a rational option with comparable status to American and European agriculture, showing a convergence (or compromise) with the broader trend of agricultural development in Japan during the mid-1880s.

The specialization of the instruction at SAC led to the establishment of two new departments: the Engineering Department and the Practical Department. As the training ground for future officials of the Kaitakushi, SAC had to offer a broad range of classes that could be useful for Hokkaido development during its first years. Thus, in addition to agriculture, SAC also taught surveying and engineering, both of which were crucial for the early stages of Hokkaido development. Actually, during the early stage of *kaitaku* (to open up a new land, or colonize), engineering and farming were not really separable; food producing activities required buildings and infrastructure, while engineering works needed food, especially during the time when there were no such things like supermarkets and food had to be grown locally. However, by the mid-1880s, as several areas of Hokkaido had been colonized and settled, development projects also became more specific. Hence, in 1887, the regular track of SAC was split into an Agriculture Department and an Engineering Department. Most of the advanced mathematics, physics, and surveying classes were removed from the Agriculture Department and taught in the newly-

established Engineering Department instead. While the Agriculture Department introduced new specialized agricultural lessons, the Engineering Department similarly added their own advanced-level courses, including courses on the construction of roads, bridges, and railways, as well as specialized engineering classes such as hydraulic engineering, electrical engineering, and sanitary engineering.

The Practical Department offered a different track for agriculture-specific education. Rather than aiming to train future officials, the Practical Department offered a two-year training program for “the younger generation of Hokkaido farmers in the use of improved machines, the care of livestock, the rudiments of agriculture science, etc.” As implied by its name, the Practical Department was less concerned about teaching high-level “principles” than the technical aspects of farming, focusing on teaching skills and techniques for undertaking a certain form of agriculture. A comparison of the curriculum for the Practical Department with that of the Agriculture Department reveals a few distinctions. First, unlike the plant-before-animal order in the regular track, lessons on animal husbandry started early in the first year of the practical school. Second, much of the class time was devoted to “practical exercises,” which could be divided into four areas: land (land breaking, soil and fertilization, drainage, etc.), crops, animals, and manufacture. Third, although the instruction included some lectures to supplement practical exercises, mathematics and physics were completely removed.⁶⁶

While geology, basic surveying, analytical chemistry, and physics still remained in the post-1886 curriculums, several of the knowing-nature classes were removed to make room for more specialized agricultural lessons. However, this change by no means suggested that knowing nature had become less important. Rather, knowing-nature courses were made prerequisite –

⁶⁶ Most of the lectures were chemistry and life sciences as well as a more abstract but agriculture-related lesson like rural economy.

supposedly the fundamental knowledge for agriculture and engineering – to be taught in the Preparatory Department. It should also be noted that while the new curriculums reduced the hours for English and removed Japanese classes, both of which were moved to the Preparatory Department, they added a new requirement for three-year training in German language. This change reflects the shift in the government's attitude about the best model for Japanese agriculture. Instead of America, the new trend celebrated the German model as the most similar to the Japanese way, and thus, most suitable for Japan.

Saving Our Alma Mater: Redefining Enviro-Colonial Rule

The post-1886 development posed a new challenge to the enviro-colonial rule in Hokkaido. Although the formal colonial institution of the Kaitakushi was abolished in 1882, the governance of Hokkaido continued to maintain its colonial characteristics for a few more decades. Even after 1882, the subsequent development plans for Hokkaido continued to use the term colonization until the end of WWII despite the drastic change in administrative structure, including the 10-Year Plan for Hokkaido Development (1901-1910), the First Hokkaido Colonization Plan (1910-1926), and the Second Hokkaido Colonization Plan (1927-1946).⁶⁷ Yet, as agriculture was gradually recognized as a specialized field of governance, attempts were also made to separate agricultural administration and make farm operation the job of the private sectors rather than a state enterprise.

The reduction of SAC's experimental farm in 1886 exemplified this policy of privatizing agriculture. In April 1886, the farm was greatly reduced in size, with the transfer of most of the land and farm animals to the agricultural bureau of Hokkaidō-chō. After the transfer, the College

⁶⁷ Ogura Takekazu, *Agricultural Development in Modern Japan*, 498.

Farm's landholding was decreased from over a thousand acres to one hundred and two acres of arable and eighty-three acres of wild land, with a minimal number of livestock (twenty cattle, ten working horses and eleven swine).⁶⁸ According to William Brooks, who served as the president of SAC and the farm director at the time, the Hokkaidō-chō desired "to avoid competition with private interests and to limit the farm operation to such scope as should be necessary for purposes of instruction."⁶⁹ Brooks clearly expressed his strong disagreement with this change. As he wrote in the report:

The change was made against my personal convictions, as I believed that the Farm had then reached a position making self-support possible; and, that, provided it should be managed as a self-supporting business, it would prove, in the complete absence of anything like extensive farming under private management, most highly instructive both to our students and to the community [...] Opposing though I did the sweeping reductions made, I, nevertheless, acquiesced most heartily in the general principle of non-governmental competition, and endeavored to make the reduced farm as useful as possible.⁷⁰

This reduction reflects the general trend of agricultural development in Japan during the late 1880s, in which the government began to abandon several of the early Meiji initiatives. As an example of the large-scale American farming approach that fell out of favor with the government, the College Farm no longer served as the model for Hokkaido farmers. By confining the college and its farm to the realm of education only, Hokkaidō-chō started to exclude SAC from Hokkaido governance.

Within this context, the frustration of SAC alumni and their desperation to preserve their alma mater from abolishment during the late 1880s marked a new phase for the redefinition of SAC's identity as well as enviro-colonial rule in Hokkaido. Like their predecessors, Satō Shōsuke

⁶⁸ *Sixth Annual Report of Sapporo Agricultural College, 1881-1886* (Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976), 57.

⁶⁹ *Sixth Annual Report*, 32.

⁷⁰ *Sixth Annual Report*, 32-33.

and Nitobe Inazō resorted to knowledge claiming as a means to redefine enviro-colonial entanglements, which led to a series of curricular changes as explained above. Meanwhile, the efforts to stress the unique contributions of SAC to Japan's new colonial endeavors also gave rise to form a new field of inquiry that was later known as "colonial policy studies" (*shokumin seisaku gaku*).

In 1893, Nitobe Inazō published a history of SAC, entitled *The Imperial Agricultural College of Sapporo, Japan*. In addition to describing the year-by-year developments, Nitobe also used this opportunity to reflect upon – and critique – major transformations at the college since the end of the Kaitakushi's governance in Hokkaido. Lamenting the abolishment of this formal colonial institution as the loss of pioneering leadership, Nitobe wrote, "This decision was welcomed by the people, very few of whom really knew what had been done in the Hokkaido, and scarcely any of whom had any notion what pioneering meant."⁷¹ Embracing the pioneer identity, Nitobe seemed to call for the revival of the Kaitakushi-like governance and the continuation of the college in Sapporo as the training ground for the privileged class of pioneer-officials, who would then lead development not only in Hokkaido but also elsewhere in Japan.⁷² He clearly prided himself on the special education he received at SAC and desired that the tradition be maintained. Yet, against Nitobe's wishes, SAC underwent major curricular reforms that made the college more agriculturally specialized. By writing, "Call a school agricultural and it will turn out plowmen," Nitobe expressed strong opposition to the categorization of the college as an agricultural school.⁷³

⁷¹ Nitobe Inazō, *The Imperial Agricultural College of Sapporo, Japan*, 15.

⁷² On the discursive construction of Hokkaido "pioneers" to obscure the colonial violence that Japan inflicted on the island, see Mason, *Dominant Narratives of Colonial Hokkaido*, 31–55. The nineteenth-century obsession with pioneers still has some repercussions today. For example, see a publication by amateur historians on the pioneering work in Hakodate, a major port city in Southern Hokkaido. Study Group of Foreign Settlements in Hakodate, *Japan's Surprising Pioneer: Hakodate through 150 Images* (Hakodate: Study Group of Foreign Settlements in Hakodate, 2015).

⁷³ Nitobe Inazō, *The Imperial Agricultural College of Sapporo, Japan*, 25.

“[T]he training of practical agriculturalists,” he further argued, “was neither the exclusive nor the main object of the college.”⁷⁴ Instead, what Nitobe had in mind more resembled a school for cameralistic science, which was probably influenced by his education in Germany. He asserted that “[a]n education, in order to be of practical use in a new country, must needs [sic] be more comprehensive than profound: it can afford to become special only as that country grows older.”⁷⁵ To an extent, Nitobe’s standpoint reflected the nature of SAC’s education during its formative years, which had a rather open-ended goal for Hokkaido development. While agriculture received special attention, SAC put more emphasis on training in what I call “knowing nature” skills, which were deemed more useful for future officials.

As he was criticizing the reasons behind the curricular change, he remarked that “[p]olitics must never meddle with an education institution.” Considering how so-called “politics” gave rise to SAC in the first place, and how Nitobe himself emphasized the role of the college in producing public servants [or future political leaders], such a remark seemed very naïve and ironic. In addition, it was hard not to regard Nitobe and other alumni’s attempts to save the college as politics, too. Nitobe’s remark reveals the power dynamics and contentions that SAC was experiencing at the time and hints at some ideological conflicts between the officials in peripheral Hokkaido and the central government in Tokyo.⁷⁶ For the government [more specifically, the politicians who did not support the Hokkaido project], SAC was what its name indicated – an agricultural college. Therefore, this change was intended to achieve improvement – aiming to fix the impractical nature of the college’s previous curriculums and to provide more

⁷⁴ Nitobe Inazō, 31.

⁷⁵ Nitobe Inazō, 9.

⁷⁶ Perhaps, the Hokkaido officials did not wish for Hokkaido to lose its colonial status. Coloniality, it seemed, meant autonomy and privileged status for the people who worked there.

technical training in agricultural practices.⁷⁷ For Nitobe, however, this change was a degradation – decreasing the significance of SAC from a privileged school for officials to a technical school for farmers.

Nitobe’s dismissal of agriculture was not shared by some of his colleagues, such as Satō Shōsuke. Despite their shared objective to save their alma mater, Satō and Nitobe held different views regarding the educational mission of SAC, and thus, came up with different solutions. For Satō, agricultural education was SAC’s unique and most important contribution to Japan. Hokkaido was geographically and environmentally different from the *naichi*, and so, it had great potential to actualize the large-scale farming model that the government had claimed to be unsuitable for Japan. Satō argued that Hokkaido should be developed into a site for large-scale farming, just like the Westward expansion in America.⁷⁸ He claimed that with appropriate use of science and technology, large-scale farming could also be practiced even in Honshū and other parts of Japan. In so doing, Satō challenged the government’s perception of Anglo-American agriculture, which during the 1880s the government believed was unsuitable for Japan.

Satō’s argument echoes what his professor of agriculture, William Brooks, remarked about agricultural education at SAC. In 1888, Brooks explained that although advanced methods were to be found in Europe and America, their practicality was not universal. Therefore, the ultimate goal of SAC’s education was to adapt those methods according to Hokkaido-specific needs and conditions. Brooks claimed that he had to “clearly see that such methods are not

⁷⁷ Note that the 1886 curriculum came out about 5-6 years after the first generation of SAC graduates started working in Hokkaido. To what extent did the reform take into account the performance of those alumni to indicate what changes to make? Did the increase in specialized agricultural classes aim to provide the knowledge that the alumni lacked when they started working? Did this mean that the previous curriculums were not “agricultural” enough?

⁷⁸ Inoue Katsuo, “Sapporo Nōgakkō to Shokumingaku - Satō Shōsuke Wo Chūshin Ni [Sapporo Agricultural College and Colonial Studies - Focusing on the Role of Satō Shōsuke],” *Hokudai Hyaku-Nijū-Go Nen Shi*, 2003, 123.

always adapted to this new country and strive always to make clear to my students the extent to which they are or are not applicable to present conditions and the reasons, while endeavouring at the same time to inspire them with a desire to raise the agriculture of their country to the advanced position it occupies abroad.”⁷⁹

In his examination of Satō’s lectures on colonial policy studies between the 1890s and the 1900s, Inoue Katsuo argues Satō’s Hokkaido Colonization doctrine (*Hokkaidō shokumin ron*) was partly a solution for SAC’s existential crisis – highlighting a promising direction for Hokkaido development that no other school could do better than SAC.⁸⁰ As an institution that had studied Hokkaido’s nature for a long time, SAC had the unsurpassable capability of doing what other agricultural schools [and the Tokyo-based Ministry of Agriculture] could not. If it continued to exist, SAC could prove this to the government.⁸¹ In addition, Satō’s emphasis on Hokkaido as the solution for Japan’s population problem hinged on the status of Hokkaido as a “virgin” land and a colony – an entirely different scenario from agricultural settings elsewhere in Japan.⁸² By reinforcing Hokkaido’s difference, Satō propagated the idea that it was a place that needed to be cultivated with different methods than the familiar farmland that needed only minor adjustments to existing practices. His critique of small-scale farming as the cause of poverty even turned the Ministry of Agriculture’s 1884 assessment on its head.

Despite their differences, Satō and Nitobe agreed that Hokkaido was a colony and that SAC’s existence was indispensable for successful colonization. The fact that this new academic field was taught for the first time in Japan at SAC suggested that the colonial dimension had never

⁷⁹ *Sixth Annual Report*, 13.

⁸⁰ Inoue Katsuo, “Sapporo Nōgakkō to Shokumingaku,” 127.

⁸¹ To an extent, some of Satō’s students did become prominent managers of large estates or the owner of large-scale farms themselves.

⁸² On the development of the population problem (*jinkō mondai*) and Hokkaido’s contributions to subsequent overseas expansion, see Sidney Xu Lu, *The Making of Japanese Settler Colonialism: Malthusianism and Trans-Pacific Migration, 1868–1961* (Cambridge: Cambridge University Press, 2019).

been removed from the college's *raison d'être*. It must be noted that Satō and other SAC professors originally wanted to emphasize internal colonization (*naikoku shokumin*), while the government was aiming towards overseas colonies. The SAC professors had called this course "Colonial Policy Studies" (*Shokumin seisaku gaku*) and aimed to make it a combination of agricultural policy studies and colonial policy studies, thereby maintaining their legacy of environmental rule from the pre-1882 era. However, the government took the liberty to rename it as Colonial Studies (*Shokumin gaku*). This action seemed to reflect the rising interest in overseas expansion among the governing elites in Tokyo. Yet, at SAC before 1900, the lessons in the colonial policy studies course continued to put more emphasis on Hokkaido as the most suitable choice for Japan's expansionist endeavor.

According to Inoue, Satō viewed Hokkaido as an internal colony (*naikoku shokumin*).⁸³ Satō asserted that the availability of large vacant lands in Hokkaido would solve the problem of small-scale farming (*kashō nō*), which caused poor Japanese peasants to be unable to provide for themselves or to sustain their livelihoods. Hence, Hokkaido could be considered the "paradise for the future of agriculture" (*nōka shōrai no rakudo*) and the "place of relief and peace of mind."⁸⁴ In this sense, Satō's theory of agricultural development was actually a continuation of what the Kaitakushi initiated during the early Meiji Period. Yet, unlike the Kaitakushi's projects which were almost completely state-sponsored, the development of large-scale farming during the late Meiji Period owed immensely to active participation by the private sector, especially the *kazoku* (nobility) and wealthy merchants who became large land-owners in Hokkaido.

At the turn of the twentieth century, proponents of the colonization supported by SAC began to look beyond Hokkaido. Satō's lectures during the early 1900s reflected this shift, when

⁸³ Inoue Katsuo, "Sapporo Nōgakkō to Shokumingaku," 120.

⁸⁴ Inoue Katsuo, 122.

he started to actively support the Japanese colonization of Korea and Manchuria.⁸⁵ For example, the question of Japan's expansion into Manchuria and Mongolia became an important topic in his lectures.⁸⁶ In "Civilizing Colonization Theory (*bunmeika shokumin ron*)," Satō claimed that countries such as Korea and Manchuria were late to civilize, and Japan could be their example and lead them towards progress. Hence, from a school for Hokkaido-specific development, SAC began to refashion itself as a new center of colonial policy studies, which could spearhead not only Hokkaido colonization but also subsequent overseas expansion.

Conclusion: Enviro-Colonial Experts and Their Laboratory

What can we make of the post-1882 academic transformation in SAC? On the one hand, the 1886 and the 1893 curricula reflected the increasing specialization of agricultural education, which seemed to be a compromise between national trends and Satō's insistence on the college's unique contributions to agriculture. Apparently, the graduates who completed the 1886 or the 1893 curriculum would be much less versatile and with much more specialized training in agriculture (or engineering). We may also think of this change as the maturation of SAC, which became better equipped with teaching materials and facilities which permitted SAC to build up their general courses into more advanced education. On the other hand, the creation of colonial policy studies, which eventually managed to gain the imperial/government approval, suggests that efforts to maintain SAC's colonial dimension were not in vain. In 1907, the government issued an edict that authorized the institutionalization of colonial policy studies as a formal course in SAC. This edict helped maintain SAC's enviro-colonial legacy while bolstering the college's status as a leading institution for training colonial officials.

⁸⁵ Inoue Katsuo, 138.

⁸⁶ Inoue Katsuo, 138, 141-42.

Nitobe's underappreciation of the "practice" [technical skills, non-science] of agriculture urges us to revisit the question of practical education in SAC, especially after the establishment of the Practical Department during the 1886 reform. What was the meaning of having a separate Practical Department for agricultural training? Did it mean that the regular course in the Agriculture Department was less "practical"? Drawing upon Thomas Gieryn's concept of "boundary work," I argue that the Practical Department represented the college's attempt to redefine agricultural expertise.⁸⁷ According to Gieryn, boundaries of knowledges or knowledge fields are not natural but rather strategically flexible and malleable. Actors who are involved in boundary work have high stakes to rework these boundaries in a way that will benefit them. Gieryn aims to contribute to the debate over the demarcations of science from non-science, by using case studies of scientists' attempt to mark the distinction between science and religion in Britain during the nineteenth century. These scientists were arguing for objectivity as the basis of knowledge and the need for autonomy to pursue their scholarly interests.

For SAC, the stakes concerned the ambiguous meaning of practical agriculture and the expectation of what an ideal SAC graduate should be capable of. Should he be able to start his own farm and make it thrive as a profitable business? Should he engage in other governmental work, which might or might not have something to do with agriculture? What exactly was the purpose of those agricultural classes in the curriculum? To deal with this ambiguity, the term "science" was also invoked to draw a boundary and to claim the superiority of SAC's previous mode of instruction. Nitobe, for example, argued that "[t]he Practice and the Science of Agriculture do not always harmonize in their demands: and as long as an educational scheme is bent upon combining the two, without defining their respective proportions, there can be no

⁸⁷ Gieryn, "Boundary-Work and the Demarcation of Science from Non-Science."

uniform and universal system adaptable to all cases.”⁸⁸ Like his American professors, Nitobe believed that SAC was designed to teach “principles” for future adaptation rather than a fixed set of skills and actions to imitate. Yet, the demand for technical training could not be met by the simple claim that principles were more important. Moreover, SAC’s survival also seemed to depend on whether it could meet such a demand from the government. Thus, instead of insisting that there was only one form of practical agriculture, the curricular reform led to a new distinction between two forms of agricultural expertise. The college tried to distinguish between two groups of its audience: the general farmers and the students who were expected to become officials. While the Practical Department catered more to the needs of farmers, the regular course of the Agriculture Department was aimed at educating aspiring officials and technocrats – which had been the primary mission of SAC from the outset.⁸⁹ In this sense, SAC did not completely change its tradition of inclusive instruction. By creating a separate department for technical training, it was able to keep the instruction in the regular course as inclusive and versatile as desired.

Based on Satō’s proposal of colonial ideas that were Hokkaido-specific yet applicable elsewhere, I want to re-emphasize my argument about the significance of place and the dynamic nature of knowledge production. Like the arctic scientists in Stephen Bocking’s study, Satō seemed to be aware of how Hokkaido-specific knowledges could be mobilized to cater to diverse goals.⁹⁰ Initially, Satō claimed that the availability of vacant lands represented Hokkaido’s unique

⁸⁸ Nitobe Inazō, *The Imperial Agricultural College of Sapporo, Japan*, 32. William Brooks similarly referred to agriculture as a science. Although he admitted agriculture’s dual identity as both art and science, he also distinguished between the art as an old practice and the science as a young but potentially growing one. As he put it, “The science of agriculture is yet in its infancy, although the art is as old as man; and immense improvements are yearly being made in its methods as our knowledge increases” *Second Annual Report*, 76.

⁸⁹ Still, the separation between learning principles and learning technical skills was not clear-cut. As evidenced in the curriculums from 1886 and 1893, SAC students in the regular course of agriculture department still had to work on the college farm as part of the requirement.

⁹⁰ Stephen Bocking has discussed how the arctic scientists studied arctic-specific features and phenomena, and how they used different approaches to report their results for diverse audience; while some scientists

condition in order to justify the preservation of the large-scale farming practice and SAC as the only institution that could teach this practice. Then, after the Russo-Japanese War in 1905, Satō started to advocate for the exportation of the Hokkaido-specific forms of enviro-colonial governance (especially the large-scale agricultural settlement) to Japan's other colonies. In this sense, we can think of the knowledges about Hokkaido and its environment as what Bocking calls "situated and mobile."⁹¹

The notion of knowledge as situated yet mobile allows me to re-engage with the debate about knowledge transfer. In Chapter 1, I have discussed how the Kaitakushi's efforts at knowing nature gave rise to a specific form of enviro-colonial rule that had drawn upon knowledges from the outside as well as those being produced in Hokkaido. By doing so, I problematize the misassumption regarding the unidirectional transfer of knowledge from the West to non-Western worlds. In this chapter, I continue to emphasize the on-site production of knowledge in Hokkaido to call into question another simplistic notion of knowledge transfer – the metropole-to-colony transfer.

Recent historiography on Hokkaido has already acknowledged the influence of Japan's expansion into Hokkaido upon the subsequent overseas expansion.⁹² In the case of agricultural development, I argue that Satō's enthusiastic reworking of the enviro-colonial model

claimed their results to yield more insights about the arctic, others assert the credibility of their findings to be relevant elsewhere. See "Situated Yet Mobile: Examining the Environmental History of Arctic Ecological Science," in *New Natures: Joining Environmental History with Science and Technology Studies*, ed. Dolly Jørgensen, Finn Arne Jørgensen, and Sara B. Pritchard (Pittsburgh, Pa.: University of Pittsburgh Press, 2013), 177.

⁹¹ In his study of the ecological research in the Canadian Arctic during the 1960s and 1970s, Bocking has noted how the unique landscape shapes scientific practices; the Arctic either provides scientists with a distinct "object of study" or defines the "place" to study other objects or phenomena. Meanwhile, he also demonstrates that arctic science involves importing people and external knowledge to the research sites and exporting the results to other places. Bocking, 167 and 176.

⁹² Inoue Katsuo, *Meiji Nihon no shokuminchi shihai: Hokkaidō kara Chōsen e* (Tokyo: Kabushiki Kaisha Iwanami Shoten, 2013); Sidney Xu Lu, "Colonizing Hokkaido and the Origin of Japanese Trans-Pacific Expansion, 1869–1894," *Japanese Studies* 36, no. 2 (May 3, 2016): 251–74.

demonstrated that the results from the Hokkaido laboratory could be applicable not only on the Japanese mainland but also in its colonies elsewhere. By thinking of colonies as laboratories, this study of enviro-colonial rule in Hokkaido asks to reconceptualize the relationship between the colonizer and the colonized. Indeed, all of the historical actors under my focus are either Japanese or foreigners who worked for the Japanese government in Tokyo, and so they might be lumped together in the category of “state agents” who represented the metropole to govern the colony. Yet, the generalization of these actors as state agents obscures the fact that the so-called “state” was never a homogenous group of actors who shared the same goals and worked together seamlessly. Even within SAC, these actors might as well have contradictory perspectives and solutions, despite the same goal of ensuring the college’s survival. The opposing attitudes toward agriculture of Nitobe and Satō were great evidence of such internal heterogeneity.

CHAPTER 3

FORESTED ENCOUNTERS:

Commercial Teak Logging, State Forestry, and Anglo-Siamese Collaborative Colonialism in Lanna

Introduction: The Formation of State Forestry in Lanna

The region that is part of Northern Thailand today was once known as Lanna, which consisted of several states under different royal families. Even though the Lanna states had become Siam's *prathetsarat* (vassal states) since the late eighteenth century, they were not officially considered as part of the Siamese kingdom.¹ Instead, the area was ruled by local rulers who had tributary relations with the Siamese kings in Bangkok. In general, each *prathetsarat* had to perform tributary obligations, including sending regular tribute of valuable products or slaves, paying visits to the royal palace in Bangkok during special ceremonies, and providing troops and supplies during wars or famines. In return, Siam would protect its *prathetsarat* from invasion by other kingdoms, though in some cases such protection was imposed rather than requested.² Beyond these general obligations, the ruling elites in Lanna enjoyed a degree of autonomy in local administration, jurisdiction, tax collection, and supervision of valuable resources in their lands. Although major political successions, such as the selection of Chiang Mai ruler, had to receive approval from Siam, the royal court in Bangkok usually agreed to local nominations.

¹ Tej Bunnag, *The Provincial Administration of Siam, 1892-1915: The Ministry of the Interior under Prince Damrong Rajanubhab* (Kuala Lumpur: Oxford University Press, 1977); Thongchai Winichakul, *Siam Mapped*. For more recent analysis of Siam-Lanna relations, see Easum, "Urban Space in the Colonial Margins"; Nuaon Khrouthongkhieo, *Exposing the Plan to Occupy Lanna* (Bangkok: Matichon, 2016); Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 12th ed. (Bangkok: Amarin, 2018).

² Thongchai Winichakul, *Siam Mapped*, 83-84.

While Siam's intervention in Lanna's internal affairs was uncommon before the 1850s, some rare cases occurred, such as an incident in 1829, when a British man named David Richardson came to Chiang Mai to purchase livestock. The problem began after some of the livestock owners refused to hand over their animals even though Richardson had already paid for them. This led Richardson to petition to the Siamese court because he assumed that Lanna was part of Siam and subject to the Siamese rule. To maintain positive relations with the British, the Siamese court appointed Phraya Suren Ratchasena and Nai Phonlaphai the page as royal officials. They carried a letter to the lords of Chiang Mai, Lampang, and Lamphun, demanding that that Lanna lords make their subjects return the payment or give their animals if the owners did not have the money. While this incident affirms the power hierarchy between Siam and Lanna, it is only a special case. As Lanna historian Sarasawadee Ongsakul has pointed out, the Siamese officials simply came to Lanna as mediators to deliver the order from the Siamese court, not to establish Siam's permanent political presence. After the dispute was resolved, the Siamese officials returned to Bangkok, and no more Siamese officials were dispatched to Lanna again until 1874.³ Thus, although the geographical space of Lanna is now located in Northern Thailand today, that space was not always considered a "Thai" administrative region.

The previously loose political ties between Siam and Lanna began to tighten around the mid-nineteenth century, following the rise of commercial logging and the increase in the number of non-Siamese subjects in Lanna, most of whom were British subjects engaging in the teak trade. Then, starting from 1855, Siam signed treaties with European and American nations, which granted extraterritorial rights to European and American subjects in Siam but did not officially cover Lanna and other *prathetsarat* of Siam. As the number of legal disputes between Lanna rulers

³ Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 288–89.

and foreign subjects escalated, the foreign nations increasingly pressured Siam to mediate the disputes in Lanna, which they understood to be Siam's territory and thereby included as part of the treaties they had signed. Siam was initially reluctant to intervene in Lanna's local affairs, seeking to settle the disputes without making permanent changes to the status quo of Siam-Lanna political relations. However, towards the end of century, the Siamese intervention was gradually intensified and formalized by appointing Siamese commissioners to Chiang Mai for the first time, and then, by abolishing the *prathetsarat* system and annexing Lanna as part of Siam. Meanwhile, the lucrative teak trade began to attract Siamese interests towards Lanna's forests. Since the 1850s, Siam tried to gain more profits from Lanna's teak forests by introducing new timber taxes. To further increase its share from this lucrative business, Siam gradually asserted its power into Lanna and the management of the forests, leading to the nationalization of Lanna's forests and the establishment of the Royal Forest Department (RFD) in 1896. As suggested by this historical overview, the Siamese expansion into Lanna was deeply intertwined with Siam's encounters with the West and the increasing importance of the forests as a new source of economic wealth and a new target of political control.

The interrelation between forestry and Siam's northward expansion in Lanna has long been acknowledged in Lanna studies scholarship. Yet, many of the early works frame this interconnection as an example of Siam's attempts to solve Lanna's "problems" in order to defend this region from European colonial aggression.⁴ Previous historiography of Thai forestry usually claims that the ruling elites in Lanna managed its forests too arbitrarily, such as leasing and breaking forest contract at will, and that such arbitrariness put them in conflict with teak

⁴ Wanchalee Boonmee, "Some Aspects of Relations with Britain in the Reign of King Chulalongkorn: A Case Study of Forestry and Mining" (M.A. Thesis, Bangkok, Thailand, Srinakharinwirot University, 1977); Chamaichome Sunthornswat, "A Historical Study of Forestry in Northern Thailand From 1896-1932" (M.A. Thesis, Bangkok, Thailand, Chulalongkorn University, 1978).

merchants, most of whom were either British subjects or British by nationality.⁵ After the British were granted extraterritorial rights by the Bowring Treaty in 1855, the previously “local” conflicts between Lanna ruling elites and British subjects became “international ones.” This also means that the Siamese government, who had signed the treaty with the British government, had to act as the mediator to resolve the disputes, which eventually led to the Chiang Mai Treaty in 1874.⁶ This treaty required Siam to appoint a commissioner to Chiang Mai and oversee the rulers in Lanna to manage the forests and other affairs, according to the treaty terms. As the treaty demanded that all forest-related agreements be sealed by the Siamese commissioner, it also formally recognized him – and by extension, Siam – as a new authority in forest administration. Since then, through the Commissioner to Lanna, the Siamese government had gradually increased its political presence in the north: first in the Chiang Mai-Lampang-Lamphun area, and later, in the other parts of Lanna.⁷

More recent scholarship has begun to reveal Siam’s own colonial desire that had been obscured in the narrative of modernizing salvation. This new emphasis on colonial power relations invites comparison with the development of forestry in other colonial contexts in Southeast Asia, South Asia and beyond.⁸ Scholars of colonial forestry in Asia, such as Raymond

⁵ Pornpun Chongwattana, “Disputes of British Subjects against the Chiefs of Chiang Mai Resulting in the Siamese Government Taking over the Administration of North West Siam (Payab Circle) (1858-1902 A.D.)” (M.A. Thesis, Chulalongkorn University, 1974); Chamaichome Sunthornswat, “A Historical Study of Forestry in Northern Thailand From 1896-1932” (M.A. Thesis, Chulalongkorn University, 1978).

⁶ For more details on the effects of the Chiang Mai Treaties on Siam-Lanna relationship, see Rattanaporn Sethakul, “Political, Social, Economic Changes in Northern States Thailand Resulting from the Chiang Mai Treaties of 1874 and 1883” (Ph.D. Diss., University of Illinois, 1989).

⁷ Throughout the period under the scope of this chapter, the title of the Commissioner was changed several times to reflect the expanding territory under his control. To avoid confusion, I will use the term “Commissioner to Lanna” to refer to the commissioner whom Siam sent to the northern region. For more details see, Nuaon Khrouthongkhieo, *Exposing the Plan to Occupy Lanna*, 36.

⁸ Peter Vandergeest and Nancy Lee Peluso, “Empires of Forestry: Professional Forestry and State Power in Southeast Asia, Part 1,” *Environmental History* 12, no. 1 (2006): 31–64; Vandergeest and Peluso, “Empires of Forestry, Part 2”; K. Sivaramakrishnan, “Science, Environment and Empire History:

Bryant and K. Sivaramakrishnan, have pointed out that the politicization of “forests” was a crucial part of colonial state-making, both in terms of territorialization (the creation of the space of rule) and institutionalization of new orders and practices.⁹ Similarly, Nancy Peluso and Peter Vandergeest have argued that forestry “served the purpose of colonial-era administrations in some similar ways, providing both motives and means of claiming territory and expanding the state's jurisdiction, as well as providing revenue, exports, and raw materials for other economic activities and infrastructure.”¹⁰ Meanwhile, historians of Siam and Thailand have also attempted to grapple with the country's ambiguous coloniality to shed light on both roles of Siam as a colonizer and its colonial relations with European and American empires. Tamara Loos, for example, has proposed the term “competitive colonialism” to discuss how Siam tried to emulate European colonial techniques to assimilate the Malay Muslim populations, which in turn put them in competition with the British to colonize the region that has become part of Southern Thailand and Malaysia today. Yet, as Taylor Easum has pointed out, Anglo-Siamese relations in Lanna were more characterized by collaboration. According to Easum, the British assisted Siam

Comparative Perspectives from Forests in Colonial India,” *Environment and History* 14, no. 1 (2008): 41–65; Rajan, *Modernizing Nature*.

⁹ Raymond L. Bryant, *The Political Ecology of Forestry in Burma, 1824-1994* (Honolulu: University of Hawai'i Press, 1997); K. Sivaramakrishnan, *Modern Forests: Statemaking and Environmental Change in Colonial Eastern India* (Stanford: Stanford University Press, 1999). See also Russell Meiggs, *Trees and Timber in the Ancient Mediterranean World* (Oxford: Clarendon Press, 1982); Richard P. Tucker and J. F. Richards, eds., *Global Deforestation and the Nineteenth-Century World Economy* (Durham, N.C.: Duke University Press, 1983); Ramachandra Guha, *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya*, 1st University of California Press ed. (Berkeley: University of California Press, 1990); Peter Vandergeest and Nancy Lee Peluso, “Territorialization and State Power in Thailand,” *Theory and Society* 24, no. 3 (1995): 385–426.

¹⁰ Peluso and Vandergeest, “Genealogies of the Political Forest and Customary Rights in Indonesia, Malaysia, and Thailand,” 768. Peluso and Vandergeest also note that the development of political forests in Siam, unlike in Malaysia or Indonesia, was primarily concerned with exports rather than local use.

in political reforms that eventually transferred administrative power from the Lanna elites to the royal court in Bangkok in exchange for Siam's legal protection for British subjects in Lanna.¹¹

This chapter foregrounds the colonial aspects of the formation of state forestry in Lanna. Particularly, it attends to the ways in which Siam's nation-building and British politico-economic interests converged in Lanna and shaped the transformation of forest ownership and management in the region. Rather than a product of Europeanization, state forestry in Lanna had already emerged before the arrival of scientific forestry and European experts. Forests increasingly became the target of exercises of power, first by Lanna princes, and later by Siam and the British Consulate. Between the 1840s and the 1880s, state forestry was gradually transformed in response to new problems and agendas, bringing Siam and Lanna into the transnational networks of scientific forestry. In addition, while previous scholarship has portrayed the rise of the RFD as the rationalization of forest administration, this chapter suggests that the forestry that emerged during the 1890s simply operated with a different logic that was not necessarily more rational.

To start, I will revisit the relationship between Siam and Lanna prior to the nineteenth century to emphasize the relative autonomy in Lanna in managing their resources, including the Northern forests. As I will demonstrate in this chapter, state forestry began to form following the growth of teak trade in Lanna. As the value of the forests increased, the Lanna princes began to strengthen their control over this profitable resource and asserted themselves as the authorities for forest leasing. Next, I will discuss how the arrival of European teak merchants and the enforcement of extraterritoriality gradually changed the Siam-Lanna relationship, leading to Siam's unprecedented political presence in the North. To conclude this chapter, I will discuss how

¹¹ Easum, "Urban Space in the Colonial Margins," 178-80. See also Loos, "Competitive Colonialisms: Siam and the Malay Muslim South."

the politicization of the forests enabled the interconnections between forest administration and Siam's northward expansion, which ultimately gave rise to Siam's enviro-colonial rule in Lanna.

Commercial logging and the Rise of Lanna's State Forestry (1840s-1850s)

Though logging and timber trade had existed in Lanna for centuries, it had never reached the same scale as the commercial logging that began around the mid-nineteenth century. Prior to that, extracted timber was usually used in local construction or sent to Siam as *suay*, a form of tributary item. Teak was among the commodities that the Siamese court expected from Lanna.¹² Another purpose of the teak harvest was for shipbuilding. According to Salairat Dolarom, Hainanese-Chinese merchants purchased teak to build ships and sell to China since the reign of King Rama I. The Hainanese Chinese were also the first group to establish sawmills in Siam, processing timber into boards and planks for exporting to China. Most of the teak from this period came from Phitsanulok and Sawankalok because the Chinese merchants did not go all the way to the Northern states, which were too far from their base in Bangkok. Siam was aware of this flourishing business and began collecting tax in 1829.¹³ Yet, timber was not the only coveted product from the forests. People from nearby towns and villages went into the forests for life necessities like food, medicinal herbs, or firewood. Others hunted for valuable commodities such as ivory, antlers, animal skin, agarwood, lacquer, wild herbs, and other forest products. The forests, especially those in the highlands, were also home to various ethnic groups. Hence, the

¹² *Suay* is usually local commodities that a vassal state had to offer to Siam every year as a form of tributary item, usually at a fixed quantity. During the reign of King Nangklao (Rama III, reign 1824-51), the Siamese court determined the number of teak logs from each Lanna city-state as follows: Chiang Mai (500), Lampang (400), Nan (400), Lamphun (200), and Phrae (200). Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 270.

¹³ Salairat Dolarom, "Development of Teak Logging in Thailand, 1896-1960" (M.A. Thesis, Silpakorn University, 1985), 9-10.

idea of the forest as a timber-bearing place was a modern invention that accompanied the rise of teak trade.¹⁴

Despite their significance for livelihoods, trade, and tributary relations, the forests remained mostly unregulated until the mid-nineteenth century. This neglect of forest management reflects a cosmological notion of state and power that is premised on a dichotomization in traditional Tai culture, which distinguished between *mueang* (cities or towns) and *pa* (forests).¹⁵ According to Philip Stott, *mueang* referred to a human settlement that was larger than *muban* (villages), usually located on the lowland, and it was considered to be the center of civilization. On the other hand, the hinterlands that were not inhabited by humans were called *pa*, or sometimes *pa thuean*, to emphasize the wild and lawless nature of the forests.¹⁶ This notion reflects a lowland-centric notion of civilization that tries to distinguish the noble *khon mueang* (city dwellers) from the unruly *khon pa* (forest dwellers).¹⁷ Moreover, before the advent of commercial

¹⁴ The Thai terms for the forest are *pa* and *pamai*. The latter term is a compound noun that is made of *pa* (forest) and *mai* (wood or timber). Today, the term *pamai* is interchangeably used with the term *pa*, but it is possible that in the past it also meant a timber-bearing forest. I have not found concrete evidence for the first use of the term *pamai*, but I speculate that this term might have been used during the period when commercial logging began to flourish in Siam.

¹⁵ The term “Tai” refers to the population of descendants of speakers of a common Tai language. The Tai people consist of several major ethnic groups being Dai, Thais, Isan, Tai Yai, Lao, Ahom, and Northern Thai peoples. See William A Smalley, *Linguistic Diversity and National Unity: Language Ecology in Thailand* (Chicago: University of Chicago Press, 1994). For a reconstruction of Proto-Tai phonology, see Pittayawat Pittayaporn, “The Phonology Of Proto-Tai” (Ph.D. Diss., Cornell University, 2009).

¹⁶ On the *mueang-pa* division and traditional Tai cosmology, see Philip Stott, “Mu’ang and Pa: Elite Views of Nature in Changing Thailand,” in *Thai Constructions of Knowledge*, ed. Manas Chitakasem and Andrew Turton (London: School of Oriental and African Studies, University of London, 1991), 142–54; Richard Davis, *Muang Metaphysics: A Study of Northern Thai Myth and Ritual*. (Bangkok, Thailand: Pandora, 1984).

¹⁷ During the late nineteenth century, the notion of *mueang-pa* division began to incorporate colonial concepts of geography and civilization (or *khwan siwilai* in Thai), which shaped the transformation of how Siamese elites qualitatively judged and categorized the world’s peoples. In his discussion of Khun Tharaphakphathi’s geography primer, Matthew Reeder notes that “[a] people (*chat*) can become civilized by adopting proper behaviors and habits. Civilized peoples ‘behave themselves,’ Teacher explains. They reject immoral actions like ‘succumbing to their wrath and killing, stabbing, and striking out at will.’ Civilized countries (*ban-mueang*) build roads, railroads, and places of learning. Peoples who are not civilized, on the other hand, are ‘ignorant, like animals,’ and they live in the wilderness (*pa*).” See Matthew Thomas Reeder, “Categorical Kingdoms: Innovations in Ethnic Labeling and Visions of Communal States in Early Modern Siam” (Ph.D. Diss., Cornell University, 2019), 251.

logging, forests were not regarded as economically valuable resources in Lanna. According to Prince Phichit Preechakorn, a Siamese Commissioner who was dispatched to Lanna in 1884, the local lords often allowed their families and servants to extract timber for their own uses or for trade without any expense.¹⁸ Though the Lanna rulers *owned* the northern forests in principle, their ownership did not lead to any substantial regulation beyond occasional exploitation of the resources.

The emergence of teak trade in Lanna was influenced by the British commercial logging in India and Burma. In their study of the connection between the teak trade in Siam and Burma, Gregory Barton and Brett Bennett highlight the role of British timber merchants in creating and fostering such connections. They argue that during the latter half of the nineteenth century, British timber merchants tried to monopolize the teak trade in Southeast Asia. During this time, the forests became a battleground between foresters and teak merchants, who had different plans for the forests and their resources. In order to avoid strict control of the foresters in British India, teak merchants expanded their business from India to areas where forest regulation was still relatively weak, first to Lower Burma, and then, to Upper Burma, at a time when these areas were not yet under the control of the British empire. However, the British conquest of Lower Burma resulted in the expansion of the British colonial rule into mainland Southeast Asia, and with that also came British state forestry. Then, after the second Anglo-Burmese war (1852-53), British state forestry arrived in Upper Burma, leading the teak merchants to advance into Lanna.¹⁹

¹⁸ Prince Phichit Prichakon to King Chulalongkorn (May 1884), in 5.5 11.58/88 *Prince Phichit Prichakon's Report on the Administrative Reforms in Chiang Mai, Lamphun, and Lampang*, NAT.

¹⁹ Gregory A. Barton and Brett M. Bennett, "A Case Study in the Environmental History of Gentlemanly Capitalism: The Battle Between Gentleman Teak Merchants and State Foresters in Burma and Siam, 1827-1901," in *Africa, Empire and Globalization: Essays in Honor of A.G. Hopkins*, ed. Toyin Falola and Emily Brownell (Durham, N.C.: Carolina Academic Press, 2011), 319-20.

The initial expansion of British commercial logging into Lanna was spearheaded by Burmese and Shan loggers, who usually extracted and sold teak logs to British timber companies. The first groups of loggers came in the 1840s, during the reign of King Phuttawong (1826-1846). These loggers obtained the lease to log several patches of the forests between Western Chiang Mai and the Shan states and sent the timber down the Salween River to Moulmein, which had become under the British control since 1824. During the subsequent reign of King Mahotarapraphet (1846-1854), the teak business began to flourish. Consequently, the number of loggers increased, and so did the number of forest concessions in Chiang Mai as well as several places in Lanna.

The lucrative teak trade gradually raised the economic value of the forests and turned them into a new target of state administration, leading to the formation of early state forestry. Lanna rulers, such as the Prince of Chiang Mai, began commercializing their forests and created new forest policies, one of which was to increase the stumpage fee (*kha tomai*) – the fee collected per each cut tree. Previously, when the forests were leased for logging, the stumpage fee was set very low at one rupee per stump. However, during the reign of King Mahotarapraphet, the stumpage fee was increased to correspond with the size of the stump: small (8-10 Kam), medium (11-13 Kam), and large (14-16 Kam), for which loggers had to pay one rupee, two rupees, and three rupees, respectively.²⁰ This relatively low fee would be increased to 12 rupees in 1896, after the forest department was established in Siam.²¹ This period also witnessed newcomers to the business, including the ruling elites in Nan and Phrae, who began to log their own forests and sold timber to teak merchants instead of granting concessions to other loggers.

²⁰ On Siam's measurement system, see H. S., "System of Measuring and Selling Timber in Siam," *Indian Forester* 22, no. 11 (1896): 426.

²¹ Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 293.

As forest owners, Lanna ruling elites used to have supreme power to grant leases and determine the terms for their leases. In general, forest leases were obtained through personal connections, lobbying, and gift exchange. Yet, due to the absence of specific officers or institutions for forest management, forest leasing was authorized by the forest owner or a local prince, who usually had different approaches or required varying procedures to grant the lease. Herbert Slade, who went to inspect the forests in the North in 1896, commented that this approach might take years for a lease to be granted. According to Slade, "To obtain a forest lease, a prospective lessee had to contact the owner of the forest and asked for the price to pay. The owner usually asked for some time to consider, and meanwhile, the owner would start contacting other teak firms and ask how much they would pay for the same forest, leading to a lot of competition among the teak firms."²² In addition, although most leases required a lessee to make two types of payments – the forest opening fee (*kha poed pa*) and the stumpage fee – he noted that some forest owners would greatly benefit from several kinds of gifts that competing companies would bring them to lobby for leases.²³ The whole process was done through personal negotiations without the need for any formal permission from forest officials.²⁴

Besides the power to grant leases, forest owners and local princes in Lanna usually had almost full authority to handle legal disputes, as exemplified by the dispute between Mong Suay Nit and Chao Ratchabut (Noi Mahaphrom), the latter of whom was a powerful prince in Chiang Mai. In 1854, Mong Suay Nit obtained a lease of the Yuam Forest from Chao Ratchabut and paid

²² 1.5 11.16/9 Mr. Slade, *Having Inspected Forests and Returned to Bangkok, Submitted His Report Together with His Suggestions for Later policies* (1896), NAT, 8.

²³ Initially, each forest owner was responsible for collecting stumpage fees from their own forests. However, following Siamese interventions, the stumpage fees would be collected by officers from the agricultural department (*Krom Na*), and later, by the forest department. *Ibid.*, 39.

²⁴ It must be noted that before 1896, no official was specifically assigned to take care of forest administration. The modified lease used since the First Chiang Mai Treaty only needed three stamps from the forest owner, the city governor, and the Siamese commissioner.

the fee of five hundred rupees. However, after Mong Suay Nit cut down 350 trees, Chao Ratchabut confiscated all the timber, the laborers, and working elephants, which were worth over 4,000 rupees in total. When Mong Suay Nit petitioned to the Prince of Chiang Mai, the prince tried to delay the case. Chao Ratchabut then accused Mong Suay Nit of buying stolen elephants and took the liberty of putting Mong Suay Nit in jail.²⁵ This case is but one of several examples that previous scholarship refers to when arguing how ineffective the forest administration in Lanna was prior to the Siamese intervention. Another common teak-related dispute was when a forest was leased to more than one person. Such disputes might have occurred for several reasons. Sometimes a local prince assumed that a forest was his property and took the liberty to lease it to someone even though that forest, or a part of it, belonged to other people. In other cases, the lessee forgot or intentionally decided against renewing the lease after it expired, and so the owner decided to lease it to another lessee. In other cases, a forest owner intentionally leased a forest to more than one person to increase his profits. Also, due to the lack of maps to indicate a definite boundary of a forest, it was not uncommon that some forest concessions were overlapping with one another, which led to further disputes.²⁶

During the first half of the nineteenth century, forests were usually open to local harvest and exploitation. Yet, in principle, the forests were considered the property of local princes, and the Siamese court also recognized this ownership. In 1840, a group of loggers from Moulmein began extracting timber from forests in Tak, Chiang Mai, and Lamphun. After cutting their timber, they paid the stumpage fee to a Siamese official, who then brought the money to Bangkok. However, the Siamese court ordered the official to return the money to the loggers because they

²⁵ §.4 ๑.๙.1216 No. 153 *Allegations and Testimonies on Chao Ratchabut of Chiang Mai's Confiscation of Mong Suay Nit's Timber*, NAT.

²⁶ Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 294.

considered those forests to be the resources of *prathetsarat*, who had all the rights to harvest or lease to anyone at will. Later, Siam also sent a letter to the lords of Lanna, indicating that Siam would not interfere with economic pursuits in Lanna. This incident shows that the Siamese court initially refrained from interfering with forest management and other local affairs in Lanna, which would continue until the 1870s.²⁷

To summarize, the growth of commercial logging drew the attention of Lanna princes towards the forests. The forests became a valuable source of profit that the Lanna princes had to actively claim and manage. The Lanna rulers had to exercise their power over the forests by claiming their ownership and negotiating with prospective concessionaires, giving rise to a form of state forestry. Consequently, *pa* (forests) were no longer completely separable from *mueang* (seat of government). In his study of the changing perceptions of the environment in Thailand, Philip Stott argues that the traditional *mueang-pa* binary remained mostly unchanged until the influence of Western environmental movements during the 1970s.²⁸ However, based on the shift in Lanna princes' attitude towards their forests, this chapter contends instead that such a binary was already blurring since the mid-nineteenth century.

The rise of state forestry in Lanna was premised on the notion of an unequal relationship between the Lanna princes and the lessees, which was usually manifested in the form of gift-giving. The Lanna rulers or the forest owners acted as the supreme authority, while the concessionaires needed to do them favors to obtain the desired lots of forests in return.

²⁷ Pornpun Chongwattana, "Disputes of British Subjects against the Chiefs of Chiang Mai Resulting in the Siamese Government Taking over the Administration of North West Siam (Payab Circle) (1858-1902 A.D.)," 45-47. The Siamese official was Phraya Thanuchak, who was sent to gather information about the ongoing war between the British and the Burmese. See ๓.๓ ๓.๓.1204 No. 14 *A Note from Chao Phraya Chakkri to Phraya Chiang Mai Reporting News about the warfare between Ava and the British*, NAT.

²⁸ Stott, "Mu'ang and Pa: Elite Views of Nature in Changing Thailand," 151-52. See also Timothy Forsyth, "The Mu'ang and the Mountain: Perceptions of Environmental Degradation in Upland Thailand," *South East Asia Research* 3, no. 2 (1995): 169-91.

Agreements were made via interpersonal negotiations rather than by following a standardized procedure. In addition, forest ownership at this stage did not reflect the same logic as the notion of property rights, as there was no marking of fixed forest boundaries and multiple users were allowed on the same property.²⁹ The unchallenged authority of forest owners and Lanna princes would decline after the British Empire and signed the Bowring Treaty, which raised the status of the British in the power hierarchy. Having officially overpowered Siam, the British expected the same privileges in Lanna, which they understood to be under Siam's authority. As I will elaborate below, the pressures from the British would facilitate the rise of Siam's expansion into Lanna towards the end of the century.

The Bowring Treaty: Extraterritorial Rights and the Beginning of Siam's Interventions in Lanna (1850s-1870s)

Before the Bowring Treaty, the Siamese royal court enjoyed almost absolute control over foreign trade, including heavy taxation and export monopoly of major goods. As the British Empire expanded into Southeast Asia during the first half of the nineteenth century, the British government tried to establish a trade system that would privilege British commercial interests in the name of free trade, both through diplomatic negotiation and warfare. In 1826, the British government managed to sign a treaty with Siam called the Burney Treaty. However, because this

²⁹ In his report of the survey during the first half of 1896, Herbert Slade also commented on Lanna's forest owners' lack of understanding about this notion of property rights. According to Slade, forest owners could not grasp why many companies were willing to pay so much money for a piece of forest. They seemed to assume that the price indicated the tremendous value of the forests, but in reality, the amount far exceeded the actual value of the forests, and the companies only paid an extra amount to obtain the exclusive right to work those forests. See 5.5 n.16/9 *Mr. Slade, Having Inspected Forests and Returned to Bangkok*, NAT, 34. For more in-depth analysis of the development of property rights in Thailand, see Tomas Larsson, *Land and Loyalty: Security and the Development of Property Rights in Thailand* (Ithaca: Cornell University Press, 2012).

treaty had yet to settle commercial issues in the direction favored by the British, the British sent another envoy led by Sir John Bowring in 1855. Siam and Britain signed a new treaty on April 18th, 1855, which lifted many of Siam's former tax barriers and imposed a new fixed rate that kept the tax at a very low rate of three percent for all articles.³⁰ In addition to commerce, the treaty also granted subjects of the British Empire full extraterritoriality, which exempted their subjects from being tried by local Siamese authorities without consent from the British government. A British consulate was then established in Bangkok to guarantee the enactment of this new legal and diplomatic system.³¹ Afterwards, Siam also signed similar treaties with other powerful nations, including the Treaty of Amity, Commerce, and Navigation with the United States (1856).

With the increased support from their government as well as the new security (and privilege) provided by extraterritorial rights, British teak merchants started to establish their permanent posts in Siam, beginning with the British Borneo Company in 1855. The company became the largest British teak firm in Siam from 1883 until the mid-1890s. The Bombay Burmah Trading Cooperation Ltd. (BBTC), despite its late arrival into the Siamese teak market in the late 1890s, rapidly expanded its market share. It eventually took over the Borneo Company's position and remained the largest teak firm in Siam until the middle of the twentieth century. Other companies included Siam Forest, Louis T. Leonowens (separated from the Borneo Company in 1896), East Asiatic (Denmark), the French East Asiatic, Kim Seng Lee, and Lamsam – the last two

³⁰ On the effects of the Bowring Treaty on Thai history, see Piyanart Bunnag, *Modern Thai history from the Bowring Treaty to the October student uprising.*, Second Edition (Bangkok: Faculty of Arts, Chulalongkorn University, 2550); Porphant Ouyyanont, *A Regional Economic History of Thailand* (Singapore: ISEAS-Yusof Ishak Institute, 2017).

³¹ On the international court system and extraterritoriality in Siam, see Iijima, "The 'International Court' System in the Colonial History of Siam." On the impact of extraterritoriality on Siam's semi-colonial status, see Lysa Hong, "'Stranger within the Gates': Knowing Semi-Colonial Siam as Extraterritorials," *Modern Asian Studies* 38, no. 2 (2004): 327–54; Jackson, "The Ambiguities of Semicolonial Power in Thailand."

companies were run by Chinese businessmen who were Siamese and French subjects, respectively.

Several historians consider the Bowring Treaty to be a dividing point between premodern and modern Siam, emphasizing the transformative effects of this treaty on Siamese society. However, as Ratanaporn Sethakul and others have already argued, the Bowring Treaty did not immediately or evenly affect everywhere in Siam. In Lanna, the economic effects of the Bowring Treaty proved to be much slower than in Bangkok.³² Moreover, the new extraterritoriality laws could not be readily enforced in Lanna, either. As one of Siam's tributary states, Lanna during the mid-nineteenth century occupied a rather ambiguous place as both an outsider and an insider within the fledgling Siamese nation-state. While the Bangkok ruling elites usually distinguished Siam from Lanna and other tributary states, they also claimed these tributaries to be under their sphere of influence. With the expansion of the British and the French empires into Southeast Asia, the Siamese elites feared that the European powers would annex Lanna into their empires, and so they insisted on the tributary relationship to claim that they had historically "owned" this region. Despite this claim of overlordship, Siam did not have any formal political presence in Lanna, and so, they did not have any institutions or means to enforce the new extraterritoriality they had given to European and American subjects. Hence, to avoid interfering with the judicial and administrative authority of local rulers, the Siamese elites were generally reluctant to extend the spatial coverage of extraterritorial rights to include Lanna.

³² Rattanaporn Sethakul, "Political, Social, Economic Changes in Northern States Thailand," 123–26. On economic changes in Chiang Mai during the late nineteenth century, see Choosit Choochard, "The Evolution of the Village Economy in North Thailand: B.E. 2349-2475" (M.A. Thesis, Srinakharinwirot University, 1980); Katherine Ann Bowie, "Peasant Perspectives on the Political Economy of the Northern Thai Kingdom of Chiang Mai in the Nineteenth Century: Implications for the Understanding of Peasant Political Expression" (Ph.D. Diss., University of Chicago, 1988).

Despite Siam's initial hesitation, pressures from foreign nations, especially the British, propelled Siam to intervene in Lanna's local affairs with more frequency. Between the 1860s and the 1870s, the British tried to make Siam accountable for the disputes between British subjects and Lanna ruling elites. In 1866, R.C. Burn, a British businessman from Moulmein, reported a murder of his Burmese staff by the lord of Chiang Mai, Chao Kawilorot. T.G. Knox, the British Consul in Bangkok, responded to this complaint, which led to a hearing in Bangkok. Chao Kawilorot came to the hearing and denied any involvement in the murder. Knox seized this opportunity to emphasize the necessity of providing more protection for British subjects in the North and demanded that a vice consulate be established in Chiang Mai, a plan which was rejected by Siam. After this case, there arose several more allegations of violence against British Burmese subjects, including the charge against Chao Inthawichayanon in 1871.³³ To investigate the cases, the Government of India sent the Burmese Superintendent of Police, Captain Thomas Lowndes, to Siam.³⁴ In 1873, Lowndes reported a list of 42 disputes between British subjects and Chiang Mai ruling elites, most of which were forest-related conflicts.³⁵ His report described great violence against, as well as bloody deaths of, Burmese British subjects in Chiang Mai, leading to a series of consular trials. According to Gregory Barton and Brett Bennett, "Lowndes's report raised questions about the balance of power between Bangkok and Chiangmai, and he eventually came to the conclusion that it would be best to deal with Chiangmai through Bangkok."³⁶

³³ It was later revealed that the dead man was a native of Chiang Mai, and so the charges by the British were lifted because the case was considered to be Siam's internal affairs. Amnuayvit Thitibordin, "Control and Prosperity: The Teak Business in Siam 1880s-1932" (Ph.D. Diss., Hamburg, University of Hamburg, 2016), 66.

³⁴ FO 69/55 *Journal kept by Captain Lowndes, Superintendent of Police British Burma, whilst on a Mission to the Zimme Court*, cited in Amnuayvit Thitibordin, 66.

³⁵ Although 31 cases were dismissed, the remaining 11 cases were decided that the Chiang Mar party was in the wrong. Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 296.

³⁶ Barton and Bennett, "Forestry as Foreign Policy," 70.

The first forest-related case sent to the British Consulate in Bangkok following the Bowring Treaty was the dispute between Chao Kawilorot, the Governor of Chiang Mai, and Mong Suay Kan [Maung Shwe Kan], a British subject who had been granted a ten-year lease to extract timber in the Khun Yuam Forest.³⁷ However, it was reported that Mong Suay Kan did not pay the stumpage fee regularly. After Yuam, the nearby town, was attacked by the Karens, Mong Suay Kan abandoned his forest and fled to Moulmein. Three years later, Mong Suay Kan returned to the forest and found that Chao Kawilorot had granted a new lease to Mr. Lenaine. Mong Suay Kan took the case to the British Consulate in Bangkok, leading to a series of trials with contradicting verdicts. Eventually, the court ruled in favor of Chao Kawilorot on the ground that Mong Suay Kan broke the lease first by abandoning the forests for three years.³⁸ This example of intervention by the British Consulate suggests that the British attempted to make Siam accountable for the conflicts in the North, which were not officially covered by the Bowring Treaty. It shows that the British wanted Siam to be a new candidate for the *state* to regulate the Northern forests in its favor, which in turn facilitated the Siamese expansion into Lanna.

The Chiang Mai Treaties and the Expansion of Siam's Power into the Northern Forests (1870s-1880s)

Even though increasing pressure from the British and other nations gradually led Siam to assert more control over Lanna, Siam continued to act as a mediator between Lanna and the British rather than imposing itself as the supreme authority. It should also be noted that the

³⁷ This area is now in Mae Sariang District, Mae Hong Son Province. However, the whole area of Mae Hong Son used to be part of Western Chiang Mai and thereby subject to the rule of the Governor of Chiang Mai.

³⁸ Pornpun Chongwattana, "Disputes of British Subjects against the Chiefs of Chiang Mai Resulting in the Siamese Government Taking over the Administration of North West Siam (Payab Circle) (1858-1902 A.D.)," 62-68.

Siamese interventions from the 1860s to the early 1870s were usually made on a case-by-case basis. When a conflict occurred, the case was to be reported to Bangkok, where the trial would take place. During this period, no Siamese official was appointed to Chiang Mai or other city-states in Lanna to represent the Siamese court. Hence, they were simply short-term solutions rather than an attempt to create a formal institution or administrative structure. This approach reflects the attitude of Somdet Chaophraya Borommahasrisuriyawong (Chuang Bunnag), the former regent to King Chulalongkorn and Minister of War and the Southern Provinces. For him, Lanna was a *prathetsarat* – a foreign country with ties to Siam, but not part of Siam proper.

Nevertheless, the British insisted on making Siam accountable for those conflicts on behalf of Lanna, and Siam began to respond to such pressure. For example, during the 1870s, Chao Inthawichayon and the Chiang Mai elites were defeated in a court trial, and so they had to pay a fine equal to 466,015 rupees, which was more than they could afford to pay. Chao Inthawichayon then had to borrow the money from Siam and promised to pay it back in installments over the duration of seven years. According to Sarasawadee Ongsakul, Siam's willingness to lend the money demonstrates Siam's goodwill towards Chiang Mai during a difficult time.³⁹ This interpretation implies that Siam could freely decide whether to lend the money or not. However, considering the obligations from the Bowring Treaty, as well as the threat of British colonization of Lanna, Siam was already bound to pay the fine on behalf of Lanna as long as it insisted on

³⁹ Like many of the earlier works on Lanna, Sarasawadee also emphasizes the lack of administrative competence among the local elites as the reason for Siamese intervention. For example, she argues that Chao Inthawichayanon, despite his previous legal defeats, continued to cause more conflicts that forced Siam to intervene, in order to maintain good relations with the British. While the involvement of local elites in these disputes cannot be denied, Sarasawadee and previous historians of Lanna have failed to recognize that they might have naïvely reproduced the colonial discourses that Siamese elites used to represent Lanna in order to justify their political expansion. Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 295–96.

claiming Lanna as part of its territory. If not paying the fine meant losing Lanna to the British, this loan was not a choice.

More explicit assertion of power by Siam began in 1874, when King Chulalongkorn decided to negotiate directly with the British officials. This initiative by Chulalongkorn brought about new political discussions that eventually led to the signing of a treaty between the Government of India and Siam in 1874, which was also known as the First Chiang Mai Treaty.⁴⁰ Unlike the vagueness of the Bowring Treaty, this new treaty officially extended British extraterritorial rights to cover northern Siam and made Bangkok responsible for enforcing and resolving legal conflicts that concerned British subjects in northern Siam.⁴¹ This treaty not only served as another capstone of Anglo-Siamese relations but also marked a turning point in Siam's relationship to Lanna. For the first time since the beginning of the tributary relation in the 1780s, Siam created a permanent administration position to represent Siam's authority in Chiang Mai. Following the signing of the treaty, Siam dispatched the first Siamese commissioner to Lanna, whose title was initially "Khaluang Sam Huamuang" (Commissioner of Three Cities) to reflect the spatial limit of his authority. The new commissioner was accompanied by a group of about 70 Siamese officials, including the second commissioner, clerks, military officers, legal officers, interpreters, and servants.⁴² Although the new commissioner still recognized the rulership of local lords, his presence also provided Siam with an unprecedented channel to interfere in local

⁴⁰ Officially, it is called "Treaty between the Governments of Siam and India, for promoting Commercial Intercourse between British Burmah and the adjoining Territories of Chiang Mai, Lakon, and Lamponchi, belonging to Siam. [Repression of Crimes. Apprehension of Dacoits, &c. Passports. Jurisdiction in Civil Cases. Forests. Duty on Goods, &c.]," which was signed by Siam and British India at Calcutta, Indian, on January 14, 1874.

⁴¹ Barton and Bennett, "Forestry as Foreign Policy," 70.

⁴² The primary role of the Commissioner of Three Cities (Khaluang Sam Huamuang) was to represent Siam in trials that involve foreign subjects. Hence, this position was also called the Judge-Commissioner of International Court (Khaluang Tralakan Santangprathet). Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 318-19.

affairs in Lanna. Yet, during this period, Siam maintained most of the existing administrative structures while using the commissioner to influence the local lords to act according to Siam's desires.⁴³

In terms of the effects upon forestry and teak trade, the First Chiang Mai Treaty modified the procedure of forest leasing by formally recognizing Siam as another authority to ratify leases. Previously, forest leases were usually made orally between a lessee and a forest owner, but sometimes, the city governor might take the liberty to act on behalf of the forest owner or serve as a third-party witness. In some cases, they might have created written agreements, inscribed on palm leaves and sealed by the prince of the city under which the forests were controlled. However, the new treaty required paperwork and a seal by the Siamese commissioner and another by the Prince of Chiang Mai. Article X of the treaty stated that any agreements to purchase, cut, or girdle timber in the forests of Chiang Mai, Lakon [the former name of Lampang], and Lamphoonchi [Lamphun], "must enter into a written agreement for a definite period with the owner of the forest. Such agreement must be executed in duplicate, each party retaining a copy, and each copy must be sealed by one of the Siamese Judges at Chiang Mai appointed under Article V, and by the Prince of Chiang Mai."⁴⁴

Nevertheless, disputes between foreign subjects and local rulers were not always effectively resolved even after the First Chiang Mai Treaty went into effect. This led the British to pressure Siam to take more substantial action. Siam, on the other hand, wished to maintain the status quo, preferring to dominate Lanna indirectly. This situation continued to the early 1880s.

⁴³ Sarasawadee Ongsakul, 318-19.

⁴⁴ "Treaty between the Governments of Siam and India, for promoting Commercial Intercourse between British Burmah and the adjoining Territories of Chiang Mai, Lakon, and Lamphoonchi, belonging to Siam," Article X, cited in Rattanaporn Sethakul, "Political, Social, Economic Changes in Northern States Thailand," 384.

In a letter to Phraya Ratchasampharakon, who served as the commissioner between 1883 and 1884, King Chulalongkorn stressed the need to avoid making local lords feel like they were forced to do something. More importantly, the commissioner had to acknowledge that “Chiang Mai has not truly become our territory as it is still a *prathetsarat*, but we do not wish to eliminate its royal family so that it would no longer be a *prathetsarat* [...] To put it briefly, [we need to] treat the Laos as if they were machines, which we can move forth and back at will.”⁴⁵

After 1874, robberies and armed conflicts on the borders between British Burma and Siam intensified, especially on border areas along the Salween River where many British subjects were reported to have been robbed or killed. This area was originally under Chiang Mai’s jurisdiction, but following the Bowring Treaty, sovereignty over this area became ambiguous. The British Consulate demanded that Siam provide more protection for British subjects. In response, Siam decided to send its police force to the area and thereby gradually increased its political presence in Lanna, partly due to the fear that unrest at the border would provide the British with an excuse to colonize Lanna. After a series of negotiations, Siam and British India signed the Second Treaty in 1883.⁴⁶ This treaty led to the establishment of Siam’s International Court and a British consulate in Chiang Mai. According to the previous treaty, British subjects were granted a degree of extraterritorial rights, and they might choose to be tried in a local court in Chiang Mai or in Yoonzaleen District of British Burma. However, the new treaty returned power to Siam to try

⁴⁵ King Chulalongkorn to Phraya Ratchasampharakon (1883), cited in Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 318. For a detailed analysis of the effects of the First Chiang Mai Treaty on Lanna, see Chapter 5 of Rattanaporn Sethakul, “Political, Social, Economic Changes in Northern States Thailand,” 171–217.

⁴⁶ The original spatial coverage of this treaty was the same as the first treaty, covering on the areas of Chiang Mai, Lampang, and Lamphun. However, Siam and British India extended the coverage in 1885 to Phrae and Nan, and once again in 1896 to Thoen, Tak, Sukhothai, Uttaradit, and Phichit, some of which are significant logging sites but located outside the territory of Monthon Phayap. For records of the prolonged negotiations before the finalization of the Second Chiang Mai Treaty, see ๖.๕ ๖๓.๗๗.๘ (ฉ.ศ. 1244) *Chiang Mai Treaty*, NAT.

British subjects in the new International Court. Even though the British consulate was still able to intervene and try British subjects in the consular court, this new system further strengthened Siam's power in Chiang Mai and Lanna.⁴⁷

Besides the establishment of the court and the consulate, the Second Chiang Mai Treaty also marked the beginning of Siam's attempt to annex Lanna, through intensified interventions in Lanna's administration. Most scholarly writings on the political history of Siam-Lanna relations usually divide this transformation into two periods: the pre-Monthon Thesaphiban period (1884-1899) and the Monthon Thesaphiban period (1899-1933).⁴⁸ Between 1884 and 1915, Lanna continued to exist as a special region.⁴⁹ Siam kept traditional administrative positions, such as Chao Khan Ha Bai (the five rulers) and Khao Sanam Luang (state council), instead of imposing the same structure being used elsewhere in the nation.⁵⁰ In 1899, Siam replaced the *prathetsarat* system with the Monthon Thesaphiban system, combining major cities like Chiang Mai, Lampang, Lamphun, Phrae, and Nan into a single administrative unit called "Monthon Phayap." Still, the administrative structure of Lanna remained distinguishable from other Monthon in Siam, and during the 1890s, several laws were specifically created to be used in Monthon

⁴⁷ On the effects of the Second Chiang Mai Treaty, see Chapter 6 of Rattanaporn Sethakul, "Political, Social, Economic Changes in Northern States Thailand," 218-69.

⁴⁸ For an overview of political and administrative reforms between 1884 and 1933, see Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 323-58. For a critique of Siam's centralization policy in Lanna since the Monthon Thesaphiban Period, see Tanet Charoenmuang, *Lannaissance: 120 Years of Local Resistance against the Centralized State (B.E. 1899-2019)* (Chiang Mai: Darawan Kan Phim, 2020).

⁴⁹ Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 324.

⁵⁰ Chiang Mai, Lampang, Lamphun, Phrae, Nan, and other towns in Lanna had a similar three-level structure, which consisted of Chao Khan Ha Bai at the top, Khao Sanam Luang at the ministerial level, and village heads at the local level. Chao Khan Ha Bai consisted of five members, usually from the royal family of each city, with Chao Luang as the supreme ruler while the other four members assisted the work of Chao Luang in different areas of governance. Khao Sanam Luang consisted of thirty two members, some of whom were lesser royal members, and served to provide advice or assisted in administrative decision-making. Rattanaporn Sethakul, "Political, Social, Economic Changes in Northern States Thailand," 17-20.

Phayap.⁵¹ Most importantly, Siam also created a forestry commissioner position, which could be found only in Monthon Phayap and thereby highlighted the significance of forest administration in this region. This special status persisted until the 1910s, when Siamese policies began to shift towards an assimilationist approach.

Though traditional positions remained, their power was gradually decreased and transferred to newly created positions called Sena Hok Tamneang (Six Ministers). Local administration was divided into six offices: interior affairs, military, treasury, justice, agriculture, and royal affairs.⁵² Each office consisted of the office head (recruited from local royal members), a Siamese assistant, and a local assistant. These new positions allowed Siam to formally intervene in various local affairs while (seemingly) respecting the traditional roles of local elites. Then, between 1893 and 1899, when Phraya Songsuradet was the Commissioner to Lanna, Siam raised the status of the commissioner in Chiang Mai to be Chief Commissioner (Khaluang Yai). Then, they assigned vice commissioners to major cities, such as Lampang, Nan, and Phrae, and later, to other important towns such as those on the Western Chiang Mai borders. These assignments indicated further expansion of Siam's political presence from the headquarters in Chiang Mai to other parts of Lanna. In addition to changes in the political structure, Siam also tried to resolve territorial disputes, suppress political unrest and crime on the borders, and reform local tax systems.⁵³

⁵¹ For example, Ministerial Regulations on the Governance of the Northwestern Monthon (1900) and the Collection of Money in lieu of Labor Service in the Northwestern Monthon Act (1900).

⁵² The Sena Hok Tamnaeng was first established by Prince Phichit Prichakon, a special commissioner to Chiang Mai between 1884 and 1885. Prince Phichit supervised these administrative reforms in major cities of Western Lanna. In Eastern Lanna, such as Nan and Phrae, changes took place a few years later.

⁵³ Siam created many new taxes, which put great burdens on local citizens. Frustration about the taxes, as well as the maltreatment by Siamese officials, led to uprisings in several areas. A well-known uprising is the one led by Phaya Phap in 1889.

Although the treaty terms related to forestry in the Second Chiang Mai Treaty were based on the first treaty, the second treaty included three major modifications. Firstly, just like other legal cases that involved British subjects, forest-related disputes were to be settled in Siam's International Court in Chiang Mai, unless the British Consul or the Vice Consul decided to intervene. Secondly, the treaty added the British Consul or Vice Consul as another member required to authorize a forest lease to British subjects. Article XI says that the written agreement must be "sealed by the British Consul or Vice Consul and a Siamese Judge and Commissioner at Chiengmai, appointed under Article VIII of this convention, and be countersigned by a competent local authority."⁵⁴ Thirdly, rather than allowing forest owners to freely determine fees and charges, the treaty demanded that a fixed rate be published. This last modification was an attempt to prevent unnecessary competition between British timber firms.

In addition to changes in the new treaty terms, Siam introduced more elaborate paperwork for forest administration. In 1884, Prince Phichit Prichakon, a brother of Chulalongkorn and a special commissioner to Chiang Mai, demanded that all forest owners report their forest possessions to the officers so that they could compile a list of available forests for lease. Each forest on the list had to be accompanied by a map that demarcated the boundary, together with important details such as the condition of the forest, available timber, the name of the lessee (if any), the duration of the existing lease, and the terms of the agreement.⁵⁵ This list provided Siam with more insight into the state of the Northern forests, and allowed Siam to further strengthen its control in the subsequent years after the forest department was established.

⁵⁴ "Treaty between His Majesty the King of Siam and Her Majesty the Queen of the United Kingdom of Great Britain and Ireland, for the Prevention of Crime in the Territories of Chiengmai, Lakon. and Lamphoonchi, and for the Promotion of Commerce between British Burmah and the Territories aforesaid," cited in Rattanaporn Sethakul, "Political, Social, Economic Changes in Northern States Thailand," 397.

⁵⁵ Prince Phichit Prichakon to King Chulalongkorn (14 May 1884) in 5.5 u.58/88 *Prince Phichit Prichakon's Report on the Administrative Reforms in Chiang Mai, Lamphun, and Lampang* (1884), NAT.

Moreover, Siam started to obtain a share of profits from the teak trade in Lanna. Although Siam had originally acknowledged Lanna lords' ownership of the forests and all related profits, Prince Phichit demanded that Lanna send twenty per cent of the income from teak to Bangkok.⁵⁶

The establishment of the International Court following the new treaty modified agential relations in the teak business. According to Amnuayvit Thitibodin, "Control over the justice system helped the Siamese government maintain its influence over the northern region. New standardised procedures and regulations for the teak trade were also enforced by this court."⁵⁷ In this sense, the court displaced local rulers, while Siam and the British Consulate were recognized as the new judicial authorities. Court verdicts gradually became the basis for new, standardized procedures. As a result, local lords began to lose agency in shaping the new forest administration, unless they were directly involved in legal cases as plaintiffs or defendants.

Between the 1870s and the 1880s, the British attempted to make Siam accountable for legal disputes in Lanna. Then, during the 1890s, the power of Lanna was further decreased, following Siam's nationalization of the forests and the establishment of a specialized institution for state forestry. Although Siam made Lanna its tributary for several decades, Siam used to refrain from intervening in Lanna's local affairs and did not try to claim ownership of Lanna's forests and other resources apart from the tributary gifts (*suay*) it received from Lanna annually. However, by the 1890s, Siamese elites in Bangkok had adopted a new idea of national resources and began claiming a greater share of profits from the resources it historically did not own. At the same time, in response to British pressure, Siam also played an increasingly bigger role in managing the

⁵⁶ Nigel J. Brailey, "The Origin of the Siamese Forward Movement in Western Laos, 1859-1892" (Ph.D. Diss., University of London, 1968), 271.

⁵⁷ Amnuayvit Thitibordin, "Control and Prosperity," 73.

Northern forests. Though initially positioning itself as a mediator, Siam gradually asserted itself as a new authority.

To successfully establish itself as the supreme authority in forest administration, Siam had to naturalize the discourse of “national forests” – that all forests belonged to and should be managed by Siam, the representative of the nation. This discourse had become so powerful that even some Lanna princes would appropriate it, such as when Chao Ratchasamphanwong applied for a forest concession in the North in 1896. Despite the fact that this land historically belonged to the Lanna princes, he referred to the forest as “Siam’s royal treasure” and claimed to be capable of protecting Siam’s treasure if he was granted the concession.⁵⁸ By the 1900s, the idea of forests as national resources had become naturalized. Meanwhile, any local resistance was considered to represent the selfishness of local ruling elites. Prince Phenphatthanaphong (hereafter Prince Phen), who went to investigate forest works in Lanna in 1903, asserted the rightfulness of Siam’s ownership and regulation of the Northern forests. Stressing the status of Lanna as Siam’s tributary state, Prince Phen claimed that Siam had the duty to provide for the well-being of all the lands under its rule, and the money obtained would be used for that purpose. By arguing this way, the prince accused the Lanna ruling elites of being selfish for their disapproval of Siam taking a share of the flourishing teak trade.⁵⁹ By the time that Prince Phen wrote his report, the idea that Lanna’s forests were a “national resource” that belonged to Siam had become an unquestioned fact in the mind of Siamese bureaucrats.

⁵⁸ ๓.5 ๓.16.2/25, *Chao Ratchasamphanwong Requests a Permission to Manage the Forests in Chiang Mai (1895-1896)*, NAT.

⁵⁹ ๓.5 ๓.16/10 *Prince Phen’s Report on the Observation of Forest Works (1903)*, NAT, 8-9.

Revisiting Lanna's "Arbitrariness"

This chapter aims to reevaluate the dominant narrative that has claimed Lanna's forest management to be arbitrary while representing Siam's intervention as a rational solution. Sarasawadee Ongsakul refers to the case of Mong Suay Kan as the evidence of how Lanna forest administration was inefficient in several aspects, such as the unsystematic stumpage fee collection, the lack of circumspection in determining lease terms, and the unrestricted power of the city governor who granted or broke leases at will.⁶⁰

Recent scholarship on Lanna history has shown how Siamese elites represented Lanna as backward and inferior to Siam as an attempt to maintain Siam's domination in the colonial hierarchy.⁶¹ For example, in his report of Siam's military campaign in Chiang Tung (or Kengtung) in 1854, Prince Wongsā Dhiraj Snid claimed that Lanna people had three characteristics: "coveting other people's belongings, not wanting to lose their belongings to others, and being lazy."⁶² This was also the case for Lanna's forest management. In a report of his investigation of the northern forests in 1903, Prince Phēn acknowledged that Lanna princes had begun managing their forests before Siamese intervention. Yet, the prince claimed that the Lanna princes were still ignorant about forestry and unable to control the forests. He argued that Lanna's power was limited to the ability to grant forest leases and make profits from them; beyond this, they knew almost nothing else about the forests and forest works.⁶³ Hence, claims about the arbitrariness of Lanna's administration is but one example of Siam's attempts to assert superiority and justify its colonial-modernizing endeavors in the North.

⁶⁰ Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 295.

⁶¹ Nuaon Khrouthongkhieo, *Exposing the Plan to Occupy Lanna*, 27-30. On the attitudes of Siamese ruling elites towards Lanna, see Taunjai Chaisinlapa, "Lanna in the Perception of the Siamese Elite 1884-1933 A.D." (M.A. Thesis, Thammasat University, 1993).

⁶² *Record of the Chiang Tung Battle*, cited in Nuaon Khrouthongkhieo, *Exposing the Plan to Occupy Lanna*, 28.

⁶³ 5.16/10 *Prince Phēn's Report*, NAT, 13.

While the damages caused by the Lanna princes on the British business cannot be denied, this problem cannot be superficially attributed to the arbitrariness of Lanna rulers. As Karl Appuhn has argued, "Rational control can take many forms."⁶⁴ That is to say, forestry can take several forms in different places, which also have varying needs and problems. In his study of forestry in Venice, Appuhn has demonstrated that the Venetian form of forest regulation was based on Venetian needs and their peculiar sets of problems. Evaluating their success based on what they aimed for, we may say that they were successful in their own way – but not in terms of statecraft and forest management. Similarly, Lanna's forestry was not inefficient or irrational. Forest management in Lanna simply operated with a different logic, which contradicted the demands and expectations of the British, and later the Siamese, who came to dominate the field. Take the problem of double leasing, for example. According to previous assumptions, double leasing represents the arbitrariness of Lanna princes, who violated the rights of the first lessee. However, it must be noted that forest use in Lanna did not operate under the logic of property rights, which is premised on the idea that the right to use a particular space or property belongs to an individual or a limited group of people. Until the nineteenth century, forests used to be open to public access, and a certain owner might give permission to more than one person to use it at the same time. Hence, to an owner, leasing a forest might simply mean agreeing to let a person use that forest, rather than promising to limit the access for that person only. In this case, the forest owner who leased the same forest to multiple parties would be in the wrong only if the logic of property rights applied. The rise of the RFD does not indicate the rationalization of forestry; rather, it reflects a change in the authority, which came with different needs and approaches.

⁶⁴ Karl Appuhn, "Inventing Nature: Forests, Forestry, and State Power in Renaissance Venice," *The Journal of Modern History* 72, no. 4 (2000): 863.

Instead of the desire to fix Lanna's arbitrariness, I argue that the real cause of changes during the 1850s and the early 1870s was the new confidence of the British, who had managed to overpower Siam with the Bowring Treaty, and wished to enjoy the same privilege in Lanna. As described in the previous section, during the early stages of commercial logging in Lanna, the British and foreign teak merchants mostly accepted the unequal relationship with Lanna rulers and tried to play by the latter's rules. In return, they gained access to Lanna's teak resources and expanded their business. The extraterritorial rights granted by Siam changed the whole scenario, giving the British and foreign merchants the idea that they might not have to play by the rules that put them at a disadvantage. Assuming that Lanna was part of Siam, the British tried to pressure Siam to protect their supposed rights in the North, and thereby introduced Siam as a new stakeholder in the land that it historically had almost no stake. Ultimately, the transformation of state forestry in Lanna is a reflection of a shift in power relations, with Siam and the British Empire as collaborators.

Conclusion: Ruling the Forests and Ruling the North

Almost all of the princes and royal families in the Northwestern Monthon are more or less involved with the teak business because their extravagance are derived from those forests. Therefore, anyone who will take charge of this Monthon, unless he can also control the forest department, will not succeed. Because the livelihood and profits of those princes will always be tied to forest administration, if the Ministry of Interior is to control the Northwestern Monthon, it cannot let go of the forest department. (Phraya Sri Sahathep, 1900)⁶⁵

In this chapter, I have traced the formation and transformation of state forestry in Lanna and Siam during the latter half of the nineteenth century. Forestry has usually been hailed as the

⁶⁵ Phraya Si Sahathep to Prince Damrong (2 April 1900), ๓.5 ๓.58/33 Phraya Si Sahathep's Administrative Reforms in the Northwestern Monthon, together with the Land Tax Act (1895-1896), NAT.

success of Siamese kings to modernize and save the country from European colonialism. King Chulalongkorn himself emphasized the importance of forestry in his royal letter to the Prince of Chiang Mai in 1897:

Forestry, unless we handle it properly, seems to be a cause of future conflicts with foreign countries, such as the British, many of whom have come [to Lanna and Siam] to engage in the forest business. If the forests are destroyed, they will also be doomed, and the British government will accuse us of not taking care of our country and of not preserving our treasures [i.e. natural resources]. The incident in Burma [Anglo-Burmese war] happened because Burma did not properly manage their control - this is an example that should make us worried. It is necessary to deal with this matter soon before it is too late.⁶⁶

Having witnessed the fall of Burma, which was eventually annexed as a province of British India in 1885, the Siamese king portrayed forest management as a means to avoid the same fate as Burma. On the other hand, the emergence of state forestry was inseparable from the expansion of Siam into Lanna. By the end of the nineteenth century, the Siamese elites in Bangkok came to accept the entanglement between forestry and the administration of the North, which was all under the control of the Ministry of Interior. After supervising administrative reforms in Lanna in 1899, Phraya Sri Sahathep reported to Prince Damrong, Minister of Interior, that the ministry had to properly control the forest department if it wished to successfully control the Northwestern Monthon (Lanna).

Yet, as I have argued in previous sections, this entanglement was not given. In fact, most Siamese ruling elites originally did not want to interfere with Lanna's *local* affairs. They also could not care less about the northern forests as long as the Lanna princes properly sent them the agreed amount of tributary timber gifts.⁶⁷ Even the Lanna princes used to exclude the forests (the

⁶⁶ King Chulalongkorn to Prince of Chiang Mai (9 April 1897), ๓.5 ๓ 16.3/5 *To Collect Stump Fees in Chiang Mai and the Prince of Chiang Mai's Opposition against This Arrangement* (1896-1897), NAT.

⁶⁷ Sarasawadee Ongsakul, *Prawattisat Lanna [Lanna History]*, 270.

uncivilized *pa*) from their administration of towns (the civilized *mueang*). Until the mid-nineteenth century, even though the Northern forests were regarded as the property of Lanna princes, they were neither deemed so valuable nor subjected to rigorous regulation by their owners. However, the flourishing teak trade gave the forest new significance, leading the Lanna princes to actively claim their ownership and to exercise their rights by controlling the forest leasing process. As they strengthened their claims over the forests and sought to increase their profits, they began to incorporate the forests into their administration. The flourishing teak business also increased contact as well as conflicts with European nations and their subjects, leading to the formation of state forestry in Lanna.

State forestry gradually took the form of colonial forestry between the 1850s and the 1890s. This period presents a gradual transformation of the Siam-Lanna-British Empire relationship. The coloniality of this transformation is evidenced by the gradual displacement of Lanna princes by Siamese officials and administrative institutions, which eventually caused a drastic change in the ownership of the Northern forests and the form of state forestry. No longer just a site for extracting economic resources, the forest became a space for political confrontations among Lanna, Siam, and the British Empire. As Barton and Bennett have pointed out, the British played an indispensable role in facilitating the Siamese expansionist project into the North.⁶⁸ The increasing number of forest-related disputes and the extraterritorial rights that Siam granted to foreign subjects gradually intensified the political dimensions. The fact that the new concession system required the signatures (visual marks of power) of the Siamese commissioner and the British consular official shows that forest administration was no longer in full control of Lanna princes. This eventually enabled Siam to annex Lanna by abolishing the *prathetsarat* system and

⁶⁸ Barton and Bennett, "Forestry as Foreign Policy," 67.

integrating all of the city-states in Lanna into one administrative unit called Monthon Phayap in 1899. Amnuayvit boldly argues, “In regard to the political development of northern Siam, the Forest Department played a significant role in the nation-building process because it was the first organisation to gain control over forestry resources. [...] If the central government in Bangkok had not requisitioned the forest and thereby undercut the power, economic independence, and influence of the northern princes, then it is questionable whether the northern region would have been integrated into the Siamese state at all.”⁶⁹ In this sense, the transformation of state forestry into colonial forestry suggests that colonialism does not always take the form of a binary relationship. The formation of enviro-colonial rule in Lanna is the product of two simultaneous colonial endeavors: of the British over Siam, and of Siam over Lanna.

Building on scholarship on postcolonial science, this chapter has sought to show that the emergence of state forestry in Lanna and Siam should not be readily attributed to European influence. The increasing economic value of the forests and the accompanying disputes that brought Lanna princes into political contentions with Siam and the British Empire turned the forests into what Nancy Peluso and Peter Vandergeest call “political forests.”⁷⁰ Building on Michel Foucault’s notion of the “imbrication of men and things,” Peluso and Vandergeest argue that forest administration is a form of power whose targets include both the forests and the forest-related peoples. Since the 1840s, Lanna princes formed an unprecedented relationship with the forests by turning them into a target of their power exercise. Rather than the uncivilized wilderness outside of the state’s responsibility according to the *mueang-pa* cosmological dichotomy, the forests became a space where the state attempted to manage resources, determine

⁶⁹ Amnuayvit Thitibordin, “Control and Prosperity,” 87.

⁷⁰ Peluso and Vandergeest, “Genealogies of the Political Forest and Customary Rights in Indonesia, Malaysia, and Thailand.”

who could and could not use the forests, and settle all the disputes. Hence, I argue that state forestry had already emerged in Lanna even before the arrival of European foresters in the 1890s. Moreover, I contend that the RFD should not be understood merely as evidence of the wholesale import of European forestry. Rather, the establishment of the RFD marked the formal entrance into what Vandergeest and Peluso call “empires of forestry,” thereby claiming Siam’s place as an active participant in this globalized network of knowledge production.

In the next chapter, I will elaborate on the intertwined relationships that formed enviro-colonial rule in Lanna. I will show that although state forestry and colonial rule could be entangled or even inseparable, they were not always the same thing. A series of competitions and negotiations between the Forest Conservator (the leader of state forestry) and the Commissioner (the representative of Siam’s colonial rule in Lanna) between the 1890s and the 1900s suggest that both fields of administration could have advanced in either complimentary or contradictory ways, thereby underlining the existence of the *state* as a set of heterogeneous actors.

CHAPTER 4

IN FORESTERS WE DON'T TRUST:

British Foresters, Siamese Bureaucrats, and the Politics of Expertise

Introduction: The Dual Structure of Lanna's Enviro-Colonial Rule

Siamese political expansion into Lanna since the 1870s was characterized by two simultaneous processes: the transformation of Lanna into a colonial space, and the intensification of forest regulation. On the one hand, Siam began annexing the loosely related Lanna city-states into an administrative unit of Siam under the Ministry of the Interior. The First Chiang Mai Treaty of 1874 grouped Chiang Mai, Lampang and Lamphun into Sam Huamueang (Three Provinces). Then, in 1883, they annexed Phrae and Nan and called the unit Huamueang Lao Chiang (Northwestern Lao Provinces). The name was changed a couple more times after Siam began reforming its regional administration from the *prathetsarat* system into Monthon Thesaphiban (usually called Monthon in short). The Lanna unit used to be called Monthon Laochiang, then Monthon Tawan Tok Chiang Nuea, and eventually Monthon Phayap until Siam abolished the Monthon Thesaphiban system in 1933.¹ On the other hand, Siam started to assert its power over the northern forests, which were historically outside of its direct rule. Initially, Siam's attention to the northern forests was more focused on the attempt to resolve legal disputes that happened in, or involved, the forests; Siam was less concerned with the management of the forests themselves. However, by the 1890s, the Siamese government had begun to target the forests as a

¹ For more detailed discussion of the changing spatial imagination of Northern Thailand, see Tinakrit Sireerat, "The Imagination and Realization of 'Lanna': Space, Power-Knowledge, and Siam's Colonial Legacy," *Thammasat Journal of History* 8, no. 2 (2021): 179–82.

new object of power exercise and created the Royal Forest Department (RFD), which was the first institution to specialize in forest management. The placement of the RFD under the Ministry of the Interior reminds us of the ongoing link between forest administration and Siamese northward expansion throughout the second half of the nineteenth century.

Even though the establishment of the RFD seems to suggest that the Siamese ruling elites in Bangkok began to recognize forestry as a form of expertise, it does not mean that forest officers, the self-proclaimed “experts” in forestry, could automatically rise to power and become the authorities of forest management. Because the preceding Chiang Mai Treaties recognized the Commissioner as Siam’s representative in forest concession matters, political competition unsurprisingly arose between the Forest Conservator and the Commissioner. These tensions led to a series of attempts to define and redefine power boundaries. Herbert Slade, a British forester who became the first leader of the new forest department in Siam, spent the five years of his service trying to convince the Siamese government that forest administration would be best undertaken by forestry experts. In 1900 Slade eventually succeeded in demarcating the power boundaries that would put him and other forest officers at the top of the power hierarchy in the realm of forest management. However, only three years later, the Siamese government decided to decrease the power of the forestry experts and to make them subordinate to another Siamese bureaucrat who did not specialize in forestry. With the expansion of the British Empire in Southeast Asia and its defeat of Burma, the decreased power of the Forest Conservator, who was a British national, may be considered a result of colonial anxiety.² However, colonial anxiety alone cannot elucidate why the Siamese King and powerful ruling elites in Bangkok believed that a

² The term is originally “Conservator of the Forests,” or “Conservator” in short, which was the title Herbert Slade used to call himself while working for Siam’s forest department. However, I will use “Forest Conservator” to make the title easily distinguishable from “Commissioner.”

non-specialist could manage the forests better, especially after forestry had been recognized as an administrative field that required experts. This curious power hierarchy invites a reevaluation of the role that forest knowledge played in Siam's governance. What was power? How did it work? What were the relationships between (scientific) knowledge and power? What role(s) did experts play in the formation of such power?

As I will demonstrate below, specialized knowledge and skills could not guarantee the Forest Conservator's authority. Instead, he had to build up his authority through endless interactions and negotiations with other actors in the Ministry of Interior and other institutions. Like the American agricultural experts in Hokkaido discussed in Chapter 1 and Chapter 2, British foresters in Lanna were not passive conduits of knowledge transfer and colonial modernity based on Western models. Previous scholarship has acknowledged valuable contributions by foreign experts in the emergence of Japan and Thailand as modern nation states.³ Even though these foreign experts used to be understood as the harbingers of Euro-American modernity, more recent works have called into question such overt emphasis on the agency of Euro-American advisers, and they have begun examining the no less crucial role of other actors. Though still focusing on British Forest Conservators, this chapter discusses their roles as actors embedded in a network of interpersonal relations within the Siamese bureaucracy. Through a close reading of reports and correspondence pertaining to the management of the northern forests and the administration of Monthon Phayap, this chapter examines the specialization of state forestry that resulted in the establishment of the RFD in 1896. Then, I will revisit the encounters between the leaders of state forestry and Monthon administration Lanna to explain the formation of enviro-

³ Chompunut Nakiraks, "The Role of Foreign Advisers during the Reign of Rama V from 1868-1910" (M.A. Thesis, Chulalongkorn University, 1970); Edward R. Beauchamp and Akira. Iriye, eds., *Foreign Employees in Nineteenth-Century Japan* (Boulder: Westview Press, 1990); Nish, *The Iwakura Mission in America and Europe*. Find more recent ones

colonial rule in Lanna. I argue that the enviro-colonial rule emerged from both competition and collaboration by a heterogeneous group of actors, especially between British foresters and Siamese bureaucrats. This contentious teamwork enabled the Siamese state to displace Lanna princes and to assert itself as the supreme authority of the northern region and its timberlands.

The Specialization of State Forestry

To preserve the forests and make them thrive in the fullest, it is necessary to establish a forest department as a separate institution. Forestry is a subject of study, and problems related to forestry can be found in every forest. Whether these problems will lead the forests to flourish or wither – it must be up to forest officers who are experts on this subject to decide. (Herbert Slade, 1896)⁴

Even though the two Chiang Mai Treaties helped solve problems regarding forest leases, the Siamese government was still unable to effectively prevent violence against British subjects or criminal acts such as timber stealing or hammer mark altering, which caused great damage to the teak business.⁵ Nevertheless, by the beginning of the 1890s, Siamese domination had taken firm root in Lanna. For example, in 1891, Chao Inthawichayanon, the Prince of Chiang Mai, agreed to use Siamese laws instead of local traditions, reflecting the acceptance of Siam's authority in jurisdiction. For forest administration, the permanent presence of the Siamese Commissioner in Chiang Mai enabled more frequent interventions in Lanna. Despite the increasing intervention, forest administration in Lanna, and elsewhere in Siam, remained unspecialized. Instead, it was placed under the umbrella category of *ratchakan* – the term which can be literally translated as royal service but is generally used to refer to any kind of government-

⁴ ๓.5 ๓.16/9 Mr. Slade, who went to survey the forests, has returned to Bangkok and submitted a report with suggestion for further actions, NAT, 44.

⁵ See ๓.5 ๓.16.1/12 Teak Logs and the defaced Hammer Mark, NAT; ๓.5 ๓.16.1/13 Proclamations and Acts related with the defaced Hammer Mark, NAT.

related service. Within the Siamese bureaucratic structure, forest administration did not exist as a distinct department with its own staff who specialized in forest management. All forest-related jobs were undertaken by bureaucrats who had neither experience nor specific training in forestry. Even after the Chiang Mai Treaty recognized the Siamese Commissioner as an authority to manage the forests, the job was not seen as requiring any technical knowledge or skills. This unspecialized administration reflects Siam's early attitude towards the forest affairs in the North. Siam was more concerned with settling legal and extraterritorial cases than with managing the forests as an economic resource.⁶

Prior to 1896, Siam assigned specific officers to take care of forest matters. Yet, these people usually received their official positions because they were members of Lanna royal families, and not because of their knowledge or skill in managing the forests. Many of the officers before the RFD era worked mainly as stumpage fee collectors, who had to visit logging camps and mark logs for stumpage fee collection. Slade once criticized these early officers: "Those royalties are not the kind of people to handle forest matters. Any one officer who deems it a dishonor to travel somewhere without a company of hundreds of servants – or one that is willing to die just because he has to spend a few nights in the forest – will not be any use to the forest department."⁷ Moreover, when they did something wrong, it was difficult to punish them due to their high social statuses. Slade suggested that Siam remove these princes from their offices, or if some of those Lanna officers had to be kept, they should not be involved in stumpage fee collection.

⁶ On Siam's little interest in teak exploitation, see the criticism of Ernest Satow, the British Minister-Resident in Bangkok. Ernest Mason Satow, *The Satow Siam Papers: The Private Diaries and Correspondence of Ernest Satow, C.M.G.H.B.M., Minister-Resident, Bangkok, 1885-1888* (Bangkok: Historical Society, 1997), 109.

⁷ 5 16/9 Mr. Slade, *Having Inspected Forests and Returned to Bangkok, Submitted His Report Together with His Suggestions for Later policies* (1896), NAT, 27.

During the major administrative reforms in the early 1890s, Siam reorganized its bureaucratic structure and created new ministries and departments. Yet, there was still no separate department for forest administration. This was partly due to the ambiguous nature of the jobs that could be placed under different ministries. For example, as teak was a product to be harvested for trade, it could be managed by the Ministry of Agriculture and Commerce. If a certain case involved foreign subjects, it might be handled by the Ministry of the Foreign Affairs. Later, when Siam tried to claim a larger share of profits from the teak trade, which would become a new source of Siam's revenue, forest administration could be considered the job of the Ministry of Finance. However, because the majority of teak trade and forest-related conflicts happened in Lanna, these issues usually fell under the responsibility of the Ministry of the Interior (or Krasuang Mahatthai in Thai), which oversaw the affairs of all *prathetsarat*.⁸ As observed by Slade, "The forest administration is still not centralized – that is, some forest works are handled by the Ministry of Interior while others are done by the Ministry of Finance – which is an approach that leads to misunderstandings, complications, and delays."⁹

Though the view was not yet widespread, the Siamese ruling elites had started to recognize forestry as a specific field of administration since the late 1880s. One of the earliest documents attesting to this shift was by Phraya Damrong Ratchaphonlakhon, a Siamese diplomat who was dispatched to Europe.¹⁰ Having observed forest management in European states,

⁸ During the early Bangkok Period, Siam used to divide its *prathetsarat* into three groups and place them under three high-rank officials, which was the structure that had been developed since the reign of King Phet Racha of the late Ayuthaya Kingdom. Samuha Nayok (later Minister of Interior) controlled the Northern *prathetsarat*, while Samuha Kalahom (later Minister of Defense) and Senabodi Krom Tha (later Minister of Foreign Affairs) took care of the Southern *prathetsarat* and the Eastern *prathetsarat*, respectively. However, in 1894, all the *prathetsarat* were placed under the newly established Ministry of Interior. This also reflects a shift of attitudes among Bangkok elites, who began to view *prathetsarat* as Siam's "local" affairs.

⁹ 3.5 11.16/9, 52.

¹⁰ Phraya Damrong Ratchaphonlakhon (Nokkaew Kotchaseni) inherited the position of the governor of Khueankhan from his father Phraya Damrong Ratchaphonlakhon (Chui Kotchaseni). Between 1888-1891,

especially Germany and Sweden, the Siamese diplomat wrote a report on European forestry for King Chulalongkorn in 1889. Three insights about forest administration can be extracted from this report. First, the forest should be considered a valuable resource as a timber-bearing space. Whereas in the Ayutthaya and early Rattanakosin Periods, the uses of forests were limited to forest products (*khong pa*)¹¹ and small-scale logging for firewood and construction, the diplomat suggested that the trees could also be extractable, if not more coveted, commodities. Second, there was a change in *who* owned the forests, and had the authority to manage them. When he wrote that Siam should manage *pa khong phaendin* (which literally means the forests of the lands) for the benefits of the *prathet* (nation), he made an assertion that the forests belonged to Siam and the Siamese government as the authority to oversee the forests.¹² Yet, at this stage, it was still unclear whether the forests completely belonged to the nation. The diplomat himself made distinctions between different forest categories, using the term *pa paplik* [public forests] to refer to the forests under the country or the government, and the term *pa praiwet* [private forests] for those owned by government officials and citizens.¹³ Lastly, the diplomat suggested that forestry should constitute a part of the Siamese bureaucracy. He stressed the necessity of a specialized institution

he served as the Siamese ambassador to Europe (based in Paris). Later in his life, he was given a new title as Phraya Mahayotha.

¹¹ On the history of forest product trade, see Parichart Vilavan, "Forest Product Trade in Ayutthaya History, 1350-1767" (M.A. Thesis, Bangkok, Chulalongkorn University, 1985).

¹² In this report, *phaendin* [the lands] seems to be synonymous with [Siamese] government. Yet, although there are Thai terms such as *Phrachao phaendin* [Lord of the Lands], the association of land with nation in terms of territorial sovereignty did not exist until the late-nineteenth century. Thongchai Winichakul coins the term "geo-body" to new "technology of territoriality" displaced traditional spatial conceptions, and thereby creating nationhood spatially. Thongchai Winichakul, *Siam Mapped*, 16.

¹³ Not everyone in the Siamese court during that time agreed that all forests belonged to Siam. For example, in a letter to Prince Devawongse, Chao Phraya Rattanabodin (Samuhanayok) argued against Samuhakalahom's claim that forests in Chiang Mai, Lampang, and Lamphun belonged to the country. Yet, while he insisted the Lanna ruling elites' rights to the forests, he also suggested that revenue must be divided between the Lanna rulers and the Siamese government in Bangkok. See Chao Phraya Rattanabodin (Samuhanayok) to Prince Devawongse (25 July 1889), in ๓.๕ น.๑๖/๑๒ *The Forests in the [Northern] Districts*, NAT.

whose job was specifically to oversee forest-related works, revenue collection and preservation of the country's benefits from the forests. The new institution should be based in Bangkok where the highest rank of the officials resided, and it could distribute some power to lower-rank officials in other regions; the head of the institution had absolute power over regional officials. This also entailed paperwork, such as issuing land titles, forest leases, as well as permits for cutting and trading timber.

Meanwhile, the ruling elites in Bangkok started planning to nationalize all the forests, including the forests which used to be outside of Siamese control, but they could not agree upon the best approach to do so. Prince Narathip Praphanphong, a brother of King Chulalongkorn, proposed a plan to *tam pa hai pen luang* [to nationalize the forests], in which the Siamese government invested its own money to extract timber resources. This proposal, however, was opposed by Prince Narisara Nuwattiwong, another brother of King Chulalongkorn. In the latter prince's view, the method described in Prince Narathip's proposal was not different from what the commoners had been doing, except for the use of the government budget instead of personal money. He suggested that the Ministry of Agriculture dispatch someone to observe the nationalization of the forests in other countries to compare with the situation in Siam.¹⁴ This led to a series of forest surveys and missions to other countries to study different forms of forest administration. The most important among these missions was the one led by Nai Son in 1892. Having surveyed the forests in Lanna, and then in British Burma and India, he submitted a report that resonated with Phraya Damrong Ratchaphonlakhon's previous suggestion: Siam needed specialists to oversee forest administration.¹⁵

¹⁴ Narisara Nuwattiwong to King Chulalongkorn University (25 May 1893), in ๓.5 ๙.16/4 *To nationalize the forests and organize forest works*, NAT.

¹⁵ ๓.5 ๙.16/11 *Phraya Surasak submitted a report on sending a commissioner to survey the forests in Tak, Burma, and India* (1893), NAT.

The survey mission led by Nai Son suggests a slight change in the perception of forestry as distinct form of knowledge. Besides exploring the conditions of the forests, this mission also aimed at gathering information to serve as *baebphaen* – a guideline or protocol – for Siam to properly manage the forests. King Chulalongkorn himself had emphasized the need to find *baebphaen* for forestry, which reflects his attitude that the knowledge obtained would be universally applicable, or at least, practical in Siam.¹⁶ The term *baebphaen* in modern usage tends to refer to accepted norms or traditions that already exist. However, in this case, the term connotes not the traditions in Siam but rather universal, standardized practices that might have already existed elsewhere. Among the various forms of forest-related information that Son brought back for the king were published textbooks about forest management and administration. These textbooks were packaged knowledge for fulfilling the king's wish for ready-made knowledge to manage his forests.¹⁷ Yet, in contrast to King Chulalongkorn's perception of forestry as universally applicable knowledge, the advice that Son received during his trip to Calcutta indicated that the knowledge was actually context-specific. In his conversation with Son, Sir Edward C. Buck, Secretary of Revenue and Agricultural Department of the Government of India (in office 1882-97), stressed the difference between forests in India and Siam, and warned that the textbooks being used in India might not be useful. Instead, Buck suggested that the Siamese government should rather study forestry from Burma whose forests were more similar to those

¹⁶ King Chulalongkorn to Phraya Surasak Montri (1 September 1892), in ๓.5 ๓.16/12 *The Forests in the [Northern] Districts*, NAT.

¹⁷ These textbooks may be considered a kind of immutable mobile, because they are visually consistent as the information is textualized to look the same by printing technology. Yet, Peter Vandergeest and Nancy Peluso argue that the movement of professional forestry happened differently in each place because such movement was facilitated by what they call "Empire of Forestry," which refers to "networks of knowledge, practice and institutions *produced differently in different local contexts*, and exchanged across sites through institutions facilitating this exchange" Peter Vandergeest and Nancy Lee Peluso, "Empires of Forestry: Professional Forestry and State Power in Southeast Asia, Part 1," *Environmental History* 12, no. 1 (February 2006): 32 [my emphasis].

of Siam – advice that was similar to the suggestion made by the Siamese Consul to Calcutta (Luang Sayam Kritayanurak).¹⁸ Hence, while the Siamese government's search for European knowledge of forestry in British colonies suggests the mobile properties of forestry, whether such knowledge was really universally applicable is subject to further consideration.

No longer considered to be merely a wild, uncivilized land (*pa thuean*), the forest gained a new identity as a timberland (*pa mai*). As Siamese elites in Bangkok began to recognize the forests as natural resources to be exploited for national ends, the scope and definition of forest administration also shifted. While early attempts to manage the forests focused on *forest-related* problems, such as trade and legal disputes, attention was increasingly redirected towards the forests and the trees themselves. This new interest in the trees was premised on the fear that these resources could be depleted unless they were properly managed. As Phraya Damrong Ratchaphonlakhon noted in his 1889 report, if the government “did not organize the forest works properly and let the commoners cut trees freely as they have been doing these days, perhaps all the big trees would be gone by days and years. Then, the growth of the trees would not catch up with the pace of the tree cutters for sure.”¹⁹ His speculation was later confirmed by Stewart Black, an Acting Vice-Consul in Bangkok who received a special commission to investigate the teak trade in Siam. In his public report, Black commented on the increasing number of the British teak

¹⁸ Sorn and Noi to Phraya Surasak Montri (16 February 1893), in ๓.5 ๓.16/11 *Phraya Surasak submitted a report on sending a commissioner to survey the forests in Tak, Burma, and India*, NAT. It should also be noted that, despite this suggestion, the first group of Siamese students sent by the Siamese government to study forestry went to the school in India instead of Burma [perhaps because there was no such formal school in Burma until much later].

¹⁹ Phraya Damrongratchaponlakhon to Prince Devawongse (25 July 1889), in ๓.5 ๓.16/12 *The Forests in the [Northern] Districts*, NAT.

companies.²⁰ According to Black, the intensification of logging made the deforestation problem even more widespread in northern Siam.

The new notion of forest as a national resource, coupled with the concerns regarding the depletion of this resource, led the Siamese leaders to find more appropriate ways to extract and preserve their forests. Meanwhile, teak-related problems during this period also became more industry-specific. According to Amnuayvit Thitibodin, forest administration became increasingly concerned with felling underage teak trees, cutting teak without girdling, damaging teak saplings, as well as issues regarding how to calculate the value of each stolen log, and how to estimate the value of the whole forest area.²¹ Such increasingly specialized approaches to forest administration convinced the Siamese elites of the need for specialists rather than relying on general officers, who could either be jacks of all trades, or masters of none.

By the 1890s, the lack of forestry experts became a major gap in the Siamese bureaucracy and contributed Siam's inability to implement some forest policies. This problem is well illustrated by the failure of Phraya Songsuradet in introducing a new fee rate for forest lease ratification in 1893. After his arrival in Chiang Mai as the new Commissioner, Phraya Songsuradet set out to modify the fee rate for forest leases in Lanna. Instead of using the same rate everywhere, the Commissioner wanted to categorize the forests by timber quality in order to charge higher fees for superior forest land. This plan, however, could not be realized for two main reasons. First, there were not enough officers to inspect the forests. Second, teak merchants claimed that those officers lacked sufficient knowledge in forestry, and so the merchants sometimes refused to cooperate or to accept new forest policies. This led to constant disputes between forest officers

²⁰ J. S. Black, *Siam: Report on the Teak Trade in Siam*, Reports on Subjects of General and Commercial Interest. Miscellaneous Series 357 (London: H.M.S.O., 1895), 7, cited in Amnuayvit Thitibordin, "Control and Prosperity," 76.

²¹ Amnuayvit Thitibordin, "Control and Prosperity," 74.

and forest lessees, as reported by Prince Damrong based on his conversation with Mr. J. G. Scott, chargé d'affaires of Great Britain in Siam.²² Even though the prince did not provide details about the disputes, the fact that he mentioned them after reporting the failure to modify the fee rate hints that these two matters were related. As the new fee rate was premised on the claim that the forests differed in timber quality, the lack of sufficient officers who specialized in forestry might have caused the lessees to question the validity of forest inspection by these few non-experts and to doubt if they would really obtain better timber if they agreed to pay higher fees according to the new policy. The demand for inspection by a sufficient number of forest experts implies the assumption that the work of these experts was more reliable, which would make the forest lessees willing to pay more for supposedly better timber.

It was this context that allowed British forest experts to rise to power in Siam. In 1896, Herbert Slade, who had been working in Burmese forests, was invited to take over the forest survey job from another officer, who had suddenly passed away.²³ After completing his survey, Slade wrote an elaborate report on how to reform Siam's forest administration. He presented to Prince Damrong a "working plan," which divided the forests into zones for cultivation at different periods to guarantee forest regeneration and sustainable exploitation.²⁴ The working plan also featured meticulous calculation of the growth rate of teak trees, estimation of teak trees in the forests and profits to be made, and other technical details.²⁵ Unlike the Commissioner's previous attempt, Slade's working plan seemed successful at generating a sense of reliability. Prince Damrong commented in a letter to King Chulalongkorn that Slade's report gave him novel

²² ๓.5 ๓.16.1/10 *Mr. De Bunsen, English Consul, sent a reminder about the forest lease in Monthon Laochiang and the draft of the forest lease, including the lease draft* (1894), NAT.

²³ ๓.5 ๓.16/8 *To send Mr. Castenjold as a forest administrator in Monthon Laochiang* (1891-1893), NAT.

²⁴ For more detailed discussion of the forestry paperwork, see Chapter 6.

²⁵ Herbert Slade to Prince Damrong (21 August 1896), in NAT ๓.5 ๓.16/9 *Mr. Slade, who went to survey the forests, has returned to Bangkok and submitted a report with suggestion for further actions.*

insights, and the empirical approach through which the knowledge was supposedly obtained made Slade's suggestions "unchallengeable."²⁶ Thereby, Slade established himself as an expert in forestry, and his knowledge was much needed by the Siamese government during the mid-1890s.

Meanwhile, the knowledge of forest management was also framed as a crucial means for facilitating Siam's northward expansion. Slade tried to convince the Siamese government that his expertise could get the Lanna elites to accept Siam's domination over the forests in the north. Prior to the nationalization of the forests in the 1890s, the northern forests belonged to local elites, who could lease and gain profits from them as they saw fit. After the nationalization, the local elites saw their profits diminished and transferred to Siam, which caused them to oppose the Siamese intervention. Addressing this problem, Slade claimed that were he appointed to do this job, he could change the attitude of the Lanna elites towards Siamese intervention by carrying out his job with transparency and generosity towards them.²⁷

Eventually, on September 18, 1896, the Siamese government decided to establish the Royal Forest Department (RFD), which was staffed by forest officers recruited through the British government. The new department was placed under the Ministry of the Interior, with Herbert Slade as the first Forest Conservator. Unlike other departments in the Siamese bureaucracy, the RFD had headquarters located in Chiang Mai, the same place as the office of the Commissioner of Lanna.²⁸ The birth of the RFD benefited both Siam and the British Empire. For Siam, the service

²⁶ Permanent Secretary (on behalf of the Minister of the Interior) to King Chulalongkorn (6 September 1896), in 5.5 11.16/9 *Mr. Slade, who went to survey the forests, has returned to Bangkok and submitted a report with suggestion for further actions*, NAT.

²⁷ Herbert Slade to Prince Damrong (21 August 1896), in 5.5 11.16/9 *Mr. Slade, who went to survey the forests, has returned to Bangkok and submitted a report with suggestion for further actions*, NAT.

²⁸ The location in Chiang Mai was proposed by Slade. Prince Damrong initially opposed the idea because the distant location made it difficult for the Ministry of Interior to control the new department, and without Siam's supervision, there was a risk of collusion between the British-led forest department and British companies at Siam's expense. However, after Slade threatened to give up on the job if his proposal was declined, Prince Damrong eventually dropped his opposition. See 11.16/7 *Mr. Slade's Opinion on the Establishment of the Forest Department in Chiang Mai*, NAT.

of forest experts could facilitate Siam's desire to centralize forest administration in the North while effectively increasing Siam's revenue. In addition, Siam also hoped to use the British to prevent further encroachment by the French on the eastern border of Lanna. Siam's offer to let a British company have a forest concession in Nan, which was on the border with the French territory, exemplifies this attempt to play one power against the other.²⁹ For the British, providing Siam with British foresters would allow them to determine the direction of Siam's forest administration and help the British defeat French competitors and monopolize the teak trade.³⁰ Hence, even though the arrival of a British forest expert seems like a simple story of scientific progress and modernization, what made this arrival possible was actually a form of colonial collaboration between Siam and the British Empire.

Although the establishment of the RFD resulted from intensifying British pressure and a series of Siamese interventions, some British companies and foreign residents in Chiang Mai were skeptical of the feasibility and effectiveness of the new policies of the department under Slade's leadership. Calling Slade a "theoretician," they claimed that his ignorance of the political situation in Siam might prevent him from realizing his plans.³¹ Some British officials expressed similar suspicion of Slade's ability. An entry in *The Times* reported J. S. Black's evaluation that "the new

²⁹ 5.16/5 *On the Arrangement of the Forests in Nan (1895-1897)*, NAT.

³⁰ According to Barton and Bennett, "[t]he British Foreign Office and timber merchants were willing to help Chulalongkorn centralise his state because it suited their strategic and economic interests. The proposal by the king to create a forestry department agreed with Britain's attempt to create a legal framework to control the northern areas of Siam near the Burmese and French borders. The Foreign Office also wanted the Siamese government to create a forestry department to rationalise the teak industry for the sake of British businesses." Barton and Bennett, "Forestry as Foreign Policy," 75.

³¹ According to Amnuayvit, "[m]any members of foreign community in Chiang Mai considered Slade a "theoretician" who lacked concrete knowledge about the actual situation in northern Siam. They also wondered how the princes and their families in northern Siam could renounce their ownership of the teak forest – their primary source of revenue – and give it to the Siamese government. There were all sorts of possible political consequences that might result from Slade's forestry scheme. In addition, given the new regulations and an extended concession period of six years, it was possible that Slade's recommendations could damage the Siamese government's income stream derived from teak rather than increasing it." Amnuayvit Thitibordin, "Control and Prosperity," 79.

Siamese Forest Department, though indispensable, necessarily causes restrictions which did not exist before and which add to the expense; the price of elephants has gone up three-fold, and these animals are essential to the work of pushing the timber down when it gets stranded on the shallows.”³² In other words, they feared that the RFD would restrict rather than facilitate the British commercial enterprises. In contrast to the criticisms, Slade’s policy turned out to be quite successful. For example, the nationalization of the forests went rather smoothly, starting from the forests in Nan and Phrae, where not many forests had been leased to foreign loggers.³³ The negotiations were primarily conducted by the Ministry of Interior through its commissioner. In 1900, Phraya Srisahathep finally concluded a deal in which Siam promised to share half of the income from stumpage fees in exchange for the ownership of all the forests.³⁴ Except for the Prince of Chiang Mai, who resisted at first, most of the Lanna princes agreed to renounce their ownership and rights to manage the forests in exchange for a share of the profits from the stumpage fees as well as monthly allowances.³⁵ British companies eventually supported Slade as

³² “The Teak Trade Of Northern Siam,” *The Times*, August 31, 1900, Issue 36235 edition. Barton and Bennett argue that it was J. S. Black, the British Vice-Consular for Northern Siam, who suggested the importation of British forestry into Siam. As they have noted, “Black argued that the Siamese needed to copy “the [forestry] regulations of Upper Burmah”, which meant making a forestry department staffed by professional foresters, creating state forest reservations, and conserving and cutting the teak forests using scientific and economic principles.” Barton and Bennett, “Forestry as Foreign Policy,” 75.

³³ ๓.5 ๓.16/5 *On the Arrangement of the Forests in Nan* (1895-1897), NAT; ๓.5 ๓.16/6 *On the Arrangement of the Forests Given by the Princes of Phrae and Nan* (1899), NAT.

³⁴ ๓.5 ๓.16.1/19 *To Resolve Disputes regarding Forest Leases and the Lao Princes’ Request for Money from Timber Companies.*, NAT.

³⁵ King Chulalongkorn had to ask Chao Dararatsami to convince her father, Chao Inthawichayanon, to give up the forests. Using the forest preservation discourse (and reasons Slade had offered), the king claimed that the RFD would bring more benefits to the princes and their citizens. ๓.5 ๓.16.3/5 *To Collect Stump Fees in Chiang Mai and the Prince of Chiang Mai’s Opposition against This Arrangement* (1896-1897), NAT. According to Salairat Dolarom, the Lanna princes were willing to accept this change due to the belief that the income might become more stable, compared to the income from the stumpage fee, which varied according to the number of logs being extracted each year. Moreover, the stumpage fee might not be received in full due to ineffective system of collection. Yet, Salairat noted that this belief suggested that the Lanna princes were tricked by Siam. Because Siam would stop paying the monthly allowances for Lanna princes who passed away, it means that Siam would pay less and less as time went by. Salairat Dolarom, “Development of Teak Logging in Thailand, 1896-1960,” 43-44.

they found the reforms to be beneficial to their business. After the forests were nationalized, the Forest Conservator, as Siam's representative, would displace local princes as the only authority to lease forests.

As I have discussed in Chapter 3, the emergence of commercial logging and the subsequent legal disputes over the forests and their uses gradually transformed the forests into "political forests" – from a space outside of administration into a new target of the state's exercise of power. According to Peluso and Vandergeest, the emergence of political forests in Southeast Asia usually involved a process of territorialization – the demarcation of geographical boundaries and creation of political categories of land such as agricultural lands, national forest, national parks, wastelands, forest reserves, etc. In their study of forestry in Java, Dutch Borneo, the Malay States, Sarawak and Siam, Peluso and Vandergeest argue that all governments under their focus followed a similar course of action:

First, they began to normalize the idea of "forests" as separate biological entities that required or deserved separate forms of management from other forms of agriculture. Second, they established differences (which also varied by place) in the kinds of species that were considered "forest" species, as opposed to "agricultural species." This mirrored the territorializing process in that alienated state land was opposed to "free" state land, eventually to become agricultural (or native household) land and (state) forest land. Third, just as forests were to become political territories in the wake of (or concurrently with) their scientific "discovery," definition, and categorization, forest species were politically defined and managed through species laws, policies, and controls.³⁶

With this description, the authors underline the interrelationship between territorialization and the politics of knowledge production. As they have argued, "The creation of political forests imposed immediate limitations on the possible forms of legal access to "forest" resources, which

³⁶ Peluso and Vandergeest, "Genealogies of the Political Forest and Customary Rights in Indonesia, Malaysia, and Thailand," 780.

by definition belonged to the state.”³⁷ Through laws and other state apparatuses, the invented spatial categories were normalized and put under the centralized control of the state.

The initial opposition from Chao Inthawichayanon of Chiang Mai against state forestry by Siam reminds us that Siam’s nationalization of the forests not only affected Lanna princes but also excluded local people, who used to have relatively free access to the forests and their resources. Besides his opposition to the forest nationalization policy, Chao Inthawichayanon also disagreed with the appointment of Herbert Slade to take over forest administration in Chiang Mai. The Prince of Chiang Mai demanded that Siam keep the structure laid out by Prince Phichit Preechakon and Phraya Songsuradet. In response, King Chulalongkorn tried to convince the Chiang Mai prince of the usefulness of Slade’s expertise and his ability to negotiate with foreign teak merchants.³⁸ The Siamese king also had to ask Chao Dararatsami, the daughter of Chao Inthawichayanon and the woman who he married a few years before, to talk her father into giving up his forests. Using the forest preservation discourse (and the reasons Slade had offered), the king claimed that the RFD would bring more benefits to the princes and their citizens.

In addition to the increased share of stumpage fees after the nationalization of the forests, Slade’s reform also led to more effective tax collection by taking existing routes of teak trade and expected profits into consideration. The timber from the northern forests usually reached the market via two main channels: the Chao Phraya river system and the Salween river.³⁹ The Chao Phraya river system consists of four main tributaries – Ping, Wang, Yom, and Nan – which are the main bloodlines of the north. Previously, Siam set up a duty gate at Chainat, which received

³⁷ Peluso and Vandergeest, 765.

³⁸ Chamaichome Sunthornswat, “A Historical Study of Forestry in Northern Thailand From 1896-1932,” 106.

³⁹ There were a few minor channels for floating timber. Another significant channel was the Mekong river, which received timber from the eastern side of Chiang Rai and Nan into the French territory.

logs that floated from the north down the Chao Phraya river. After Slade became the Forest Conservator, he decided to move the duty gate upstream to Pak Nampho [located in today's Nakhon Sawan province] and he set a fixed fee at 2 Rupees per log. The Salween river received timber mostly from the forests in Western Lanna. Despite its significance since the beginning of commercial logging in the North, the Salween river remained mostly unregulated, partly due to its location at the border between Siam and British Burma. However, in 1898, the RFD established the Kado Duty Station and set the standard fee at eight Rupees per log.⁴⁰ For the Chao Phraya river systems, the fee was increased to ten Rupees and six Rupees for large and small logs respectively. For the Salween area, it was set at twelve Rupees for large logs and eight Rupees for small ones.⁴¹ As a result of these tax reforms, Siam's revenue from the teak trade evidently increased.

Table 6: State Revenue from Stump Fees, Timber Taxes, and Other Fees (1896-1910)⁴²

Year	Total Revenue from All Sources (Baht)
1896-1900	3,430,950.00
1901-1905	6,340,775.00
1906-1910	6,960,915.00

The establishment of the RFD marked the institutionalization of both the notion of forests as a national resource and the recognition of forestry as a specialized field of administration within the Siamese bureaucracy. Previously, the ruling elites in Bangkok approached forest works through the lens of existing *ratchakan* (government work or public service), such as trade, jurisdiction, or administration of *prathetsarat*. Hence, high-ranking officials like Phraya Songsuradet and Prince Narathip saw forest works as simply an extension of what could be

⁴⁰ ๕.5 ๓.16.3/2 *To Collect Stump Fees from the Kong [Salween] River Area* (1898), NAT.

⁴¹ Chamaichome Sunthornswat, "A Historical Study of Forestry in Northern Thailand From 1896-1932," 25.

⁴² Salairat Dolarom, "Development of Teak Logging in Thailand, 1896-1960," 106.

undertaken within the existing bureaucratic structures and routines. However, new interests in forests as timber-bearing resources, new discourses about depletion and deforestation, and the more technical nature of new forest-related problems influenced the Siamese elites to see forestry as a distinct form of knowledges and practices, one with its own *baebphaen* [protocol] that was different from how commoners used the forests.

Carving Out a Place for Forest Expertise

In its attempt to manage the northern forests, the Siamese government ended up creating a dual structure of forest administration with two competing authorities: the Commissioner of Lanna and the Forest Conservator. As both departments were part of the Ministry of Interior, the work of the Forest Conservator and that of the Commissioner of Lanna could have complemented one another and furthered the shared goals of the same ministry. However, overlapping authority was a problem, as the Commissioner was still recognized as another authority in forest administration, according to the Second Chiang Mai Treaty of 1883. This problem was apparent in correspondence between Slade and Prince Damrong soon after the establishment of the RFD. In the letter, Slade reminded Prince Damrong of the need to define the power of the Forest Conservator. He warned that unless the boundary was defined, there might be jealousies or the risk of two officers of the same department working at cross purposes.⁴³ The boundary that Slade referred to was not only to know “who is doing what” but also to determine “who is superior to whom in a particular field.” In the view of Phraya Sonsuradet, who served as the Commissioner of Lanna from 1893 to 1899, forest administration was part of his duty. Even though he acknowledged the importance of what he called a “*phuraksa kanpamai* (forest keeper),” the

⁴³ Herbert Slade to Prince Damrong (4 November 1896), in ๕.5 ๓.16/7 *Mr. Slade's Opinion on the Establishment of the Forest Department in Chiang Mai*, NAT.

Commissioner wanted this officer to be his subordinate to assist in his work.⁴⁴ In contrast, Slade insisted that the Forest Conservator should be regarded as “the deputy of the Minister of the Interior” whose duty was to “consult and work together” with Commissioner of Lanna. He then added that the Forest Conservator should not forget that the Commissioner was responsible for “the peace of the district,” and that except in “purely professional or department matters,” he should carry out the orders of the Commissioner.⁴⁵ According to this plan, the Forest Conservator conceded to the Commissioner in the administration of Lanna in general, and claimed authority in the realm of forest administration.

Slade used the phrase “purely professional and department matters” to refer to tasks related to authorizing forest leases, employing staff, planning budgets, collecting taxes, and settling forest-related disputes. To illustrate his plan, he proposed an outline of the power of each officer as follows:

Table 7: Slade’s Proposal on the Power of the Forest Conservator and the Ministry of the Interior⁴⁶

Jobs that need to be consulted with or asked for the final order from the Minister of the Interior	Jobs under the authority of the Forest Conservator (which do not require consultation or order from the Minister of the Interior)
1. Stamp the seal to finalize forest leases	1. Choose not to authorize forest leases (rejected applicants may appeal to the Ministry of the Interior for reconsideration)
2. Recruit or fire officers with a monthly allowance of 150 Baht or above.	2. Recruit or fire officers with a monthly allowance of less than 150 Baht (within the proposed budget plan)
3. Ratify budget plans	3. Make payment within the proposed budget plan

⁴⁴ Phraya Songsuradet to King Chulalongkorn (4 May 1893), in ๓.5 น.16/4 *To nationalize the forests and organize forest works*, NAT.

⁴⁵ Herbert Slade to Prince Damrong (4 November 1896), in ๓.5 น.16/7 *Mr. Slade’s Opinion on the Establishment of the Forest Department in Chiang Mai*, NAT.

⁴⁶ Ibid.

4. Change tax-collecting locations	4. Sue a Siamese or foreign subject according to the forest act and serve as the attorney for the case
5. Change the rate and measure of tax collection	5. Have official correspondence with the Consulate in Chiang Mai for forest-related works, and with the Ministry of Finance for money-related matters
	6. Correspond directly with the Minister of the Interior instead of doing it via the Commissioner

In this outline, Slade determined his own duties and recommended what he considered to be the preferable power relationships among the Forest Conservator, the Commissioner, and the Minister of the Interior. The outline shows that Slade positioned the Minister as his superior, who had the authority to modify and finalize departmental actions. On the other hand, he tried to redefine his power relationship with the Commissioner. As shown by Article 6 in the column on the right, Slade wanted to work directly with the Minister of the Interior, thereby excluding the Commissioner from forest administration.

From the first year of his service for the Siamese government, Slade repeatedly claimed himself to be the representative of state in forest administration.⁴⁷ Initially, he tried to distinguish himself from non-expert officers by showing off that his knowledge was not only strikingly different from but also superior to existing practices of Siamese officials. As exemplified by the “working plan” that he presented to Prince Damrong, Slade flexed his calculation skills to claim himself as a capable candidate to help Siam increase its revenue from timber resources. To an extent, Slade seemed quite successful in demarcating the boundaries and convincing the Siamese elites that forestry was a specialized set of knowledges and practices. Even Siamese officers who

⁴⁷ Slade’s demarcation of power corresponds to the process that Thomas Gieryn describes as “boundary-work.” See Gieryn, “Boundary-Work and the Demarcation of Science from Non-Science.”

later tried to limit the power of the Forest Conservator still accepted that forestry was a unique body of knowledge and skills.⁴⁸

Who Should Represent Siam?

Even though forest administration started to be recognized as specialized field of work, forestry experts still had to advocate for themselves if they wished to maintain their authority in forest administration. The struggle of forestry experts for recognition as authorities calls for further exploration into the nature of expertise as well the relationship between knowledge and power.⁴⁹ Existing analyses, such as the work of Nancy Peluso and Peter Vandergeest, have demonstrated that the state mobilized knowledges to create “political forests” and thereby claimed the forests under its rule.⁵⁰ Yet, because a state is composed of many actors, the question still remains of *who* represents the state in forest administration.

Although Slade managed to get the Commissioner of Lanna out of his way, the tension between him and the Minister of the Interior persisted throughout the span of his service as the Forest Conservator. In the report concluding the fifth year of the RFD, Slade complained at length that he could not manage the forests as planned due to interference from the Siamese government. The report consisted of seven chapters. The first chapter served as an introduction, where he stated his reason for the format change and provided a summary of the department’s work.

⁴⁸ Prince Phen’s report in 1903 did distinguish forestry from the mere knowledge of how to cut trees, which was the knowledge of the Khmu and the Shan people. Moreover, the prince also considered it to be different from the way the Lanna elites used to manage their forests. 3.5 u.16/10 *Prince Phen’s Report*, NAT, 26.

⁴⁹ For examples of works that have shown that the production of nature knowledges is not only about managing nature but also controlling people, see Agrawal, *Environmentalism*; McElwee, *Forests Are Gold: Trees, People, and Environmental Rule in Vietnam*.

⁵⁰ Peluso and Vandergeest, “Genealogies of the Political Forest and Customary Rights in Indonesia, Malaysia, and Thailand.” For a comparable case of “political forests” in Vietnam, see McElwee, *Forests Are Gold: Trees, People, and Environmental Rule in Vietnam*.

Chapter 2 discussed the lack of convenient means of transportation, which made it difficult for foresters to pursue their work that required year-round travelling on surveys and inspections. Chapter 3 described the issue of a new forest decree, problems of the previous decrees and Slade's suggestions for revision. Issues about forest leasing were addressed in Chapter 4, where he boldly criticized the government for violating the "principle" laid out by his department. Chapters 5 and 6 covered details about tax collection and financial matters. Slade concluded his report with Chapter 7, which also included a few tables that summarized the expenditures and revenues of the forest department. By pointing out the many problems caused by non-expert officers, this report demonstrates Slade's last attempt to assert authority as an expert in scientific forestry and to demand more respect for his expertise within the Siamese bureaucracy.

The renewal and management of forest leases was the main point where Slade criticized Siam of failing to adhere to the principle. Slade claimed:

The principle had been accepted that, under ordinary circumstances, leases should be renewed (subject of course to the sanction of His Majesty) to existing lessees or, where the rights had been transferred, to existing registered permit-holders. When a lease has to be renewed the Conservator has to read up the reports on the forest from various sources to be able to estimate the half teak area; the area has then to be described from maps available and in many cases it is necessary to send out and make a survey of the forest. This takes time and it is work that cannot be done quickly.⁵¹

According to the procedures described above, all lease renewals had to be reviewed by the Forest Conservator. Only after the Forest Conservator was assured that the lessees properly worked their forests according to the agreement terms would he pass the cases on to the Minister of Interior. By doing so, the RFD could screen all the lessees and prosecute the problematic ones, especially the Bombay Burma Trading Corporation Limited (BBTC), which was infamous for repeatedly violating state regulations. Slade claimed that the Forest Conservator could initially

⁵¹ Ibid., 19.

compete with the BBTC by threatening prosecution for breach of the former leases. This threat was a powerful weapon until it was taken out of the hands of the Forest Conservator, when the Vice-Minister of Interior made a secret deal with the B.B.T.C. that violated the protocol of the RFD. He stressed that Siam could have made a better deal had it not been for such interference, and that forest works should advance by following “principles” rather than the arbitrary pursuit of interests.⁵²

As part of the Ministry of the Interior, the RFD usually had to follow the bureaucratic procedures laid out by the ministry. Being seconded to the Minister of the Interior also meant less autonomy in choosing work measures, which Slade claimed to be the cause of the slowness in decision-making and the implementation of policies. More importantly, Slade seemed most concerned with the lack of autonomy even in the field he claimed to know best. As the Forest Conservator, Slade saw himself as an adviser to the Minister of the Interior, “to advise the Government as to its general policy and to work out the minor details on lines accepted by the Government.”⁵³ In contrast to his expectations, he claimed to have been treated as a low-rank officer. Thus, in several places in the report, Slade made sure to reassert his authority as a forest expert. For example, he argued, “It must not be forgotten that the Forest Conservator is not only an officer in the Employ of the Siamese Government; he is also *the representative in Siam of forestry as a Science*, his appointment is known of and talked about in every civilized country in the world and the progress made by him in forest matters is carefully studied where forestry is a study [...] *He alone in Siam knows what measures should be adopted in the interests of the forests ...*”⁵⁴ By emphasizing that forestry is a “science,” he tried to distinguish his knowledge

⁵² Ibid., 17.

⁵³ Ibid., p. 49.

⁵⁴ 5.5 u.16/3 *The Fifth Annual Report by Herbert Slade, Conservator of Forests* (1901), NAT, 51 [my emphasis].

from that of the locals, and with this knowledge, he was the only person who knew how to manage the forests. Although many of Slade's duties – such as overseeing forest leases and collecting revenue – had been undertaken by the Siamese even before the RFD was established, he believed that he could do better.⁵⁵

Slade even changed the format of the annual report to mark his distinction from other Siamese people and bureaucrats running Siam. The new format also served as a means for Slade to criticize the Siamese government. Previously, annual reports of the department took the form of official letters that the Forest Conservator submitted to the Minister of the Interior according to the Siamese custom, which Slade considered to have “many inconveniences.” Instead, he decided to “adopt the Indian custom and address the report to no one particular person [...] If in the course of his remarks he feels called upon to show up a few unpalatable truths it is hoped that it will be recognized that he only does so for the general good of forest work in Siam.” By doing so, Slade tried to reframe his direct criticisms against someone or the government as “truths,” demanding that the audience of this report get over their uncomfortable feelings and take his words more seriously. At the same time, the non-personal mode of address served to ignore the power relations – the Conservator as a minor officer addressing his superior – which were inherent in the ordinary mode of correspondence in Siam's bureaucracy.⁵⁶

⁵⁵ To illustrate his point, Slade referred to the settlement on the basis of differential rates of royalty for each forest – the policy that Prince Damrong wanted to implement but failed, because foreign teak companies did not trust the policies that were not based on accepted scientific knowledge. Having settled the deal with the companies, though with some limitations, Slade was not shy to claim, “The settlement was a good one both for the forests and for the Revenue and the writer of this report [Slade] is of opinion that the terms are such as could never have been obtained by the Siamese without his aid” and that it could be achieved much faster had it not been for the interference by some Siamese bureaucrats. *Ibid.*, p. 17.

⁵⁶ *Ibid.*, p. 1. By “Indian custom,” Slade meant the format being used by the Imperial Forest Department founded by the British Raj in 1864.

As a solution, Slade suggested that “immediate steps should be taken to clearly define the duties and responsibilities of the Forest Conservator and, through him, of the whole department.”⁵⁷ Just after submitting this report, Slade left Siam after the term of his employment ended, and another British Forester, William Tottenham, succeeded him as the Forest Conservator. Though Slade did not stay to see his attempts realized, the Siamese government eventually made “A Memorandum on Powers of the Conservator of Forests,” which took Slade’s advice on defining the “general lines” on forest administration for the Forest Conservator to work accordingly.⁵⁸ According to Slade, these general lines “will be laid down by the Minister of the Interior from time to time as he shall think fit and shall be communicated to the Forest Conservator in the form of a ‘General Instruction’ in writing. But if any question should arise, which is in conflict with or does not come under the lines laid down in the ‘General Instruction’, the matter shall be laid before the Minister of the Interior for his decision before any action can be taken.”⁵⁹ At this stage, the points of general instruction included:

1. The Collection of Revenue will be left to the Conservator on the rates and modes of collection laid down by the Minister of the Interior, who will make any changes from time to time as he shall think fit.
2. Disposal of lapsed timber in unleased forests will be left to the Conservator if the stock is estimated at no more than the value of Rs 5000/- in any one forest. If the estimated value is more than Rs.5000/- the sanction of the Minister must be obtained before such disposal can be effected [sic].
3. The Conservator may enter into any transaction in which the value involved is not more than Rs.5000/-; but for any transaction involving a sum above Rs.5000/- the sanction of the Minister must first be obtained before it can be entered into.
4. The Conservator shall keep a Diary of the work done in the Forest Department which shall be sent for the information of the Minister every fortnight.⁶⁰

⁵⁷ Ibid., p. 49.

⁵⁸ Prince Damrong to King Chulalongkorn (30 November 1901), in 5.5 11.16/13 *On Organizing the Forest Department* (1901-1909), NAT.

⁵⁹ Ibid., 28.

⁶⁰ Ibid., 28-29.

According to this memorandum, the Forest Conservator would be given full control of the forest establishments under the RFD, except for: "The appointment, promotion from grade to grade, reduction, or dismissal of officers of the upper Controlling Staff which will be at the discretion of the Minister of the Interior." To some degree, the 1901 memorandum could be seen as an attempt by the Siamese government to address the problems raised by Slade. Yet, the new outline of power did not change the previous power relations much. This power was still subject to budget limits, which were determined by the Siamese ruling elites in Bangkok. More importantly, the "general lines" were still determined and modified by only the Minister of the Interior. Ultimately, it was still the Minister of the Interior who had full authority and could act in whichever direction he wanted. The power given to the Minister of the Interior to freely change the general lines of forest works meant that the principles of the RFD would be laid out by a non-forest expert. Nevertheless, this memorandum affirmed the status of the Forest Conservator to represent the Minister of the Interior, and Siam, in forest administration. The Commissioner of Lanna, on the contrary, was officially excluded.

In principle, these boundaries seemed to distinguish the work of RFD as a separate field of administration. However, in practice, the understaffed RFD had to rely on the bureaucratic structures and the human resources of the Monthon and the Ministry of the Interior. This means that the RFD still had to cooperate with non-forestry officials, especially the Commissioner. Rather than isolating the work of the RFD from the Monthon, the RFD functioned by having the Forest Conservator cooperate with the Siamese bureaucrats, the foreign teak merchants and their workers, local elites in Lanna, and many others. As the Forest Conservator, Slade tried to translate his vision of how the forests should be managed into specific forest policies, and these policies would contribute to a shared understanding of how forest administration worked. By the 1900s, a set of shared understandings emerged regarding the forests in Lanna and forest administration.

First, the forests became “political forests” – a space with political significance – and they were subject to Siam’s administration. Second, forest administration became a specialized field of governance, which should constitute a separate department. Forest knowledges were institutionalized and embedded in this department. Third, the procedure of forest leasing was standardized, in a way that enabled Siam’s supremacy. The Ministry of the Interior represented Siam and became the authority to approve or reject forest leases, either through the Conservator or the Commissioner of Lanna. These understandings provided a script and platform where the Commissioner and the Forest Conservator could collaborate in establishing Siam’s hegemony in the North, even when they continued to hold different views of the forests.

Rather than a body of knowledge that served as a fixed source of the Forest Conservator’s authority and governed others, these shared understandings (of institutionalized forest knowledge and administration) did not only belong to the forest experts but also belonged to the Siamese bureaucrats, foreign teak merchants and their workers, local elites in Lanna and many others. Each person could interpret such understandings based on their needs and act differently. This highlights that the actors who shared some understanding could collaborate with one another to a certain degree, but each of them still retained some autonomy over their own actions. For the Commissioner and the Forest Conservator, these shared understandings allowed them to operate in their own way towards achieving the similar goal of displacing local elites in the management of forest resources. Although the question of who represented the Siamese government remained, the fight between the Forest Conservator and the Commissioner led to the standardization and institutionalization of forestry in the Siamese bureaucratic structure.⁶¹

⁶¹ My research also shows that translations from non-state actors were also incorporated into the new rule. For example, the application of the notion of property rights to forests arose from the situation in which Lanna elites leased their forests to multiple persons at the same time. This went against the demand of British teak merchants, who wanted each forest concession to be the monopoly of a single

In Foresters We Don't Trust

During the initial period, the British foresters, particularly Herbert Slade, were relatively successful in convincing the Siamese government that their expertise was indispensable. To borrow the words of Bruno Latour, Slade managed to establish the RFD as an “obligatory point of passage.”⁶² Through conversations and writings, Slade gradually gained trust and respect from Siamese elites that it was only through him that Siam could preserve its forests for long-term exploitation and prevent resistance from Lanna princes; he even proved to the Siamese government that he was willing to work against the British.⁶³ However, by the 1900s, the Siamese elites began to doubt the ability of these forest experts. In 1903, Prince Phin Phatthanaphong, a son of King Chulalongkorn, went to the north and reported his inspection of forest administration. The prince raised skepticism about the authority as well as trustworthiness of the Forest Conservator. One of the prince's major concerns about giving the Forest Conservator too much power was the fact that the Forest Conservator was British. In fact, such distrust in the British had become a debate within the Siamese government since the plan to establish a forest

merchant or company. Since the 1870s, this problem was translated into a new policy that required forest owners to lease a piece of forest to one person at a time. Another example is the Lanna elites' demand for a share of profits as the original owners of the forests. Even after the nationalization of the forests in the 1890s, the Siamese government still had to give the Lanna elites a certain amount of annual appropriation in exchange for forest ownership. On the other hand, the nonhumans' demands, such as the teak's biological needs, were also translated into the protocol of forest management. In their working plans, the RFD had to consider the growth rate and the suitable conditions for teak trees when calculating the extractable timber resources. Indeed, the needs of the nonhumans could have been more than what the scientific research described, but they might have failed to be translated.

⁶² Latour, *The Pasteurization of France*, 43–45.

⁶³ According to Barton and Bennett, “[t]he BBTC hoped that a forestry department run by a Briton would resolve leasing questions in their favor, but this hope soon faded with the passing and enforcement of new forest legislation. Slade was a zealous conservator and he rankled the Wallace brothers and BBTC men in Siam by his persistent desire to protect the forests. [...] The BBTC did not follow these regulations. Its workers continued to girdle green teak trees. Slade then stepped in and stopped the BBTC's workers from cutting in certain forests.” Barton and Bennett, “A Case Study in the Environmental History of Gentlemanly Capitalism: The Battle Between Gentleman Teak Merchants and State Foresters in Burma and Siam, 1827-1901,” 329.

department developed. Phraya Songsuradet, as the Commissioner of Lanna, explicitly objected to the employment of foreigners. The Siamese Commissioner argued that foreigners, especially teak merchants in the north, had been the main reason why Siam had to intervene in the north in the first place. Disputes with foreign teak merchants usually caused major monetary losses for Siam, who had to pay on behalf of the Lanna elites. More importantly, the Commissioner feared that too much intervention by foreigners in Lanna would lead to more territorial loss.⁶⁴ Even though the Siamese government decided, against the Commissioner's warning, to hire Herbert Slade as the first Forest Conservator, it did not eliminate the fear and anxiety among the Siamese officials.

Such anxiety resurfaced after William Tottenham replaced Slade as the Forest Conservator. Rumors circulated about the biased treatment by the new Forest Conservator. Prince Phien reported that the Forest Conservator usually hesitated to serve small-scale teak merchants and tended to settle disputes in favor of big British companies. Moreover, the Forest Conservator was not considerate towards Siamese companies or individual merchants who were Siamese subjects, and when a company or individual violated the lease terms, the Forest Conservator was likely to punish Siamese subjects harshly while being more lenient towards the British. Even though the department had Siamese officers, who were supposed to help monitor the conduct of foreigners from within, their duties were limited to language interpreting and stamping seals on the timber, having no power and being incapable of surveillance. This biased treatment, the prince argued, would decrease the respectability of the Siamese government and might lead people to turn their loyalty towards foreigners, who they considered more powerful.⁶⁵

⁶⁴ Phraya Songsuradet to King Chulalongkorn (4 May 1893), ๓.5 ๓.16/4 *To nationalize the forests and organize forest works*, NAT.

⁶⁵ ๓.5 ๓.16/10 *Prince Phien's Report*, NAT, 19-20, 24, and 30.

Moreover, in contrast to Slade’s belief that his expertise would have convinced the locals in Lanna of the benefits of the new approach in forest administration, Prince Phen claimed that the people in Lanna “did not have any trust in the Conservator.” For example, after the RFD took complete control over all the forests in Lanna, all the forest works were handled by the RFD officers, making it impossible for the Lanna elites to know what was going on in the forests. Except for the revenue entries that the Forest Conservator presented from time to time, the Lanna elites had no idea about the amount of profit being made from their forests and involuntarily had to believe so (*chamchai chuea tam*).⁶⁶ He considered the Forest Conservator’s reports on financial matters to be “untrustworthy” and wanted all the money-related jobs to be handled by competent officers from the Ministry of Finance.⁶⁷

Table 8: The Number of British and Siamese Officials in the Forest Department⁶⁸

Forest Conservator	British Officials	Siamese Officials
H. A. Slade (1895-1901)	16	9
W. F. L. Tottenham (1901-1904)	14	1
W. F. Llyod (1904-1923)	11	7

Table 9: The Number of Forestry Students Sent by the Forest Department to Study Abroad⁶⁹

Forest Conservator	Number of Students
H. A. Slade (1895-1901)	4
W. F. L. Tottenham (1901-1904)	-
W. F. Llyod (1904-1923)	30
Phraya Daruphan Phitak (1924-1943)	9

⁶⁶ Ibid., 11 and 14

⁶⁷ When the RFD was established, the Ministry of Finance did not have branch offices in the provinces, which caused the government to ask the Bombay Burma Trading Company to collect revenue on their behalf. This practice continued up to the time that Prince Phen wrote his report. He was worried that the B.B.T.C. and the Forest Conservator, who was also British, might undertake the work in favor of the British, which would be a major loss for the Siamese government. ๓.5 ๓.16/10 *Prince Phen's Report*, NAT, 30-31.

⁶⁸ Salairat Dolarom, “Development of Teak Logging in Thailand, 1896-1960,” 53.

⁶⁹ Ibid.

Prince Phen's recognition of local suffering and frustration, which seemed rare when Siam tried to intensify its intervention during the earlier period, seemed to be a response to the Shan Rebellion that occurred the year before. Incidents of violent opposition from local populations against the Siamese officials and Chinese merchants, including the Phaya Phap Rebellion in 1889 and the Shan Rebellion in 1902, made the Siamese government in Bangkok anxious about its ability to control the North. In trying to understand local antagonisms, the prince turned to foreigners as the target of blame, instead of considering the Siamese officials' wrongdoings. Such blame was not completely groundless, as warnings spread about the involvement of British teak companies, especially the BBTC, in instigating social unrests in Myanmar several years earlier. Understanding that such turmoil could give the British an excuse to colonize the region, the Siamese government decided to decrease the power of British experts and entrusted the job of protecting Siamese interests to the Commissioner instead.⁷⁰

Even though the prince did not deny the fact that the new Siamese forestry regime was influenced by European forestry, he did not believe that only Europeans could perform this expertise. His assertion went against Slade's earlier association of forestry with Europeans.⁷¹ For example, as he was reflecting on the history of northern forestry, the prince curiously credited Chao Phraya Rattanathibet (Phum Si Chaiyan), rather than the Forest Conservator, as the person who made the most significant changes to benefit of Siam.⁷² The prince's overlooking of the contributions of forest experts was related to colonial anxiety and distrust of foreigners amongst

⁷⁰ This point was also made by American Presbyterian missionaries who were in Phrae during the Shan Rebellion. See "Siam (North Laos) Minutes." 1902. RG028/79 *Siam Letters (Laos Mission)*, Vol. 271.

⁷¹ In his last report as the Forest Conservator of Siam's Forest Department, Slade wrote, "Siam is not yet ripe for a Forest Department officered by Europeans." This claim seems to be premised on the notion that the Europeans knew more about forestry, and the best form of the Forest Department is the one officered by Europeans. ๓.5 ๓.16/3 *The Fifth Annual Report by Herbert Slade, Conservator of Forests (1901)*, NAT, 49.

⁷² ๓.5 ๓.16/10 *Prince Phen's Report*, NAT, 3.

the Siamese elites. Furthermore, Prince Phn was trying to distinguish Siamese forestry from the European ways by comparing the effects on the lives of the locals. He criticized how the domination by foreigners in the forests made it difficult for the locals to cut trees for daily use and local consumption, as most of the forests were leased to foreigners.⁷³ By doing so, he implicitly claimed that if the Siamese government had taken the power back from foreigners, it could manage the forests so that they would yield more benefit to the Siamese. This highlights the underlying principle, at least in the prince's view, for making *kanpamai* in Siam; that is, to manage the forests *for Siam's interests* – a task that he did not believe any European could do better than the Siamese.

To solve the problems supposedly caused by British foresters, Prince Phn suggested that the government should return power to the Commissioner of Lanna to manage the northern forests – a move that went against what Slade had been trying to do since the establishment of the Royal Forest Department.⁷⁴ The Forest Conservator was required to submit monthly reports to the Commissioner, instead of submitting them directly to the Minister of the Interior. The prince wanted the Commissioner to replace the Forest Conservator in ratifying forest leases and settling disputes, and the Ministry of Finance took over revenue collection from the B.B.T.C. Only a few days after the report, the Siamese government decided to transfer the forest administration in Lanna to the Commissioner and to place the Forest Conservator under the Chief Commissioner of Lanna. As a result, despite being the head of the forest department himself, the Forest Conservator had to consult and receive instructions from the Commissioner in all forest matters concerning Lanna.⁷⁵

⁷³ Ibid., 12.

⁷⁴ Ibid., 32

⁷⁵ Phraya Sri Sahathep (on behalf of Prince Damrong) to King Chulalongkorn (18 May 1903), in ๕.๕ น.16/13 *On Organizing the Forest Department* (1901-1909), NAT.

Although Siamese ruling elites and foreign teak merchants complained about the arbitrariness of Lanna's state forestry, the incident in 1903 suggests that the new state forestry under Anglo-Siamese collaboration might not result in less arbitrary rule. In particular, the leasing of the forest reflects the strong influence of political agendas on Siam to decide to whom it would grant a concession.⁷⁶ For the British companies, Siam's new rule was arbitrary, because it tried to lease forests to multiple merchants from different countries instead of using the bidding system, which would grant a concession to the highest bidder. For the British, a more rational system was supposed to grant equal possibility of access to all interested parties, and the bidding system was the answer.⁷⁷ However, for the Siamese, the seemingly rational bidding system did not necessarily promise equal access, because it gave privilege to companies with huge financial resources. Moreover, because most high-budget companies were British, the bidding system could lead to the loss of all the forests to a British monopoly – something that Siam did not wish to happen as it actively tried to maintain the balance of power between the British and the French Empires. This does not mean that Siam did not want to grant any concessions to British companies, but Siam preferred to have the British in a region that would give Siam advantage. As in the case of Nan forests, Siam initially wanted to lease the forests to a Siamese subject to reduce British influence. However, as the threat of French colonialism intensified, the government decided to contact the British and grant them some concessions to prevent French encroachment.⁷⁸ Thus, the goal of Siam's state forestry was to preserve the power to determine who to grant concession to, and to choose only those who would most benefit Siam's political

⁷⁶ ๓.5 ๓.16.1/19 *To Resolve Disputes regarding Forest Leases and the Lao Princes' Request for Money from Timber Companies.*, NAT.

⁷⁷ Slade seems to share this idea when he criticized Siam in his 1900 report.

⁷⁸ See ๓.5 ๓.16.2/43 Luang Naraphitak (Chin Bunyen) asks to extract timber between the Yom River and the Nan River in Nan (1895), NAT; ๓.5 ๓.16/5 *On the Arrangement of the Forests in Nan* (1895-1897), NAT.

and economic agendas. In this way, Siam endeavored to achieve its ultimate goal – maintaining its supremacy in Lanna.

Conclusion: Taming Forestry Expertise for Siam's Supremacy

In conclusion, this chapter has shown that forest matters used to be an area where the power of the Forest Conservator overlapped with the responsibility of the Commissioner of Lanna. After a series of attempts at defining and redefining the boundary of forest expertise, Herbert Slade, as the first Forest Conservator, was eventually successful in excluding the Commissioner from the realm of forest administration, though for only a short period. I argue that Slade's initial success depended less on his knowledge about the forests than his ability to translate his expertise to meet the needs of the Siamese government. However, when the Forest Conservator could not achieve what he had claimed he would do, he lost his credibility to represent the Siamese government and eventually lost his authority even in a field that he was supposed to know best.

Indeed, the downfall of forest experts is not unique to nineteenth-century Siam. Yet, the Siamese case gives us insight into the relationship between expertise (forestry) and state making. If the shifting boundaries of the Forest Conservator's power from 1896 to 1903 suggest that the authority of forest experts was not static or fixedly defined by the forest knowledge, then what enabled him to represent Siam in the management of the northern forests when the RFD was established? In the previous chapter, I have argued that the Siamese government was primarily concerned with establishing authority in forest administration vis-à-vis foreign teak merchants and local elites in Lanna. In this chapter, I further argue that Slade's rise to power in 1896 was not because of the forest knowledge itself, but because he managed to convince the Siamese

government that he could mediate those relationships on Siam's behalf. This dependence on social skills made his expertise a relational one. As Reiner Grundmann explains, "Experts mediate between the production of knowledge and its application; they define and interpret situations; and they set priorities for action. Experts are primarily judged by clients, not necessarily by peers (professional or scientific); and they rely on trust by their clients."⁷⁹

The trust that Slade gained in the late 1890s began to fall apart when the Forest Conservator could not live up to his own claims. Although the Forest Conservator had helped the Siamese government to claim control over the northern forests, he failed to obtain the trust of the Lanna elites, as reported by Prince Phen in 1903. Moreover, as the British gained increasing influence in the north, rumors about the new Forest Conservator's biased treatment in favor of the British further destroyed his credibility in representing Siam to protect its interests in the north. All these problems then contributed to the decision to decrease the power of the Forest Conservator and put him under the Commissioner of Lanna, who was not an *expert* but a *Siamese*. The rise and fall of the Forest Conservator, despite the recognition of forestry as a specialized knowledge, demonstrates that knowledge was not always the source of an experts' authority. This insight about "relational expertise" is also useful beyond the realm of forest administration. Historians of Thailand have already pointed out that the government employed a great number of foreigners from various specialized fields to assist throughout the nineteenth and the twentieth centuries. A reconsideration of the roles of these foreign advisers will elucidate the complex relationships between knowledge and power during the period of modernization of Siam.

⁷⁹ Reiner Grundmann, "The Problem of Expertise in Knowledge Societies," *Minerva* 55, no. 1 (2017): 27.

PART II

ENACTING ENVIRO-COLONIAL RULES

In Part I, I have discussed the role of knowledge in forming and transforming the interrelationship between colonial governance and environmental administration, which gave rise to what I call enviro-colonial rule in Hokkaido and Lanna. I have also demonstrated that agricultural science and scientific forestry became the means through which Japan envisioned its power presence in Hokkaido, and Siam in Lanna. Yet, new knowledges were not always easy to institutionalize. The emergence of new scientific modes of expertise usually entailed the renegotiation of power relations and the reformulation of enviro-colonial entanglements. As I have revealed in Chapter 2 and Chapter 4, each enviro-colonial institution in Hokkaido and Lanna was a gathering of heterogenous actors who might not have shared the same goals.

While Part I examines the similar attempts to envision of the enviro-colonial rule in Hokkaido and Lanna, Part II reveals divergences in how the enviro-colonial rule was enacted in each place. If a state is a product of knowledge-based envisioning, how does such a state get materialized? How did the enviro-colonial rule make the changes it was intended to make, and to what effects? To answer these questions, Part II draws from Susan Leigh Star and James Griesemer's concept of "boundary objects." In their study of the natural history research museum, Star and Griesemer introduced the term "boundary object" to explain the process through which multiple actors with different viewpoints came to cooperate with each other, and how such cooperation affected the management of information. According to Star and Griesemer, those social groups had to translate their ideas to form generalized, shared understandings. These translations were performed through the standardization of methods and the development of

“boundary objects” in forms such as specimens, field notes, and maps of particular territories, which can be used by each actor to very different ends. Those boundary objects have to be flexible enough to adapt to local needs, yet robust enough to maintain a common identity across sites.¹ Following Star and Griesemer’s lead, I attend to the ways in which diverse actors within a state came to work together without necessarily agreeing with what foreign advisers envisioned for their enviro-colonial rules.

In addition to the concept of the boundary object, I also draw upon recent scholarship on bureaucracy to foreground the contentious encounters among multiple ideas and practices that eventually form modern bureaucracy. Rather than an abstract institution, a state should be understood as a material entity arising from the performance of people and things. Building on Andrew Mathews’ study of Mexican forestry, I examine the state “as an object of knowledge, as a *thing*, an empirically traceable set of institutions, documentary practices, and bureaucratic lifeworlds.”² In so doing, Part II contends that the relationship between visions and actions is never a linear one.

By following the paper trails left behind by the foreign advisers, I examine how they described their visions and reported what they did and respective results. I found that the specialists in each place produced different kinds of paper trails. More specifically, the records of American agriculturalists in Hokkaido described in detail about what they did (or wanted to do) to the agricultural lands. In contrast, the papers penned by British foresters did not say much about what they actually did in the forests, but mostly discussed what they wanted others to do

¹ Susan Leigh Star and James R. Griesemer, “Institutional Ecology, ‘Translations’ and Boundary Objects: Amateurs and Professionals in Berkeley’s Museum of Vertebrate Zoology, 1907-39,” *Social Studies of Science* 19, no. 3 (August 1, 1989): 387–420.

² Andrew S. Mathews, *Instituting Nature: Authority, Expertise, and Power in Mexican Forests* (Cambridge, Mass.: MIT Press, 2011), 25. [emphasis in the original]

and the paperwork that they deemed necessary for effective forest administration. The different paper trails also provide great insight into the differences amongst the actors who were expected to take action. In Hokkaido, where the promoted form of agriculture centered on introducing new practices and organisms, much of the enviro-colonial works were predominantly undertaken by American advisers and their staff members. Even though the ultimate goal was to convince Japanese farmer-settlers to raise livestock, most of the livestock farms and agricultural experiment stations during this period were owned and run by the Kaitakushi, while non-state livestock farming did not take off until the early twentieth century – a couple decades after the Kaitakushi was abolished in 1882. In addition, the existence of such state farms and experimental stations also served to spatially divide state agricultural projects from civilian farming. On the contrary to the exclusiveness of Hokkaido's agricultural development, the enviro-colonial rule in Lanna was envisioned to be a collaborative project. Upon their arrival in Lanna's forests, the British foresters found themselves to be newcomers in a space that was lived in and worked by a number of other actors, including timber merchants, Siamese officials, and Lanna princes. That is to say, the foresters had to work within a relatively established network of forest use that focused on timber extraction. Even after Siam managed to nationalize all the forests and put them under the forest department's control, they did not try to remove all other actors from the forests. Instead, Slade and his fellow foresters decided to keep some actors and give them new roles to play, promising some benefits in return for their cooperation.

The formal divergence of enviro-colonial rules in Hokkaido and Lanna also depended on whether each state intended its northern enviro-colony for permanent settlement. In Lanna between the 1870s and the 1910s, no apparent project existed to replace the local population with

Siamese migrants.³ In Chiang Mai, where the headquarters of the Monthon was located, only Siamese bureaucrats, troops, and their households lived there, usually temporarily. Even though this period witnessed waves of migration into major towns in the region, most of the migrants were either Chinese merchants or ethnic laborers in the timber industry who decided to stay even after they quit their jobs at timber camps. Notable examples are Burmese timber merchants like Mong Pan Yo [Maung Pan Nyo] in Chiang Mai and Mong Ngoi Sin [Maung Ngwe Zin] in Lampang, who made large donations to the building and renovating of several temples in the region. These non-Western migrants played a crucial role in shaping urban development in Lanna, but their contributions remain understudied in existing scholarship, which predominantly emphasizes other minority groups such as Siamese bureaucrats, European timber merchants, and American missionaries.

In contrast to Lanna, Hokkaido enviro-colonial rule was preoccupied with the settlement question from the outset. Although the Japanese state did not actively encourage migration to Hokkaido until the 1870s, they made several attempts to establish agricultural colonies and promote rice cultivation since at least the eighteenth century. Yet, the northern island's different climate and environmental features continued to pose great challenges to both previous settlers and their counterparts in the late nineteenth century. Despite this continuity, the new enviro-colonial rule that American agriculturalists helped envision demanded the Japanese state take a different approach to establishing agricultural colonies, dismissing rice cultivation in favor of foreign crops and animals that Japanese settlers were not familiar with. The efforts in promoting a new form of livelihood in Hokkaido made it more necessary for the Japanese state to produce

³ Still, it must be noted that Siam's colonial projects in Lanna continued throughout this period, first in the form of administration reconstruction and then in the form of assimilation. Particularly, the Shan Rebellion of 1902 triggered Siam's increasingly intensive assimilation policies, leading to the ban of the use of Northern Thai dialect and scripts, body tattoos, as well as other cultural practices.

guidelines and models for settlement than its Siamese counterpart. Some of the guidelines were made into official policies and governmental support in the form of loans and discounts for farm supplements, such as seeds, breeding animals, and new agricultural tools.

CHAPTER 5

SOWN IN GRASSES AND GRAINS:

Remaking Hokkaido for Livestock

Introduction

In Chapters 1 and 2, I have discussed how the production of knowledge about Hokkaido's nature eventually gave rise to enviro-colonial rule and how this new vision of Hokkaido governance transformed between the 1870s and the 1900s. Among the several projects envisioned in this enviro-colonial rule, the introduction of livestock farming was a top priority. But how was such a vision enacted, and to what extent did it affect the physical realities of Hokkaido? To answer these questions, Chapter 5 focuses on the creation and operation of major Kaitakushi livestock projects, including the College Farm and several breeding stations in Nanae, Sapporo, Makomanai, and Niikappu. In so doing, I will reconsider the interaction between abstract ideas and concrete practices that shaped the Kaitakushi's major livestock projects in Hokkaido.

The majority of sources for this chapter are drawn from the official reports and correspondence between the Kaitakushi and its foreign advisers, which are available at the Northern Studies Collection, Hokkaido University Library.¹ In particular, I will focus on the work of Edwin Dun, who served as the main adviser for livestock breeding in Hokkaido between 1873

¹ Nishide Kimiyuki and Alice K. Swinger, eds., *Dun Kankei Kaitakushi Hōbun • shokan No Honkoku [Dun-Related Kaitakushi Report • Reprinted Correspondence]*, 1991; Tanabe Yasuichi, Nishide Kimiyuki, and Nishitori Teruo, eds., *Hokkaidō-Ritsu Bunshokan Shozō Edwin • Dun Kankei Eibun Shokan [English Correspondence Regarding Edwin Dun in the Possession of the Archives of Hokkaido]* (Obihiro, Japan: Obihiro University of Agriculture and Veterinary Medicine, 1993).

and 1883.² Edwin Dun was an American rancher from Ohio. He arrived in Japan in 1873 and started working at the Kaitakushi Farm Number 3 in Tokyo. Besides taking care of the livestock, Dun also gave advice to the Kaitakushi on questions related to animal breeding, wool manufacturing, and other livestock matters. In 1876, he was transferred to Sapporo, where he worked until 1883.³ By closely examining the records he left behind, this chapter seeks to delineate Dun's expression of his ideal for Hokkaido livestock farming and the actions he took to achieve that ideal.

Previous historiography on Hokkaido agriculture has taken for granted the idea that the Kaitakushi farms provided Hokkaido farmers with a model that they could readily adopt and reproduce on their own lands. However, the Kaitakushi farms were actually designed to be distinguishable from non-Kaitakushi farms in Hokkaido. Instead of a model for household or commercial farming, the most important function of the Kaitakushi farms was to serve as breeding stations so that the Kaitakushi could monopolize and closely regulate animal breeding in Hokkaido. To ensure that non-Kaitakushi farmers would not play any role in animal breeding, they introduced several procedures – such as the centralization of the Kaitakushi livestock farming projects to just a few sites, and the castration of animals before distribution to farmers. The monopolization of breeding was also aimed at wrestling with the power of nature. The

² For his biography, see his unpublished memoir, which has been digitized and made available at U.S. Department of Agriculture, National Agricultural Library. Dun, *Reminiscences of Nearly Half a Century in Japan*. For other English-language sources on Dun's biography, see Hokkaido Prefectural Government, General Affairs Department, and Archives Section, *Foreign Pioneers*, 15–27; Fujita, *American Pioneers and the Japanese Frontier: American Experts in Nineteenth-Century Japan*, 69–87. In Japanese, see a biography written by his daughter, Michiko Dan, *Meiji No Bokusaku* (Tokyo: Dan Michiko Kōenkai, 1968), and several publications by Tanabe Yasuichi such as Tanabe Yasuichi, *Oyatoi Gaikokujin Edwin Dun: Hokkaidō Nōgyō to Chikusan No Yoake [Edwin Dun the Foreign Employee: The Dawn of Hokkaido Agriculture and Animal Husbandry]* (Sapporo: Hokkaidō shuppan kikaku sentā, 1999).

³ Dun returned to the U.S. for a brief time and came back to Japan to work for the American Legation in Tokyo. Between 1893 and 1897, Dun was appointed the U.S. Minister to Japan, and he played an important role during the First Sino-Japanese War (1894–95), using the American diplomatic service as a conduit for the Japanese and Chinese governments to conduct negotiations.

emphasis on capturing and castrating all the native stock reflects the idea that natural animal reproduction was deemed undesirable for Hokkaido's livestock civilization, and so the Kaitakushi farms should become the only distributors of the animals that should be raised in Hokkaido. This monopolization of livestock breeding also reflects the Kaitakushi's attempt to centralize power and highlights the status of the Kaitakushi farms as centers for producing knowledge and enacting the enviro-colonial rule in Hokkaido.

In addition to the centralization of agricultural development in Hokkaido, the Kaitakushi had emphasized the necessity of making Hokkaido settlers capable of supporting themselves since the inception of migration campaigns and agricultural development projects in Hokkaido. This emphasis on the ability to feed themselves was evident in the military forces to be stationed in Hokkaido, as exemplified by Kuroda's establishment of the *tondenhei* (farming militia).⁴ Kuroda's *tondenhei* proposal was conceived in 1870 but was not actualized until 1874. Even though the creation of a self-feeding army would lessen the financial burdens of the fledgling Japanese government, other plans related to migration and agricultural development were still a huge drain of the government's revenue. A large part of the budget was used to encourage Japanese families from the main island to migrate to Hokkaido and engage in agriculture under the government's generous support. The "Regulations for Emigrant Assistance" in the Sapporo area states that:

Farmers will be provided with housing, a small stipend, farming implements, household items, a three-year food supply, and even expenses for opening land, in addition to travel expenses. For merchants and artisans, capital for building a house and a pecuniary allowance will be granted or lent. Some of these privileges

⁴ According to Michelle Mason, the term 屯田兵 '*tondenhei*' was borrowed from a term used in the chronicles of the Heian era, which literally means soldiers stationed in the fields. The farming militia system has long been one of the most celebrated symbols of Japan's successful development (read colonization) of Hokkaido. Michelle Mason calls this the Japanese "historical and historiographical affair with the *tondenhei*" and examines in detail in her recent monograph. See Michelle Mason, *Dominant Narratives of Colonial Hokkaido and Imperial Japan* (2012), Chapter 1 "Harvesting History: Modern Narratives for Patriotic Pioneers and the Imperial Military," page 32-55.

will be available not just to individuals recruited by the Development Agency but also to those who voluntarily resettle. Moreover, we will establish facilities for those who are approved and relocate to their designated posts.⁵

The statement above reflects the willingness of the Japanese government to support migrants to Hokkaido during the early stages of settlement. Nevertheless, the livelihood enabled by such huge financial support was anything but sustainable, and all the interested parties were aware that they could not receive such support forever.

Recognizing the possibility of having their financial support withdrawn, Murahashi Kisaki, a Kaitakushi official, once consulted with Dun about possible ways to make Hokkaido farmers more independent. One of his ideas was to send college students and employees “who are more skilled in practice showing the convenience of machines and encouraging farming, so that the people at length will be able to lay a foundation of independent subsistence without needing imports from other parts of Japan, if the government assist them on increasing the products of soil during 2 or 3 years more.”⁶ William Brooks, who taught agriculture at SAC and served as the Director of the College Farm, also formulated a plan for the farm to continue its operations when the state’s financial aid ended. For Brooks, the goal was to make the farm “self-sustaining as an educational institution, and a model of practical economy.”⁷ What we can also infer here is that the idea of being self-supporting was not limited to the settlers’ ability to feed themselves in the new land. It also entailed the plan to make Hokkaido materially independent, without relying heavily on constant imports of food, other life necessities, as well as external injections of financial support from the government.

⁵ Komori Yōichi, “Rule in the Name of ‘Protection’: The Vocabulary of Colonialism,” 66.

⁶ Murahashi Hisaki [sic] to Edwin Dun (October 1876), in Nishide and Swinger, Document No. 090, p. 145.

⁷ *Second Annual Report*, 15.

The idea of a self-supporting community also became a guiding principle for organizing and operating the livestock farms. In the early stages, the Kaitakushi farms had to import breeding animals of foreign species, seeds of foreign grasses and plant species, as well as farming tools and implements. Yet, the officials and foreign advisers were fully aware that the government could only afford to finance the start of the operation, and each farm had to manage itself so that it would become self-supporting as soon as possible. Resonating with the government's idea, Dun explained his plan for Makomanai as an attempt to "make it capable within itself of supporting a certain number of cattle."⁸ However, as I will discuss below, the end of the Kaitakushi era in Hokkaido brought about a shift in the key principle on which the livestock farms were to operate. Rather than for Hokkaido's economic autonomy, these farms existed for the benefits of the "nation," according to American advisers like Edwin Dun and the professors at SAC.

It must be reminded that these farms, as well as most of the Kaitakushi agricultural developments in Hokkaido, were confined to small lots of lands. Thus, we cannot readily assume a direct relationship between what happened in the experimental farms and what actually happened elsewhere in Hokkaido. While the knowledges produced were intended to be applicable elsewhere in Hokkaido, it is important to consider the spatial limits of their influence. By focusing on these farms, I do not wish to claim that what happened on these farms represent what happened in Hokkaido as a whole. Rather, I argue that these farms reflect how the Kaitakushi envisioned its ideal for Hokkaido agriculture, and how these projects were to take place elsewhere on the island. Despite the spatial limitations of their farms, the Kaitakushi's insistence on making these farms the model for livestock farming suggests that their influence

⁸ Edwin Dun to Murahashi Haisanari [sic] (25 October 1876), in Nishide and Swinger, Document No. 091, p. 146.

might surpass these spatial limits. To what extent these knowledges affected agricultural development in farms and fields beyond state-owned farmlands is subject to further study.

Rice Paddies, Fruit Plantations, and Pastures

In contrast to Siam's expansion into Lanna, which was not settled until the end of the nineteenth century, the relatively early success in turning Hokkaido into Japan's administrative space enabled the Japanese government to focus their attention and resources on other aspects of spatial modeling. As Michael Thornton has pointed out, the Meiji government's expansion into Hokkaido continued from the previous regime's attempts to control the Northern frontier for security and economic concerns.⁹ The latter concern – the economy – became the realm where environmental rule and colonial rule converged. The focus on Hokkaido's economic potentials was premised on the image of Hokkaido as an empty, fertile landscape with great potential for agricultural development. Such an image was created through a series of surveys and accounts of Japanese officials since the eighteenth century. Building on this image, the Meiji government outlined the plan to colonize Hokkaido by encouraging migration and building agricultural settlements without proper measures to cope with the differences in climate and environmental conditions of their new colony.

In the early stages, the definition of agricultural settlement was limited to the familiar image of rice farming communities.¹⁰ Thus, early settlers came to Hokkaido with the intention to duplicate the rice-field landscape that resembled their homelands in Honshū. This process involved not only the duplication of the physical landscape of the rice field, but also the transfer

⁹ Thornton, "Settling Sapporo: City and State in the Global Nineteenth Century," 33.

¹⁰ Ohnuki-Tierney, *Rice as Self*; Charlotte von Verschuer, *Rice, Agriculture, and the Food Supply in Premodern Japan*, ed. Wendy Cobcroft (London: Routledge, Taylor & Francis Group, 2016).

of the livelihood associated with rice cultivation, including the social structure, the pattern of labor division and cultural practices that constituted a rice-farming community. In his study of early migration of the *shizoku* (former samurai or noble families) to Hokkaido, David Howell contends that instead of creating a completely new life in a foreign land, early settlers put great effort into rebuilding and maintaining the familiar community that they had in the places where they used to live.¹¹ These emerging rice farming communities, in turn, were expected to displace the native landscapes as well as the Ainu, who were the indigenous populations of Hokkaido.

However, the rice farming project did not seem very successful. The difference in climate, especially Hokkaido's much heavier snowfall, was a major obstacle. On the other hand, as the majority of early migrants were from *shizoku* backgrounds, the failure might be attributed to their lack of farming experience and skills. Despite the realization of that rice cultivation would fail, the Kaitakushi and migration advocates did not abandon the belief that Hokkaido was a fertile agricultural landscape. The unfeasibility of rice cultivation forced the Kaitakushi to shift their attention to other practices. As a result, Hokkaido was transformed into a laboratory where the Kaitakushi tried out various agricultural possibilities to seek the best model that validated their claims about Hokkaido's agricultural promise.

Among the several proposed options, the orchard was one of the Kaitakushi's projects that initially received tremendous attention and financial support, at least during the first few years of the project. The Kaitakushi created an orchard near the Capitol building in Sapporo and filled it with a variety of imported tree species, especially fruit trees such as apples. This orchard was first supervised by Louis Boehmer, an American agricultural adviser employed by the

¹¹ According to Howell, the migration to Hokkaido was primarily an effort to maintain the old social fabric, which was to be dismantled by the new Meiji state, and less about pioneering for "national progress" Howell, "Early Shizoku Colonization of Hokkaidō," 42.

Kaitakushi, and later transferred to the Sapporo Agricultural College (SAC).¹² Other horticultural experiments (such as wheat, corn, sugar beets and potatoes) were also attempted, with the SAC taking the lead since 1876. The college received a large piece of fertile land in Sapporo and turned it into experimental fields for professors and students in the college.¹³ As already discussed in Chapter 2, experimentation and farm-work were made an integral part of instruction. Students were required to routinely work on the farm and carry out their own experiments under the supervision of professors.¹⁴ They were also instructed to do experiments to test out the validity of current agricultural practices or to address new interests of the Kaitakushi. Besides plant cultivation, the Kaitakushi also engaged livestock farming as another agricultural possibility for Hokkaido. Livestock farming had been part of the Kaitakushi's development projects since the early 1870s.¹⁵ While the Kaitakushi was not the first to introduce livestock farming to Hokkaido, it was the first to make this form of agriculture one of the main hallmarks of Hokkaido's development.

¹² In Chapter 5 of his dissertation, Michael Thornton examines in detail the Kaitakushi's development of the orchard in Sapporo, focusing on its significance as a node within the transnational network of botanical science. Thornton, "Settling Sapporo," pp. 293-343.

¹³ Most of the fertile lands surveyed by the Kaitakushi were appropriated by the Kaitakushi and its affiliated institutions or granted to some settler communities, while the Ainu who were indigenous populations were driven out and relocated to less fertile areas. Together with other assimilation policies, the adoption of agricultural lifestyle was forced upon the Ainu communities, which had to struggle to live with such limited resources given by the Japanese government. Katsuya Hirano calls this biased treatment "thanatopolitics" in which some communities were subject to the rule that treated them as disposable populations and allowed them to die rather than trying to sustain them. Hirano Katsuya, "Thanatopolitics in the Making of Japan's Hokkaido."

¹⁴ See my discussion of the inclusion of practical training on the farm for SAC students in Chapter 2.

¹⁵ However, it must be noted that non-state, Western-style agriculture had already begun in Southern Hokkaido since at least the 1850s. Prominent examples were the Gaertner Brothers' experimental farms in Nanae and the dairy farms of the Trappist Monastery. Curiously, while these pre-Kaitakushi initiatives could have been the inspirations, or influences, for later Kaitakushi projects, hardly any references to these early works can be found. This forgetting perhaps served to create the perception that modernization began in Sapporo before spreading elsewhere and to celebrate the Kaitakushi's pioneering role, and by extension, the achievements of the newly established Meiji government.

One of the earliest establishments for livestock farming was an experimental farm in Nanae, a town located on the north of Hakodate in southern Hokkaido. This farm was originally owned and operated by R. Gaertner, a German businessman, to cultivate foreign crops and raise cattle, horses, and hogs.¹⁶ The Kaitakushi bought this farm in 1869. According to David F. Anthony, Gaertner's farm inspired Kuroda to create new experimental farms in Hokkaido, and the idea was then taken up by Horace Capron and American advisers who succeeded him.¹⁷ Apart from the existing establishment in Nanae, the Kaitakushi also started building new livestock farms in Sapporo. A map of Sapporo from 1873 shows that a livestock farm was located on the northeast of the new capital of Hokkaido. However, it is likely that this farm had already been established since 1871 or the 1872, because the maps from those years feature a "road to the livestock farm" (牧場道) on the same location on the map.

Due to the lack of suitable infrastructure and facilities in Hokkaido during the early years of colonization, most of the Kaitakushi's agricultural experiments took place in Tokyo. In September 1871, the Kaitakushi appropriated several pieces from the estates of Matsudaira Hideyori (37,000 tsubo), Inaba Masakuni (50,000 tsubo), and Horita Shōrin (40,000 tsubo) and established governmental farm (*kan-en*) Number 1, Number 2, and Number 3, respectively. In March 1875, these governmental farms were designated as agricultural experiment stations (*nōji shaken-jō*), and more lands were added to Experimental Farms Number 2 and Number 3.¹⁸ The

¹⁶ In 1868, Gaertner received a ninety-nine-year lease on three million tsubo (about 2,450 acres) of land through the Hakodate commissioner. During the political turmoil that followed the Meiji Restoration, Gaertner managed to renew his contracts with Enomoto Takeaki, who took over Hakodate and established the Republic of Ezo in 1869, and with Shimizudani Kinnaru, an official sent by the new Meiji government after Enomoto's defeat. However, following a series of negotiations, Gaertner had to sell the land back to the Japanese government only at \$62,500. On Gaertner's experimental farm, see Study Group of Foreign Settlements in Hakodate, *Japan's Surprising Pioneer*, 38.

¹⁷ Anthony, "The Administration of Hokkaido under Kuroda Kiyotaka, 1870-1882: An Early Example of Japanese-American Cooperation," 83-85.

¹⁸ Hokkaidō, ed., *Shin Hokkaidō shi*, vol. 3 (Sapporo: Hokkaidō, 1971), 411.

Experimental Farm Number 3 was designated as the main site for livestock breeding, which was put under the direction of Edwin Dun after his arrival in 1873. Apart from practical reasons, the concentration of the Kaitakushi's works in Tokyo also served to showcase the work of the Kaitakushi to political elites in Tokyo as well as the Japanese public. For Horace Capron, the farms in Tokyo would demonstrate the superior quality of imported animals, plants and farm implements, and would thereby motivate the Japanese government to further improve agriculture and livestock farming all over Japan.¹⁹ It was not until the mid-1870s that the Kaitakushi began substantial livestock farming in Hokkaido. In 1875, the Kaitakushi sent Dun to survey a few sites in Hokkaido that had been selected for livestock farming. Dun confirmed that most of the selected sites were suitable for their purposes and suggested the animals be moved to Hokkaido soon because the new sites' expansive space was more favorable to the health of the animals than the cramped space in Tokyo. In 1876, the Kaitakushi began to relocate their livestock breeding projects to Hokkaido and appointed Dun to Sapporo to supervise animal breeding on the island.²⁰

Sheep, cattle, and horses were the focus of the Kaitakushi's breeding program.²¹ Most of the sheep were raised at the old farm in Nanae and the new farm in Sapporo. Cattle were kept in almost every farm as a crucial source of labor. Both Dun and the SAC professors emphasized the value of working cattle in modernizing Japan's agricultural practices, but the primary goal of cattle breeding in Hokkaido was the production of beef and dairy products.²² For that purpose,

¹⁹ Horace Capron, *Memoirs of Horace Capron* (n.p., 1884), 157-58, <http://archive.org/details/CAT30983447>.

²⁰ Nishide and Swinger, Document No. 071.

²¹ Swine were another animal that the American advisers encouraged the Kaitakushi to keep. Yet, they were usually kept as supplementary animals to take care of farm refuse. The primary breeding station for swine was in Sapporo.

²² In his study of dairy farms in Tokachi, Hokkaido, Paul Hansen has pointed out that in contrast to popular beliefs, milk consumption already existed in premodern Japan. However, previous consumption

the Kaitakushi appropriated a piece of land in Makomanai in the south of Sapporo for creating a new center for cattle breeding. Horses, like cattle, could be found at most farms as working animals. The breeding of horses initially took place at several sites in Central Hokkaido, including Teine, Shiraoi, Tobetsu, and Izari. However, Dun recommended that the breeding program should be centralized at one site. He initially preferred Izari but later decided to move the horses to Niikappu, which had since become the center for horse breeding in Hokkaido. With the new breeding stations, together with the establishment of Sapporo Agricultural College and the College Farm in 1876, the Kaitakushi's livestock farming projects began to take root in Hokkaido. The introduction of livestock farming – especially the practice of raising animals for meat and other food products – consequently transformed Japanese dietary cultures and redefined the Japanese notion of agriculture (*nōgyō*).

Remaking Hokkaido for Livestock

“Naturally Well Adapted”: The Promises and Challenges of Hokkaido's Nature

Like other agricultural experiments on the island, the introduction of livestock farming was similarly based on the idea that Hokkaido was naturally fertile. This idea was reinforced in Edwin Dun's reports of his survey in Hokkaido. In June 1875, Dun was dispatched to Hokkaido to inspect the island's physical condition and suitability for livestock farming. Not long after he arrived in Hokkaido and completed his preliminary survey, Dun expressed his satisfaction with Nanae Farm and its fertile soil for crop cultivation and natural grassland for pasturage.²³ Dun argued that the northern and the northeastern parts of the farm could be best adapted for pasture,

was mostly for medicinal purposes or as exotic dishes in courtly banquets. Hansen, “Hokkaido Dairy Farm,” 83.

²³ This farm was probably the Gaertner Brothers' experimental farm, which the Kaitakushi had appropriated from the original owners.

by first cultivating corn or other grains for a few years and then sowing foreign grass seeds.²⁴ Yet, Dun voiced some concerns about the labor and time it required. To cope with this problem, Dun offered another option: letting the native grasses grow to form natural pasture and clearing weeds to enhance the growth of preferred grasses.²⁵ He concluded that it was a better location to farm, and suggested that the sheep, cattle, and hogs in Tokyo should be moved to Nanae instead.

During this survey trip, Dun also went to Sapporo and Niikappu and submitted another report to the Kaitakushi after he returned to Tokyo in October. Although he still found the hill lands at Nanae to be an excellent place for sheep farming, he reported that Nanae's soils were not as fertile as expected. Instead, he turned his eyes towards Sapporo and argued that Sapporo "should be the principle point of all agricultural operation in Hokkaido [...] so far superior to Nanai [Nanae] that the two places can hardly be compared."²⁶ After this survey, Dun renewed his contract with the Kaitakushi and moved to Hokkaido to oversee the Kaitakushi's livestock farms and to give instruction on animal breeding.²⁷

Although Dun later changed his mind about the potential for crop cultivation, he still saw some promises about re-creating Nanae for livestock farming, especially sheep farming.²⁸ Dun wrote: "The character of the soil, together with the open, and generally high, and hilly character of the country, indicates that it could be made particularly valuable as a sheep farm, and it is my

²⁴ Edwin Dun to Murahassi Hisanari (5 June 1875), in Nishide and Swinger, Document No. 046.

²⁵ Note that both options required human labor, with the first option needing more. Each approach would create a pasture consisting of different kinds of grass.

²⁶ Edwin Dun to Kuroda Kiyotaka (4 December 1875), in Nishide and Swinger, Document No. 057, pp. 88-95.

²⁷ Nishide and Swinger, Document No. 071.

²⁸ The actual achievement of sheep farming at Nanae could be found in his survey in 1878, Dun wrote that the sheep look well but the ewes bred late last year so the lambs are small and not as enduring. As for the cultivation of foreign grasses, Dun found them look well on the lowlands, but not so well on the hill side (but still very good for pasture). Edwin Dun to Dzushio Hirotaki (5 November 1878), in Nishide and Swinger, Document No. 138.

opinion that it would be advisable to make improvements that will ultimately lead to that end.”²⁹ A couple of years later, Dun re-emphasized the superior quality of Nanae as a sheep-rearing place. In his view, the best locations for breeding sheep were the East Coast and in the vicinity of Hakodate. Particularly, the highland of Nanae was considered “naturally well adapted for sheep” because of the shorter winters, lower amounts of snowfall, and abundant native grasses which could serve as sheep pastures for several months.³⁰ These factors together contributed to a lower cost for sheep farming. Since sheep could not find nourishing food on their own during the winter months, the food costs would be high during this period. In addition, with a port nearby at Hakodate, Dun expected considerable demand for mutton, which further justified the plan to raise sheep there.

Indeed, Hokkaido was made up of diverse landscapes with varying geographical characteristics and degrees of fertility. However, most of the Kaitakushi’s breeding stations were created on carefully selected sites that were deemed most suitable for raising the livestock. Generally, better pieces of land were reserved for breeding stations. For example, the more fertile land of Izari was used to keep high-quality horses for breeding, while working horses were kept at less fertile areas in Teine. Apart from the size of land and geographical features, much attention was paid to the availability of infrastructure and facilities, such as roads, water and drainage systems, and access to ports and markets, as well as the distance from Sapporo, the administrative center. For this reason, Dun initially considered Niikappu a less preferable choice than Izari, despite the more suitable climate and landscape of Niikappu.³¹ In some cases, livestock breeding seemed to be prioritized over human settlement. For example, in 1878, a proposal was made to

²⁹ Dun to Kuroda, in Nishide and Swinger, Document No. 057, pp. 88–95.

³⁰ Edwin Dun, “Report on the Farming Operations, and Livestock, Under the Control of the Kangioka of Sapporo, for the Year Ending December 31st 1878,” in Nishide and Swinger, Document No. 143, p. 275.

³¹ Ibid.

increase the number of sheep at the farm in Sapporo, but the current land holders could not afford to produce more food for the newly added animals. For that purpose, Dun suggested that the Kaitakushi should take over the adjacent lands that were settled by the *tonden* (farming militia).³²

Despite Dun's appreciation of Hokkaido's landscape, he repeatedly complained about two challenges posed by Hokkaido's environment: the cold climate and the native pasturage. Dun emphasized the necessity of good barns or suitable shelters to keep animals in good health during the winter. In his report on Niikappu, Dun wrote:

I regret to say that the greater part of them [half-blood colts] are forced to run out this winter without shelter, and without feed of any kind being fed to them, all on account of not having sheds of some kind made for them before winter set in. This is to be greatly regretted as these young colts were very promising, and if they were properly cared for during the winter[,] [they] would probably in time make quite as good horses as the Nambu, but if shelter of some kind is not afforded them against the cold storms of winter, and if they are not given something more nutritious to eat than bamboo during cold weather, it is to be feared that very little improvement, if any, will be effected over the native horses of Hokkaido.³³

A similar argument was made for the cattle breeding station at Makomanai. In June 1877, Dun asked that a new barn be constructed at Makomanai, arguing that that "it would be hard to make a first class farm out of Makomanai without the barn."³⁴

Apart from the harsh winters, Hokkaido's native grasses were often the object of Dun's criticism. Dun's oscillation between appreciating Hokkaido's natural state and demanding its intensive remaking highlights his self-contradictory views of Hokkaido's nature. For instance, in his reports on Nanae, Dun commented on the natural suitability while eagerly proposing the necessity of landscape remaking. Particularly, he constantly purported native grasses to be

³² Edwin Dun to Kuroda Kiyotaka (2 October 1878), in Nishide and Swinger, Document No. 134.

³³ Dun, "Report on the Farming Operations," in Nishide and Swinger, Document No. 143, p. 23

³⁴ *Ibid.*, p. 8.

inadequate and unsuitable for feeding demanding livestock such as sheep. Instead of what the natural vegetation of Hokkaido offered, Dun explained the preferred food for sheep as follows:

The most necessary thing in this country as food for sheep, is good, fine, sweet hay. It would be useless to try to raise sheep profitably without it. No Japanese grass that I have seen will make good hay for sheep. Amongst the best foreign grasses for sheep are -- timothy, red, and white clover, red top, sheep[']s fescue, Kentucky blue grass, &c. [...] In addition to their hay, sheep should be fed a little grain daily, and if possible a few turnips, during the winter. Oats, peas, and corn are the best grains to feed, and they should be ground, or cracked, if possible, but not cooked.³⁵

Even Sapporo, whose fertility Dun used to praise, also suffered from the shortage of “nourishing food” for livestock. According to Dun, “The country around Sapporo, is well adapted for the rearing of cattle, and the only thing absolutely necessary for that purpose is the production of sufficient quantity of food to keep them during the time that there is no grass.”³⁶ The native grasses, therefore, represent another environmental obstacle that Dun and his team believed they had to overcome, which underlines the contradictory perception of Hokkaido’s landscape and its potential for livestock farming.

“For the Imitation of the Farmers of Hokkaido”: Towards a Livestock-Friendly Hokkaido

To make livestock farming a tenable option for the settlers, the Kaitakushi had to create infrastructure to support this new form of livelihood. Arising from this context, the Kaitakushi’s breeding stations and experimental farms were supposed to provide a means to facilitate livestock farming in Hokkaido, by serving as a “model” for Hokkaido farmers. William Clark, for example, explained, “As the farm is designed to be a model for the imitation of the farmers of Hokkaido, it should first of all be managed with economy. Unnecessary and unremunerative [sic]

³⁵ Edwin Dun to Dzushio Hirota (8 October 1878), in Nishide and Swinger, Document No. 136, pp. 245-52.

³⁶ Dun to Kuroda, in Nishide and Swinger, Document No. 057, pp. 88-95.

expenditures should be avoided, and in general only those enterprises should be undertaken which promise a speedy return. It is much easier to begin new and apparently promising undertakings than to carry them through a productive result."³⁷

Among the various outcomes of the Kaitakushi's livestock project, the Model Barn at SAC was one of the most celebrated and oft-cited examples. Like Dun, Clark expressed his concerns about Hokkaido's harsh winters and the necessity of good shelters for livestock. For that reason, Clark ordered the construction of a barn to be "a model for imitation" for Hokkaido farmers. According to Clark's description, "The building is one hundred feet long by fifty feet wide, and the height of the posts from the ground to the eaves is twenty-five feet. It is covered with spruce boards and battened with strips two inches wide, while the roof is of sawed spruce shingles. The foundation walls are built with seasoned oak and elm logs twelve inches square and of various lengths, which are laid horizontally one upon the other and securely held in place by dowels, joints and headers."³⁸ Inside the building, there was a manure cellar, a swine yard, a root cellar, stalls for neat cattle, stalls for working cattle and working horses. On the hay floor, there was a large space that was claimed to be enough for more than one hundred tons of hay, as well as storage space for tools and machines.³⁹ This barn was highly regarded by Dun, who recommended it as the model for the barn at Makomanai. However, it was not intended for every type of cattle. The model barn would house only breeding cows, foreign bulls, a few work horses and some young stock, while cheap sheds would be built for working bulls and young steers. Resonating with Clark's argument, Dun correlated the improvement of the livestock's health with the quality of the shelter. In his report on the farm in Sapporo, Dun wrote that the animals were

³⁷ *First Annual Report*, 26.

³⁸ *First Annual Report*, 16.

³⁹ On the full design and construction of the barn, see *First Annual Report*, 15-21.

originally not in poor health, but some of them later died, and reasoned that it was due to “the miserable place in which they were kept [in Tokyo].” To solve this problem, he moved the flock to a temporary shed in the new pasture and built a new barn, which was completed in fall 1876 and capable of accommodating up to 300 sheep. As a result of this improvement, Dun argued that “[s]ince their removal to their new quarters, the sheep have been in excellent health, and have improved very much.”⁴⁰

While mostly underappreciated, the transformation of Hokkaido’s natural landscapes – especially the cultivation of foreign grasses and grains as animal feed – was actually the most important activity that occurred on the Kaitakushi farms. The importing and cultivation of these grasses consumed tremendous amounts of labor and financial resources. Dun and other American advisers usually voiced their dissatisfaction about the unsuitable condition of native pasturage and claimed it to be a key problem that the Kaitakushi had to address in order to make livestock thrive in Hokkaido. To solve this problem, they similarly advocated for the cultivation of foreign species of grass and forage plants. In 1876, Dun explained at length why foreign grasses, such as Timothy and blue grasses, were better for producing hay to feed livestock. He argued that hay was necessary for successful breeding, and although hay made from native grasses could be used to feed cattle and horses, it was insufficient for the sheep. Besides their value as livestock food, Dun considered foreign grasses to be suitable for Hokkaido because they could grow well, and even better than they did in the places from where there were imported. In a report from 1879, he wrote, “All of the different kinds of grass introduced here have done remarkably well. I have found less trouble in cultivating them than is generally experienced in the country from which they were imported - i.e. America.”⁴¹ Evaluating their value for feeding

⁴⁰ Edwin Dun to Satow H. (16 August 1877), in Nishide and Swinger, Document No. 108.

⁴¹ Dun, “Report on the Farming Operations,” in Nishide and Swinger, Document No. 143, p. 276.

livestock, Dun ranked the foreign grasses (from best to less good) as follows: Timothy, orchard grass, red top, rye grass, and blue grass. Other kinds, according to Dun, were good for mixing with the five kinds above, and the red clovers would also do well when they became more fully appreciated. In this letter, Dun included detailed calculations of the cost of producing hay from the native and the foreign grasses. His writings revealed not only his preference for foreign grasses but also his strategy to convince the Japanese government by resorting to economic reasoning.⁴² To prove the value of foreign grasses, Dun spent his first year after being transferred to Hokkaido cultivating a variety of foreign grasses and crops that could be useful as animal feed on a plot of land in the experimental farm in Sapporo. On 16 August 1877, Dun reported the results of this experiment and concluded that “this experiment demonstrates the value of Hokkaido as a grass country, and sets at rest any doubts in regard to the advisability of introducing foreign grasses here.”⁴³

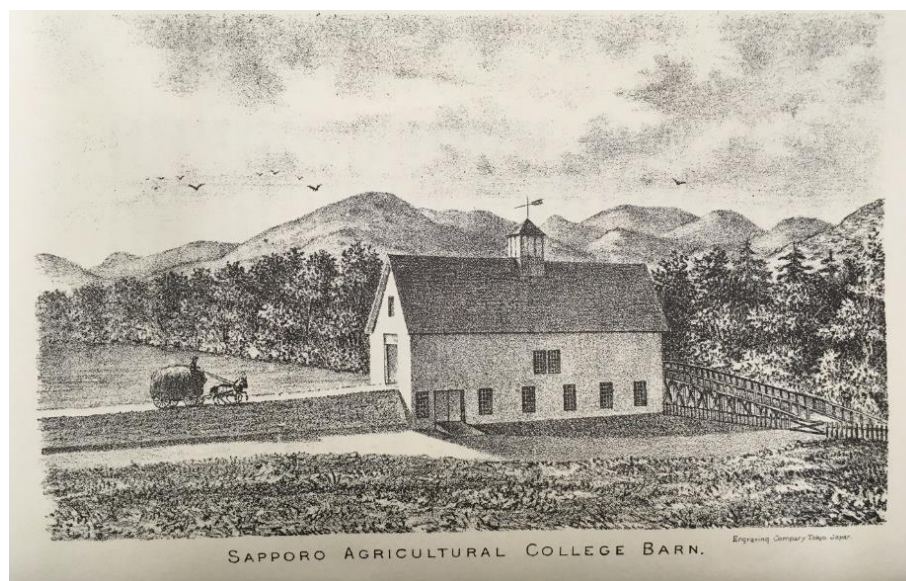


Figure 1: An Illustration of the Model Barn in Sapporo Agricultural College⁴⁴

⁴² Edwin Dun to Hori [Motoi] (6 September 1876), in Nishide and Swinger, Document No. 084.

⁴³ Dun to Satow, in Nishide and Swinger, Document No. 108, p. 187.

⁴⁴ *First Annual Report*.



Figure 2: The Model Dairy Barn Today (taken by the author, 21 June 2019)

Having confirmed his view about the value of foreign grasses, Dun set out to expand the pastures and began to sow the varieties of grass he deemed most suitable. In Sapporo, Dun worked on preparing a new pasture. At the time, this pasture contained 15 acres of Timothy and 2 acres of mixed grasses, and in two years, it would contain a 25-acre meadow of foreign grasses. In addition to this meadow, there were about 14 acres of foreign grasses in another part of the pasture. Yet, because the sum of grasses that could be produced when the pasture was completed would accommodate only 200 sheep, it was crucial to procure more food from outside sources.⁴⁵ Even though Dun acknowledged the benefits of native grasses, he insisted that the native grasses

⁴⁵ Ibid.

were less desirable on their own than as “a very valuable auxiliary to the foreign grasses.” He claimed foreign grasses to be more nutritious, and thus, more suitable for feeding animals. In addition, because “[m]ost of the foreign varieties come out earlier in the spring and stay green later in the fall,” they provided a longer period of fresh grass supply and a source for making hay for winter.⁴⁶ His plans for pasturage in later reports reveal that were it not for the labor, time and budget, Dun would have chosen the foreign grasses. This became Dun’s pattern for land improvement in Hokkaido. The preference for foreign grasses was also evidenced in William Clark’s proposal for Hokkaido development. Even though Clark supported the idea that Hokkaido was suitable for livestock farming, he considered the natural vegetation unsuitable for pasturage or hay.⁴⁷ Worried about shortages of food for livestock, , Clark suggested in the first annual report of the Sapporo Agricultural College that “[t]he first improvement to be attempted is the cultivation of foreign grasses and clovers for hay and pasturage.”⁴⁸ The shared preference for foreign grasses by Dun and Clark entailed the necessity of recreating the environment. By prioritizing food production for livestock as the land’s most important function, Dun and Clark re-imagined Hokkaido as a livestock-friendly landscape and used this image as the goal for remodeling Hokkaido.

To create nourishing pastures filled with foreign grasses, Clark took inspiration from the landscape of Massachusetts, where he came from. According to Clark, farmers should be encouraged to:

sow these [grass seeds] on the smooth and mellow land which has been under the plow for the last two or three years. They will be variously mixed and the several mixtures sown

⁴⁶ Dun to Murahassi, in Nishide and Swinger, Document No. 046.

⁴⁷ In his report, Clark also suggested a method to make native grasses suitable for feeding the livestock. However, he did not encourage pursuing this method as it cost more and demanded labor for cooking and preparing, which would end up being expensive and inconvenient. *First Annual Report*, 14–15.

⁴⁸ Preferred species include “red and white clovers, timothy, orchard grass, fowl-meadow, red-top, tall fescue, blue grass, meadow foxtail, sweet-scented vernal grass, sheep’s fescue, red fescue, water sweet grass, rough-stalked meadow grass, wooly soft grass, rye grass and oat grass.” *First Annual Report*, 26.

in such a way as to determine, if possible, the best time and manner of seeding down grass land, and the kinds best suited for permanent mowing and for pasturing. A large part of the seed will be sown early this spring, the land which is already plowed receiving a top-dressing of either fish pomace or unleached wood ashes. Some will be tried alone, while with other portions oats and millet will be sown and cut for hay before they blossom, that they may not weaken the young grass. Experiments will also be made in August, according to the most approved method of laying down land in Massachusetts.⁴⁹

Meanwhile, Edwin Dun also proposed an approach to foreign grass cultivation, which would become the standard pattern for all Kaitakushi's livestock farms under Dun's supervision.⁵⁰ This procedure was described in detail in the 1876 correspondence between Dun and Murahashi Kisaki, a Kaitakushi staff member.⁵¹ In October 1876, Murahashi sent a letter to consult Dun regarding the plan for several livestock farms in Hokkaido, including Makomanai, Teine, Shiraoui, Tobetsu, Izari, and Sapporo.⁵² In response to Murahashi's questions, Dun suggested a four-year plan for pasture creation for Makomanai Farm, which is represented in the table below:

Table 10: Cultivation Plan for Makomanai Farm (1876)⁵³

	Part 1	Part 2	Part 3	Part 4
Year 1	Cultivated in Corn	Unopened land	Unopened land	Unopened land
Year 2	Sown in grass seeds	Cultivated in Corn	Unopened land	Unopened land
Year 3	Used as pasture	Sown in grass seeds	Cultivated in Corn	Unopened land
Year 4	Used as pasture	Used as pasture	Sown in grass seeds	Cultivated in Corn

⁴⁹ Ibid., pp. 26-27

⁵⁰ It was not clear if Dun agreed with Clark on the use of Massachusetts landscape as the model. Unlike Clark and SAC professors who had academic backgrounds, Dun took his pride in his experience as a "practical farmer" from a farming family. It seemed more likely that Dun had conceived of his model from his family's farm in the American Midwest. On the conflicts between Dun and SAC professors over the definition of "practical agriculture," see my discussion in Chapter 2.

⁵¹ Dun to Murahashi, in Nishide and Swinger, Document No. 091, pp. 146-49.

⁵² Murahashi to Dun, in Nishide and Swinger, Document No. 090, pp. 143-45.

⁵³ Dun to Murahashi, in Nishide and Swinger, Document No. 091, pp. 146-49. Yet, based on Dun's report in 1879, the work seemed to have progressed faster than planned; all the original land had already been under cultivation with some new lands having been broken up for next year's cultivation.

According to this plan, Dun suggested dividing the land into four parts and systematically cultivating the land in corns and grasses, as shown in the table above. Within four years, the farm would be completely plowed and under cultivation, consisting of one part in corn, one part in meadow, and two parts for pasturage.⁵⁴ Ultimately, this method led to a rotational grazing system, which provided some space for immediate use while securing the rest for future grazing. According to Dun, this plan would make the land capable of supporting a certain number of livestock, which would reduce the need for importing hay (and grains) from elsewhere and decrease food costs for the livestock. The same pattern was also recommended for Izari,⁵⁵ and in 1881, for Shiriuchi.⁵⁶

Dun's use of the term "unopened land" (or *mikaichi* in Japanese) deserves particular attention. Colonialists frequently used similar terms like *terra nullius* (the ownerless land) and *terra incognita* (the unknown land) to justify their territorial conquests. Similarly, Dun and the Kaitakushi officers used the term "unopened land" when describing an area which they tried to colonize and turn into farmlands. To claim that a land is unopened is to presume an agricultural field as the ultimate, most desirable state of that piece of land, while positing farming as the preferred form of using that land. Hence, by using this term, Dun and the Kaitakushi readily took for granted the eventual fate of that land and disregarded other ways of life. As Michele Mason has argued, the idea of *terra nullius* is just one of the many discourses that Japanese state as well as Japanese writers used to "write the Ainu out," both from their land and from history.⁵⁷ Such

⁵⁴ Although it was not explicitly stated, there was a shortage of labor at the farm, which made it impossible to cultivate the farm all at once.

⁵⁵ Dun to Murahashi, in Nishide and Swinger, Document No. 091, pp. 146-49.

⁵⁶ Edwin Dun to Dzushio Hirotsuki (1 July 1881), in Tanabe et al., Document No. M-Dun-08, pp. 64-84.

⁵⁷ According to Mason, "[v]arious legal theories of terra nullius first used by Western colonial powers, rationalized Japan's seizure and occupation of Ainu ancestral lands. Despite knowledge of Ainu communities' historical inhabitation of the island and customary land-use rights, modern Japanese colonial policies dismissed both the indigenous people and their conceptualization of their relationship with the land." Mason, "Writing the Ainu Out," 69.

an agriculture-centric view of land use is also reflected in the a few other proclamations and laws issued by the Kaitakushi. For example, the Hokkaido Former Natives Protection Law (Law No. 27, March 1, 1899) offered state support for only those who wished to help the state open up new lands for agricultural settlements.⁵⁸ Meanwhile, other forms of livelihood, such as hunting and fishing, which had sustained local populations like the Ainu people for centuries, were outlawed. As a result, the Ainu people were coerced into state-sanctioned agricultural activities in exchange for some minimal governmental provisions.⁵⁹

It should also be noted that even though Dun usually planned to make each farm capable of supporting itself, he recognized the necessity of being able to access to commodities outside of the farm proper, especially hay and grains for feeding the livestock. For the Niikappu pasture, Dun suggested that the enclosed land should be devoted to pasturage and hay production. As for grains, he recommended procuring them from neighboring farming settlements to encourage farming activities.⁶⁰ Spatially speaking, Dun's plan demonstrates that farm management was not confined within the territory of the farm per se. Rather, farming policy could affect the activities outside of the farm, such as the promotion of grain cultivation.

Dun's repeated claims about native grasses raise some ecological questions. On the one hand, he acknowledged the value of native pasturage. For example, Dun described Izari, the site previously selected for horse breeding before they moved to Niikappu, as having "such an unlimited quantity of the very best kind native pasturage, that is almost all that could be desired

⁵⁸ Other similar laws include the Emigrant Protection Regulation (Ordinance No. 42, April 12, 1894), the Emigrant Protection Law (Law No. 70, April 7, 1896).

⁵⁹ On other legal discourses to justify Japan's colonization of Hokkaido, see Komori Yōichi, "Rule in the Name of 'Protection': The Vocabulary of Colonialism."

⁶⁰ It seems that this idea was not initially well received by the Kaitakushi, so on 15 March 1878, Dun wrote another letter to insist on his rationale for buying additional grains for neighboring farming communities. Edwin Dun to Hori Motoi (15 March 1878), in Nishide and Swinger, Document No. 124.

for horses during the summer months.”⁶¹ On another occasion, he reported that the horses kept in Niikappu could find their own food even during the winter months, relying on native grasses and bamboo shoots that grew naturally in the area. On the other hand, despite this acknowledgement, Dun insisted that natural food was insufficient and unsuitable, and continued to emphasize the need the need to replace them with imported varieties. His preoccupation with the shortage of animal feed was also reflected in several letters he exchanged with Kaitakushi officials. When commenting on the condition of each farm, the American rancher usually presented elaborate calculations of the amount of food that the land could produce and the suitable number of animals per farm. Like Capron, discussed in Chapter 1, Dun usually used the American farms that he had experienced as references. For example, he estimated that one acre of “the very best pasture” in America could accommodate seven sheep. As for the sheep farm in Sapporo, he suggested six sheep per acre and a total of 420 sheep for the whole farm space.⁶² However, if the Kaitakushi could add more land and cultivate it with foreign grasses, he claimed that the farm could raise up to a thousand sheep. Similar calculations were also made for the Makomanai cattle farm and the Niikappu horse farm, each of which was claimed to be suitable for over one hundred heads of animals.⁶³ Together with his occasional advice that the Kaitakushi enlarge the size of those farms, Dun’s suggested numbers indicate his vision for large farms that were run for increasing profit, rather than the self-sustaining model that he had claimed to provide. Moreover, to make the land accommodate more animals, he emphasized the need for other grass varieties that could be economically grown and that were capable of feeding more animals. With that in mind, Dun’s claims about the food problem now seem to be less about the

⁶¹ Dun to Murahashi, in Nishide and Swinger, No. 91.

⁶² Dun to Kuroda, in Nishide and Swinger, Document No. 134.

⁶³ Murahashi to Dun, in Nishide and Swinger, No. 90; Edwin Dun to Suzuki D. (6 January 1881), in Tanabe et al., Document No. M-Dun-01.

natural lack of native grasses than about their unsuitability for large-scale farming that was designed to keep more animals than the land's natural carrying capacity.⁶⁴

The livestock-friendly landscape model was not simply about introducing foreign grasses. Just as importantly, this model reconfigured the relationships among the humans, the animals, and the plants, and redefined how they were to interact with one another within the farm spaces. Like the forest administration in Siam, the development of livestock farming in Hokkaido exercised both territorial and species control. Territorially, the government introduced a new system of land ownership, dispossessing the land rights of indigenous populations and redistributing plots of lands to Japanese settlers and for the Kaitakushi's projects. They also introduced the practice of enclosure and the use of fences to demarcate farm spaces from the rest of the landscape. As for species control, "livestock" animals, especially breeding animals and those with high economic value, were prioritized, while other animal species such as wolves and bears were regarded as "vermin" and eradicated from the farm spaces.⁶⁵ This species control was also applied to plant species according to their usefulness as food for the livestock. As a result, foreign grasses were introduced to replace native grasses, while non-livestock-food became weeds and had to be removed.⁶⁶ The modeling of Hokkaido also entailed changes to activities, such as determining where the livestock could eat, according to the rotational grazing system. Fertilizers, plowing and tilling tools, and other implements, were used upon these landscapes to

⁶⁴ Curiously, unlike the intensive introduction of livestock that led to "ungulate irruptions" in colonial Mexico, Hokkaido during the late nineteenth century did not seem to have a similar phenomenon. For comparison, see Elinor Melville's discussion of the ungulate irruption as a result overgrazing by livestock in the highland of central Mexico during the sixteenth century. Melville, *A Plague of Sheep*, 47-57.

⁶⁵ The desire to remove undesirable animal species led to the systematic hunting of wolves and bears, which were major threats to farm animals. Such systematic hunting was championed, and partly created, by Dun. The result was the rapid extinction of Hokkaido wolves. Brett L. Walker, *The Lost Wolves of Japan* (Seattle: University of Washington Press, 2005).

⁶⁶ This system also occurred in other agricultural spaces. For example, in the space of the Kaitakushi's orchards, native plants were removed and displaced by imported fruit trees and exotic species.

maintain conditions closest to the model. By remaking Hokkaido to resemble the livestock friendly landscape that the Kaitakushi had envisioned, the vision of Hokkaido enviro-colonial rule became “realized.”

Problematizing the “Model”

As discussed above, the formation of the Kaitakushi’s enviro-colonial rule in Hokkaido emerged from the contradictory views that pointed to both Hokkaido’s potentials and challenges for agricultural settlement. Because major differences in the climatic and geographical features made rice cultivation no longer a viable option, the Kaitakushi had to search for other approaches to successfully settle in Hokkaido, one of which was the introduction of livestock farming. Usually claimed by the American advisers as a more suitable option for Hokkaido’s environment, livestock farming was actively encouraged since the early 1870s. By establishing the College Farm and several breeding stations, the Kaitakushi claimed to provide Hokkaido farmers with a model to sustain themselves in a new land. This explanation exemplifies the “Model Farm” discourse that has characterized historical representations of the Kaitakushi livestock farms. However, I will argue that the “Model Farm” discourse actually obscures rather than explains the relationship between the Kaitakushi farms and the non-Kaitakushi farms.

The model farm discourse generally emphasizes the contributions of Edwin Dun and Sapporo Agricultural College to the Kaitakushi’s agricultural development in Hokkaido. Particularly, it celebrates the Kaitakushi’s livestock project as the foundation of Hokkaido’s animal husbandry, especially the dairy business that is still thriving today. However, as a few other scholars have also pointed out, what is claimed to be the Kaitakushi’s “model” might not be as influential as is commonly understood. According to Ebina Kenzō, livestock farming was

still not widely practiced in Hokkaido during the Kaitakushi's era, and it was not until the early twentieth century that the business began to take off. Ebina has argued that the true "Father of Hokkaido dairy farming" (*Hokkaidō rakunō no chichi*) may not be the Kaitakushi and their American advisers like Edwin Dun. Instead, it was non-state actors like Utsunomiya Sentarō and Machimura Hirotaka who proved to be more significant. Ebina attributes the rise of dairy farming as a business in Hokkaido to Utsunomiya Sentarō, who started an "American style" cattle farm in 1902 and became a leader of Hokkaido dairy farmers since the 1920s.⁶⁷ Machimura Hirotaka is credited with breeding and popularizing the Holstein Friesian cattle, which since the early twentieth century has been the most popular breed of dairy cattle in Japan.⁶⁸



Figure 3: A Western-Style Farmhouse Built by the Machimura Family⁶⁹

⁶⁷ For a biography of Utsunomiya Sentarō, see Ebina Kenzō, *Hokkaidō ushi-zukuri hyakunijūgo-nen: Machimura Hirotaka to Machimura-nōjō* [A Hundred and Twenty Five Years of Hokkaido Cattle Making: Machimura Hirotaka and Machimura Farm], 56–63.

⁶⁸ Ebina Kenzō, 304–5.

⁶⁹ On the webpage of Ebisu City, the caption says "[t]his Western-style house was built in 1928 by Hirotaka Machimura, who was the oldest son of Kinya Machimura, a member of the inaugural class of Sapporo Agriculture College. The adjoining cowshed and silo built during the same period still remain.

If the model of dairy farming that thrived in Hokkaido was formed by Utsunomiya and Machimura after the Kaitakushi was abolished, how may we understand the Kaitakushi's model farms described in the previous sections? This question requires a reconsideration of the connections between the Kaitakushi's works and Hokkaido livestock development. Particularly, we need to reevaluate whether the College Farm and the Kaitakushi's breeding stations under Edwin Dun actually lived up to their goals of becoming the models "for the imitation of Hokkaido farmers," as once claimed by Clark. Even though these seemingly successful model farms were expected to be widely adopted by Hokkaido settlers, I found that these farms were not constructed to be truly imitated by general farmers in the first place. Indeed, the Kaitakushi repeatedly emphasized the significance of creating models for Hokkaido farmers. Some products of their work, such as Clark's model barn and Dun's grass cultivation and rotational grazing system, were designed to be duplicated and adapted by Hokkaido farmers. To facilitate future barn building, Clark included impressively detailed descriptions of the design and construction of the model barn in the *First Annual Report of Sapporo Agricultural College*, published in 1877. Similarly, Dun's cultivation plan at several sites under his supervision was also made accessible to interested observers on-site, though not officially released to the public in print. While the Kaitakushi continued to represent its farms as models for farming households, these farms primarily served as workplaces for the Kaitakushi-affiliated staff and students. The nature of their operation was catered more towards the facilitation of the Kaitakushi's works, primarily experimentation and breed improvement. In other word, they did not aim to provide concrete, tangible examples of livestock farming as a livelihood through which Japanese settlers could support themselves and their families.

The house has been designated as a Heritage of Industrial Modernization site." <https://www.akarenga-h.jp/en/archives/library/738/>

As a part of SAC, the College Farm was operated as a laboratory and experimental site for educating the SAC students rather than as a permanent exhibition of effective farming models. For most of the time, the farm was used by the college's professors and students, and its operation was aimed towards academic experimentation and innovation. Moreover, the farm space was filled with the best possible buildings, facilities, and other farm implements, features that were made possible through massive financial support by the Kaitakushi. While such a farm embodied the ideal farmstead, it could not truly be a tenable model for most farmers who did not enjoy the same amount of privilege and funding from the Kaitakushi.

Whereas the college farm mainly functioned as an educational space, the farms under Edwin Dun's supervision were devoted to breeding and raising livestock. These farms were intended as "breeding stations," and despite his own claim to provide Hokkaido farmers with a model for farming as business, Dun considered his farms to be more useful as a state development project. He demonstrated this attitude clearly in a letter from 1881, in which he discussed two possibilities for the cattle farm at Makomanai.⁷⁰ In this document, he presented the Kaitakushi with meticulous calculations of cost and profit to compare the two options. For the first option, the farm could be operated as a dairy farm, which "under good management offers a safe business for an individual, who would be contented with a moderate interest on the capital invested in the business, and the cost of production should become less, and the receipts greater every year." Yet, he cautioned that the option would contribute no benefit to the people of Japan as a nation, and thus, it was "an excellent business undertaking for an individual," but "entirely unworthy of the Kaitakushi."⁷¹ For the second option, the farm could be run as a breeding station,

⁷⁰ Edwin Dun to Sudzuki Daisuki (17 January 1881), in Tanabe Yasuichi et al., Document No. M-Dun-02, pp, 5-40.

⁷¹ Ibid., 19.

which was how it had been operated since 1876. He argued that the profits might not be immediate, but in the long run, the improved breeds of cattle could lead to much more benefit for cattle farmers in Japan. As Dun pointed out:

If Makomanai is managed as a National institution for the purpose of improving cattle of Japan, It is impossible for me to estimate how soon the receipts from the sales of products of the place will pay the yearly expenditure necessary to carry it on [...] It will all depend on the enterprise shown by the cattle raisers of Japan, and the length of time which will elapse before they will acquire a general and correct knowledge of the value of the cattle raised at Makomanai, and how much it will be to their interests to use them for the improvement of their own cattle. But I think I have shown conclusively that if the benefit conferred on the Nation is placed on the credit side of the account, and the cost of raising cattle (equivalent to yearly expenditure for Makomanai) is placed on the other; there can be no doubt that the money yearly expended on Makomanai could not be employed for a better purpose.⁷²

Based on his description, it is obvious that Dun did not intend his farms to be a model for general farmers of the island.

Dun's attempt to distinguish the Kaitakushi's work from farming as business was also evident in his recommendations regarding sheep farming. For Dun, not all forms of livestock farming were suitable as individual businesses in Hokkaido. Sheep farming, in particular, was considered to be a crucial development project to be run by the Kaitakushi, not by general farmers. Dun emphasized the need to deal with Hokkaido's cold climate for successful settlement and advocated the development of sheep farming and the wool industry, which would decrease Hokkaido's dependence upon imported materials and make it self-sufficient in terms of warm clothing. He also insisted on his belief that the climate and the soil of Hokkaido were favorable to the health and general condition of sheep, and "with proper care and attention, sheep will thrive here as well as they do in most countries, and that their value as wool producing

⁷² Ibid., 39.

animals will not deteriorate.”⁷³ Yet, considering the still-low demand for wool and mutton in the country and the high cost of production, he did not recommend sheep farming for individual farmers who expected immediate profits.

Dun’s emphasis on the Kaitakushi’s unique role in animal breeding reflects the actual relationship between the Kaitakushi’s farms and those of Hokkaido farmers, which has usually been misrepresented in the “Model Farm” discourse. By representing a group of farms as the origin, and others as the duplicates or derivatives, the “Model Farm” discourse perpetuates a misunderstanding that the Kaitakushi’s projects and the farming households were operating in a similar manner according to the same model. More specifically, such a discourse on similarity has obscured the fact that the Kaitakushi’s farms were a means to monopolize and control animal breeding, which distinguished “breeding stations” from other farming sites.

The monopolization of livestock breeding and distributing was the goal of the Kaitakushi’s livestock project since its inception in the early 1870s. The Kaitakushi and its American advisers reserved the right to determine what animals to introduce to Hokkaido by controlling the purchase and import of those animals to the island. After the animals arrived, the Kaitakushi initially placed them in just a few places in Hokkaido to be raised and crossbred with approved native stock. To prevent inferior animals from intervening in controlled breeding, and to ensure that only good-quality animals were raised, the Kaitakushi actively captured and castrated native animals of unwanted breeds.⁷⁴ Only the “improved” offspring were then lent or sold to Hokkaido farmers.⁷⁵ By centralizing the practice of animal breeding within the spatial

⁷³ Edwin Dun, “Report on the Farming Operations” in Nishide and Swinger, Document No. 143, p. 269.

⁷⁴ Nishide and Swinger, Document No. 087. William Clark similarly emphasized the need to castrate native horses in Hokkaido. See *First Annual Report*, 23.

⁷⁵ Dun to Hori, in Nishide and Swinger, Document No. 084.

confines of the farms under its regulation, the Kaitakushi excluded other humans, as well as nature, from participating in the reproductive lives of livestock.

Conclusion: Japan's Hidden "Natural Wonders"

The emergence of grasslands in Hokkaido might be considered as the Kaitakushi's achievement in determining an agricultural model that could justify their expansionist endeavors as well as their excessive expenditures on various grand projects in Hokkaido. Yet, such an achievement was short-lived. The abolishment of the Kaitakushi in 1882 was a massive blow for Hokkaido development, and the subsequent budget cuts forced many projects to be reduced or discontinued. The state's sheep farms were basically discontinued by 1888.⁷⁶ In addition, the renewed attempt to cultivate rice in Hokkaido during the 1880s resulted in the decrease of government support for the development of livestock farming in Hokkaido. Nevertheless, the livestock projects were not completely abandoned. The Makomanai cattle farm, though suffering from considerable downsizing, managed to continue at a smaller scale, while private farmers like the Utsunomiya and the Machimura families began to take the lead in the formation of the Hokkaido dairy industry. By the turn of the twentieth century, dairy farming had taken firm root in the northern frontiers. Today, Hokkaido is Japan's largest site of dairy production, accounting for about 50% of milk production in the country.

The relative success of Hokkaido's livestock industry today seems to confirm the myth of Hokkaido as a naturally promising pastureland. However, I argue that such an achievement was

⁷⁶ The Japanese government encouraged farmers to raise sheep throughout the 19th century. Sheep-rearing programs began to import Yorkshire, Berkshire, Spanish merino, and numerous Chinese and Mongolian sheep breeds, encouraged by government promotion of sheep farming. However, a lack of knowledge on the farmer's part of how to successfully keep sheep, and the government's failure to provide information to those importing the sheep they promoted, led to the project's failure, and in 1888 it was discontinued. See Ogura Takekazu, *Agricultural Development in Modern Japan*, 569-70.

anything but “natural.” As already mentioned in reports and correspondence penned by American and Japanese officials responsible for livestock development in Hokkaido during the 1870s, the Kaitakushi had to constantly struggle with the island’s unaccommodating nature, especially its harsh winters and native grasses and soils, which the American advisers claimed to be poor in quality. To make Hokkaido more livestock-friendly, the Kaitakushi put great effort in plowing and introducing imported breeds of grass into the landscape. Yet, when the newly created landscapes started to yield good results, they regarded the success to be due to Hokkaido’s natural environment, seemingly forgetting the work they had done for years.

This forgetting of the changes is partly due to the relatively less visible differences between the pre- and the post-development landscapes. Unlike other large-scale environmental transformations like dam construction or deforestation, the remaking of Hokkaido for livestock did not result in a completely different-looking landscape. Basically, they replaced a grassland with another grassland. This relatively invisible change subsequently reinforced the myth that Hokkaido has always been naturally and historically livestock-friendly, obscuring the fact that Hokkaido has only *become* suitable for livestock farming as a result of intensive environmental transformation. This insistence on the naturalness of the reconstructed nature was important for the Japanese government to claim that they had developed an empty, unused land while simultaneously erasing the existence of the indigenous populations, who had different ideas of how to make use of the lands and the natural environment of Hokkaido.⁷⁷ The remaking of Hokkaido highlights the nature of the livestock civilization model as a form of enviro-colonial entanglement. On the one hand, the remade landscapes reflect a new *environmental* order and reconfigured interspecies relationships that were meant to happen on the land. On the other

⁷⁷ For a discussion of the discursive relationship between Hokkaido’s naturalness and Japan’s colonialism, see Mason, “Writing the Ainu Out.”

hand, these landscapes were placed within the new *colonial* network that emphasized market-oriented production, which was determined by, and existed for the benefit of, Tokyo and the “nation” – thereby deviating from the model of self-sustaining settlement.

Having traced the development of the Kaitakushi’s major livestock farms in Hokkaido, I have demonstrated that the so-called model farms of the Kaitakushi were not really designed to be imitated by Hokkaido farmers in the first place. A close examination of how Japanese officials and American advisers described the farms in their reports and correspondence reveals the key distinctions between the Kaitakushi’s and the non-Kaitakushi’s farms. Most importantly, the Kaitakushi’s farms became the only places where animal breeding and agricultural experimentation could be performed. Their monopoly on breeding and experimentation reflects the specialization of agriculture, particularly livestock farming, as a form of expertise, and the simultaneous attempt of the Kaitakushi to assert itself as the authority in modern agriculture. Instead of letting the migrants decide their own ways of settling and cultivating the land, the Kaitakushi actively emphasized the different climatic and geographical features of Hokkaido to claim that to settle in Hokkaido required a new form of livelihood that had been studied, tried, and approved by the Kaitakushi. Consequently, farming as a livelihood became a set of exclusive knowledges that had to be taught by the experts who were affiliated with the Kaitakushi, which highlights the centralized nature of the Kaitakushi’s enviro-colonial rule in Hokkaido.

CHAPTER 6

PAPERED FORESTRY:

Leases, Laws, and the Enactment of Forest Administration

Introduction: Modeling the Forests

The Conservator believes it to be his duty to advise the Government as to its general policy and to work out the minor details on lines accepted by the Government. The Mahatai on the other hand would appear to consider the Conservator as *a junior clerk in the Mahatai learning office routine*. (Herbert Slade, 1900)¹

The specialization of forest administration in Siam during the late 1890s, particularly how Herbert Slade claimed his scientific expertise to redefine boundaries of power, enabled the Royal Forest Department (RFD) to establish itself as the authority in managing forest concessions, even for a brief period. In Chapter 4, I have argued that Slade was initially successful in translating the needs of Siamese officials and timber merchants into his forest conservation network and convincing them that the new network could realize their political and economic goals. Given Slade's repeated self-identification as a forest expert, it may appear that the quotation above reflects his attitude towards the office route as a demeaning job for forest experts. However, I argue that Slade did not reject paperwork and bureaucratic procedures per se. Rather, this forest officer actively worked like one of the clerks and appropriated paperwork practices for running forest administration. In this chapter, I will pursue the following questions: Why did Slade resort to paperwork to manage the forests and maintain Siam's enviro-colonial rule in Lanna? How did he create a new regime of paper forestry, and to what effects?

¹ 5.5 u.16/3 *The Fifth Annual Report by Herbert Slade, Conservator of Forests* (1901), NAT, 49 [my emphasis]

Like the livestock farming model in Hokkaido, Japan, discussed in Chapter 5, the RFD created a working plan to serve as its vision – an imagination that had yet to be realized but that was expected to become a reality. To enact such a vision, the RFD used several measures. In 1896, Slade proposed a revision of the forest leasing form to include new prescribed actions for conserving teak forests. All old and new forest lessees had to sign the new form and agree to follow the RFD's prescriptions if they wished to obtain the government's ratification for their forest concessions. Furthermore, the RFD issued new laws and outlined specific documentary procedures for enforcing these laws and punishing the lessees who violated the agreements. By tracing how Slade appropriated Siam's paperwork practices, I argue that the RFD laboriously mobilized forest leases and legal papers to make forest lessees participate in the conservation of the forests as if they were the RFD staff members. To what extent these lessees cooperated or followed the rules is subject to our scrutiny.

My study of the RFD's paperwork practices aims to revisit the multifaceted relationships between bureaucracy and scientific knowledge. Since the 1970s and 1980s, studies on the history of Thai forestry and the RFD have extensively discussed the technical aspects of forest administration and conservation policies.² Yet, many of these early works tend to take for granted the paradigm of state modernization and portray changes as a part of a linear, progressive process. In so doing, the Siamese state is usually represented as a rational actor who gradually improved forest management to conserve the forests and to protect them from stereotypical historical villains in mainstream Thai historiography – the greedy European colonizers and the ignorant local princes of Lanna. Even though some of these works wonderfully delineate the

² Wanchalee Boonmee, "Some Aspects of Relations with Britain in the Reign of King Chulalongkorn: A Case Study of Forestry and Mining"; Chamaichome Sunthornswat, "A Historical Study of Forestry in Northern Thailand From 1896-1932."

development of forest policies, their emphasis on progressive changes has precluded the opportunity to shed light on the politics of knowledge production that informed such policies.

Indeed, some scholars have also sought to analyze the changing political and economic factors that influenced Siam working plans for timber extraction and forest conservation. Even so, they primarily focus on the changes since the turn of the twentieth century and usually assume the thirty-year rotational extraction model, enacted in 1909, as the starting point of the RFD's conservation. For example, Salairat Dolarom marks the year 1909 as the beginning of the RFD's attempt to rationalize forest extraction under the leadership of W. F. Lloyd, another British forester who served as the third Forest Conservator between 1904 and 1923. Despite her acknowledgement of Slade's significant role, Salairat has yet to carefully consider Slade's creation of the first forest working plan or his actual work during the first years of the RFD. She refers to Slade's twelve-year plan only to give an example of an impractical model, claiming that it did not correspond to the timeline of the logging process and led to even greater destruction of the forests, which eventually brought about Lloyd's new proposal.³ Salairat's emphasis on the leadership of Lloyd seems to be influenced by Chamaichome Sunthornswat, who wrote one of the earliest studies of Thai forestry history. Although Chamaichome mentions the first two Forest Conservators in her historical overview of the RFD, she hardly refers to them again in the latter chapters except to mention some key achievements, such as Slade's success in forest nationalization. Instead, she mostly discusses the role of Lloyd, whose long career as the Forest Conservator makes him appear as a more prominent contributor to Thai forestry.⁴ Also, Chamaichome argues that the RFD's attempts to conserve the forests only began to make

³ Salairat Dolarom, "Development of Teak Logging in Thailand, 1896-1960," 54-61.

⁴ For her brief overview of Slade and Tottenham's contributions, see Chamaichome Sunthornswat, "A Historical Study of Forestry in Northern Thailand From 1896-1932," 21-32.

substantial progress during Lloyd's leadership, pointing to achievements such as the completion of technical forest maps for the thirty-year working plan and the issuance of a new forest conservation act in 1913.⁵ In so doing, scholars like Salairat and Chamaichome have failed to explain the formation of the structures and bureaucratic procedures that later made Lloyd's work possible.

In addition to Thai forestry history, this chapter also engages with Thai studies scholarship, especially revisionist historiographies. Rather than readily attributing Thailand's modernity to the work of Siamese monarchs, revisionist historians have foregrounded the roles of other actors beyond the small circles of Siamese political elites in Bangkok. Moreover, they have reassessed the discourses that frame Siam as a mere victim of European colonialism and instead revealed the overlooked status of Siam as a colonial power. According to revisionist scholars, Siam actively appropriated practices used in European colonies both for reforms in Bangkok and for reconfiguring its power relations with nearby states. The new forms of power relations depended on various types of state apparatuses and technologies – such as maps, public health systems, identity papers, etc. – to register and organize the population as state subjects.⁶ Thongchai Winichakul, for example, points to Siam's adoption of cartographic technology to construct its “geo-body,” which allowed it to claim rights over the lands historically not under its power, including Lanna.⁷ Yet, many revisionist historiographies tend to take for granted the

⁵ For more details of her analysis of the changes in Thailand's forest policies, see Chapter 3, in Salairat Dolarom, “Development of Teak Logging in Thailand, 1896-1960,” 38–78.

⁶ For example, Davisakd Puaksom, *Chuea rok rang kai lae rat wetchakam: Prawattisat kan phaet samai mai nai sangkhom thai* [Germ, Body and the Medical State: A History of Modern Medicine in Thai Society], 2nd ed. (Bangkok: Illumination Editions, 2018); Pinkaew Laungaramsri, *Atalak Ekasan: Wongsas Withaya Kan Khuap Khum Prachakon Khong Rat Thai* [Identity Paper: A Genealogy of the Control of Population by the Thai State] (Chiang Mai: Chiang Mai University Press, 2018).

⁷ Thongchai Winichakul, *Siam Mapped*. For more detailed discussion of Siam's appropriation of colonial technologies to colonize Lanna, see Nuaon Khrouthongkhieo, *Poed phaen yuet Lanna* [Exposing the Plan to occupy Lanna] (Bangkok: Matichon, 2016), especially Chapter 2.

existence of the state, and despite their emphasis on state apparatuses, they often overlook the paperwork and documentation process that materially allow the state to come into being.⁸

More recently, scholars of state-building in Thailand and elsewhere have inspired new interests in the materiality of the state as well as the documents they produce, challenging previous claims by James Scott and others about the nature of the state's power.⁹ For example, in his analysis of the forest administration in Mexico, Andrew Mathews criticizes how Scott "takes for granted the ability of states to imbue officials with the desire to impose projects of legibility and visibility."¹⁰ By illustrating how Mexican forest officials selectively enforce some forestry regulations and bypass others, Mathews urges scholars to examine the performance of these officials and how they handle a certain state project *in practice*. On the other hand, Matthew Hull's study of Pakistan reframes the bureaucracy as a nexus of state-public relationships that has been enabled by documents, which he calls "graphic artifacts." Hull argues that even though the paperwork might have emerged to distinguish the state's actions from private ones, the institutionalization of paperwork has become a means for the public to participate in the bureaucracy.¹¹ Hence, instead of a mere instrument to control the public, the paperwork and bureaucratic procedures allowed multiple actors to engage and enact these artefacts to achieve their divergent goals.

In the case of Siam, Sing Suwannakij and Søren Ivarsson reconsider the formation of modern Siam by investigating it as a "paper state," examining how it was produced, assembled, and reproduced through writings and the act of writing. For instance, they follow a Siamese

⁸ For one of the few exceptions, see Laungaramsri, *Atalak Ekasan: Wongsā Withaya Kan Khuap Khum Prachakon Khong Rat Thai [Identity Paper: A Genealogy of the Control of Population by the Thai State]*.

⁹ James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998).

¹⁰ Mathews, *Instituting Nature*, 15.

¹¹ Hull, *Government of Paper*, 18 and 59.

gendarmerie, Major General Kamrob, and trace how he handled his police work during his three-month inspection trip in Northeastern Siam. Based on their analysis of the reports produced by this gendarmerie, Sing and Ivarsson reveal that that police work was as much about suppressing crimes and maintaining social order as it was about handling paperwork properly.¹² Therefore, provincial police stations can be considered as writing machines, which had to be integrated with other writing machines from other departments. By continuously producing administrative papers, these writing machines helped materialize the Siamese state that related to its subjects via documentary interactions. However, through elaborate spatial arrangements and the formation of “offices,” mundane activities such as writing were hidden from the public while creating the impression that “the state” existed.¹³

By engaging the history of forestry and bureaucracy studies, this chapter redirects attention to the paperwork practices of the RFD during its formative years, under the leadership of Herbert Slade and F. Tottenham, shedding light on how forest expertise was institutionalized in the Siamese bureaucracy, both for better and for worse. Based on the official reports of Slade and Tottenham, their correspondence with the Siamese officials, as well as new laws issued between 1896 and 1904, I will elucidate how the first two Forest Conservators tried to regulate timber extraction by enacting a new regime of “papered forestry.” With elaborate paperwork procedures, the Forest Conservator tried to control the extraction method and prescribe actions for each lessee to maintain the condition of their forests.¹⁴ Building on scholarship in the field of

¹² Sing Suwannakij and Ivarsson, “Inscribing Siam,” 1623.

¹³ As they have argued, “A state could become a state only in hindsight, that is, only when the blackbox was already closed, shunning from view the micro-practices and everyday life of writing reports, following timetables, organizing office space, cleaning the body and the uniforms, and so on—the quotidian processes through which a peasant became a gendarme, through which the gendarmerie as an institution emerged, and through which the provincial gendarmerie became ‘provincial’ in relation to a ‘centre’.” Sing and Ivarsson, 1630.

¹⁴ On the use of term *enact* to reconceptualize agency, see Annemarie Mol, *The Body Multiple: Ontology in Medical Practice* (Durham: Duke University Press, 2002), 32–36.

science and technology studies (STS), I examine how Slade tried to build a “network” of forest conservation and established himself as a spokesperson who actively translated the desires of various actors to engage them to participate in his network.¹⁵ To bring these actors together, he appropriated Siam’s paperwork practices and mobilized several types of documents, which then served as “boundary objects” – a shared platform for these actors to work together without necessarily sharing the same passion for protecting the forests.¹⁶ In the following pages, I will briefly describe how Slade envisioned a new forestry regime through the use of leases, laws, and related paperwork practices. After delineating his vision, I will examine the goals that Slade tried to achieve as well as the problems that he encountered. To conclude the chapter, I consider Slade’s seeming distaste for the bureaucracy and I reevaluate the claim that the first decade of the RFD was unsuccessful due to the shortage of staff.

Reconfiguring the Teak Network

Logging during the late nineteenth century was a time-consuming business. To make a tree light enough to float down the river, it had to be girdled (ring-barked), which was a way to kill a tree by cutting away the bark and the cambium around its trunk to interrupt the circulation of water and nutrients. It usually took at least two years for the girdled tree to dry up and to be ready for extraction and transportation. If the trees were far away from the main tributaries, it

¹⁵ Law and Hassard, *Actor Network Theory and After*; Latour, *Reassembling the Social*. For critiques of actor-network theory and its inadequate attention to power hierarchies among actors, see Star, “Power, Technology and the Phenomenology of Conventions: On Being Allergic to Onions”; Strathern, “Cutting the Network.”

¹⁶ Susan Leigh Star and James R. Griesemer, “Institutional Ecology, ‘Translations’ and Boundary Objects: Amateurs and Professionals in Berkeley’s Museum of Vertebrate Zoology, 1907-39,” *Social Studies of Science* 19, no. 3 (1989): 387–420.

would take even more time to transport the logs from the extraction site to the floating site.¹⁷ The amount of time needed for timber extraction contributed to rapid forest destruction during the mid-nineteenth century, especially when forest lessees had very little time for their concessions. To maximize their time, the lessees usually ignored the regulations and tried to extract as much timber as possible. The acceleration of the process also resulted in the loss of good timber. As some loggers did not girdle or wait until the trees were dry enough before cutting, when they tried float the logs downstream, some logs would sink and never reach the port. The sunk logs would block the waterways and prevent new logs from floating down, and such blockages might cause floods and other environmental damage.

Prior to the establishment of the RFD, the state's control over the forest spaces were minimal. Although Siam tried to enforce some regulations, such as restricting the time to girdle or setting up the official measurement standard, enforcement was quite limited and not effective. As discussed in Chapter 4, Siam had begun to establish itself as a stakeholder in the management of forests in Lanna since the 1880s. Yet, early Siamese interventions in the North were mostly preoccupied with settling legal and extraterritorial cases. Thus, except for the hammering of stumps and identification marks, the logging process was almost completely handled by the lessees and their workers. However, by the beginning of the 1890s, the idea that forests were a national resource and a significant but depletable source of revenue had become more prevalent among the Siamese elites in Bangkok. Even King Chulalongkorn himself expressed concerns about the depletion of this important resource. The special commission to Burma and India

¹⁷ Amnuayvit Thitibordin's meticulous description of teak logging and manufacturing processes has shown how each step was increasingly subject to intensive regulation following the foundation of the RFD. For a full account of the process of timber extraction from the forest to the market, see Chapter 4 of his dissertation, Amnuayvit Thitibordin, "Control and Prosperity," 95-175.

between 1892 and 1893, as well as the employment of Herbert Slade in 1896, reflected Siam's ambition to strengthen its control over the forests.

In June 1896, Herbert Slade submitted a report to the Ministry of Interior to point out major problems and to give his suggestions regarding of the management of the northern forests. He claimed that existing practices had caused wasteful extraction of valuable resources and a regrettable loss of Siam's revenue. To strengthen the state's control over the extraction process, Slade submitted a "working plan" in 1896 to lay out new principles for forest administration in Siam. Having acknowledged the increasing number of forest concessions in Siam, he posited that the management of these concessions would be the core of Siam's forest administration. According to Slade, the two main duties of forest officers in Siam were to conserve the forests for long-term extraction and to regulate the extraction methods to maximize timber output as well as state revenue. In so doing, Slade tried to claim that specially-trained forest officers were indispensable for Siam's forest administration.

Slade emphasized that the forests were resources for not only this generation but also the ones to come. Hence, forestry should be regarded as a long-term investment and resource.¹⁸ His description of the condition of the forests in 1896 reinforced the Siamese elites' fear that their teak forests were being depleted. To substantiate his claim about the deterioration of the northern forests, Slade used several pages of his report to present his estimations of the growth rate of teak trees in relation to the rate of extraction. Slade posited that a teak tree was most profitable to cut when its semi-girth reached four Kam (16.67 British Imperial inches) and estimated that it would take one hundred and fifty years for a teak sapling to reach the extractable size. Based on this estimation, he divided the teak trees into five classes according to size of the semi-girth (see Table

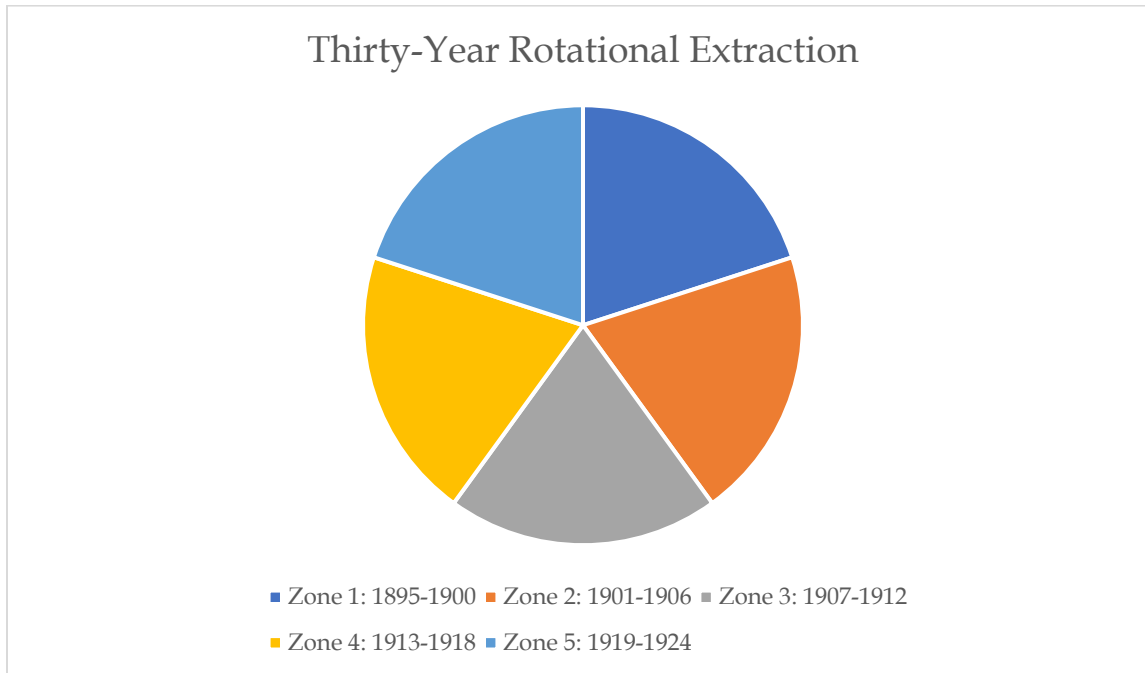
¹⁸ 3.5 11.16/9 Mr. Slade, having inspected forests and returned to Bangkok, submitted his report together with his suggestions for later policies (1896), NAT, 21-22.

11), supposing that a tree from a certain class would take about thirty years to reach the size of the next class.

Table 11: The Five Classes of Teak Trees¹⁹

Class	Siamese Measurement	British Imperial Unit
1	4 Kam	16.67 inches
2	3 Kam	12.5 inches
3	2 Kam	8.33 inches
4	1 Kam	4.17 inches
5	Less than 1 Kam (Sapling, new sprout)	Less than 4.17 inches (Sapling, new sprout)

Figure 4: Slade’s Thirty-Year Rotational Extraction (1896)²⁰



To allow forest regeneration and ensure long-term extraction, Slade proposed a thirty-year rotational extraction system. He suggested that Siam divide its forests into five zones for rotational extraction (see Figure 4). For each six-year period, Siam would open one zone for

¹⁹ Based on §.5 u.16/9 (1896), NAT, 22; S., “System of Measuring and Selling Timber in Siam,” 426.

²⁰ Based on §.5 u.16/9 (1896), NAT 24-25.

extraction and allow only the Class 1 trees to be cut. When the period ended, Siam would open the next zone, leaving the remaining trees in the first zone to grow. After thirty years, the Class 2 trees in the first zone would attain the size of Class 1, ready for a new round of extraction.

Slade was aware that his visions and ideals did not correspond with the reality of forest concessions in the 1890s. According to his estimations, the largest teak region in Siam was the forests along the Salween River, which amounted to around two-fifths of Siam's forests. Other regions included Chiang Mai (one-fifth) Nan (one-fifth) and the Lampang-Lamphun-Phrae region (one-fifth). If Siam were to follow Slade's plan, the government should not have leased more than one-fifth of all the forests. However, by the time Slade submitted his report, three-fifths of the forests had already been leased to timber merchants. If Siam allowed the extraction to continue at this rate, the forests would be gone in a few years, as the extraction was occurring much faster than the forests' ability to regenerate.

To prevent further destruction and to prepare the forests for the thirty-year rotational extraction system, Slade also advised Prince Damrong to pause the ratification of new forest concessions.²¹ Meanwhile, new working plans had to be created for current concessions to determine the area, the period, as well as the approved methods for timber extraction. In addition, the government should prohibit the cutting of teak trees from unleased forests. Slade hoped that by making the leasing system the only means to obtain timber, it would allow the Siamese

²¹ He realized that the plan to pause all lease ratifications might be difficult because some companies had recently secured their leases after prolonged negotiations and would try to get Siam's ratification as soon as possible. Yet, Slade insisted that the Siamese government try to put them on hold and suggested that the government immediately issue an announcement about a six-year pause to discourage new negotiations among the forest owners and prospective lessees. By doing so, the government could legally deny responsibility for any agreements made after this announcement.

government to oversee all ongoing extractions and more effectively prevent the felling of underaged trees.²²

Slade advised the Siamese government to centralize forest administration to ensure that the new system of rotational extraction be properly implemented. Attributing the cause of ineffective forest administration to multiple ownership, Slade emphasized the need for putting all forest concessions in Siam under one department.²³ Slade claimed that the previously decentralized system of granting concessions would make matters worse. Because the forests were owned by multiple princes, who could freely accept or reject concession applications, the timber merchants were usually insecure about the prospect of renewing their leases. As a result, many lessees would try to maximize the period of their concessions by cutting as many trees as possible regardless of the size, which caused great damage to the forests. Slade reported that around 32,000 logs of undersized trees (1-3 Kam) had been cut and floated down to the duty port in Chainat. In addition, underaged trees were also extracted by local people for household use and construction. All of these problems contributed to the accelerating depletion rate of Siam's teak resources. According to Slade, personal ownership should be respected, but the non-state owners' rights would be restricted and determined by the government.²⁴ Later, where possible, the government should try to purchase those forests from original owners and make them "national" resources.²⁵

²² 5.5 u.16/9 Mr. Slade, *Having Inspected Forests and Returned to Bangkok, Submitted His Report Together with His Suggestions for Later policies* (1896), NAT, 27.

²³ *Ibid.*, 25-26.

²⁴ Slade noted that if there was evidence of personal ownership, the government should respect that right. However, they should indicate that personal ownership only meant the right as "users" – they were not allowed to do any harm to the forests, even if they were the forest owners. In other words, forests should be seen as capital – owners might have the right to obtain profits, but they could not take away such capital.

²⁵ 5.5 u.16/9 Mr. Slade, *Having Inspected Forests and Returned to Bangkok*, NAT, 44.

Although his suggestion about the centralization of forest administration already resonated with King Chulalongkorn's desire to strengthen his control over Lanna, Slade had to make further appeals to the Siamese government to secure financial support for implementing his project. He tried to convince the government that it was profitable to reform forestry administration according to his methods. When he explained deforestation, Slade resorted to numbers to drive his case. Devoting over ten pages of his report for this purpose, Slade discussed in detail the gaps in Siam's current tax system, the reasons why some of expectable revenues were lost, and the ways to generate new revenues. As I will discuss in the next section, Slade made use of his knowledge of the logging process to ensure that every extracted log would generate income for the Siamese government no matter if the log reached the hands of the timber merchants at the destination ports in a usable condition or not.

Even though Slade encouraged Siam to claim ownership of all the forests, he did not think it would be profitable for Siam to log the forests on their own. Slade believed that commercial logging would be most profitable if done in large areas, but to do so would require huge funding. Deeming both the Lanna princes and the Siamese government incapable of securing such a great amount, he suggested that Siam rely on foreign capital and try to increase its profit as the owner of the forests.²⁶ Thus, one goal of forest administration was to get rid of problems that would discourage foreign investors. Slade emphasized the necessity of reforming the concession system to facilitate foreign investment in the logging industry. By making it more efficient and more convenient for prospective lessees than the Lanna princes had made it, the government would be able to gain more confidence from the lessees, who would then accept Siamese authority in other aspects of management, including later plans to increase the stumpage fees and to issue new

²⁶ Ibid., 45

forest regulations. To visualize expectable increases in Siam's profits, Slade presented his algebraic equation. In the report, Slade estimated the total expenses for extracting and transporting a log to Bangkok:

A = Settlement cost [including not only the forest-opening fee but also gifts and bribes for forest owners and petty officers to secure a lease and necessary paperwork]

B = Production and transportation cost

C = Stumpage and taxes

D = Profits for the lessee

E = Selling price for the log

$A + B + C + D = E$ ²⁷

Based on the equation above, Slade tried to show how Siam could increase its share of profits without creating more burdens on the lessee or raising the timber price. Supposing that B, D, and E remained unchanged, he argued that Siam should try to reduce A so that the deducted cost could be added to C instead.²⁸ According to Slade, previous lessees had suffered great losses from various forms of bribery and gifting before they could secure their leases from Lanna forest owners. Thus, if Siam managed to make the concession system more straightforward and eliminate those off-system payments, Siam would be able to gain more revenue from foreign companies, who would be more willing to pay a higher rate of stumpage. Moreover, by actively suppressing timber theft and other crimes, the Siamese government would gain more trust from foreign investors and convince them that it would be profitable to cooperate with the government when new regulations were issued.

Slade's 1896 report was a proposal for reorganizing relationships around the teak trade based on his visions and ideals for timber extraction in Siam. On the one hand, the new emphasis

²⁷ Ibid., 46

²⁸ D (Profits for the lessee) is not necessarily a constant cost because a certain lessee would undoubtedly try to increase this number if possible. However, Slade's calculation was made from Siam's perspective, which supposed that the lessee was already satisfied with the current profits.

on regulating the extraction stage meant that the forests were increasingly subject to the state's disciplinary project. As the state intensified its control over the loggers, the forests were also targeted for new practices to enhance their regeneration capacity. On the other hand, Slade's suggestions reflect his desire to appeal to two groups of historical actors – the Siamese government and foreign merchants – whose active participation would enable Slade to realize his working plans for conserving the forests for long-term exploitation. At the same time, Slade stressed the role of forest officers like himself in managing the forest resources while excluding other actors such as the Lanna princes, forest owners and non-forest officers, whom Slade claimed to have “no proper involvement in the business.”²⁹ Ultimately, Slade sought to replace the existing network of commercial logging with a new network of forest conservation under the leadership of the new forest department.

From the Working Plan to Leases and Laws

Besides a vision of a new forest conservation network, the 1896 report illustrates how Slade tried to enhance Siamese rule over the northern forests through paperwork. Exemplified by the mobilization of forest leases and legal papers, Slade's regime of paper forestry was an attempt to appropriate documentary practices that already existed in Siam. For example, the publication and distribution of laws in *Ratchakitchanubeksa* (Royal Thai Government Gazette) was a practice that began in the reign of King Mongkut (Rama IV, reign 1851-1868), when the Siamese state started using paper as an instrument of power.³⁰ King Mongkut issued numerous decrees and royal proclamations over the course of a decade, from the publication of the first issue of

²⁹ ๓.5 ๓.16/9 Mr. Slade, *Having Inspected Forests and Returned to Bangkok*, NAT.

³⁰ Indeed, the use of paper for state administration had existed before the reign of King Mongkut although their use was less frequent and more sporadic than in King Mongkut's paper regime.

Ratchakitchanubeksa in 1858 until the last year of his reign. However, instead of giving administrative orders, these papers were intended as “statements of principle” for the king to explain why his officials and people should act in a certain manner, as argued by Chris Baker and Pasuk Phongpaichit. Through these papers, the king sought to convince his subjects of the uniqueness of the Siamese monarchs and to justify the creation of “a more hierarchically ordered kingdom under a more elevated monarchy.”³¹ Building on Baker and Phongpaichit, Sing and Ivarsson assert that *Ratchakitchanubeksa* as well as the increased use of emblems and signboards during this period suggest the formation of “a material-monarch corporate body, a collective of humans and artefacts, which enabled him to materialize his wishes and orders.”³² Rather than abstract instruments of power, the dissemination of material objects like paper and signboards allowed the king to assert himself as a king and extend his kingly presence beyond his immediate environment. Simultaneously, King Mongkuts’ paper regime was also aimed at reconfiguring the network of relationships and communication. By establishing himself at the center of the paperwork and documentary network, the king tried to close the gap between the himself and his subjects, while playing down the role of influential aristocrats, especially the Bunnag family.

However, at the turn of the twentieth century, Siam’s paper governance began to take on a new form, in response to new administrative needs and different goals of bureaucratic inscription. According to Sing and Ivarsson, while King Mongkut had used paper to create a more direct form of communication between the king and his peoples to centralize power, the succeeding regime of King Chulalongkorn was characterized by the systematic filtering of those papered communications.³³ To help the king deal with the excess of information that epitomized

³¹ Chris Baker and Pasuk Phongpaichit, *A History of Thailand*, Third (Port Melbourne, Australia: Cambridge University Press, 2014), 49.

³² Sing and Ivarsson, “Inscribing Siam,” 1612.

³³ Sing and Ivarsson, 1613.

the increasingly bureaucratized administration, a group of officials emerged who Sing and Ivarsson call “file engineers.” These officials worked to reorganize incoming papers into distinct “files” and created content summaries, which served as a kind of metadata so that the king could quickly grasp the main points when the files reached him.³⁴ The existence of such files also meant that the king always had access to the details he needed for making decisions. As a result, the king was able to keep his position as the ultimate decision maker and handle more tasks in remarkably less time.³⁵ Through this analysis of documentary practice, Sing and Ivarsson foreground the role of file engineers in maintaining the chain of command as well as their ability to influence the king’s decision-making process – by including some matters or excluding others, by prioritizing or de-prioritizing, or by speeding up or slowing down.

In the realm of forest management, Siam had made use of paper since the mid-nineteenth century, although the initial objective was more about controlling the human users of the forests rather than managing the forests per se. As the Siamese government tried to resolve forest-related disputes, they began to normalize some documentary practices, such as the requirement of making written agreements to serve as evidence for forest leasing, thereby avoiding problems such as double-leasing the same forest to more than one person. With the Chiang Mai Treaties, Siam and Britain gradually adjusted how the forestry paperwork was to be written and authorized in a way that gave Siam an unprecedented control over the forests in Lanna. The First

³⁴ On inscription, information management, and the meta-data, Suwannakij and Ivarsson draw upon Bruno Latour’s arguments in Bruno Latour, *Science in Action: How to Follow Scientists and Engineers through Society* (Cambridge, Mass.: Harvard University Press, 1987), 233–35.

³⁵ Sing and Ivarsson also note how the change of writing material and the popularization of Western paper played a significant role in the making of a new paper regime because its materiality facilitated the new practice of file engineering. As they have explained, “Rather than bundling and piling, paper, thin as it was, was easier to number and order, and thus the organization of all matters. Quick and cheap to produce, or to buy, it was widely adopted and standardized. Significantly, it allowed Damrong to devise a front letter, which gave a summary of what had transpired, as well as his own opinion and proposal for solutions.” Sing and Ivarsson, “Inscribing Siam,” 1614.

Chiang Mai Treaty of 1874 formally recognized Siam as a new stakeholder in Lanna's forest resources by requiring that all forest leases be approved by the Commissioner in Chiang Mai. Then, following the Second Chiang Mai Treaty of 1883, forest leases became a platform for both the Siamese government and the British Consulate to establish their political presence in Lanna, at least in the realm of forest administration. In this sense, Siam's earlier interventions in Lanna were characterized by attempts to restructure power relations among Siam, Lanna, and European imperial powers. The increased control over the issuance of forest leases at this stage was primarily aimed at transferring the power to manage the northern forests from Lanna princes to the Siamese government. However, starting from the late 1890s, the forest leases began to acquire new political significance as forest experts were mobilizing bureaucracy and paperwork not only for benefits of the nation but also for the goals of the forest officers.

A New Forest Leasing Form

Keeping up with the Siamese interventions since the 1870s and 1880s, Slade prioritized reforming the forest concession system in Lanna. One of his first actions was to revise the forest leasing form and to set new agreements to carefully regulate the extraction process. Rather than protecting the forests by stopping timber extraction, Slade's goal for reforming the concession system was aimed more towards long-term extraction. He argued that previous leases were useless for conserving the forests, because they were not specific about what should be done. The punishment terms were unclear and difficult to enforce when a violation occurred. According to Slade, the new lease should emphasize conservation over maintenance [การรักษาป่ายิ่งกว่าความบำรุง] because it was more important for the forest department to prevent lessees from harming the

forests.³⁶ Slade's suggestion for the modification of the forest leasing form was part of his broader scheme to mobilize forestry paperwork to assign new roles and reconfigure the relationships among the various actors involved in the teak business.

Traces of the attempt to revise the forest leasing form are found in the “ร.5 น.16/9” file of the forest department papers at the National Archives of Thailand. This file contains Slade's report from the year 1896 and subsequent correspondence regarding the plans to reform Siam's forest administration. The file also includes a translated draft of Slade's new forest leasing form (Copy A), two revised versions by the Ministry of Interior (Copy B and Copy C), and one example of how the form would be filled out (Copy D). Copy A appears to be just a preliminary draft, because it contains several insertions and correction marks as well as some uses of parentheses that are omitted in other versions. In addition, a couple of phrases initially seem to be mistranslated. For example, Article 12 states that the government has the absolute right to close all or part of a certain forest from extraction “in favor of cultivation [เพื่อประโยชน์แห่งการเพาะปลูก].” In later versions, this part is changed to “in favor of seedling conservation [เพื่อประโยชน์แห่งการรักษาพรรณไม้ม].” In this version, the lease must be signed and sealed twice. The first time is for the agreement between the lessor and the lessee, which must be signed and sealed by both parties and a witness. The second time is for the agreement with the Siamese government, and it requires four seals and signatures from the City Governor, the lessee, the Chief Commissioner in Chiang Mai, and the British Consul.

³⁶ ร.5 น.16/9 *Mr. Slade, Having Inspected Forests and Returned to Bangkok*, NAT, 55-56.

Table 12: Structural Comparison of Three Versions of the New Forest Leasing Form

Copy A (Slade's Draft)	Copy B (for forests owned by Northern Princes)	Copy C (for forests owned by Siam)
Specify the lessor and the lessee	Specify the lessor and the lessee <i>and state that this lease is sanctioned by the Siamese government</i>	Specify the lessor and the lessee <i>and state that this lease is sanctioned by the Siamese government</i>
State three preliminary arrangements that lead up to this written agreement: - Initial payment from the lessee to the lessor. - Payment of a royal fee (ภาษีหลวง). - The lessee's agreement to abide by the following agreement terms.	State three preliminary arrangements that lead up to this written agreement: - Initial payment from the lessee to the lessor. - Payment of a royal fee (ภาษีหลวง). - The lessee's agreement to abide by the following agreement terms.	State three preliminary arrangements that lead up to this written agreement: - Initial payment from the lessee to the lessor. - Payment of a royal fee (ภาษีหลวง). - The lessee's agreement to abide by the following agreement terms.
Specify the leased forest and its boundary	Specify the leased forest and its boundary	Specify the leased forest and its boundary
State that the lessee's rights to work the forest will be extended to their representatives, managers, workers, and employees	State that the lessee's rights to work the forest will be extended to their representatives, managers, workers, and employees	State that the lessee's rights to work the forest will be extended to their representatives, managers, workers, and employees
Indicate the lease's starting date and its duration (6 years)	Indicate the lease's starting date and its duration (6 years)	Indicate the lease's starting date and its duration (6 years)
State that any disputes related to the forest's boundaries will be subject to absolute judgement of the forest officers, who are appointed by the Minister of Interior	State that any disputes related to the forest's boundaries will be subject to absolute judgement of the forest officers, who are appointed by the Minister of Interior	State that any disputes related to the forest's boundaries will be subject to absolute judgement of the forest officers, who are appointed by the Minister of Interior
Agreement terms between the lessor and the lessee (<i>4 articles</i>)	Agreement terms between the lessor and the lessee (<i>4 articles</i>)	Agreement terms between the lessor and the lessee (<i>19 articles</i>) [Combine lessor-lessee agreements with government-lessee agreements]
The date on which the lease is signed and sealed.	The date on which the lease is signed and sealed.	The date on which the lease is signed and sealed.
Signatures and seals of: - Lessor	Signatures and seals of: - Lessor	Signatures and seals of: - Lessor

- Lessee - Witness	- Lessee - Witness	- Lessee - Witness
Agreement terms between the lessee and the Siamese government, together with a note that the lessee must also abide by all forest laws issued by Siam. <i>(14 articles)</i>	Agreement terms between the lessee and the Siamese government, together with a note that the lessee must also abide by all forest laws issued by Siam. <i>(15 articles)</i> - 1 new article - 2 significantly revised articles [more specific]	
The date on which the lease is signed and sealed.	The date on which the lease is signed and sealed.	
Signatures and seals of: - City Governor - Lessee - Chief Commissioner - British Consul	Signatures and seals of: - City Governor - Lessee - Chief Commissioner - British Consul	

While the two Chiang Mai Treaties had officially recognized Siam as a new authority in handling forest-related disputes involving British subjects in Lanna, the new leasing form sought to make forest officers the new representatives of the Siamese government – the role previously held by the Commissioner of Lanna. For example, the form states that that any disputes related to the forest’s boundaries would be subject to the absolute judgement of the forest officers, who were appointed by the Minister of Interior. In previous leases, it was stated that the disputes would be up to the decision of both “the Chief Commissioner in Chiang Mai and a senior forest officer.”³⁷ Slade argued that this clause would cause confusion about who had ultimate authority, and there were no directions for a situation in which the Chief Commissioner and the forest officer had different opinions. In addition, he claimed that the term “senior forest officer” was too vague, and after the forest department was established, some people might ask if that “senior forest officer” referred to a local officer in Lanna or to the head of the forest department. The lease

³⁷ Ibid., 83.

also required lessees to abide by Siam's forest laws, which would likely include those that would be issued in the future. Article 7 of the agreements with the government also demanded that the lessees cooperate with forest officers during their surveys and inspections.

The initial draft proposed by Slade was later revised by the Ministry of Interior into two versions. The first version (Copy B) had almost the same structure and content as Slade's original draft. However, the language became more concise and softer in tone, which reflects a response to Phraya Songsuradet's comment that Slade's preliminary draft sounded too harsh and might outrage the foreigners, especially the British timber companies. The agreement terms between the lessor and the lessee were mostly the same, but one new article was added to the agreements with the government, which allowed the lessee to only cut trees that had been girdled for more than two years (Article 2). Two articles were significantly revised: one was a correction about seedling conservation (Article 13) and the other specified the role of the [Siamese] court in handling forest-related disputes (Article 15). Moreover, it was emphasized that the forest officers were appointed by the Minister of Interior, and their judgments about forest boundary disputes were final.

As Slade claimed in his 1896 report, the primary goal of reforming the concession system was to protect the forests from unnecessary harm by the lessees. Hence, the focus was on regulating the processes of girdling and cutting to prevent damages to underaged trees, while the maintenance of the forests and their regeneration should be the responsibility of the forest department. Previously, a clause required the lessee to plant one new teak seedling for every felled tree. The clause also stated that officers would inspect the replanted seedlings every three years, and the failure to plant the seedlings would incur a fine of five Rupees per tree.³⁸ Slade considered this clause to be useless for forest conservation because he doubted whether the

³⁸ Ibid., 84-85.

lessees could handle the job properly to guarantee regeneration. He also explained that new seedlings would be growing naturally in the forests, and some lessees might claim that they had planted those seedlings to avoid being fined. Moreover, he claimed that it would take a few more years for the forest department to have enough officers to thoroughly inspect the replanted trees. Hence, in his revised leasing form, Slade removed the article about seedling replantation and suggested that the job be completely undertaken by the forest department. Another major gap in previous leases was the lack of specific regulations about girdling, and in the past, lessees could girdle trees by themselves. Even though attempts have been made to set the minimum size of extractable trees, underaged trees continued to be girdled. Because girdled trees would dry up and die standing, and then might be burned down by forest fires, the lessees would be allowed to cut down those underaged trees anyway to avoid wasting the timber. As a result, many forests were destroyed to such an extent that it was difficult for them to regenerate and yield sufficient timber for future extraction.

To prevent indiscriminate felling from the outset, the new lease tackled the problem by taking away the right to girdle trees from the concessionaries and putting it in complete control of forest officers. Article 1 of Copy B stated that the lessee must not girdle any trees or hire someone to undertake the job unless the tree diameter is over nine Kam (38.25 inches) when measured at three Sok (54 inches) above the ground. It should be noted that Slade estimated the diameter of a mature teak tree at four Kam (16.67 inches), while the large size refers to logs whose diameter was over six Kam (25 inches). Hence, the nine-Kam minimum simply meant that only extremely large trees could be freely girdled. Because several lessees were also reported to have felled ungirdled trees in the past, Slade also added a new article to make sure that all extraction would undergo government-regulated girdling. Article 2, which was not found in the draft version, prohibited the felling of ungirdled trees and those that had not been girdled for at least

two years. In addition, because ungirdled timber was usually too heavy to be floated and likely to sink or get stuck before reaching the ports in Bangkok or Moulmein, the new article also decreased the risk of wasting the timber resource during the transportation process. While the new leasing form did not require active collaboration by the lessees in maintaining the health of the forest, there articles in Copy B also that demonstrated the effort to keep the lessees from disturbing forest regeneration. Article 3 determined that the lessees could fell only mature trees that had young seedlings nearby. This meant that unless there were explicit signs that the felled trees could be replaced, they should not be cut or girdled even though they reached the minimum size. Moreover, Article 13 stated that the government reserved the right to close all or part of a certain forest to preserve the seedlings.

In addition to conservation, the new leasing form demonstrated Slade's attempt to prevent unreasonable waste of timber and to maximize Siam's revenues from this resource. Article 8 demanded that all logs be properly marked before floating to help the government identify the payer of the timber tax when the logs reached the duty stations downstream. More importantly, Slade added a couple of articles to make sure that even damaged timber would generate at least some income for the government. Articles 5 and 6 stated that forest officers could ask the lessee to pay a fine of no more than ten Rupees per each log that had been damaged or burned by forest fires. Article 14 also granted the government the right to obtain the damaged logs and return the stumpage fees to the lessee in exchange, which allowed the government to obtain timber at a low cost without having to work the forests by themselves. Articles 9, 10, and 11 of Copy B further enhanced state surveillance by requiring that all leases be officially registered to the Conservator in Chiang Mai and that any logs from unregistered forests be confiscated by the government. The prohibition of lease transfers also prevented possible disputes over the right to log certain forests and identified the responsible person when violations of lease terms or other

laws occurred. Meanwhile, the new form addressed the previous lack of proper procedures for punishing legal violations. Articles 4, 12, and 15 specified the penalties for each violation and emphasized the ultimate authority of the [Siamese] court in handling legal cases. The threat of revoking the lease, according to Slade, was the RFD's most powerful weapon to deal with unruly timber merchants.

Copy C of the new forest lease was adapted from Copy B to be used in agreements in which the Siamese government was the owner and the lessor of a particular forest. The content of Copy C was almost the same as Copy B. However, because the lessor and the government were the same, the agreement terms were combined and renumbered, and it had to be signed and sealed only once, by the representative of the Siamese king [ผู้รับพระบรมราชโองการ], the lessee, and the British Consul. According to Prince Damrong, Copy C should have eventually become the standard form for all forest leases in Monthon Lao Chiang, but it could not be done immediately to avoid the panic of the local princes. For the time being, he recommended using Copy B.³⁹

Using a forest in Nan as an example, Copy D was a sample form based on an agreement between Chao Suriyaphong Pharitdet, Prince of Nan, and Luang Naraphitak (Bunyen), a Chinese merchant who was a Siamese subject. The leased forest had the Yom River as the western boundary, and the lessee was permitted to work the forests along all of the tributaries that flowed into the Yom on the right side. The forest met the Town of Ngim in the north and the Sa River in the south. The lease indicated that the Prince of Nan issued a lease, dated November 30, 1894, and sent it to Bangkok via the Commissioner of Monthon Laochiang [Lanna] for ratification.⁴⁰ Despite its acknowledgement of the prince's ownership of the forest, this sample was adapted

³⁹ Prince Damrong to King Chulalongkorn (6 November 1896), *ibid.*

⁴⁰ For more details about Luang Naraphitak's application for the Nan Forest concession, see ๖.5 น.16.2/43 *Luang Naraphitak (Chin Bunyen) asks to extract timber between the Yom River and the Nan River in Nan* (1895), NAT.

from Copy C (used for forests owned by Siam) instead of Copy B (used for forests owned by Northern princes). This is because by this time, the Prince of Nan had agreed to give up his right over this forest, following the Siamese plan to nationalize all forests in Lanna. However, since the lease was made before forest nationalization, it had to be updated and signed by Siam as the new lessor. The signatures and seals at the end of the lease included only those of Siam's representative, the lessee, and a witness. The Prince of Non no longer had to sign.

Copy D contained three new articles that were not found in Copy C. Article 11 required that the lessee mark all logs, which the lessee obtained by any means and sent down the Chao Phraya River and its tributaries, and that unmarked logs could not be transported anywhere. Article 20 indicated that the lessee had to pay two types of fees: the stumpage fee, according to the rate in Article 1, and the duty fee, which would be collected at the duty station [in Chainat]. Article 21 required the lessee to report to the Conservator in Chiang Mai the number of logs being sent down the Chao Phraya river systems. All these new articles were aimed at enhancing the effectiveness of tax collection and holding the lessee accountable for all taxes and duties that Siam could expect.

In spite of minor differences, the desire to reorganize relationships around timber extraction and to control each stage of the process was manifest in all the forest leasing forms described above. On the one hand, Slade's proposal suggests a new division of labor in the realm of forest management. It formally sanctioned the authority of forest officers in both regulation and conservation while restricting the role of the merchants and the government to the extraction stage only. On the other hand, this new emphasis on conservation reflects his attempt to appropriate the practice of forest leasing, which was preoccupied with settling rights to access forest resources, and to turn it into a means to get both the teak merchants and the Siamese government to participate in forest regeneration. Instead of banning timber extraction, Slade

sanctioned the concessions on the condition that the merchants would cut the trees according to his rules and principles. At the same time, by specifying terms and punishment forms on the leases, Siam was made accountable for not only protecting the lessees' rights but also regulating the extraction process, in exchange for an increase in their revenue.

Forest Regulations

To enforce new forest lease terms more effectively, Slade emphasized the necessity of more powerful forest laws and stricter enforcement, without which the forest department would be unable to do anything beyond stumpage collection.⁴¹ Following its establishment in 1896, RFD issued a number of proclamations and legal acts to regulate timber cutting and to lay the foundations for establishing conservation areas. Several of these laws were based on the ones being used in Upper Burma, which Slade claimed to be widely accepted by professional foresters and the British India Government. He emphasized the similarity between Upper Burma and Siam and argued that these laws should bring similarly effective results.

The forest laws issued during Slade's office can be divided into two categories: the regulations about timber marking and the regulations about timber extraction. Regulations about timber marking were aimed at identifying the owner of extracted timber, as well as more effectively preventing tax evasion and timber smuggling. Usually, each extracted log had two types of hammer marks. The first type was the identification mark for indicating the owner or the company that controlled the forest concession from which the log was obtained. Because most of the logs had to be floated down the river, this type of marking would be helpful for the owners to identify and claim their logs when they reached Bangkok, Moulmein, or other ports. The

⁴¹ Herbert Slade to Prince Damrong (21 August 1896), in 3.5 11.16/9 *Mr. Slade, Having Inspected Forests and Returned to Bangkok* (1896), NAT.

second type of marking was the stumpage mark, which would be used as the evidence that the owners had paid the stumpage fee.⁴² Meanwhile, due to the rising number of timber theft cases, in which the thieves destroyed the original hammer marks from a certain forest concession and made their own marks to claim those logs, the Siamese government issued three acts between 1896 and 1899.⁴³ The First Hammer Mark Act of 1896 identified the conditions of the crime, granted the power to forest officers to temporarily confiscate suspicious logs for investigation, and determined the punishment for people who committed the crime. The Second Hammer Mark Act of 1898 re-emphasized the criminality of altering and counterfeiting hammer marks.⁴⁴ Then, in 1899, the Siamese government issued the Untaxed Teak Smuggling Prevention Act to strengthen Siamese control over the movement of teak timber and prevented tax evasion among teak merchants.⁴⁵

The second category of the new forest laws was for preserving young teak trees by closely regulating the extraction process. The correspondence between Slade and the Siamese government on this subject demonstrates Slade's attempt to completely prohibit the felling of trees whose diameters were less than 6 Kam. He suggested that the government should immediately issue the law, but the enforcement could be flexible and first and made stricter over time. Slade's discourse about forest conservation and the current harms to teak forests seemed to have convinced Prince Damrong, who repeated this discourse in his letter to King Chulalongkorn

⁴² Some forests were in hard-to-reach locations, which would be convenient for both the owner and the officer to go and make payments at the extraction sites. Thus, in cases, the owner would make an agreement with forest officer to have the timber marked first and pay the stumpage when the logs arrived at the duty station.

⁴³ ๓.5 ๓.16.1/12 *Teak Logs and the defaced Hammer Mark* (1896), NAT; ๓.5 ๓.16.1/13 *Proclamations and Acts related with the defaced Hammer Mark* (1896-1901), NAT.

⁴⁴ "The Hammer Mark Counterfeiting Prevention Act, 1898," *Ratchakitchanubeksa [Royal Thai Government Gazette]* 15, no. 48 (1898): 505.

⁴⁵ "The Untaxed Teak Smuggling Prevention Act, 1899," *Ratchakitchanubeksa [Royal Thai Government Gazette]* 16, no. 16 (1899): 196-97.

that “allowing the extraction of young saplings will lead to extinction.”⁴⁶ Having convinced the Siamese elites of the significance of this problem, Slade managed to issue two conservation acts in 1897; the first act came out in September, followed by a supplementary act in December. In addition, with the realization that a complete ban could not be enforced instantly, the government also issued another act in the same year to permit the extraction of teak for charitable and public work, which would be amended in 1900 to impose more restrictions.

The first Forest Conservation Act (1897) emphasized the significance of teak as a source of national wealth and the necessity of preserving this resource.⁴⁷ This act clearly prohibited the cutting of undersized trees and set the minimum size of an extractable teak tree at five Kam, which was one Kam smaller than the size that Slade had suggested. Claiming to avoid causing trouble for the livelihoods of the citizens, the act allowed the extraction of undersized trees that had been girdled or felled before the issuance of this act. If the extracted timber was intended for building houses or charitable work, such as the construction of temple halls, the users did not have to pay the timber tax. However, if the timber was extracted for sale or exchange, it had to be taxed. Anyone who violated this act would be fined or imprisoned, or subject to both forms of punishment.⁴⁸ The following Teak Conservation Act of 1897 repeated the same conservation discourse and reinforced the power of Siam as the “guardian the forests.” Instead of determining the minimum size of extractable trees, this act was aimed at controlling every teak tree by preventing any girdling or felling of a tree without official permission from the Siamese

⁴⁶ Prince Damrong to King Chulalongkorn (6 April 1896), in ๓.5 ๓.16.1/11. To Prevent the Felling of Tree Saplings in the Forests (1896-1897), NAT.

⁴⁷ “The Teak Conservation Act, 1897,” *Ratchakitchanubeksa [Royal Thai Government Gazette]* 14, no. 36 (December 5, 1897): 546.

⁴⁸ “The Forest Conservation Act, 1897,” *Ratchakitchanubeksa [Royal Thai Government Gazette]* 14, no. 26 (June 26, 1897): 337–39.

authorities.⁴⁹ By restricting the right to extract teak only to those who had ratified leases from the government or received permits from the forest officers, this act revoked people's usufruct rights and previously open access to forest products and asserted the status of Siam as the sole owner who protected the forests from destruction by "ignorant" citizens.⁵⁰ After suggesting the conservation act in 1897, Slade recommended another policy which would allow moderate extraction by citizens while still subject to state regulations. The Proclamation on Using Teak for Charitable and Public Work of 1897 granted power to forest officers as the only authorities to determine the appropriate amount of extraction and issue permits.⁵¹ The intensification of the RFD's control through logging permits suggests the centrality of paperwork in the functioning of Slade's forest conservation network.

Even though the paperwork enabled the institutionalization of the forest conservation network in the Siamese bureaucracy, the bureaucratic procedures might have been overwhelming for a fledgling department like the RFD. This highly centralized approach to permit issuance turned out to be impractical due to the insufficient number of forest officers. In his 1900 report, Slade complained that the process was too complicated, and that it produced too much work for forest officers. In addition, he warned that some people might try to take advantage of the gap in this act and get free timber in the name of charitable or public work.⁵²

⁴⁹ Slade regarded girdling as a "technical point which should be *left entirely to the discretion of the Conservator* who should be trusted to do his best for the interest of the Revenue and of the forests." Although Slade wanted to completely control girdling, the lack of sufficient staff made it difficult to undertake the job effectively. Hence, the next Forest Conservator decided to become more flexible about having the lessees girdle some trees by themselves. ¶.5 u.16/3 *The Fifth Annual Report by Herbert Slade, Conservator of Forests* (1901), NAT, 24. [my emphasis]

⁵⁰ For comparison, see Raymond Bryant's study of the Burmese case, which similar shows how the state's adoption of scientific forestry led to the alienation of other forest users. Raymond L. Bryant, "From Laissez-Faire to Scientific Forestry: Forest Management in Early Colonial Burma, 1826-85," *Forest & Conservation History* 38, no. 4 (1994): 160-70.

⁵¹ ¶.5 u.16.2/2 To allow timber extraction for charitable works (1898-1899), NAT.

⁵² ¶.5 u.16/3 *The Fifth Annual Report by Herbert Slade, Conservator of Forests* (1901), NAT.

After consulting with Phraya Si Sahathep, Siam's special Commissioner to Lanna, Slade proposed some revisions and issued the Regulations for the Use of Teak for the Construction of Government Officers and Public Work (1900).⁵³ The new regulations granted the power to issue permits to both the Commissioner and forest officers, who would consider the appropriateness of the purposes and the requested amount of timber – if the number of extracted logs exceeded the agreed amount, the government would confiscate all surplus logs. Like the previous conservation acts, the new regulations insisted on Siam's ownership of the forests and only allowed that extraction of trees that had either been felled or girdled before the regulations took effect. Yet, for the construction of government offices, the new regulations allowed the felling and girdling of new trees upon the approval of the forest department. Applications for building personal lodgings would not be considered for obtaining these tax-exempt logs unless the Commissioner gave special permission. To keep the forest department informed of the applications, three copies of each permit would be produced: the first copy would be kept at the Commissioner office, the second would be held by the forest officer, and the last would be held by the applicant. The Commissioner was also required to submit a report of all permits to Bangkok every six months.⁵⁴

The Teak Conservation Act and all of the Hammer Mark Acts officially recognized the Minister of Interior as the top authority for enforcing these regulations. The Forest Conservation Act did not specify the authority, but it was indirectly put under the Ministry of Interior by the subsequent Teak Conservation Act. The charitable logging act seemed to be the only one that specifically made the forest officers the authority, although that power was to be shared with the

⁵³ §.5 11.16.2/2 To Allow Timber Extraction for Charitable Works (1898-1899), NAT.

⁵⁴ "Regulations for the Use of Teak for the Construction of Government Officers and Public Work," *Ratchakitchanubeksa [Royal Thai Government Gazette]* 17, no. 37 (December 9, 1900): 523–25.

Commissioner after the 1900 amendment. After five years of work, Slade claimed that the RFD eventually became recognized as an authority in forest administration rather than just another timber company. He noted that “[t]hose engaged in the timber trade and villagers are at least beginning to take the Forest Department seriously.” In addition, referencing a report from a forest officer based in Phrae, Slade asserted that the people in Lanna showed a desire to observe the laws and follow the procedures, such as by filing petitions to obtain timber. Nevertheless, Slade commented in the 1900 report that new forest laws were not duly circulated and suggested that the government should distribute more pamphlets to inform the involved parties of the new laws.

Both the hammer mark acts and the forest conservation acts reflect the intensification of paperwork within the RFD to enact Slade’s forest conservation network. Although timber marking was practiced even before the RFD was established, the new regulations issued between 1896 and 1899 reflect the standardization and normalization of the use of paperwork for managing forests and regulating the flow of such documentation. For example, in the First Hammer Act of 1896, the Siamese government delineated the procedures for claiming timber with destroyed or ambiguous marks. When a log with ambiguous markings showed up, the officers at each duty station were authorized to confiscate it for later investigation. Then, the officers had to create a notice that described the problems in detail, such as double marking, burning, and other physical alterations of the mark. This notice would be sent to the Ministry of Interior and each consulate in Bangkok, and to the judicial court of all cities and towns in the north that were involved in the teak trade.⁵⁵ To claim the log, the possible owners had to submit an ownership petition to the duty station in three months from the date of the notice, and the investigation would take place on February 1st and August 1st every year. Similarly, the conservation acts and

⁵⁵ The cities and towns specified in this act were Chiang Mai, Lamphun, Lampang, Phrae, Nan, Tak, Kamphaengphet, Sawankhalok, Uttaradit, Pichai, and Phitsanulok.

the supplementary acts for charitable logging reflect how timber extraction was bureaucratized as part of the RFD's attempt to centralize forest administration. The Proclamation on Using Teak for Charitable and Public Work of 1897 entailed a series of bureaucratic procedures. It began with the submission of application forms to the Commissioner, who would have forest officers inspect the extraction and mark the timber. The forest officers would keep account books of extracted timber and taxes to be exempted or collected, and they would issue permits for the legible applicants. Only then could the extracted timber be transported and used for construction. At each stage, the RFD clearly made paperwork the main medium for forest-related transactions. Yet, while the new regime of paper forestry was intended to enhance the RFD's attempt to centralize power and implement its plans, it sometimes caused new problems that the forest officers did not anticipate.

Enacting the Regime of Papered Forestry

Previous scholarship on the history of Thai forestry has provided detailed accounts of both the modification of the forest concession system and the issuance of new forest laws during the early years of the RFD. However, most discussions tend to revolve around their (lack of) effectiveness and the supposedly biased treatment of the British Forest Conservators when implementing new policies. Much less attention has been given to paperwork practices of the RFD, even though most of the conflicts being discussed usually revolve around forestry paperwork – especially forest leases – either as the cause or the solution. As I have discussed in the preceding section, the new regime of forest administration under Slade's leadership became increasingly mediated by paper. Yet, the paperwork was never under Slade's or the RFD's complete control. It was not a mere state instrument that was monopolized by the RFD as the

only producer and user, or for the single purpose of enacting Slade's vision of a forest conservation network. On the contrary, because this regime of papered forestry was also inhabited by non-forester actors, such as forest lessees and Siamese bureaucrats, the forestry paperwork could be mobilized by those actors for different purposes and in different ways that were not intended by Slade and his fledgling forest department.

To discuss how the forestry paperwork was enacted by different members of the forest conservation network, this section will focus on three main case studies. The first case study presents the conflict between Slade and a major British timber company to exemplify how the RFD was supposed to work according to Slade's own vision of a principle-based, bias-free forest administration. The second case follows Slade's interactions with a non-British timber merchant to revisit the claims regarding pro-British bias and to shed light on other possibilities in which the paper forestry network could be enacted. The last case study examines the reverse of the second case, discussing how Slade's successor, F. Tottenham, accused a non-British timber company of receiving some privileges from the Siamese government. For the last case, I will also show that while the RFD tried to use forestry paperwork to impose power upon other members of the paper forestry network, such paperwork could become material evidence of the RFD's misconduct that was later used to turn against the RFD themselves.

Slade v. BBTC

Conflicts between Slade and large British companies, especially the Bombay Burmah Trading Corporation (BBTC) have been widely discussed in the scholarship on Thai forestry.⁵⁶ To

⁵⁶ More than any other timber companies active in Siam at the time, the BBTC was infamous for their destructive timber extraction in Burma as well as their alleged involvement in the Third Anglo-Burmese War (1885) and the eventual annexation of Burma as part of British India. Aware of these problems, the

an extent, Slade seems to have strictly enforced forest regulations on all merchants regardless of their nationality or subjecthood. Though Siam had been worried about having a British person lead the new forest department, Slade surprised the Siamese government with his willingness to confront his fellow British merchants. Slade did not shy away from intervening to prevent the BBTC from working on some concessions that were reported to have violated forest regulations.⁵⁷ The threat of revoking the lease, which had already been added to the new leasing form, was a common means that Slade used to get all the lessees to extract timber according to his working plan. Such willingness was also noted by Charles James Rivett-Carnac, who served as the Financial Adviser to Siamese government at the time.⁵⁸ In his confidential memorandum for the Siamese government in 1900, Rivett-Carnac reported how the BBTC tried to get Siam's confirmation that their leases would be renewed during the next round of forest concession application. He expressed his confidence that Slade would manage to settle the issue following conservation principles. According to Rivett-Carnac, "The Corporation [BBTC] seem to be quite ready to meet the Government halfway but they do want to be assured in writing that the leases for which they have asked for renewals will be renewed unless, of course, it is considered in some cases necessary by the Forest Officer to close forests for the sake of Conservancy and that is a question, they acknowledge, which can be decided only by an expert, i.e., the Forest Officer. Slade has become less uncompromising of late so I trust that every thing [sic] will be satisfactory."⁵⁹

Siamese government had been cautious about granting concessions to the BBTC since their arrival in the late 1880s.

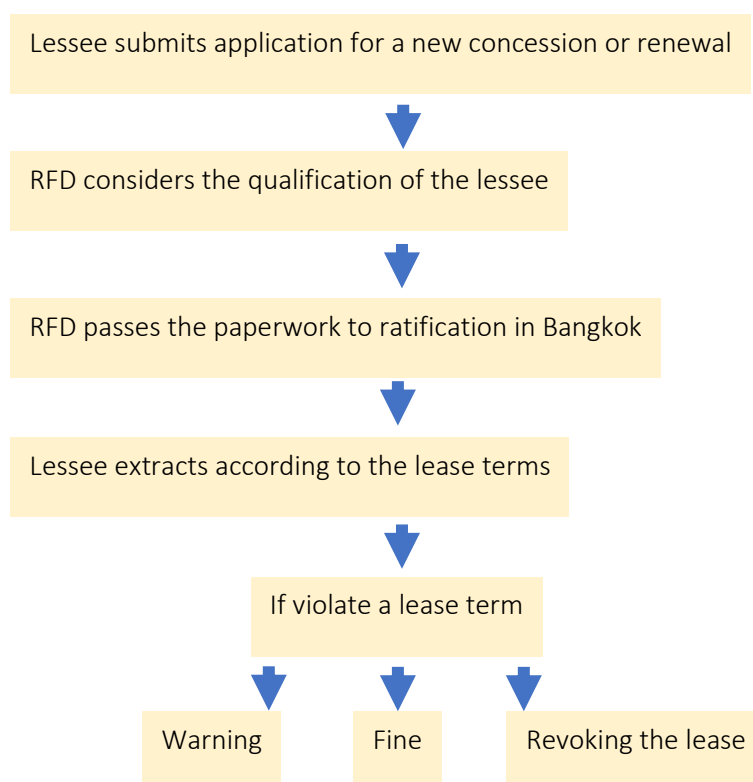
⁵⁷ Barton and Bennett, "A Case Study in the Environmental History of Gentlemanly Capitalism: The Battle Between Gentleman Teak Merchants and State Foresters in Burma and Siam, 1827-1901," 329.

⁵⁸ In 1898, Charles James Rivett-Carnac had warned the Siamese government about the BBTC and suggested that the government instructed Slade to carefully check upon the company to avoid similar damages as in Burma. ¶.5 u.16.1/16 *Carnac's Opinion and Suggestion on the Management of the Forests Related to the Bombay Company* (1898), NAT.

⁵⁹ ¶.5 u.16.3/4 *Mr. Carnac's Memorandum on the Bombay Burmah Trading Corporation's Request to Renew Forest Leases* (1900), NAT.

True to Rivett-Carnac's anticipation, Slade boldly reproached the BBTC when they attempted to use him to get around legal procedures. When the BBTC's directors tried to approach him through personal letters instead of going through the normal procedure, Slade refused to lend his help and responded that he would see the matters with Burma as "a guide and a warning and the best of advice when I care to see it."⁶⁰ His condemnation of the BBTC's actions and the subsequent revoking of some of the company's leases as punishment demonstrate the extent to which Slade would go in order to maintain paperwork procedures he designed for the forest conservation network.

Figure 5: The Flow of Forestry Paperwork according to Slade's Vision



⁶⁰ Herbert Slade to C. B. Lacy (9 February 1990), cited in Barton and Bennett, "A Case Study in the Environmental History of Gentlemanly Capitalism: The Battle Between Gentleman Teak Merchants and State Foresters in Burma and Siam, 1827-1901," 329.

Slade portrayed himself as an ardent guardian of Siam's interests against the BBTC's monopolizing attempts. He claimed, "It was then recognized but the Forest Conservator that unless some check were placed on the operations of the B.B.C. [BBTC] that firm would in a few years be able to dictate terms to the Government. In fact it is not too much to say that had it not been for the Forest Department, Messrs the Bombay Burma Trading Corporation Limited would by now be the only timber firm in Siam & able to absolutely dictate their own terms."⁶¹ Such a self-aggrandizing remark left out any communication he had with other Siamese leaders (and indirectly, with Rivett-Carnac, who sent his warning via Siamese officials) regarding the BBTC, and further enhanced the numerous claims that Slade previously made to emphasize his expert contributions to Siam.

While his uncompromising stance towards forest conservation was initially appreciated, it later turned Slade into an enemy of not only British merchants but also the British Foreign Office and the Siamese government. Slade discovered that while he was negotiating with the BBTC, the Vice-Minister of Interior of Siam had stepped in and made an agreement with the company that "under no circumstances should they be sued in Court for these delinquencies [i.e., any violations of the lease terms and forest regulations]."⁶² He further complained that some British lessees continued to work their forests without having their leases renewed, and if he tried to prosecute them, the British consul would intervene on the ground that those lessees had already applied for the renewal and not yet received any refusal.⁶³

⁶¹ 5.5 u.16/3 *The Fifth Annual Report by Herbert Slade, Conservator of Forests* (1901), NAT, 16.

⁶² *Ibid.*, 16.

⁶³ *Ibid.*, 20.

Slade v. Mong Pan Yo

Notwithstanding the widespread recognition that Slade was in favor of preserving the forests more than catering to the demands of his fellow nationals, the RFD under his leadership was sometimes accused of being pro-British. Such an accusation was also common when the department was under F. Tottenham, who succeeded Slade in 1901. One accusation against Slade and Tottenham was made by Mong Pan Yo, a Burmese merchant who had a concession in Chiang Mai. In 1903, Mong Pan Yo submitted a petition to King Chulalongkorn and claimed that the Forest Conservator tried to give his forest concession in Chiang Mai to the Borneo Company, “in favor of his European fellows.” In addition to his reluctance to ratify his lease in 1897, the Forest Conservator continued to find faults with Mong Pan Yo’s business, hoping to revoke his lease and grant it to the British company. Mong Pan Yo also claimed that the Forest Conservator falsely accused him of violating the lease terms by felling ungirdled trees and confiscated all the timber.⁶⁴

The dispute between Mong Pan Yo and the RFD exemplifies the multiple ways in which the new forest leasing form and related forest laws could be used to claim a forest concession. While existing records remain insufficient to prove the validity of Mong Pan Yo’s accusations, his claims demonstrate the power of the Forest Conservator to delay or refuse the ratification of forest leases. Even though Siam remained the ultimate authority to ratify the leases, the establishment of the RFD re-routed the flow of forest-related papers and made the Forest Conservator the middleman in any transactions between the Siamese government and potential lessees.⁶⁵ The Forest Conservator had a degree of influence over the granting of forest concessions by slowing

⁶⁴ 3.5 u.16.1/15 *Mong Pan Yo’s Forest Affairs (1897-1907)*, NAT.

⁶⁵ For comparison, see Bruno Latour’s analysis of how Louis Pasteur established his laboratory as an “obligatory passage point” through which everyone needed to go through in order to solve the anthrax problem. Bruno Latour, “Give Me a Laboratory and I Will Raise the World,” in *Science Observed: Perspectives on the Social Study of Science*, ed. Karin Knorr-Cetina and Michael Mulkey (London and Beverly Hills: Sage, 1983), 141–70.

down or stopping the bureaucratic process. Sometimes, this control over the timing of the paperwork was decisive, as the delay could result in the loss of the desired forest to another applicant whose documentation arrived earlier.⁶⁶

Besides exemplifying the importance of control over timing, Mong Pan Yo's case demonstrates the extent to which forest regulations could be enforced during the early years of the RFD. As already pointed out in his first report in 1896, Slade emphasized the need for conservation laws and tried to add more specific regulations and punishments to the leasing form for more effective control over the extraction process. Having successfully institutionalized his expertise within the bureaucracy following the establishment of the RFD, Slade asserted himself and acted in the name of Siam to eliminate practices he deemed destructive to forest regeneration, while claiming to protect Siam's profits from the forest resources. With acceptable forest uses concretely inscribed on paper, the ordinary act of cutting ungirdled trees was turned into a crime, which then authorized interventions and punishments by forest officers. Despite the lack of more concrete evidence for Mong Pan Yo's accusations, this case suggests that the RFD put great emphasis on regulating the extraction process, especially during girdling and felling, which it had proposed to do from the outset. Nevertheless, such a commitment to regulating the extraction process could just as well be a convenient excuse for the RFD to discriminate against some forest users and show favor to others.⁶⁷

⁶⁶ Matthew Hull similarly discusses how functionaries and officers can manipulate the flow of the paperwork to shape the decision of their superiors. As he has put it, "the ultimate aim of controlling the movement of files is of course to get certain people at a certain time to write a certain thing." Hull, *Government of Paper*, 158.

⁶⁷ On environmental criminalization in the name of conservationism, see Karl Jacoby, *Crimes against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation* (Berkeley: University of California Press, 2001); R. D White, *Crimes against Nature: Environmental Criminology and Ecological Justice* (Cullompton, UK: Willan, 2008); Don Liddick, *Crimes against Nature: Illegal Industries and the Global Environment* (Santa Barbara, Calif.: Praeger, 2011); David. Rodríguez Goyes et al., eds., *Environmental Crime in Latin America: The Theft of Nature and the Poisoning of the Land*, 1st ed. 2017. (London: Palgrave Macmillan UK, 2017).

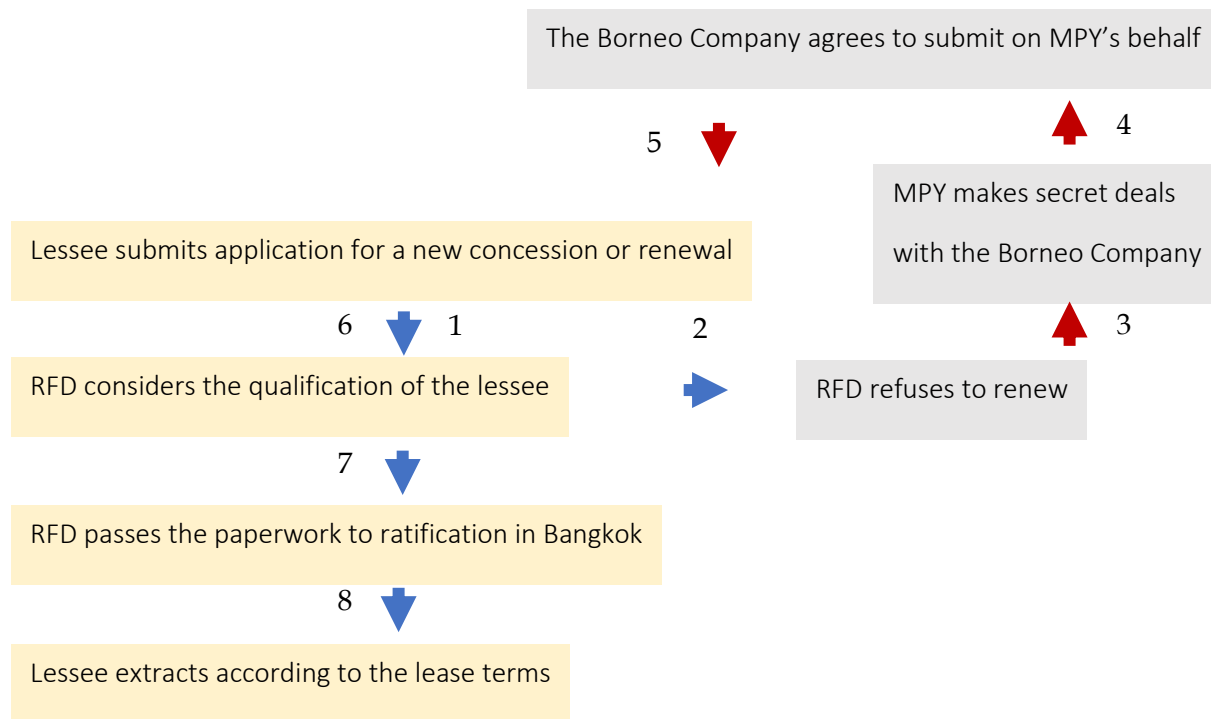
Mong Pan Yo himself was not a passive victim of the RFD's paperwork practices, either. As he explained in his petition to King Chulalongkorn, the Burmese merchant tried to make secret deals with the Borneo Company and have the company obtain lease ratification on his behalf, believing that a British company was more favored by the Forest Conservator. According to Mong Pan Yo, the Prince of Chiang Mai had agreed to renew his lease in 1897 for six years, but the Forest Conservator was reluctant to ratify this agreement. To get the ratification, Mong Pan Yo reached out the Borneo Company and promised to sell all his timber to the company if they could help negotiate with the Forest Conservator, who was also British. Mong Pan Yo made another agreement with the Borneo Company, which granted the company full permission to his forest concession, but Mong Pan Yo would remain the owner of this concession. However, in 1903, the Siamese government agreed to grant concession of this forest to the Borneo Company without consulting Mong Pan Yo, the previous concession owner, which prompted him to petition and seek King Chulalongkorn's help to reclaim his concession. Together with this petition, the Burmese merchant also enclosed a copy of his agreement with the Prince of Chiang Mai and four additional agreements that he later made with the Borneo Company.⁶⁸

The Forest Conservator's manipulation of the flow of the lease and the secret transactions between Mong Pan Yo and the Borneo Company to get the lease ratified demonstrate the multiple possibilities of engaging with bureaucratic objects like forest leases and related paperwork. Moreover, this case also sheds light on the inability of the RFD to completely control the paperwork. Even though Mong Pan Yo's workaround risked the loss of his forest concession to the Borneo Company, it suggested that paperwork might be enacted differently by non-state actors to achieve their respective goals while appearing as if they had properly followed the

⁶⁸ ๕.5 ๓.16.1/15 *Mong Pan Yo's Forest Affairs (1897-1907)*, NAT.

RFD's procedures. Moreover, the secret deals they made also resulted in several more documents that would have been unknown to the state if Mon Pan Yo did not file his petition in 1903. Similar to the process that Matthew Hull describes in his study of Pakistani bureaucracy, the forestry paperwork in Siam "may inhabit the same world of bureaucratic inscription, but they circulate differently and gather around themselves different people and things."⁶⁹ In this sense, the new paperwork practices introduced by the RFD are better understood not as state apparatuses but rather as boundary objects – a set of shared understandings that allowed diverse actors to act together without necessarily having to agree upon the meanings or functions of those objects.⁷⁰

Figure 6: The Flow of Forestry Paperwork Enacted by Mong Pan Yo



⁶⁹ Hull, *Government of Paper*, 20.

⁷⁰ See Chapter 4 for more detailed discussion of the RFD's creation of boundary objects to translate their forest expertise for non-expert collaborators like the Siamese government and the British merchants.

Tottenham v. Kim Seng Lee

While much has been argued about the pro-British bias of the RFD, there are also cases in which the privileged groups were non-British companies, such as Kim Seng Lee, a company run by Chinese merchants who had Siamese subject status. For example, a dispute occurred in 1902 between the Kim Seng Lee Company and Chao Burirat, a Lampang prince, over the right to timber in the Mae Kuet Yai Forest [spelled as Meh Kurt Yai in the original document]. Chao Burirat of Lampang, the original owner of the forest, claimed that he had never agreed to lease the forest to Kim Seng Lee, and so he tried to claim the timber cut by Kim Seng Lee in his forest. In response, Kim Seng Lee proceeded to prosecute the prince, and the judge of the Lampang Court ruled in favor of Kim Seng Lee. Frustrated with the judgement, Tottenham criticized this case as “one of great notoriety in the North” which was “daily quoted by other persons interested in the timber trade as showing the Messrs. Kim Seng Lee are privileged parties.” According to Tottenham, Kim Seng Lee’s concession did not originally include the Mae Kuet Yai Forest. Emphasizing the forest boundary indicated in the 1897 lease, Tottenham argued that Kim Seng Lee had no right to extract timber from this forest and accused the Lampang Court of making judgement “on what grounds none as yet have been able to discover.”⁷¹

However, the judgement was not groundless as Tottenham claimed. In fact, Tottenham admitted that when the lease was in 1902, the Mae Kuet Yai Forest was included in this renewed lease, which was already approved by a forest officer in Lampang. The inclusion of the Mae Kuet Yai Forest in the renewed lease was in part due to the new description of the forest boundary, which turned out to be more ambiguous and subject to multiple interpretations. Yet, the ambiguous meaning of the new boundary description was not strong enough as evidence for the

⁷¹ 5.5 u.16.1/24 *Kim Seng Lee Company charged Lampang forest Officers regarding log confiscation* (1903), NAT.

RFD to claim that Kim Seng Lee illegally entered the Mae Kuet Yai Forest. As Siam's judicial adviser, J. Stewart Black, explained to Prince Damrong, "Even supposing the contention of the Forest Dept. is correct that the boundary of the original permit and the lease No. 103 [the updated lease from 1897] does not include the Meh Kurt Yai, it does not follow that the Govt. did not intend to give him the Meh Kurt Yai forest. Kim Seng Lee has contended all along that the Meh Kurt Yai was included in his original permit, and he can well argue that on getting lease 197 [the renewed lease of 1902], he thought he was only getting his rights."⁷² Thus, even though Tottenham claimed that this inclusion of the Mae Kuet Yai Forest was made by mistake, it could not be denied that the lease was subjected to the proper procedures laid down by the RFD, and hence, legally effective. Moreover, by insisting on the old lease and overlooking the effectiveness of the renewed lease, it was actually Tottenham who made the groundless claim about Kim Seng Lee's privilege while deflecting the responsibility of his department. Together with other similar cases reported by Prince Phen (discussed in Chapter 4), the Mae Kuet Yai case prompted King Chulalongkorn to urge the Ministry of Interior to keep the RFD in check.⁷³

Whereas Mong Pan Yo's case reveals some of the ways in which paperwork could be put to work for different actors, the Mae Kuet Yai case suggests that paperwork might be used against the RFD. Following numerous disputes concerning overlapping concessions since the mid-nineteenth century, the Siamese government eventually decided to require the demarcation of forest boundaries in all forest leases, which was further revised by the RFD in 1896 for more concrete territorial information and effective regulation. By granting and renewing leases, the

⁷² J. Stewart Black, "Forest Dept. Vs. Kim Seng Lee" (6 February 1903), *ibid.*

⁷³ In his letter to Prince Damrong, King Chulalongkorn wrote: "This case made me worried that if the RFD had the power to act as it pleases, I'm afraid there will be a major dispute in the future, and small timber companies that are already struggling will suffer even more." King Chulalongkorn to Prince Damrong (10 June 1903), *ibid.*

RFD produced paper trails that reveal its managerial practices. These trails were generally treated as factual evidence for the RFD to sanction its actions when encountering legal disputes. Yet, it must be remembered that such factual details were not preexisting, and they did not offer transparent representation of a single truth. Rather, they were truth-claims made by human officers, and so the possibility of making errors was always present. As exemplified by the Mae Kuet Yai case, the boundaries of the same forest might be demarcated differently, by different actors, at different times. When two contradictory representations of the forest boundary appeared, it undermined the accuracy and credibility of the paper trails produced by the RFD. As a result, each involved party could select a version that put them at an advantage and claim that it corresponded to reality. Just as they served as material evidence for enacting forest administration, paper trails could also materialize the RFD's mistakes, which could also be used to implicate the RFD for their legal responsibilities.

Instead of a mere issue of bias and blame game, the three case studies above call for attention to how different actors engaged with the RFD's papered forestry regime as well as the significance of paperwork more broadly. While paperwork is usually regarded as a state instrument, it is simultaneously considered an obstacle inherent to bureaucracy that prevents people from getting things done quickly. Paperwork practices entail a series of long, usually tedious, processes of filling forms that require exactitude over content, and it is generally assumed that all people must go through the same bureaucratic steps to get the bureaucrats to do things for them. In contrast to such an assumption, my case studies suggest that paperwork practices are not always handled by bureaucrats alone. There are multiple ways to "enact" those documents by both bureaucratic and non-bureaucratic actors. Using the three cases above, I have shed light on some of the ways in which paperwork actually undermined the forest regeneration project that the RFD claimed to be undertaking. Though Slade originally intended paper as a

medium to mobilize various actors and maintain a network of forest conservation, in practice the members of his network often found other ways to inhabit this network and mobilize the medium of paper for their own ends.

Conclusion: A Disappointed Forester-Clerk and His Complaints

By investigating the paperwork practices of forest officers, I have shown that despite Slade's dismissive attitude towards clerical jobs, his efforts in institutionalizing forest expertise in the Siamese bureaucracy ended up transforming him into one of those clerks he so detested. Slade's regime of paper forestry built on Siam's attempt to regulate the northern timberlands since the mid-nineteenth century. To institutionalize his forest conservation network in Siam's bureaucracy, he tried to appropriate existing administrative structures, especially paperwork practices. This attention to Slade's paperwork regime allows us to reevaluate previous analyses that take for granted that the RFD during the first few years was much limited by the shortage of both staff and financial resources. For example, Nancy Peluso and Peter Vandergeest assert that in Siam, "The low staff-to-forest ratio meant that the forest department was unable to exercise close control over forests outside the lucrative northern teak zones, and even in the teak zones the department's control was limited. The department's field staff was concerned primarily with marking trees for extraction and other local management tasks."⁷⁴ The argument about staff shortage is partly Slade's own discourse (and excuse) for explaining the limited success of his five-year service.⁷⁵ At the beginning of his time in office, Slade divided the RFD's work into two

⁷⁴ Peluso and Vandergeest, "Genealogies of the Political Forest and Customary Rights in Indonesia, Malaysia, and Thailand," 771. See also Banasopit Mekvichai, "The Teak Industry in North Thailand: The Role of a Natural Resource-Based Export Economy in Regional Development" (Ph.D. Diss., Cornell University, 1988).

⁷⁵ At the start of 1900, the RFD had twenty-five officers, (sixteen European and nine Siamese). By the end of the year, the number increased to thirty-one (fourteen European and seventeen Siamese). These

categories: the regulation of timber extraction and the conservation of the forests. He then claimed that due to the shortage of human resources, conservation had hardly made any progress. Instead, the first five years of the RFD were mostly spent on regulation, such as marking timber, fixing forest boundaries for each lease, settling forest-related disputes, and collecting revenue. Slade lamented, "It is regrettable that so far nothing has been done for the improvement of the forests further than regulating the minimum girth at which trees may be girdled." Should the department have sufficient staff, he argued, the RFD would be able to work on the more technical part of forestry management, including "taking up reserves, fire-protection, planting, creeper-cutting, clearing of teak saplings, girdling, preparation of working plans and regulation of hill-clearings"⁷⁶

Although the budget given to the RFD was clearly limited due to the financial situation of the Siamese government, the argument about the shortage of staff must be qualified. According to Slade's vision for the new regime of paper forestry, conservation was supposed to be undertaken not only by forest officers but also by non-expert officials and timber merchants, all of whom were bound by the roles assigned in the forest leases. Upon signing forest leases, timber merchants were informed that they must contribute to forest regeneration by refraining from causing unnecessary damage to underaged trees. The subsequent forest laws re-emphasized such roles by including the threat of revoking their logging rights if they failed to observe the rules.

numbers refer to forest officers or the "technical" staff only. Clerks, interpreters, and other non-expert officials who worked in the RFD were excluded. For a list of RFD officers by the end of 1900, see 1.5 n.16/3 *The Fifth Annual Report by Herbert Slade, Conservator of Forests* (1901), NAT, 3.

⁷⁶ Ibid., 7. On the latter job, Slade wrote that "until some definite policy has been determined on, it will be impossible to estimate the teak areas at the disposal of the Government. These hill tribes live [7/8] one could wish to entirely stop this **ancient but wasteful practice**. It would be possibly the best way to demarcate an area for each village or collection of villages and compel the people to confine themselves to this area but it is a wide question and must be attacked with tact and discretion or there will be trouble with these **worthy but half tamed people**. The damage they do now is incalculable & they annually destroy many square miles of teak forest." Ibid., p. 7-8.

Meanwhile, Slade carefully situated forestry regulations within the bureaucratic structures and demanded the Minister of Interior to authorize his suggested procedures, thereby informing Siamese bureaucrats within and outside the RFD of their obligations to the forest works. If everything went as planned, the RFD would be more than able to undertake its jobs even though the department had only a few dozen forest experts. Thus, I argue that the lack of staff was not necessarily about the actual number of officers in the department. Rather, it was about Slade's eventual failure to get all the actors he had in mind to observe their obligations as laid out in the contracts they signed with the RFD.

Towards the end of his service as the Forest Conservator, Slade found himself losing needed support from the Siamese government, and as he resentfully claimed in his last annual report, the government sometimes obstructed the supposedly more effective management of forest concessions. At first glance, Slade's complaint about being treated as a "a junior clerk in the Mahatai learning office routine" seems to suggest his dissatisfaction at the lack of respect for his work, and may imply that he changed his opinion about the usefulness of bureaucracy for his conservation plans. However, upon closer reading, I argue that Slade did not completely reject bureaucratic practices per se. Despite his seemingly high confidence in his expertise, Slade appeared to be quite obedient and desperately in need of Siam's recognition in the form of official instructions on paper. When his superior, the Minister of Interior, failed to do so, Slade became frustrated. In his 1900 report, Slade complained,

Seeing that some 56 leases required settling during the next few months one would have thought the advantage would be taken of the Conservator's visit to Chiangmai to endeavour to settle the preliminaries of as many leases as possible leaving it to the Minister to grant or refuse the leases later on. On the contrary the Conservator was sent up country without any orders on the subject [of the upcoming forest lease renewal] and following the policy of the last five years, *the*

*Mahatai absolutely refused to give him any idea of what action he was expected to take in the matter, notwithstanding repeated enquiries.*⁷⁷

The quotation above suggests that Slade was not clueless about what he needed to do. Rather, it shows that Slade took for granted that his only means to work was through bureaucratic procedures, and he refused to act unless he was officially authorized to do so. To provide another example, Slade discussed the case of a Chinese timber merchant who wished to renew some of his forest leases in 1900. Like the previous case, he claimed that he could not proceed with the case because the Ministry of Interior refused to clarify if Siam would ratify the renewals.⁷⁸ Slade's curious adherence to bureaucracy put him in stark contrast with his supposed allies, such as Siamese bureaucrats and timber merchants, who did not hesitate to play by their own rules wherever possible.

As I have discussed in Chapter 4, Slade constantly urged Prince Damrong to clearly specify boundaries of power to formally create a space for forest experts, thereby distinguishing them from non-expert officers in the bureaucracy. Building on the previous chapter, Chapter 6 has attempted to show that boundary-making was also crucial for Slade's regime of paper forestry by identifying the jobs that could be done by non-RFD officers. Because boundaries of authority simultaneously created lines of inclusion and exclusion, they could also be used as a means for the division of labor, which was indispensable for a department with few officers like the RFD. With clearly spelled out boundaries and step-by-step instructions for bureaucratic procedures, Slade wanted to make sure that other human components of the bureaucracy knew how they were related to the RFD and what obligations they had to his department. In other words, Slade did not want specific boundaries and instructions to tell him how to work, but he

⁷⁷ Ibid., 19. [my emphasis]

⁷⁸ Ibid., 19-20.

wanted these boundaries to get other people to work for him in the new network he had established.

Having considered Slade's repeated demands for specific instructions, his reaction towards being treated as "a junior clerk in the Mahatai learning office routine" can be reinterpreted. Rather than the clerical tasks and office routines per se, what seems to have disturbed him the most was that he was treated as a junior officer, lacking the respect he thought he deserved. In Chapter 4, I have explained that Slade was deeply concerned with his lack of authority even in the field of forestry which he claimed to know best, which was why he tried so hard to exclude competing authorities such as the Commissioner in Chiang Mai from the realm of forest administration. In this chapter, I further argue that Slade's concern for his authority also manifested beyond the realm of his expertise. Slade's writings usually include specific outlines of the steps and procedures that he wanted the Siamese government to use after the RFD was established. From his first report in 1896 and the following documents, the government was gradually introduced to Slade's "working plans" for the improvement of timber extraction and forest conservation. In later reports and correspondence with the Siamese superiors, Slade did not hesitate to state what he thought to be the best practices. As exemplified by his suggested revision for the Proclamation on Using Teak for Charitable and Public Work of 1897, Slade straightforwardly commented on inefficient procedures and asked to reorganize the workflow to facilitate the RFD's work. All of these instances underscore his obsession with having everything on paper. More importantly, they show that Slade wanted to have a say in the creation of bureaucratic procedures, too. To put it differently, I contend that Slade saw himself as a senior clerk – a manager-level officer who enjoyed a degree of autonomy in shaping the office routines for Siam's enviro-colonial rule over the forests and Lanna.

To conclude, this chapter has explained how the early years of the RFD were characterized by the intensifying use of paperwork as a means to inscribe a new model of forest administration. Drawing upon conceptual works proposed by STS scholars and previous studies of documentary practices, I have foregrounded some of the ways in which the RFD functioned as a writing machine working in tandem with other departments in the larger network of Siam's bureaucracy. Slade appropriated the government's documentary practices, especially the production of forest leases and the issuance of laws, and "enacted" them to recruit diverse actors to participate in forest conservation. However, as the new regime of paper forestry became increasingly accepted as a normalized mode of accessing and utilizing forest resources, the papers were also enacted in myriad ways that sometimes betrayed the intentions of the RFD. Thus, rather than modeling linear progress, this chapter has shown that the rise of the RFD was just the beginning of new possibilities to mobilize forestry paperwork.

Slade's heavy-handed approach to paperwork reflects his zeal to serve as Siam's adviser for both the management of forest resources and the improvement of Siam's bureaucracy. Unfortunately for this aspiring forester, the Siamese government was not willing to give him free rein over the shaping of bureaucratic procedures. As Gregory Barton and Brett Bennett have argued, Slade's failure to secure the support from the Siamese government as well as the British Foreign Office was due to their conflicting goals. While Slade saw his work as primarily concerned with conservation [for long-term extraction], "British and Siamese political and business elites merely wanted a smooth, equitable and reliable system, not a complete overhaul." ⁷⁹ Thus, when Slade's vision increasingly got in the way of Anglo-Siamese collaborative colonial endeavors, his translation of forest expertise and the entailing network of

⁷⁹ Barton and Bennett, "Forestry as Foreign Policy," 79.

paper-based conservation began to fall apart. Even though the RFD's works were allowed to continue, Slade eventually lost his support from his recruited actors and was replaced by a new officer who was (believed to be) more understanding of the true agenda behind the establishment of the forest department in Siam.

CONCLUSION

KEEP LOOKING NORTH

Over the last couple of decades, the coloniality of Hokkaido and Lanna has become increasingly acknowledged not only within the academic realm but also among the public in both countries and on the global stage. In Hokkaido, the Ainu Cultural Promotion Act of 1997 replaced the century-old Former Aborigines Protection Act of 1899 and officially recognized the Ainu people as a distinct ethnic group. Even though some Japanese right-wing conservatives still try to maintain the myth of Japan as an ethnically and culturally homogenous country, they can no longer completely silence and erase the Ainu's existence as they did during the late nineteenth and the early twentieth centuries. The establishment of the Upopoy National Ainu Museum and Park in Shiraoi, Hokkaido, is an example of how the Japanese government tried to show the global audience that it recognizes and embraces diversity, so as to maintain its national image while hosting the 2020 Tokyo Olympics.¹ Meanwhile, in northern Thailand, the intensifying social and environmental problems following rapid economic development during the 1960s and 1970s led local academics and social activists to reevaluate the value of the "development" imposed by the central government in Bangkok. Yet, unlike the case of Hokkaido, discussion about the coloniality

¹ Nevertheless, the willingness of the Japanese government to embrace diversity has its limits. The notorious exclusion of the Ainu's performance from the original schedule of the Olympics opening ceremony raised questions about the future of the Ainu. "Olympic Snub: Dance of Japan's Indigenous Ainu Dropped from Opening Ceremony," *The Japan Times Online*, February 22, 2020, <https://www.japantimes.co.jp/news/2020/02/22/national/ainu-dance-olympics/>. See also Tessa Morris-Suzuki, "Indigenous Rights and the 'Harmony Olympics,'" *The Asia-Pacific Journal | Japan Focus* 18, no. 4 | 6 (2020): 1-8; Tristan R. Grunow et al., "Hokkaidō 150: Settler Colonialism and Indigeneity in Modern Japan and Beyond," *Critical Asian Studies* 51, no. 4 (October 2, 2019): 597-636.

of Siam's annexation of Lanna remains mostly confined within academic circles, while social activism tends to depend more on the language of center-periphery exploitation.²

In this dissertation, I have compared the Japanese northward expansion into Hokkaido with a similar process by Siam in Lanna through the lens of enviro-colonial history in order to highlight the centrality of the environment in the formation of colonial rule in Japan and Siam. The notion of enviro-colonial history is not an assumption that there is a universal model of governance that exists – or is bound to emerge – in every country. Enviro-colonial history is my conceptual tool for explaining and comparing two historical entities. Although historical actors did not regard their practices and institutions as enviro-colonial, the term, with its broad definition of what counts as *environmental* or *colonial*, allows me to draw connections between Hokkaido livestock farming and Lanna forestry. By fixing my scholarly gaze on the northern colonies, I offer a new entry point for Japan-Thailand comparison that opens new conversations on the two nations' ambiguous coloniality and the myriad roles of nature in modern state-building.

Instead of tracing the inevitable emergence of “modernity,” I have sought to foreground the plurality of historical trajectories that have been shaped by diverse colonial experiences. My concern is less about the final product (the enviro-colonial rules) than the processes in which environmental rule and colonial rule came together as a result of active envisioning and enacting. Despite the similar convergence of two fields of administration, the Hokkaido enviro-colonial was formed and transformed quite differently from its counterpart in Lanna. In Part I, I have discussed how each state's colonial endeavors were intertwined with the desire to control and exploit natural resources in the north. I have also emphasized that expert knowledges were key

² Duangchan Charoenmuang, ed., *Chiang Mai Nai Krasae Khwam Plianplaeng [Chiang Mai in Transformation]* (Chiang Mai: Sun sukha panha mueang chiang mai, 1992); Tanet Charoenmuang, *Lannaissance*.

to the envisioning of a hybrid governance. Claims of expertise usually generated internal contentions within each enviro-colonial rule due to the constant need to demarcate boundaries of power between the two administrative fields. Then, in Part II, I have shown that each enviro-colonial rule was enacted in response to the political agendas and the networks of relationships in which it was to be situated. In Hokkaido, the enactment took place on the land, and demanded substantial work on the environment and physical facilities to realize the enviro-colonial vision. On the other hand, enviro-colonial rule in Lanna was enacted on paper and heavily mediated by elaborate bureaucratic practices. Ultimately, by foregrounding the internal tensions within each state's bureaucracy, I call for more attention to the diverse group of actors who make up a "state." Each chapter of my dissertation is committed to dismissing the abstract notion of what a *state* is, emphasizing that each state is composed of heterogeneous actors who do not necessarily share the same visions and agendas.

The paper trails left behind by American and British advisers shed light on the different roles and statuses of foreign advisers in Hokkaido and Lanna. Notwithstanding their great influence upon the making of Hokkaido policies, American agriculturalists never secured the top positions in the enviro-colonial institution. Apart from giving advice, they tended to play the roles of either the practitioners in survey missions and experimental farms, or the educators at the new agricultural college. The making of policies remained in the authority of Japanese leaders in the Kaitakushi. In addition, although the Kaitakushi tried to claim itself as a specialized institution for colonial agriculture, its status continued to be local. Even after SAC was reformed into a school for colonial policy studies that would appeal to people outside of Hokkaido, the school never established permanent standing within the national administrative structure. The status of the foreign advisers partly explains why most of the documents that the advisers left behind primarily discuss their practical work while undertaking surveys or agricultural

experiments. In contrast, the rise of the RFD in 1896 marked the transformation of colonial forestry into a national institution. By putting the new department under the leadership of British foresters, the Siamese government bestowed a degree of power to forest specialists in formulating policies, which would be implemented both in Lanna and elsewhere in Siam. Such a relatively high status of the foresters sometimes put them in competition for power with other executive-level bureaucrats, while having to reconfigure their relationships with other actors such as timber companies and Lanna ruling elites, as I have already discussed in Chapter 4 and Chapter 6. This constant need for power negotiations is clearly reflected in the contents of the forest department papers, providing more insights into the foresters' interactions with other human actors than their actual work in the forests.

By attending to the changing demarcation of expertise and the changing scopes of environmental rule and colonial rule, I also scrutinize the ambiguous scale of enviro-colonial rule in each place. Even though the formation of enviro-colonial rule in Hokkaido was initially aimed at local administration, the fall of the Kaitakushi in 1882 called for an evaluation of the successes and failures of the campaigns in Hokkaido while raising questions about the significance of Hokkaido's agricultural model - especially the agricultural education offered by Sapporo Agricultural College - for Japan. Seeing their alma mater on the verge of being shut down by the government, several alumni of the college took over the work of their American professors and redesigned the curriculum in response to Japan's new colonial ambitions. Exemplified by the new course on colonial policy studies, the college's mission changed. Instead of offering only Hokkaido-specific agricultural lessons, the new Sapporo Agricultural College would train future colonial officers who could apply their Hokkaido lessons to other settler colonies such as Korea and Manchuria. In Siam, the enviro-colonial rule went back and forth between a local institution and a national institution. Like the Kaitakushi in Hokkaido, the institution of Monthon

Thesaphiban was originally designed to transform the relatively autonomous city states in Lanna into one administrative unit under Siam's direct rule. The northern forests were supposed to be controlled by the Chief Commissioner, who served as the leader of the Monthon in the north. However, after the Siamese government established the Royal Forest Department in 1896, authority over the northern forests became a site of contention between the Forest Conservator, who claimed the forests to be part of Siam's national forest administration, and the Chief Commissioner, who regarded the northern forests as part of the local administration. Ultimately, this dissertation strives to show that a focus on the politics of knowledge promises more insight into the dynamic processes of state-making through which historical actors conceptualized and negotiated the relationships between colonialism and the environment.

Even though the concept of enviro-colonial history arose from an attempt to find a new entry point for Japan-Thailand comparison, a focus on enviro-colonial entanglements offers new perspectives into historical changes that studies on either colonial or environmental aspects alone may not adequately address. One of the major contributions of colonial history is to foreground the ways in which changes in the past were shaped by unequal power relations among multiple states. In contrast to national histories, colonial history emphasizes that no single nation exists in a vacuum. A nation exists not because it naturally exists or because it recognizes itself as a nation, but because it interacts with other political entities that recognizes it as such. Sometimes, a political entity refuses to recognize another political entity as a nation and proceeds to annex it, thereby establishing the latter as a colony. By foregrounding colonial power hierarchies, colonial history asks that we attend to the processes through which various forms of states (nation, colony, empire) are formed and transformed over time. While studies of interstate relations usually focus on diplomatic or economic relations, more attention to environmental aspects can shed light on other ways of imagining and enacting state power. As a field of inquiry, environmental history

pays close attention to the role of nonhuman nature in the past. Environmental historians invite us to examine the possibility of seeing nonhumans as historical actors alongside humans and refrain from readily assuming that humans are the only agents of past changes. While the agency of the nonhuman is subject to historiographical debate, environmental history highlights the centrality of nonhuman nature in human life. Nature materially shapes humans through its existence and physical properties that can either facilitate or constrain human activities. At the same time, changing ideas about nature also inform how humans understand themselves and how they act. Thus, by simultaneously attending to both the environmental and the colonial aspects, enviro-colonial history sheds light on the complexity of causality of historical agency. The goal is not to keep adding more actors to the story but to grasp the dynamic process that have made up what we call "history."

REFERENCES

Archival Materials

National Archives of Thailand (NAT)

- ร.5 ม.16 แผนกป่าไม้ (Forest Department)
- ร.5 ม.58 มณฑลลาวเฉียง (Monthon Lao Chiang [Northwestern Monthon])

Payap University Archive

“Siam (North Laos) Minutes.” 1902. RG028/79 *Siam Letters (Laos Mission)*, Vol. 271.

Northern Studies Collection, Hokkaido University Library

Fifth Annual Report of Sapporo Agricultural College, 1881. Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976.

First Annual Report of Sapporo Agricultural College, 1877. Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976.

Fourth Annual Report of Sapporo Agricultural College, 1879-1880. Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976.

Nishide Kimiyuki, and Alice K. Swinger, eds. *Dun Kankei Kaitakushi Hōbun • shokan No Honkoku [Dun-Related Kaitakushi Report • Reprinted Correspondence]*, 1991.

Penhallow, D. P. “Contributions to the Natural History of Hokkaido.” In *Second Annual Report of Sapporo Agricultural College, 1878*, 145–71. Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976.

Second Annual Report of Sapporo Agricultural College, 1878. Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976.

Sixth Annual Report of Sapporo Agricultural College, 1881-1886. Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976.

Tanabe Yasuichi, Nishide Kimiyuki, and Nishitori Teruo, eds. *Hokkaidō-Ritsu Bunshokan Shozō Edwin • Dun Kankei Eibun Shokan [English Correspondence Regarding Edwin Dun in the Possession of the Archives of Hokkaido]*. Obihiro, Japan: Obihiro University of Agriculture and Veterinary Medicine, 1993.

Third Annual Report of Sapporo Agricultural College, 1879. Sapporo: Hokkaidō Daigaku Toshokan Kankōkai, 1976.

U.S. Department of Agriculture, National Agricultural Library [Online]

Capron, Horace. *Memoirs of Horace Capron.* n.p., 1884. <http://archive.org/details/CAT30983447>.

Dun, Edwin. *Reminiscences of Nearly Half a Century in Japan,* 1919.
<https://archive.org/details/CAT10899295DunReminiscences/page/n1/mode/2up>.

Published Primary Sources

Black, J. S. *Siam: Report on the Teak Trade in Siam.* Reports on Subjects of General and Commercial Interest. Miscellaneous Series 357. London: H.M.S.O., 1895.

Capron, Horace. *Reports and Official Letters to the Kaitakushi.* Tokei: Kaitakushi, 1875.

Clark, William Smith, Satō Shōsuke, and Uchida Kiyoshi. *Kurāku No Tegami - Sapporo Nōgakkō Seito to No Ōfuku Shokan [The Correspondence of W.S. Clark and His Japanese Students].* Edited by Satō Masahiko, Naoki Onishi, and Hideshi Seki. Sapporo: Hokkaido Shuppan Kikaku Center, 1985.

Hokkaidō, ed. *Shin Hokkaidō shi.* Vol. 3. 9 vols. Sapporo: Hokkaidō, 1971.

Lyman, Benjamin Smith. "Preliminary Report on the First Season's Work of the Geological Survey of Yesso." In *Reports and Official Letters to the Kaitakushi*, 115–60. Tokei: Kaitakushi, 1875.

Satow, Ernest Mason. *The Satow Siam Papers: The Private Diaries and Correspondence of Ernest Satow, C.M.G.H.B.M., Minister-Resident, Bangkok, 1885-1888.* Bangkok: Historical Society, 1997.

Warfield, A. G. "Report of A.G. Warfield." In *Reports and Official Letters to the Kaitakushi*, 17–37. Tokei: Kaitakushi, 1875.

Legal Documents

"Regulations for the Use of Teak for the Construction of Government Officers and Public Work." *Ratchakitchanubeksa [Royal Thai Government Gazette]* 17, no. 37 (December 9, 1900): 523–25.

- "The Forest Conservation Act, 1897." *Ratchakitchanubeksa [Royal Thai Government Gazette]* 14, no. 26 (June 26, 1897): 337–39.
- "The Hammer Mark Couterfeiting Prevention Act, 1898." *Ratchakitchanubeksa [Royal Thai Government Gazette]* 15, no. 48 (1898): 505.
- "The Teak Conservation Act, 1897." *Ratchakitchanubeksa [Royal Thai Government Gazette]* 14, no. 36 (December 5, 1897): 546.
- "The Untaxed Teak Smuggling Prevention Act, 1899." *Ratchakitchanubeksa [Royal Thai Government Gazette]* 16, no. 16 (1899): 196–97.

Published Books, Book Chapters, and Journal Articles

- Agrawal, Arun. *Environmentality: Technologies of Government and the Making of Subjects*. Durham: Duke University Press, 2005.
- Anderson, Virginia DeJohn. *Creatures of Empire: How Domestic Animals Transformed Early America*. New York: Oxford University Press, 2004.
- Appuhn, Karl. "Inventing Nature: Forests, Forestry, and State Power in Renaissance Venice." *The Journal of Modern History* 72, no. 4 (2000): 861–89.
- Armour, Andrew J. L., ed. *Asia and Japan: The Search for Modernization and Identity*. London: Athlone Press, 1985.
- Baker, Chris, and Pasuk Phongpaichit. *A History of Thailand*. Third. Port Melbourne, Australia: Cambridge University Press, 2014.
- Barlow, Tani. "Debates over Colonial Modernity in East Asia and Another Alternative." *Cultural Studies* 26, no. 5 (September 1, 2012): 617–44.
- — —, ed. *Formations of Colonial Modernity in East Asia*. Durham, N.C.: Duke University Press, 1997.
- Barton, Gregory A., and Brett M. Bennett. "A Case Study in the Environmental History of Gentlemanly Capitalism: The Battle Between Gentleman Teak Merchants and State Foresters in Burma and Siam, 1827-1901." In *Africa, Empire and Globalization: Essays in Honor of A.G. Hopkins*, edited by Toyin Falola and Emily Brownell, 317–31. Durham, N.C.: Carolina Academic Press, 2011.
- — —. "Forestry as Foreign Policy: Anglo-Siamese Relations and the Origins of Britain's Informal Empire in the Teak Forests of Northern Siam, 1883–1925." *Itinerario* 34, no. 2 (2010): 65–86.
- Beauchamp, Edward R., and Akira. Iriye, eds. *Foreign Employees in Nineteenth-Century Japan*. Boulder: Westview Press, 1990.

- Biggs, David. "Breaking from the Colonial Mold: Water Engineering and the Failure of Nation-Building in the Plain of Reeds, Vietnam." *Technology and Culture* 49, no. 3 (2008): 599–623.
- Blackburn, Anne M. *Locations of Buddhism: Colonialism and Modernity in Sri Lanka*. Chicago: University of Chicago Press, 2010.
- Bocking, Stephen. "Situated Yet Mobile: Examining the Environmental History of Arctic Ecological Science." In *New Natures: Joining Environmental History with Science and Technology Studies*, edited by Dolly Jørgensen, Finn Arne Jørgensen, and Sara B. Pritchard, 164–78. Pittsburgh, Pa.: University of Pittsburgh Press, 2013.
- Browne, Patrick T. J. "Cultivation of the Higher Self: William Smith Clark and Agricultural Education." *Historical Journal of Massachusetts* 36, no. 1 (Winter 2008): 1–28.
- Bryant, Raymond L. "From Laissez-Faire to Scientific Forestry: Forest Management in Early Colonial Burma, 1826-85." *Forest & Conservation History* 38, no. 4 (1994): 160–70.
- — —. *The Political Ecology of Forestry in Burma, 1824-1994*. Honolulu: University of Hawai'i Press, 1997.
- Callon, Michel. "Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay." In *Power, Action, and Belief*, edited by John Law, 196–233. London: Routledge & Kegan Paul, 1986.
- Carson, Rachel. *Silent Spring*. Boston: Houghton Mifflin, 1962.
- Chawin Leenabanchong. "Economic Development of Japan and Thailand: An Historical Perspective." *International Journal of East Asian Studies* 21, no. 2 (2017): 35–60.
- Chua, Lawrence. "The City and the City: Race, Nationalism, and Architecture in Early Twentieth-Century Bangkok." *Journal of Urban History* 40, no. 5 (September 1, 2014): 933–58.
- Clark, William S. *Agriculture of Japan*. Boston: Rand, Abery, & Co., 1879.
- Cohn, Bernard S. *Colonialism and Its Forms of Knowledge: The British in India*. Princeton, N.J.: Princeton University Press, 1996.
- Crosby, Alfred W. *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*. Cambridge: Cambridge University Press, 1986.
- Crosby, Alfred W. "Ecological Imperialism: The Overseas Migration of Western Europeans as a Biological Phenomenon." In *The Ends of the Earth: Perspectives on Modern Environmental History*, edited by Donald Worster, 103–17. Cambridge, England: Cambridge University Press, 1988.
- Cross, Coy F. *Justin Smith Morrill: Father of the Land-Grant Colleges*. East Lansing: Michigan State University Press, 1999.

- Dan, Michiko. *Meiji No Bokusaku*. Tokyo: Dan Michiko Kōenkai, 1968.
- Davis, Richard. *Muang Metaphysics: A Study of Northern Thai Myth and Ritual*. Bangkok, Thailand: Pandora, 1984.
- Davisakd Puaksom. *Chuea rok rang kai lae rat wetchakam: Prawattisat kan phaet samai mai nai sangkhom thai [Germ, Body and the Medical State: A History of Modern Medicine in Thai Society]*. 2nd ed. Bangkok: Illumination Editions, 2018.
- Duangchan Charoenmuang, ed. *Chiang Mai Nai Krasae Khwam Plianplaeng [Chiang Mai in Transformation]*. Chiang Mai: Sun sukpa panha mueang chiang mai, 1992.
- Duke, Benjamin C. *The History of Modern Japanese Education: Constructing the National School System, 1872-1890*. New Brunswick, N.J.: Rutgers University Press, 2009.
- Ebina Kenzō. *Hokkaidō ushi-zukuri hyakunijūgo-nen: Machimura Hirotaka to Machimura-nōjō [A Hundred and Twenty Five Years of Hokkaido Cattle Making: Machimura Hirotaka and Machimura Farm]*. Tokyo: Nishida shoten, 2000.
- — —. *Sapporo Nōgakkō: Nihon kindai seishin no genryū [Sapporo Agricultural College: The Origin of Japan's Modern Spirits]*. Shohan. Tōkyō: Shinhyōron, 1991.
- Forsyth, Tim, and Andrew Walker. *Forest Guardians, Forest Destroyers: The Politics of Environmental Knowledge in Northern Thailand*. Seattle: University of Washington Press, 2008.
- Forsyth, Timothy. "The Mu'ang and the Mountain: Perceptions of Environmental Degradation in Upland Thailand." *South East Asia Research* 3, no. 2 (1995): 169-91.
- Francesca Bray. *Technology and Gender: Fabrics of Power in Late Imperial China*. Berkeley. University of California Press, 1997.
- Fujita, Fumiko. *American Pioneers and the Japanese Frontier: American Experts in Nineteenth-Century Japan*. Westport, CT: Greenwood Press, 1994.
- Galison, Peter, Michael D. Gordin, and David Kaiser, eds. *Science and Society: The History of Modern Physical Science in the Twentieth Century*. New York: Routledge, 2001.
- Geiger, Roger L., and Nathan M. Sorber, eds. *The Land-Grant Colleges and the Reshaping of American Higher Education*. New Brunswick (U.S.A.): Transaction Publishers, 2013.
- Gieryn, Thomas F. "Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists." *American Sociological Review* 48, no. 6 (1983): 781-95.
- Goldman, Mara J., Paul Nadasdy, and Matthew D. Turner, eds. *Knowing Nature: Conversations at the Intersection of Political Ecology and Science Studies*. Chicago: University of Chicago Press, 2011.

- Grove, Richard H. *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600-1860*. Cambridge, UK: Cambridge University Press, 1995.
- Grundmann, Reiner. "The Problem of Expertise in Knowledge Societies." *Minerva* 55, no. 1 (2017): 25–48.
- Grunow, Tristan R., Fuyubi Nakamura, Katsuya Hirano, Mai Ishihara, ann-elise lewallen, Sheryl Lightfoot, Mayunkiki, Danika Medak-Saltzman, Terri-Lynn Williams-Davidson, and Tomoe Yahata. "Hokkaidō 150: Settler Colonialism and Indigeneity in Modern Japan and Beyond." *Critical Asian Studies* 51, no. 4 (October 2, 2019): 597–636.
- Guha, Ramachandra. *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalaya*. 1st University of California Press ed. Berkeley: University of California Press, 1990.
- Harrison, John Armstrong. *Japan's Northern Frontier: A Preliminary Study in Colonization and Expansion, with Special Reference to the Relations of Japan and Russia*. Gainesville: University of Florida Press, 1953.
- Hennessey, John L. "A Colonial Trans-Pacific Partnership: William Smith Clark, David Pearce Penhallow and Japanese Settler Colonialism in Hokkaido." *Settler Colonial Studies* 0, no. 0 (September 11, 2019): 1–20.
- — —. "Engineering Japanese Settler Colonialism in Hokkaido: A Postcolonial Reevaluation of William Wheeler's Work for the Kaitakushi." *Asia in Focus: A Nordic Journal on Asia by Early Career Researchers* 6 (2018): 2–13.
- Hill, Christopher L. "Conceptual Universalization in the Transnational Nineteenth Century." In *Global Intellectual History*, edited by Samuel Moyn and Andrew Sartori, 134–58. New York: Columbia University Press, 2013.
- Hirano Katsuya. "Thanatopolitics in the Making of Japan's Hokkaido: Settler Colonialism and Primitive Accumulation." *Critical Historical Studies* 2, no. 2 (September 2015): 191–218.
- Hokkaido Prefectural Government, General Affairs Department, and Archives Section. *Foreign Pioneers: A Short History of the Contribution of Foreigners to the Development of Hokkaido*. Sapporo, Japan: Hokkaido Prefectural Government, 1968.
- Hokkaidō Teikoku Daigaku Nōgakubu. *American Influence upon the Agriculture of Hokkaido, Japan*. Sapporo, Japan: Published by the College of Agriculture, Tohoku Imperial University, 1915.
- Hong, Lysa. "Invisible Semicolony: The Postcolonial Condition and Royal National History in Thailand." *Postcolonial Studies* 11, no. 3 (2008): 315–27.
- — —. "'Stranger within the Gates': Knowing Semi-Colonial Siam as Extraterritorials." *Modern Asian Studies* 38, no. 2 (2004): 327–54.

- Howell, David L. "Early Shizoku Colonization of Hokkaidō." *Journal of Asian History* 17 (1983): 40-67.
- — —. "Making 'Useful Citizens' of Ainu Subjects in Early Twentieth-Century Japan." *The Journal of Asian Studies; Ann Arbor* 63, no. 1 (2004): 5-29.
- Hull, Matthew S. *Government of Paper: The Materiality of Bureaucracy in Urban Pakistan*. Berkeley: University of California Press, 2012.
- Igler, David. "Diseased Goods: Global Exchanges in the Eastern Pacific Basin, 1770-1850." *The American Historical Review* 109, no. 3 (2004): 693-719.
- Iijima, Akiko. "The 'International Court' System in the Colonial History of Siam." *Taiwan Journal of Southeast Asian Studies* 5, no. 1 (2008): 31-64.
- Inoue Katsuo. *Meiji Nihon no shokuminchi shihai: Hokkaidō kara Chōsen e*. Tokyo: Kabushiki Kaisha Iwanami Shoten, 2013.
- — —. "Sapporo Nōgakkō to Shokumingaku - Satō Shōsuke Wo Chūshin Ni [Sapporo Agricultural College and Colonial Studies - Focusing on the Role of Satō Shōsuke]." *Hokudai Hyaku-Nijū-Go Nen Shi*, 2003, 111-62.
- — —. "Satō Shōsuke [Shokuminron] Kōgi Nōto: Shokumingaku to Sapporo Nōgakkō [Satō Shōsuke's Lecture Notes on 'Colonial Policy': Colonial Studies and Sapporo Agricultural College]." *Bulletin of the Graduate School of Letters, Hokkaido University* 46, no. 3 (March 31, 1998): 1-39.
- Jackson, Peter A. "The Ambiguities of Semicolonial Power in Thailand." In *The Ambiguous Allure of the West: Traces of the Colonial in Thailand*, edited by Rachel V. Harrison and Peter A. Jackson, 37-56. Ithaca: Cornell Southeast Asia Program Publications, 2010.
- Jacoby, Karl. *Crimes against Nature: Squatters, Poachers, Thieves, and the Hidden History of American Conservation*. Berkeley: University of California Press, 2001.
- Jasanoff, Sheila. *The Fifth Branch: Science Advisers as Policymakers*. Cambridge, Mass.: Harvard University Press, 1990.
- Jørgensen, Dolly, Finn Arne Jørgensen, and Sara B. Pritchard, eds. *New Natures: Joining Environmental History with Science and Technology Studies*. Pittsburgh, Pa.: University of Pittsburgh Press, 2013.
- Kaiser, David., ed. *Pedagogy and the Practice of Science: Historical and Contemporary Perspectives*. Cambridge, Mass.: MIT Press, 2005.
- Komori Yōichi. "Rule in the Name of 'Protection': The Vocabulary of Colonialism." In *Reading Colonial Japan: Text, Context, and Critique*, edited by Michele Mason and Helen J. S. Lee, translated by Michele Mason, 60-75. Stanford, California: Stanford University Press, 2012.

- Laet, Marianne de, and Annemarie Mol. "The Zimbabwe Bush Pump: Mechanics of a Fluid Technology." In *Technoscience: The Politics of Interventions*, edited by Kristin Asdal, Brita Brenna, and Ingunn Moser, 179–220. Oslo: Unipub, 2007.
- Larsson, Tomas. *Land and Loyalty: Security and the Development of Property Rights in Thailand*. Ithaca: Cornell University Press, 2012.
- Latour, Bruno. "Give Me a Laboratory and I Will Raise the World." In *Science Observed: Perspectives on the Social Study of Science*, edited by Karin Knorr-Cetina and Michael Mulkay, 141–70. London and Beverly Hills: Sage, 1983.
- — —. *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press, 2005.
- — —. *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, Mass.: Harvard University Press, 1987.
- — —. *The Pasteurization of France*. Cambridge, Mass: Harvard University Press, 1988.
- — —. "Visualization and Cognition: Drawing Things Together." In *Knowledge and Society: Studies in the Sociology of Culture Past and Present*, edited by Henrika Kuklick, 6:1–40. Oxford, UK: JAI Press, 1986.
- Laungaramsri, Pinkaew. *Atalak Ekasan: Wongsā Withaya Kan Khuap Khum Prachakon Khong Rat Thai [Identity Paper: A Genealogy of the Control of Population by the Thai State]*. Chiang Mai: Chiang Mai University Press, 2018.
- Law, John, and John Hassard, eds. *Actor Network Theory and After*. Oxford: Blackwell, 1999.
- Levine, Philippa. "Is Comparative History Possible?" *History and Theory* 53 (2014).
- Liddick, Don. *Crimes against Nature: Illegal Industries and the Global Environment*. Santa Barbara, Calif.: Praeger, 2011.
- Likhit Dhiravegin. *The Meiji Restoration (1868-1912) and the Chakkri Reformation (1868-1910): A Comparative Perspective*. Bangkok, Thailand: Research Center of the Faculty of Political Science, Thammasat University, 1984.
- Loos, Tamara Lynn. "Competitive Colonialisms: Siam and the Malay Muslim South." In *The Ambiguous Allure of the West: Traces of the Colonial in Thailand*, edited by Rachel V. Harrison and Peter A. Jackson, 75–91. Ithaca: Cornell Southeast Asia Program Publications, 2010.
- Lowood, Henry E. "The Calculating Forester: Quantification, Cameral Science, and the Emergence of Scientific Forestry Management in Germany." In *The Quantifying Spirit in the Eighteenth Century*, edited by Tore Frangsmyr, J. L. Heilbron, and Robin E. Rider, 316–43. Berkeley: University of California Press, 1990.

- Lu, Sidney Xu. "Colonizing Hokkaido and the Origin of Japanese Trans-Pacific Expansion, 1869–1894." *Japanese Studies* 36, no. 2 (May 3, 2016): 251–74.
- — —. "Eastward Ho! Japanese Settler Colonialism in Hokkaido and the Making of Japanese Migration to the American West, 1869–1888." *The Journal of Asian Studies* 78, no. 3 (August 2019): 521–47.
- — —. *The Making of Japanese Settler Colonialism: Malthusianism and Trans-Pacific Migration, 1868–1961*. Cambridge: Cambridge University Press, 2019.
- Maeda Ai. *Text and the City: Essays on Japanese Modernity*. Edited by James A. Fujii. Durham: Duke University Press, 2004.
- Maki, John M. *A Yankee in Hokkaido: The Life of William Smith Clark*. Lanham, Md.: Lexington Books, 2002.
- Marcon, Federico. *The Knowledge of Nature and the Nature of Knowledge in Early Modern Japan*. Chicago: University of Chicago Press, 2015.
- Mason, Michele. *Dominant Narratives of Colonial Hokkaido and Imperial Japan: Envisioning the Periphery and the Modern Nation-State*. New York: Palgrave Macmillan, 2012.
- Mathews, Andrew S. *Instituting Nature: Authority, Expertise, and Power in Mexican Forests*. Cambridge, Mass.: MIT Press, 2011.
- Matsushita Yoshio. *Tondenhei Sei Shi [A History of the Tondenhei System]*. Tokyo: Satsuki shobō, 1981.
- McElwee, Pamela D. *Forests Are Gold: Trees, People, and Environmental Rule in Vietnam*. Seattle: University of Washington Press, 2016.
- Meiggs, Russell. *Trees and Timber in the Ancient Mediterranean World*. Oxford: Clarendon Press, 1982.
- Melville, Elinor G. K. *A Plague of Sheep: Environmental Consequences of the Conquest of Mexico*. Studies in Environment and History. Cambridge: Cambridge University Press, 1994.
- Mol, Annemarie. *The Body Multiple: Ontology in Medical Practice*. Durham: Duke University Press, 2002.
- Moon, Suzanne M. "Takeoff or Self-Sufficiency? Ideologies of Development in Indonesia, 1957–1961." *Technology and Culture* 39, no. 2 (1998): 187–212.
- Morris-Suzuki, Tessa. "Creating the Frontier: Border, Identity and History in Japan's Far North." *East Asian History* 7 (1994): 1–24.
- — —. "Indigenous Rights and the 'Harmony Olympics.'" *The Asia-Pacific Journal | Japan Focus* 18, no. 4 | 6 (2020): 1–8.

- — —. "Lines in the Snow: Imagining the Russo-Japanese Frontier." *Pacific Affairs* 72, no. 1 (1999): 57–77.
- Nash, Margaret A. "Entangled Pasts: Land-Grant Colleges and American Indian Dispossession." *History of Education Quarterly* 59, no. 4 (November 2019): 437–67.
- Nish, Ian., ed. *The Iwakura Mission in America and Europe: A New Assessment*. Richmond, Surrey, U.K.: Japan Library, 1998.
- Nithi 'Īeosīwong. *Pen and Sail: Literature and History in Early Bangkok Including the History of Bangkok in the Chronicles of Ayutthaya*. Edited by Christopher John Baker, Benedict R. O'G. Anderson, Craig J. Reynolds, and Nithi 'Īeosīwong. Chiang Mai, Thailand: Silkworm Books, 2005.
- Nitobe Inazō. *The Imperial Agricultural College of Sapporo, Japan*. Sapporo: The Imperial College of Agriculture, 1893.
- Nuaon Khrouthongkhieo. *Exposing the Plan to Occupy Lanna*. Bangkok: Matichon, 2016.
- Ogura Takekazu. *Agricultural Development in Modern Japan*. Tokyo: Fuji Pub. Co., 1963.
- Ohnuki-Tierney, Emiko. *Rice as Self: Japanese Identities through Time*. Princeton, N.J.: Princeton University Press, 1993.
- The Japan Times Online. "Olympic Snub: Dance of Japan's Indigenous Ainu Dropped from Opening Ceremony," February 22, 2020.
<https://www.japantimes.co.jp/news/2020/02/22/national/ainu-dance-olympics/>.
- Pasuk Phongpaichit. *Sētthakit kānmūrang Thai samai Krung Thēp*. Phim khrang ræk. Chiang Mai: Silkworm Books, 2539.
- Pawson, Eric. "Ecological Imperialism." In *International Encyclopedia of Geography*, 1–9. John Wiley & Sons, Ltd, 2017.
- Peluso, Nancy Lee, and Peter Vandergeest. "Genealogies of the Political Forest and Customary Rights in Indonesia, Malaysia, and Thailand." *The Journal of Asian Studies; Ann Arbor* 60, no. 3 (2001): 761–812.
- Piyanart Bunnag. *Modern Thai history from the Bowring Treaty to the October student uprising*. Second Edition. Bangkok: Faculty of Arts, Chulalongkorn University, 2550.
- Porphant Ouyyanont. *A Regional Economic History of Thailand*. Singapore: ISEAS-Yusof Ishak Institute, 2017.
- Pritchard, Sara B. "From Hydroimperialism to Hydrocapitalism: 'French' Hydraulics in France, North Africa, and Beyond." *Social Studies of Science* 42, no. 4 (August 1, 2012): 591–615.
- — —. "Joining Environmental History with Science and Technology Studies: Promises, Challenges, and Contributions." In *New Natures: Joining Environmental History with*

- Science and Technology Studies*, edited by Dolly Jørgensen, Finn Arne Jørgensen, and Sara B. Pritchard, 1–20. Pittsburgh, Pa.: University of Pittsburgh Press, 2013.
- Rabier, Christelle. "Introduction: Expertise in Historical Perspectives." In *Fields of Expertise: A Comparative History of Expert Procedures in Paris and London, 1600 to Present*, edited by Christelle Rabier, 1–15. Newcastle, UK: Cambridge Scholars Publishing, 2007.
- Raj, Kapil. *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650–1900*. New York: Palgrave Macmillan, 2007.
- Rajan, Ravi. "Imperial Environmentalism or Environmental Imperialism? European Forestry, Colonial Foresters and the Agendas of Forest Management in British India 1800-1900." In *Nature and the Orient: The Environmental History of South and Southeast Asia*. Delhi: Oxford University Press, 1997.
- Rajan, S. Ravi. *Modernizing Nature: Forestry and Imperial Eco-Development 1800-1950*. Oxford: Clarendon Press, 2006.
- Rodríguez Goyes, David., Hanneke. Mol, Avi. Brisman, and Nigel. South, eds. *Environmental Crime in Latin America: The Theft of Nature and the Poisoning of the Land*. 1st ed. 2017. London: Palgrave Macmillan UK, 2017.
- S., H. "System of Measuring and Selling Timber in Siam." *Indian Forester* 22, no. 11 (1896): 427–29.
- Sakai, Naoki. "Modernity and Its Critique: The Problem of Universalism and Particularism." In *Postmodernism and Japan*, edited by Masao. Miyoshi and Harry D. Harootunian, 93–122. Durham: Duke University Press, 1989.
- Sapporo Nōgakkō Gakugeikai, ed. "Address of President W. S. Clark." In *Sapporo Nōgakkō*. Sapporo: Hokkaidō Daigaku Toshō Kankōkai, 2005.
- — —, ed. "Kuroda Kiyotaka kun kaikōshikiji [College Opening Ceremony Address by Kuroda Kiyotaka]." In *Sapporo Nōgakkō*, 1–2. Sapporo: Hokkaidō Daigaku Toshō Kankōkai, 2005.
- Sarasawadee Ongsakul. *Prawattisat Lanna [Lanna History]*. 12th ed. Bangkok: Amarin, 2018.
- Sarasawadee Prayoonsathian. "The administrative reform of Monthon Payap (B.E. 2436 -2476)." M.Ed. Thesis, Srinakharinwirot University, 1980.
- Scott, James C. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven: Yale University Press, 1998.
- Seely, Bruce Edsall. "Historical Patterns in the Scholarship of Technology Transfer." *Comparative Technology Transfer and Society* 1, no. 1 (2003): 7–48.
- Seidensticker, Edward. *Low City, High City: Tokyo from Edo to the Earthquake*. New York: Knopf, 1983.

- Shapin, Steven, and Simon Schaffer. *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*. Princeton, N.J.: Princeton University Press, 1985.
- Shiina Shigeaki. "Migrants in Agricultural Development: A Study of Intrarural Migration." In *Migrants in Agricultural Development*, edited by J. A. Mollett, 92–110. London: Palgrave Macmillan UK, 1991.
- Sing Suwannakij, and Søren Ivarsson. "Inscribing Siam: The State of Documentary and Spatial Practices." *Modern Asian Studies* 54, no. 5 (September 2020): 1596–1630.
- Sivaramakrishnan, K. *Modern Forests: Statemaking and Environmental Change in Colonial Eastern India*. Stanford: Stanford University Press, 1999.
- — —. "Science, Environment and Empire History: Comparative Perspectives from Forests in Colonial India." *Environment and History* 14, no. 1 (2008): 41–65.
- Smalley, William A. *Linguistic Diversity and National Unity: Language Ecology in Thailand*. Chicago: University of Chicago Press, 1994.
- Star, Susan Leigh. "Power, Technology and the Phenomenology of Conventions: On Being Allergic to Onions." *The Sociological Review* 38, no. S1 (1990): 26–56.
- Star, Susan Leigh, and James R. Griesemer. "Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39." *Social Studies of Science* 19, no. 3 (August 1, 1989): 387–420.
- Stoler, Ann Laura, and Frederick Cooper. "Between Metropole and Colony: Rethinking a Research Agenda." In *Tensions of Empire: Colonial Cultures in a Bourgeois World*, edited by Frederick Cooper and Ann Laura Stoler. Berkeley, C.A.: University of California Press, 1997.
- Stott, Philip. "Mu'ang and Pa: Elite Views of Nature in Changing Thailand." In *Thai Constructions of Knowledge*, edited by Manas Chitakasem and Andrew. Turton, 142–54. London: School of Oriental and African Studies, University of London, 1991.
- Strathern, Marilyn. "Cutting the Network." *The Journal of the Royal Anthropological Institute* 2, no. 3 (1996): 517–35.
- Study Group of Foreign Settlements in Hakodate. *Japan's Surprising Pioneer: Hakodate through 150 Images*. Hakodate: Study Group of Foreign Settlements in Hakodate, 2015.
- Sukanya Nitungkorn. "Education and Economic Development during the Modernization Period: A Comparison between Thailand and Japan." *Southeast Asian Studies* 38, no. 2 (2000): 142–64.
- Sutter, Paul S. "Nature's Agents or Agents of Empire?: Entomological Workers and Environmental Change during the Construction of the Panama Canal." *Isis* 98, no. 4 (2007): 724–54.

- Takakura Shin'ichirō. *Ainu Seisakushi [A History of Ainu Policies]*. Tōkyō: Nihon Hyōronsha, 1942.
- — —. *The Ainu of Northern Japan: A Study in Conquest and Acculturation*. Translated by John A. Harrison. Philadelphia: American Philosophical Society, 1960.
- Tanabe Yasuichi. *Oyatoi Gaikokujin Edwin Dun: Hokkaidō Nōgyō to Chikusan No Yoake [Edwin Dun the Foreign Employee: The Dawn of Hokkaido Agriculture and Animal Husbandry]*. Sapporo: Hokkaidō shuppan kikaku sentā, 1999.
- Tanabe Yasuichi, Nishide Kimiyuki, and Nishitori Teruo, eds. *Hokkaidō-Ritsu Bunshokan Shozō Edwin · Dun Kankei Eibun Shokan [English Correspondence Regarding Edwin Dun in the Possession of the Archives of Hokkaido]*. Obihiro, Japan: Obihiro University of Agriculture and Veterinary Medicine, 1993.
- Tanet Charoenmuang. *Lannaissance: 120 Years of Local Resistance against the Centralized State (B.E. 1899-2019)*. Chiang Mai: Darawan Kan Phim, 2020.
- Taunjai Chaisinlapa. "Lanna in the Perception of the Siamese Elite 1884-1933 A.D." M.A. Thesis, Thammasat University, 1993.
- Tej Bunnag. *The Provincial Administration of Siam, 1892-1915: The Ministry of the Interior under Prince Damrong Rajanubhab*. Kuala Lumpur: Oxford University Press, 1977.
- The Times. "The Teak Trade Of Northern Siam," August 31, 1900, Issue 36235 edition.
- "The Untaxed Teak Smuggling Prevention Act, 1899." *Ratchakitchanubeksa [Royal Thai Government Gazette]* 16, no. 16 (1899): 196-97.
- Thongchai Winichakul. *Siam Mapped: A History of the Geo-Body of a Nation*. Honolulu: University of Hawaii Press, 1994.
- — —. "The Quest for 'Siwilai': A Geographical Discourse of Civilizational Thinking in the Late Nineteenth and Early Twentieth-Century Siam." *The Journal of Asian Studies* 59, no. 3 (2000): 528-49.
- Tinakrit Sireerat. "The Imagination and Realization of 'Lanna': Space, Power-Knowledge, and Siam's Colonial Legacy." *Thammasat Journal of History* 8, no. 2 (2021): 169-202.
- Totman, Conrad D. *A History of Japan*. 2nd ed. Malden, Mass.: Blackwell Pub., 2005.
- — —. *The Green Archipelago: Forestry in Preindustrial Japan*. Berkeley: University of California Press, 1989.
- Tucker, Richard P., and J. F. Richards, eds. *Global Deforestation and the Nineteenth-Century World Economy*. Durham, N.C.: Duke University Press, 1983.
- Vanderveest, Peter, and Nancy Lee Peluso. "Empires of Forestry: Professional Forestry and State Power in Southeast Asia, Part 1." *Environmental History* 12, no. 1 (2006): 31-64.

- — —. "Empires of Forestry: Professional Forestry and State Power in Southeast Asia, Part 2." *Environmental History* 12, no. 4 (2006): 359-93.
- — —. "Territorialization and State Power in Thailand." *Theory and Society* 24, no. 3 (1995): 385-426.
- Verschuier, Charlotte von. *Rice, Agriculture, and the Food Supply in Premodern Japan*. Edited by Wendy Cobcroft. London: Routledge, Taylor & Francis Group, 2016.
- Walker, Brett L. *The Conquest of Ainu Lands: Ecology and Culture in Japanese Expansion, 1590-1800*. Berkeley: University of California Press, 2001.
- — —. *The Lost Wolves of Japan*. Seattle: University of Washington Press, 2005.
- — —. *Toxic Archipelago: A History of Industrial Disease in Japan*. Seattle: University of Washington Press, 2010.
- White, R. D. *Crimes against Nature: Environmental Criminology and Ecological Justice*. Cullompton, UK: Willan, 2008.
- Widder, Keith R. *Michigan Agricultural College: The Evolution of a Land-Grant Philosophy, 1855-1925*. East Lansing, Mich.: Michigan State University Press, 2005.
- Willcock, Hiroko. "Traditional Learning, Western Thought, and the Sapporo Agricultural College: A Case Study of Acculturation in Early Meiji Japan." *Modern Asian Studies* 34, no. 4 (2000): 977-1017.
- Yaguchi, Yujin. "American Objects, Japanese Memory: 'American' Landscape and Local Identity in Sapporo, Japan." *Winterthur Portfolio* 37, no. 2/3 (June 2002): 93-121.

Theses and Dissertations

- Amnuayvit Thitibordin. "Control and Prosperity: The Teak Business in Siam 1880s-1932." Ph.D. Diss., University of Hamburg, 2016.
- Anthony, David Forsyth. "The Administration of Hokkaido under Kuroda Kiyotaka, 1870-1882: An Early Example of Japanese-American Cooperation." Ph.D. Diss., Yale University, 1951.
- Banasopit Mekvichai. "The Teak Industry in North Thailand: The Role of a Natural Resource-Based Export Economy in Regional Development." Ph.D. Diss., Cornell University, 1988.
- Batchelor, Randal Shon. "Borrowing modernity: A comparison of educational change in Japan, China, and Thailand from the early seventeenth to the mid-twentieth century." PhD Diss, Montana State University, 2005.

- Boonsanong Punyodyana. "Thai Selective Social Change: A Study with Comparative Reference to Japan." Ph.D. Diss., 1971.
- Bowie, Katherine Ann. "Peasant Perspectives on the Political Economy of the Northern Thai Kingdom of Chiang Mai in the Nineteenth Century: Implications for the Understanding of Peasant Political Expression." Ph.D. Diss., University of Chicago, 1988.
- Brailey, Nigel J. "The Origin of the Siamese Forward Movement in Western Laos, 1859-1892." Ph.D. Diss., University of London, 1968.
- Chamaichome Sunthornswat. "A Historical Study of Forestry in Northern Thailand From 1896-1932." M.A. Thesis, Chulalongkorn University, 1978.
- Chompunut Nakiraks. "The Role of Foreign Advisers during the Reign of Rama V from 1868-1910." M.A. Thesis, Chulalongkorn University, 1970.
- Choosit Choochard. "The Evolution of the Village Economy in North Thailand: B.E. 2349-2475." M.A. Thesis, Srinakharinwirot University, 1980.
- Easum, Taylor M. "Urban Space in the Colonial Margins: Chiang Mai from Lanna to Siam." Ph.D. Diss., University of Wisconsin-Madison, 2012.
- Hansen, Paul S. "Hokkaido Dairy Farm: Change, Otherness and the Search for Security." Ph.D. Diss., University of London, School of Oriental and African Studies, 2010.
- Parichart Vilavan. "Forest Product Trade in Ayutthaya History, 1350-1767." M.A. Thesis, Chulalongkorn University, 1985.
- Pittayawat Pittayaporn. "The Phonology Of Proto-Tai." Ph.D. Diss., Cornell University, 2009.
- Pornpun Chongwattana. "Disputes of British Subjects against the Chiefs of Chiangmai Resulting in the Siamese Government Taking over the Administration of North West Siam (Payab Circle) (1858-1902 A.D.)." M.A. Thesis, Chulalongkorn University, 1974.
- Porphant Ouyyanont. *A Regional Economic History of Thailand*. Singapore: ISEAS-Yusof Ishak Institute, 2017.
- Prompong Na Chiang Mai. "The Administrative Reform of the Lao Chiang States in the Reign of King Chulalongkorn, 1886-1895." M.Ed. Thesis, Srinakharinwirot University, 1975.
- Rattanaporn Sethakul. "Political, Social, Economic Changes in Northern States Thailand Resulting from the Chiang Mai Treaties of 1874 and 1883." Ph.D. Diss., University of Illinois, 1989.
- Reeder, Matthew Thomas. "Categorical Kingdoms: Innovations in Ethnic Labeling and Visions of Communal States in Early Modern Siam." Ph.D. Diss., Cornell University, 2019.
- Salairat Dolarom. "Development of Teak Logging in Thailand, 1896-1960." M.A. Thesis, Silpakorn University, 1985.

- Sarasawadee Prayoosathian. "The administrative reform of Monthon Payap (B.E. 2436 -2476)." M.Ed. Thesis, Srinakharinwirot University, 1980.
- Surangsri Tonsiengsom. "Western knowledge and intellectual groups in Japan and Thailand in the nineteenth century: The 'Meirokeusha' and 'Young Siam.'" Ph.D. Diss., 1990.
- Taunjai Chaisinlapa. "Lanna in the Perception of the Siamese Elite 1884-1933 A.D." M.A. Thesis, Thammasat University, 1993.
- Thornton, Michael Alan. "Settling Sapporo: City and State in the Global Nineteenth Century." Ph.D. Diss., Harvard University, 2018.
- Vanlapa Kreuthienthong. "The Administrative Reforms of Lanna Thai during the Reign of King Chulalongkorn." M.A. Thesis, Chulalongkorn University, 1976.
- Wanchalee Boonmee. "Some Aspects of Relations with Britain in the Reign of King Chulalongkorn: A Case Study of Forestry and Mining." M.A. Thesis, Srinakharinwirot University, 1977.