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UNIVERSITY OF CALIFORNIA,
IRVINE

The Latent Image:
Photography, Infrastructure, and the Imagination of Vietnam under French Rule (1887-1954)

DISSERTATION

submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Film and Media Studies

by

Kiên Minh Lê

Dissertation Committee:
Professor Lucas Hilderbrand, Chair
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2026



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Abbreviations

ANOM	Archives nationales d’outre-mer, Aix-en-Provence, France
BEFEO	<i>Bulletin de l’École française d’Extrême-Orient</i>
EFEO	École française d’Extrême-Orient (French School of the Far East)
FR	French patent number (Institut national de la propriété industrielle)
ICOMOS	International Council on Monuments and Sites
TTLTQG I	Trung tâm Lưu trữ Quốc gia I — National Archives Center I, Hanoi
TTLTQG II	Trung tâm Lưu trữ Quốc gia II — National Archives Center II, Ho Chi Minh City
UNESCO	United Nations Educational, Scientific and Cultural Organization

Note on Names, Romanization, and Translation

When Vietnamese names are given in full, the family name is placed first and the given name last. But, in contrast to Chinese usage, Vietnamese are normally called by their given names, with some well-known figures as exceptions. Furthermore, many Vietnamese share a small number of common family names, such as Nguyễn, Lê, and Trần, so that the family name alone rarely identifies anyone. I therefore give Vietnamese names in full at each mention, and where brevity requires a short form I use the given name rather than the family name, both to respect this convention and to avoid confusion. Scholars who publish in Western languages are cited in the form under which they publish, so that Trinh T. Minh-ha and Nguyen Viet Thanh appear as they print their own names. The bibliography and index are alphabetized by the family name, that is, by the first element of the full name, so that the memoir of Huỳnh Thúc Kháng is listed under Huỳnh rather than under Kháng, and Mireille Le Van Ho under Le Van Ho rather than under Ho.

Vietnamese is romanized throughout in quốc ngữ, the Latin-based script discussed in the introduction. I use full diacritics wherever I can confirm the spelling. Colonial sources frequently omit them: French administrators wrote Nghe An, Mytho, and Tra Vinh, and handwritten archival inscriptions are sometimes illegible or unmarked. Where the person or place is securely identifiable, I restore the diacritics in my own prose. Where identification is uncertain, the name appears as it is found in the source and I note the uncertainty at the point where it bears on identification. Diacritics are never added inside quotations, inside the titles of archival files and published works, or inside my translations of quoted captions; these are transcribed as they stand.

An archival file titled “Exécution des travaux de cadastre... dans la province de Nghe An” therefore keeps its unmarked spelling in the note that cites it, while my own text reads Nghệ An.

Two different things happen to Vietnamese place names in these sources, and I treat them differently. Some places were renamed under a change of regime. For these I clarify both names at first mention and thereafter refer to the location by the name in use at the time — for example, Tourane, the colonial-era name for present-day Đà Nẵng — which keeps the text consistent with quotations that refer to these places by their period names. Other places were never renamed at all; they were only transcribed inconsistently. Mỹ Sơn appears in the French sources as Mĩ Sơn, Mi-son, and Myson, and Đồng Dương as Đồng-dương and Duong-Duong, but these are variant spellings of a single continuous name rather than successive names, and there is no period form to prefer. For these I use the modern Vietnamese form throughout my own prose and record the source’s spelling where the variation is itself informative, as in chapter 3, note 4, for the Cham sites of Quảng Nam. For cities whose names have not changed, or remain widely familiar, such as Hanoi and Saigon, I simply use the common form.

One further caution about the colonial record. Its authors sometimes transcribed a title, an office, or a form of address as though it were a personal name, and the resulting phrase can look like a name without being one. Where I can establish what such a phrase designates I say so; where I cannot, I reproduce it as printed and mark it as the source’s own usage rather than a name I am able to verify.

Unless otherwise indicated, translations are my own. The sources on which this dissertation rests are largely French — administrative correspondence, technical instructions, annual reports, museum catalogues, and the colonial press — and where I quote them the English is mine. I give the French in the note, or in the text, wherever the wording is doing analytical

work rather than merely conveying information, as with restitution, redressement, and rationnellement; and where French has no English equivalent I keep the French term and gloss it at first use, as with cadastre. The same practice governs the Vietnamese sources. Two exceptions are marked wherever they arise. Where a published translation exists and I have used it, the translator is named in the citation. Where a passage reaches me only through another scholar's rendering, or through a compiled and translated dossier of colonial material, the note says so and cites that intermediary, since the English in those cases is not mine to claim.

Acknowledgement

As this dissertation is my attempt to recover the labor erased in history, I wanted to spend a few pages here to acknowledge the labor performed by many people that otherwise might be invisible in the body of this dissertation. Everyone knows that it takes more than intellectual mastery to complete a dissertation and during my quest for knowledge, I have learned more than I thought from the people around me. I now know what it takes to survive three surgeries, four weddings, and a funeral. In other words, I have learned to embrace life, celebrate love and move through loss.

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offered me. As readers will notice in reading this dissertation, labor is a major theme and I must thank the following individuals who inspired me to commit to labor organizing: Natalie Barman, Louise McCune, Michelle Kim Gardner, Tia Chung-Swanson, Mia Villegas, Michael Lumpkin, Ahmed Akhtar and Aidee Mariscal. They made solidarity a reality.

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ABSTRACT

This dissertation argues that photography functioned as an inadvertent infrastructure of Vietnamese nationalist imagining under French colonial rule—a byproduct of colonial administration rather than its aim. Examining French Indochina from the 1880s to the end of empire in 1945, it follows the camera through the three institutions Benedict Anderson identified as the engines of colonial nationalism: the census, the map, and the museum. Three case studies anchor the argument. The first traces photographic identification through the penitentiary, the immigration depot, and the taxation office, where the camera fixed the colonial subject as a filed and retrievable document. The second follows aerial photography into the *cadastre*, where the medium measured and taxed the land. The third examines the archaeology of Champa, showing how photography constituted “Cham art” as a twentieth-century colonial creation. Across these sites, the dissertation reconceives the colonial photograph not as illustration but as infrastructure—a sociotechnical system that worked by becoming invisible, and that depended at every point on Vietnamese labor the colonial record rendered anonymous. Photography was at once an instrument of colonial power and a medium the colonized reappropriated; the unified “Vietnam” it helped make imaginable was a precondition of decolonization the colonizer never intended to supply.

Introduction

In the language of the darkroom, the latent image is the invisible imprint that light leaves on a sensitized plate at the moment of exposure—already fixed and already real, yet not visible, and not yet what it will become until the plate is developed. This dissertation takes that latent image as its guiding metaphor. France turned to the camera to make sense of a colony it did not yet understand—to fix the prisoner's face, measure the taxable rice field, and catalogue the ruin, and so to render an unfamiliar territory legible to the administration that meant to govern it. The camera's operators thought they understood the plate they had exposed. But the same exposure registered something they never intended and could not see: a unified, countable, mappable, and collectible "Vietnam." In laboring to make the colony legible to themselves, the French inadvertently fixed the image of a nation—one that lay latent in the colonial archive, awaiting a development its authors never planned, and that the Vietnamese would in time develop into a claim of their own.

The Latent Image: Photography, Infrastructure, and the Imagination of Vietnam under French Rule (1887-1954) examines the role of photography in imagining a Vietnamese national identity under French colonial rule. It uses the colony as a case study to exemplify and complicate theories of photography, infrastructure, and nationalism. As photography entered Vietnam in the nineteenth century along with a long list of other technologies of Western modernity (such as cinema, railroads, electricity, aviation), it also came with the hopes and dreams that French colonizers had envisioned for their colonies. However, technologies do not always operate in the ways they were intended. This dissertation thus situates photography as a site of intercultural contact to examine how the meanings and uses of photography do not always

comply with predetermined notions about what photography can do or what it is supposed to do. Instead of framing this aspect of photography as a challenge, this dissertation examines the many roles that photography played in constructing a conception of modern Vietnam. The three case studies of this dissertation examine the uses of photography in three colonial institutions where a Vietnamese national identity was inadvertently created—a byproduct of colonial administration rather than its aim: the census, the map, and the museum. Together, these institutions illuminate how the colonial state manufactured the identity of the people it ruled, while my analyses of the many ways photography was conceived and practiced reveal the unpredictability of media technologies, which included how the colonial subjects themselves used and adapted photography.

In presenting these three case studies, this dissertation uses infrastructure as an analytical tool to address the material relationships between institutions and technologies. As an offshoot of the material turn within the social sciences and the humanities, infrastructure is a methodological framework that allows researchers to engage with how technologies operate as systems, which structure certain ways of life.¹ As described by Brian Larkin, infrastructures differ from technologies in the ways they are the “objects that create the grounds on which other objects operate” and when they do so, “they operate as systems.”² Infrastructure is not a metaphor,

¹ The interest in material culture re-emerged in the late 1990s as a response to the “linguistic turn” which had dominated in the preceding decades. On the context of the material turn, read Diana Coole and Samantha Frost, “Introducing the New Materialisms,” in *New Materialisms: Ontology, Agency, and Politics*, ed. Diana Coole and Samantha Frost (Duke University Press, 2010); Dan Hicks, “The Material-Cultural Turn: Event and Effect,” in *The Oxford Handbook of Material Culture Studies*, ed. Dan Hicks and Mary C. Beaudry (Oxford University Press, 2010), 24-98.

² Brian Larkin, “The Politics and Poetics of Infrastructure,” *Annual Review of Anthropology* 42, no. 1 (2013): 327–43, 329.

though it has been deployed as such in some critical scholarship.³ Here, I analyze photography as an *infrastructure* and the *infrastructures* of photography.

To better illustrate this conundrum, I turn to a photograph displayed in an exhibition in Vietnam that inspired the thinking that shapes this dissertation. On October 6, 2023, the Thăng Long – Hà Nội Heritage Conservation Centre, in coordination with National Archives Centre I, opened an exhibition titled *Thành xưa Phố cũ* ("Old Citadel, Old Streets"), which chronicled the transformation of Hanoi from a city destroyed by the French to the capital of French Indochina during the late nineteenth and early twentieth centuries.⁴ To highlight the transformation, the curators used a series of maps to demonstrate the evolution and expansion of the city over time, as well as aerial photographs, both oblique and vertical, to present an old view of the iconic buildings that still exist today. What caught my attention when visiting this exhibition was a panel on what Hanoi looked like in the 1920s. This panel featured a map of Hanoi in 1896, superimposed with an aerial photograph of the city taken in 1926, highlighting the differences between the old citadel with unorganized streets (the top of the lake) and the new urban center developed by the French (bottom of the lake).

³ Ashley Carse offers a genealogy of the term “infrastructure” which traced its introduction to English from French engineering in the early twentieth century, read Ashley Carse, “Keyword: Infrastructure — How a Humble French Engineering Term Shaped the Modern World,” in *Infrastructures and Social Complexity: A Companion*, ed. Penny Harvey et al. (Routledge, 2017); on critique of “infrastructure” as a metaphor which risks including everything but nothing, read Larkin, “The Politics and Poetics of Infrastructure.”

⁴ “Triển lãm ‘Thành xưa Phố cũ’ [“Old Citadel, Old Streets” exhibition], Trung tâm Bảo tồn di sản Thăng Long – Hà Nội [Thăng Long – Hà Nội Heritage Conservation Centre] in coordination with Trung tâm Lưu trữ Quốc gia I [National Archives Centre I], Khu di sản Hoàng thành Thăng Long, 19 Hoàng Diệu, Ba Đình, Hà Nội, opened 6 October 2023, <https://hoangthanhthanglong.com/2023/10/02/trien-lam-thanh-xua-pho-cu/>. Author's visit.



Fig. 0.1. A snapshot of the panel on the 1920s urban planning of Hanoi (Photo by the author).

In looking at this panel, I pondered the question of what it was like to look at this image in 1926 and what this image means to me after a century. In tracing the origin of this image, it became clear to me that the photograph referenced above was a part of a larger systemic effort by the French colonial state to photograph all urban areas in colonial Vietnam from above to provide accurate representations of the land in measuring lands and urban planning. Other oblique aerial photographs featured in the exhibition were also a part of this project, which produced thousands of aerial views during the French occupation of Vietnam from 1887-1954. At the same time, I was also convinced that this aerial snapshot was nothing but a familiar, unremarkable sight. I have flown more than I can remember, and while the view from above is indeed extraordinary, I have become too familiar with it. It did not occur to me that commercial aviation was a luxury mode of transportation until the 1980s. To fly in 1926 was rather a rare privilege, even for the colonial authorities.

As these two observations suggest, to understand the origin of this image involves thinking both about how it once belonged to a group of thousands of aerial views that covered every corner of the entire city and the aviation networks that allowed the photographer to take the photograph. This example illustrates the relationship between photography and infrastructure that this dissertation addresses. What does it mean to produce thousands of aerial views instead of just a single frame? What do these photographs tell us about the meaning of photography to pilots and mapmakers—as well as civil bureaucrats and policy planners? What are the technical systems that were put in place to produce not just one but thousands of these photographs across different times and places? What does this systemic production of images tell us about what the colonial state envisioned and the possibly different on-the-ground realities?

These questions outline the scope and the interventions of this dissertation. In presenting three case studies of how photography was imagined to be a technology of colonial domination and the local labor to domesticate it, this dissertation presents a kaleidoscopic account of how photography can take many forms. In doing so, it argues that the production of the Vietnamese national identity during the French colonial rule was dependent on such multiplicity.

Using a variety of primary sources, ranging from photographs, prison records, government's letters, to historical maps and memoirs, this dissertation presents both published and unpublished materials to uncover surprising institutional practices of photography in colonial Vietnam. Photography's meanings and practices are not always predetermined but vulnerable to cultural differences and political quagmires. The rest of this introduction provides necessary historical context, an extended discussion on this dissertation's methodology, and an assessment of the current state of different bodies of scholarship that inform this project.

Nationalism and the Birth of Vietnam

In 1926, the passing of the Vietnamese revolutionary Phan Chu Trinh sparked a widespread protest on the streets of Saigon and other cities. In Saigon, over 16,000 Vietnamese attended Phan's funeral and echoed his call to end the colonial regime in French Indochina. One of the organizers for Phan's funeral was Nguyễn Khánh Ký, a renowned Vietnamese photographer who turned the funeral into a literal spectacle by documenting it in a series of photographs. As David Marr describes in *Vietnamese Tradition on Trial*, Phan Chu Trinh's funeral was the closest to a national funeral that the Vietnamese ever seen, and it marked a change in the political and social consciousness of the Vietnamese.⁵ Unlike other previous revolutionaries who called for violent anti-colonial efforts, Phan Chu Trinh's strategies shifted to a "modern" mass politics aiming at a gradual independence.⁶ The photographs of Phan's funeral are remembered today as one of the first mass actions—via mass media—in the country, which propelled a new generation of Marxist-Leninists who subsequently brought the downfall of the French colonial government in the 1940s.

To understand why this nationalist movement was able to mobilize mass support, it is useful to consider how nationalism, as Benedict Anderson argued, is a key feature of decolonization—and how this dissertation both builds upon and departs from that theoretical premise.⁷ This dissertation starts with the premise that anticolonial nationalism was an inadvertent consequence of colonialism. This is not to claim that photography was a technology of decolonization. Vietnamese photographers were themselves complicit in the colonial project

⁵ On the funeral of Phan Chu Trinh, read David G. Marr, "The Colonial Setting," in *Vietnamese Tradition on Trial, 1920–1945* (University of California Press, 1981), 14–53.

⁶ David G. Marr, "The Dong Kinh Nghia Thuc," in *Vietnamese Anticolonialism, 1885–1925*; on the writings of Phan Chu Trinh, read the translations from Vĩnh Sính, *Phan Châu Trinh and His Political Writings* (Cornell University Southeast Asia Program Publications, 2009).

⁷ Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (Verso Books, 2016), 256.

through their participation in its technologies and institutions; if photography helped imagine the people, places, and culture of a unified, coherent Vietnam, that imagining was a precondition of decolonization rather than a claim to sovereignty in itself. The infrastructure for the nationalism movement, as argued by Anderson, is the culture of mechanical reproduction by the press and photography, where new ideas of kinship form an “imagined community.”⁸ This dissertation exemplifies, complements, and challenges Anderson’s theory by analyzing how the formation of an imagined community relies on the census, map, and museum. Yet, as its case studies of the institutionalization of photography suggest, infinite reproduction is a key feature of photography but not its deterministic nature. Behind each photograph are layers of labor that were put into its production: camera, developing, correcting, circulation, and so on. This dissertation therefore departs from Anderson’s formulation by considering how ideas of imagined communities not only exist in the circulation of images but also in how photography mediated colonial life, from mandatory photo identification and aerial photography to the photographing and categorizing of excavated historical objects. The structure of the dissertation follows Anderson’s theoretical formulation of how nationalism in the colonial world was an unintended consequence of the colonial state’s imagination of its own colonized subjects in three main sites—census, maps, and museum—a topic that Anderson brought to the fore in the revision of his original thoughts.⁹ The nation of “Việt Nam” as we know today, in fact, did not exist until the end of the French colonial rule. Throughout history, the region was under different imperial rules with different names, reflecting the political conflicts of the times.¹⁰ The name “Việt Nam” only became official when

⁸ Anderson argues that the development of print-as-commodity is the root of nationalism. On his critique of this capitalist enterprise, read Anderson, “The Origins of National Consciousness,” in *Imagined Communities*, 37-46.

⁹ Anderson, “Census, Map, Museum,” in *Imagined Communities*, 163-186.

¹⁰ Keith Weller Taylor offers a precise account of different regimes in Vietnam, dating back to the Lac Lords from the late third millennium B.C. Keith Weller Taylor, *The Birth of Vietnam* (University of California Press,

Hồ Chí Minh, leading the Communist Party, declared independence in 1945 to establish the Democratic Republic of Vietnam, while Emperor Bảo Đại, a puppet for the French colonial administration, abdicated, thus ending a thousand years of monarchy in the region.¹¹ However, as the title of the dissertation suggests, the colonial rule did not come to an end until 1954. When the Vichy government came into power in 1940 following Germany's invasion of France, Japan took advantage and occupied northern Indochina in September 1940 under agreements imposed on the Vichy authorities.¹² After the Japanese surrender in 1945, Hồ Chí Minh and his allies saw an opportunity to regain control of the region and declared independence, starting a decade of confrontations with France, which attempted to take back the colonies. The conflict accelerated into a full-blown war and ended with the decisive victory of the Battle of Điện Biên Phủ in 1954.¹³

It can hardly be said that the vision of a unified nation of Vietnam was born in 1945. In particular, Anderson argues that nations are not natural or ancient but imagined into existence through time. In other words, nations are the consequences of nationalism and not the other way

1983); For more on Vietnamese cultural identity, read Keith Weller Taylor, *A History of the Vietnamese* (Cambridge University Press, 2013).

¹¹ Bruce M. Lockhart, *The End of the Vietnamese Monarchy*, Lac Viet Series, No. 15 (Yale University Southeast Asia Studies, 1993); Nguyễn Thế Anh, *Monarchie et fait colonial au Viêt-Nam (1875–1925): le crépuscule d'un ordre traditionnel* (L'Harmattan, 1992); David G. Marr, *Vietnam 1945: The Quest for Power* (University of California Press, 1995).

¹² On the Vichy regime in Indochina, read Ralph B. Smith, "The Japanese Period in Indochina and the Coup of 9 March 1945," *Journal of Southeast Asian Studies* 9, no. 2 (1978): 268–301; Eric T. Jennings, *Vichy in the Tropics: Pétain's National Revolution in Madagascar, Guadeloupe, and Indochina, 1940–1944* (Stanford University Press, 2001).

¹³ Điện Biên Phủ also marked the beginning of the U.S.'s involvement in Vietnam, and it divides Vietnam into two nations under two different regimes. For more on this conflict, read Mark Atwood Lawrence and Fredrik Logevall, eds., *The First Vietnam War: Colonial Conflict and Cold War Crisis* (Harvard University Press, 2007); Fredrik Logevall, *Embers of War: The Fall of an Empire and the Making of America's Vietnam* (Random House, 2012); Christian C. Lentz, *Contested Territory: Điện Biên Phủ and the Making of Northwest Vietnam*, Yale Agrarian Studies Series (Yale University Press, 2019); Christopher Goscha, *The Road to Dien Bien Phu: A History of the First War for Vietnam* (Princeton University Press, 2022).

around.¹⁴ It involves how all the colonized see themselves as part of an “imagined community,” who see themselves belong to a nation, sharing an identity and history despite not knowing each other, and are willing to act and even die on that belief.¹⁵ This is the key distinction that explains why the nationalist program of Hồ Chí Minh and his comrades succeeded and not the preceding movements. An imagined nation must first exist in everyone’s mind and not as an idea imposed on them. As Anderson acknowledged, no historian or analyst would have predicted Điện Biên Phủ if looking at the social conditions in Vietnam in the 1930s: “a huge, illiterate, exploited peasantry, a minuscule working class, a fragmentary bourgeoisie, and a tiny, divided intelligentsia.”¹⁶ Yet, it was this huge peasantry and a small working class that the Viet Minh was able to mobilize in fighting against the French in the 1940s and 1950s.

One can understand this movement in comparison with other anticolonial efforts in colonial Vietnam, such as the Cần Vương movement in the late nineteenth century and the rise of radicalism in the 1920s, to chronicle the evolution of “Viet Nam” as a social construct. Before the French occupation, Vietnam was known as the Kingdom of Đại Nam, ruled by the Nguyễn dynasty, founded in 1802, whose realm was styled Đại Nam from 1838.¹⁷ After the French conquest of Vietnam, the Nguyễn dynasty gave up sovereignty and became a puppet regime for the French colonial state in Annam. In 1885, a series of insurgent actions against French colonial rule took place across Vietnam to reinstate deposed emperor Hàm Nghi as the leader of the

¹⁴ Today, nationalism in popular discourse often refers to a political anchor for someone’s identity, which connotes xenophobia and extremism, but this identification is based on the belief that a nation is natural and given. In the United States, it exacerbated after September 11, 2001.

¹⁵ Anderson, *Imagined Communities*.

¹⁶ Anderson, *Imagined Communities*, 158.

¹⁷ Alexander Woodside, *Vietnam and the Chinese Model: A Comparative Study of Vietnamese and Chinese Government in the First Half of the Nineteenth Century*, Harvard East Asian Series (Harvard University Press, 1971); Byung Wook Choi, *Southern Vietnam under the Reign of Minh Mạng (1820–1841): Central Policies and Local Response*, Studies on Southeast Asia, No. 20 (Southeast Asia Program Publications, Cornell University, 2004).

kingdom. This insurgency was known as Cần Vương (“Loyalty to the King” or “Aid the King”). The movement, however, lacked support as many Vietnamese officials saw no plausible alternative to French rule and believed that resistance would simply lead to more unnecessary deaths.¹⁸ At the same time, Hàm Nghi was not a political figure that held much power. He was only fourteen years old when he took over the throne upon his father’s death.¹⁹ As summarized by David Marr, the movement was largely a tactical failure because it was simply a minority movement.²⁰ The same pitfall can be identified at the onset of the Vietnamese Revolution in the 1920s and the 1930s. As observed by Hue-Tam Ho Tai, the early politics of radicalism was often overshadowed by the rise of Marxism-Leninism in the late 1920s.²¹ Rallies, student strikes, and other forms of public address were organized by a minority group of urban and French educated elites. Thus, she considers radicalism as rather a “political mood” and not a strategy.²² These two examples, nonetheless, conditioned the populist-nationalist positions that Hồ Chí Minh and his allies took in the following decades, centering the propagation of revolutionary thoughts among the masses instead of the educated few.²³

¹⁸ On analyses of the movement, read David G. Marr, “The Can Vuong Movement,” in *Vietnamese Anticolonialism, 1885-1925* (University of California Press, 1971), 44-76; Charles Fourniau, *Annam-Tonkin 1885-1896: Lettrés et paysans vietnamiens face à la conquête coloniale*, Recherches asiatiques (L’Harmattan, 1989); Nguyễn Thế Anh, *Monarchie et fait colonial au Viêt-Nam (1875-1925): Le crépuscule d’un ordre traditionnel*, Recherches asiatiques (L’Harmattan, 1992).

¹⁹ While scholarship on the movement always treats Hàm Nghi as a political figure, Amandine Dabat offers a lesser-known histories of him as the late emperor’s own descendant, read Amandine Dabat, *Hàm Nghi: Empereur en exil, artiste à Alger* (Sorbonne Université Presses, 2019).

²⁰ Marr, *Vietnamese Anticolonialism, 1885-1925*.

²¹ Hue-Tam Ho Tai, *Radicalism and the Origins of the Vietnamese Revolution* (Harvard University Press, 1992).

²² Hue-Tam Ho Tai, *Radicalism and the Origins of the Vietnamese Revolution*, 1.

²³ On Hồ Chí Minh’s own strategy and rationale, read William J. Duiker, *The Rise of Nationalism in Vietnam, 1900-1941* (Cornell University Press, 1976); Sophie Quinn-Judge, *Ho Chi Minh: The Missing Years, 1919-1941* (University of California Press, 2003); Huynh Kim Khanh, *Vietnamese Communism, 1925-1945* (Cornell University Press, 1982); Greg Lockhart, *Nation in Arms: The Origins of the People’s Army of Vietnam* (Allen & Unwin, 1989); David G. Marr, *Vietnam 1945: The Quest for Power* (University of California Press, 1995); On the party’s priority of mobilizing the peasantry, read James C. Scott, *The Moral Economy of the Peasant: Rebellion and Subsistence in Southeast Asia* (Yale University Press, 1976); Alexander Woodside, *Community and Revolution in Modern Vietnam* (Houghton Mifflin, 1976); Ngo Vinh Long, *Before the Revolution: The Vietnamese Peasants under the French* (MIT Press, 1973).

This dissertation uses this political backdrop to highlight how nationalism is not simply a political program but also a cultural one. It is an examination of what Hue-Tam describes as a relationship between “political culture and cultural politics.”²⁴ At the core of France’s *mission civilisatrice* (civilizing mission) was an agenda to “modernize” Vietnam.²⁵ In this sense, the anxiety over French intervention following the conquests of the nineteenth century was also about losing a cultural identity. However, the Vietnamese culture that was at the center of debate was not a monolithic one. It is an accepted position that the Vietnamese culture was strongly influenced by Sinic (i.e., Chinese) civilization, but Vietnamese history and culture were also a consequence of global migration and cultural exchanges.²⁶ Occupying a strategic geographical location by the Indochinese Peninsula, the region of Vietnam today has been a gateway for global commerce and a hotspot for geopolitics for centuries. Merchants from over the world have been using ports in Hải Phòng, Đà Nẵng and Saigon to facilitate trade and cultural exchanges. Besides the inter-Asian networks that have been in place for thousands of years, Europeans have also frequented these sites, beginning in the sixteenth century when Portuguese traders and missionaries came to Đà Nẵng to set up strategic commercial trading posts for spices. In his attempt to analyze a “Vietnamese” history, Keith W. Taylor comments that “what makes it

²⁴ Tai, *Radicalism and the Origins of the Vietnamese Revolution*, 6.

²⁵ On the *mission civilisatrice* as republican doctrine and as administrative practice, see Alice L. Conklin, *A Mission to Civilize: The Republican Idea of Empire in France and West Africa, 1895–1930* (Stanford University Press, 1997); on its specifically Indochinese inflection, Nicola Cooper, *France in Indochina: Colonial Encounters* (Berg, 2001).

²⁶ The Sinic influence on Vietnamese culture is strong, but it’s not the single force behind the Vietnamese identity. On the Sinic influence, read Taylor, *The Birth of Vietnam*; Liam C. Kelley, *Beyond the Bronze Pillars: Envoy Poetry and the Sino-Vietnamese Relationship* (University of Hawai’i Press, 2005); Woodside, *Vietnam and the Chinese Model: A Comparative Study of Vietnamese and Chinese Government in the First Half of the Nineteenth Century*; Keith W. Taylor also pushes back a China-centric reading of Vietnamese history in Keith W. Taylor, “Surface Orientations in Vietnam: Beyond Histories of Nation and Region,” *The Journal of Asian Studies* 57, no. 4 (1998): 949–978. On history of non-Sinic exchange, read O. W. Wolters, *History, Culture, and Region in Southeast Asian Perspectives*, Studies on Southeast Asia, No. 26 (Southeast Asia Program Publications, Cornell University, 1999); Tana Li, *Nguyễn Cochinchina: Southern Vietnam in the Seventeenth and Eighteenth Centuries*, Studies on Southeast Asia, No. 23 (Southeast Asia Program Publications, Cornell University, 1998).

Vietnamese is that the events of which it is comprised took place in what we now call the country of Vietnam.”²⁷ This observation underscores how what we today often think of as Vietnamese history is thus a re-organization of events that gives coherence to the existence of Vietnam as a nation.

The theoretical anchors in Anderson’s frameworks are useful to understand this formation. To Anderson, the nation is built upon a collective, united by shared struggle rather than a historical narrative about shared language, culture, or ethnicity, which in most cases had never existed. It thus must be imagined as *limited*, *sovereign*, and *communal*.²⁸ Not every member of the nation knows about each other, but they know that they share a belonging with others, whom they have never met, through different ties. Anderson’s 1991 revision revisits these concepts through the three institutions of the census, maps, and museums, where the colonial state inadvertently produced its adversaries through the operation of these institutions.²⁹

A nation, according to Anderson, is imagined as *limited* because citizenship, as a concept, always operates by differentiating itself from others. In colonial Vietnam, Vietnamese were considered *sujets français* (French subjects) or *protégés français* (protected persons) but not *citoyens* (French citizens).³⁰ This archaic distinction echoes the remnants of absolute monarchy. At the same time, this group found its legitimacy by proclaiming itself with its own sovereignty and history, namely its position in time and space. Maps and museums are the two vehicles for the colonial state to assert its dominion. Since the beginning of the French Indochinese Union, two institutions were established to carry out the visions that the French had for the colonies:

²⁷ Keith Weller Taylor, *A History of the Vietnamese* (Cambridge University Press, 2013), 3.

²⁸ Anderson, *Imagined Communities*, 5-7.

²⁹ Anderson, "Census, Map, Museum," in *Imagined Communities*, 164-186.

³⁰ Anderson, *Imagined Communities*; For more on the history of the legal statuses of Vietnamese under French rule, read Emmanuelle Saada, *Empire’s Children: Race, Filiation, and Citizenship in the French Colonies*, trans. Arthur Goldhammer (University of Chicago Press, 2012); Jean-Christophe Careghi, “Le Statut Personnel Des Vietnamiens En Indochine de 1887 à 1954” (Doctoral thesis, Université d’Aix-Marseille, 2002).

Service géographique de l'Indochine (the Geographical Service of Indochina) and *École française d'Extrême-Orient* (the French School of the Far East). The Geographical Service was a branch of the French Army in the colony, responsible for producing detailed maps of the colonies. On the other hand, EFEO was created to study the culture and history of the Vietnamese. Together, these institutions impose a "totalizing classificatory grid" of the people that the colonial state ruled, from geography to ancestry.³¹ But it was the mechanical reproducibility that Anderson argues was the key feature of these institutions. Maps and mechanically reproduced images of sacred sites became symbols, available for mass reproduction at unprecedented scales as postage stamps, postcards, textbooks, and so on. No further need for longitudes and latitudes, or labels and footnotes, they operate at an unconscious level even in the mind of the colonists. As summarized by Anderson, "it was precisely the infinite quotidian reproducibility of its regalia that revealed the real power of the state."³²

Under this framework, a Vietnamese national identity strictly refers to a nationalist program, and what we consider as a Vietnamese culture or a Vietnamese history is thus a byproduct of nationalism. A painful example is the ethnonationalist implication of the term "the Vietnamese." Today, the Vietnamese society is comprised of multiple ethnicities that have their own languages, religions, and cultural practices, but they all share an understanding that they are the citizens of Vietnam and call themselves Vietnamese. However, the "Viet" was in usage for centuries to refer to the Kinh population, which is the largest ethnic group in Vietnam. The term "người Việt" (the Viet) as an informal way of referring to all Vietnamese nationals has dangerous connotation, as it implies the cultural dominance of this ethnic group in shaping "Việt Nam." In particular, Chapter 3 goes into greater detail about how Cham, as an ethnic minority, was

³¹ Anderson, *Imagined Communities*, 184.

³² Anderson, *Imagined Communities*, 183.

considered extinct by the French and their attempt to frame the Vietnamese, the dominant ethnic group, as “savages” who were incapable of their ancestors’ greatness. But as historians have pointed out, the nationalist program that the revolutionaries depended on to liberate their people romanticized the 1471 conquest of the Kingdom of Cham by Đại Việt as a symbolic expansion of the country to the South.³³

These re-imaginings of the Vietnamese society, however, exemplify a larger anxiety at home for the French. The French colonial rule in the Indochinese Peninsula (1887-1954) parallels with the French Third Republic (1870-1943), a period marked by France’s searching for its own national identity after the regime of Napoleon collapsed. A functional relationship between political unity and cultural unity was therefore critical to the Third Republic and in its quest for a place in history; France turned to the colonies as a sandbox where new ideas of citizenship and ancestry can be tested. Not only must all people of a nation share an identity, but they must also have a sense of their own place on a global map and history. In her study of the urban design of the colonies, Gwendolyn Wright observes that the colonies are also the laboratories for the French to test solutions for the social problems at home.³⁴ This project thus seeks to uncover how colonial institutions are also the sites for France’s experimentations with new modes of governing.

Infrastructure

Broadly understood as a subfield within cinema and media studies, infrastructure studies has developed to encompass not only studying infrastructures as objects but also using

³³ I use the term “Vietnamese” here with full awareness of how it crisscrosses with the revisionist impulse of ethnonationalism.

³⁴ Gwendolyn Wright, *The Politics of Design in French Colonial Urbanism* (University of Chicago Press, 1991).

infrastructure as an analytical framework. The shift to the material aspects of media technologies was shaped by a larger “material turn” in the social sciences and the humanities, where debates about what the term “infrastructures” means remain unresolved.³⁵ However, the variety of interpretations of the term “infrastructures” also speaks to the slippery nature of photography, since both photography and infrastructures can mean different things to different people. Instead of engaging in the debate about the ontologies of both concepts, I am more interested in the term’s analytical potential to analyze the relationality of media technologies. To begin with, photography itself is not an infrastructure but a *medium*. Photography has the capacity to mediate our experience with the world through both its material form and its representational expression. However, what gives photography this mediating power has less to do with its mechanical capabilities but more to do with the *structures* within which photography operates. This dissertation thus understands infrastructure as the conditions of where media technologies operate. As Larkin succinctly puts it, infrastructures are “both technical and cultural systems that create institutionalized structure where good of all sorts circulate, connecting and binding people into collectivities.”³⁶ As observed by Susan Leigh Star and Karen Ruhleder, knowledge of infrastructures must be “learned as part of membership” in any official communities, as it’s a pre-requirement for any member to navigate their technical milieu.³⁷ Scholarship on colonial Vietnam have emphasized the rise of colonial institutions and what they meant by that is the rise of disciplinary institutions in Michel Foucault’s sense, where institutions are not only physical structures but also technologies of power that produce *docile bodies*.³⁸ Infrastructure is therefore

³⁵ Larkin, “The Politics and Poetics of Infrastructure.”

³⁶ Brian Larkin, *Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria* (Duke University Press, 2008), 6.

³⁷ Susan Leigh Star and Karen Ruhleder, “Steps Toward an Ecology of Infrastructure: Design and Access for Large Information Spaces,” *Information Systems Research* 7, no. 1 (1996): 111–34.

³⁸ Michel Foucault, *Discipline and Punish: The Birth of the Prison*, trans. Alan Sheridan (Vintage Books, 1995).

a framework to analyze how photography operates as systems to structure certain ways of life, even when they were not how the colonial state imagined. The following concepts are the coordinates that shape the analysis of the case studies in this dissertation.

Scale

Infrastructures, by definition, are usually large in scale and sociotechnical in nature. In popular usage, they often mean “large technical systems” that structure the conditions of life, such as the sewer systems, electricity grids, and railroads. Within Science and Technology Studies, infrastructures have been objects of analysis, and the terms “infrastructures” and “technologies” have been often used interchangeably.³⁹ It is thus useful to distinguish infrastructures from technologies. Paul N. Edwards offers a useful framework to better understand how infrastructures operate and how they are distinct from technologies. According to Edwards, technologies become infrastructures when they become “ordinary and unremarkable,” yet at the same time, they also become “the connective tissues and the circulatory systems of modernity.”⁴⁰ In this salient aspect of infrastructures, their scale becomes more obscure. Edwards proposes that infrastructures can be categorized into three groups, based on how they engage with social life and the objects that they gave a platform to: micro, meso, and macro. Respectively, these scales correspond to how infrastructures are experienced at the individual, institutional, and governmental levels. As his analysis demonstrates, the meanings and uses of technologies are constantly shaped and reshaped at each level. At a macro scale, analyses of technologies are almost always deterministic, since they tend to operate in a top-

³⁹ Star, Bowker, Edwards, and Larkin all distinguish infrastructures from technologies because the two are routinely conflated and the boundary is analytically unstable. For more on this critique, read Larkin, “The Politics and Poetics of Infrastructure” and Paul Edwards, *A Vast Machine* (MIT Press, 2010).

⁴⁰ Paul N. Edwards, “Infrastructure and Modernity: Force, Time, and Social Organization in the History of Sociotechnical Systems,” in *Modernity and Technology*, ed. Thomas J. Misa, Philip Brey, and Andrew Feenberg (MIT Press, 2003), 185-225.

down fashion. At a meso level, the focus is shifted to the studies of how infrastructures came into being through institutions. At a micro level, the heuristics of technologies are virtually always unstable as users interact with and re-appropriate infrastructures.⁴¹

Focusing on the meso tier, this dissertation analyzes media technologies used within and at the institutional level to highlight how meanings and uses of technologies are not always stable but vary between how the colonial state imagined technologies to operate and how technologies were reappropriated by their users on the ground. In his analysis of waste picker collectives in São Paulo and Recife in Brazil, Dietmar Offenhuber illustrates how seeing infrastructures from the bottom up can reveal the imaginative ways urban dwellers engage with these networks through the daily uses and practices and therefore counter the top-down approach which only focus on the goals and structures of governance.⁴² In the case studies of this dissertation, this is almost always true when photographers, both Vietnamese and French, engaged with photography in unintended ways, such as how Vietnamese photographers outbid their European counterparts for government contracts by offering lower prices or when a French contractor documented the continued existence of the people who his employers wanted to portray as extinct.

Visibility/Invisibility

A key feature of infrastructures is that they are usually hidden in plain sight. When the infrastructure turn made an intervention in cinema and media studies, it was as a corrective to the fallacy of the immateriality of digital media. As such, key works in infrastructure studies are designed to address the politics of infrastructure's invisibility, such as Nicole Starosielski's

⁴¹ Edwards, "Infrastructure and Modernity: Force, Time, and Social Organization in the History of Sociotechnical Systems."

⁴² Dietmar Offenhuber, *Waste Is Information: Infrastructure Legibility and Governance* (Cambridge, MA: MIT Press, 2017).

analysis of the transoceanic cables.⁴³ This dissertation takes up this idea by asking what does it look like to think of photographs also as *infrastructures*? It is nearly incomprehensible how our world and understanding of it is mediated by millions of photographic images that are stored and processed as data. Google Maps was released in the mid-2000s, it turned static maps, printouts, GPS devices, and physical atlases obsolete since its core feature is the superimposition of millions of satellite images to make an interactive map that functions like what has been termed augmented reality. These photographs make possible an accurate and seamless experience of spatial navigation that only appears on screen as lines and blocks. On the other hand, the United States's Department of Homeland Security has its own biometric database of more than one billion facial images from all non-citizens that exit and enter the country. The scale of these two databases may be mind-boggling, but these databases always have their physical dimensions. In rethinking these surveillance systems as *infrastructures*, I shift focus to the materiality of the databases as well as the complex algorithms and the labor that it takes to sustain their operation.

The primary sources for the case studies in this dissertation are photographic databases. In a mountain of archival documents, these sources do not always appear as “photographs” and are often labeled under different categories, such as prison records, tax cards, archival reports, and so on. In a more extreme case, like the thousands of aerial views that the Geographical Service produced, traces of their scale can only be identified through receipts or editing manuals or a few surviving photographs. It seems almost like a contradiction since photography is itself a visual medium, yet their uses as data reveal a tendency to conceal photography behind something else. Similar to the map that the curator displayed at the exhibition mentioned above, it is quite

⁴³ Nicole Starosielski, *The Undersea Network* (Duke University Press, 2015).

impossible to know that the photographs were the medium that made possible the geographical representation, since what one is looking at has been reduced to just lines and grids.

Hard vs. soft infrastructures

One of the most intense debates in infrastructure studies is the question of the role of humans in infrastructures. Humans are usually framed by historians as “users” or “bureaucrats” or “colonizers” and “the colonized.” However, people are also infrastructures. AbdouMalik Simone challenges how infrastructure is usually understood in physical terms and extends the concept to how infrastructures are people’s daily activities. Simone frames his analysis around the notion of *people as infrastructure*, which “emphasizes economic collaboration among residents seemingly marginalized from and immiserated by urban life.”⁴⁴ Within anthropology, Julia Elyachar has demonstrated how the Cairo economy is, in part, shaped through what she terms as “phatic labor”—the work of gossip and chatting that becomes communicative channels that transmit not only language but all kinds of semiotic meaning and economic value.⁴⁵ Within film and media studies, infrastructures have also been studied as labor, a layer of systemic human activities under capitalism. Gregory J. Downey’s history of the telegraph messenger boys points out the logic of child labor that Western Union used to capitalize on its brand and how this form of labor precedes the mechanization of telegraphy, which eventually eliminated the job altogether.⁴⁶ Mal Ahern likewise argues that labor was the infrastructure of Hollywood in the 1940s, and the entire system froze when strikes occurred.⁴⁷

⁴⁴ AbdouMalik Simone, “People as Infrastructure: Intersecting Fragments in Johannesburg,” *Public Culture* 16, no. 3 (2004): 407-29.

⁴⁵ Julia Elyachar, “Phatic Labor, Infrastructure, and the Question of Empowerment in Cairo,” *American Ethnologist* 37, no. 3 (2010): 452–64, <https://doi.org/10.1111/j.1548-1425.2010.01265.x>.

⁴⁶ Gregory J. Downey, *Telegraph Messenger Boys: Labor, Communication and Technology, 1850-1950* (Routledge, 2014).

⁴⁷ Mal Ahern, “Media Infrastructure and Historical Materialism,” *Journal of Cinema and Media Studies* 65, no. 1 (2025): 195–201. On media infrastructure and the life of the city, see Hatim El-Hibri, *Visions of Beirut: The*

This dissertation looks at this “soft” side of infrastructure to analyze how people as infrastructures engage with technologies. They were studio owners, lab technicians, translators, and mathematicians who operated in the shadow of the colonial state, and their existence can only be traced by their job titles on government records or the receipts of the contracts. Surprisingly, these workers were not just the French, but the Europeans, Chinese, and the ethnic populations that shape the diversity of cultures in Vietnam.

Materials

In practice, this methodological approach involves archival research to map out an assemblage of institutional photographic practices. There are two levels of analysis that take place in this dissertation. The first level highlights the material qualities of the photographs themselves, which are my first group of primary sources: photo IDs, prison databases, maps, and exhibitions. These materials are housed in different *fonds* (assets archived into collections based on their origins) of each institution at the National Archives Centers in Vietnam rather than a centralized archive of photography. By examining how photography is “hidden” in plain sight, this dissertation unearths the sites where photography operated in colonial Vietnam that parallel with modern practices: surveillance, topography, and archaeological works. This is the basis for the second level of analysis where I perform a close reading of government exchanges—decrees as concrete evidence of the hopes and dreams the colonial state envisioned for photography and their realities. This second level of analysis corresponds both to the macro and micro levels of infrastructures that Edwards proposes. The process of surveying these materials involves not

Urban Life of Media Infrastructure (Duke University Press, 2021); and Craig Calhoun, Richard Sennett, and Harel Shapira, eds., “Infrastructures of the Urban,” special issue, *Public Culture* 25, no. 2 (2013). On classification as infrastructure, Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (MIT Press, 1999). For photography turned upon the substructures of the industrializing city, Emily Doucet, *Inventing Nadar: A History of Photographic Firsts* (Duke University Press, 2026).

only going through the metadata searching for keywords like “photographie” or “photo,” but also tracing the footsteps of individuals in power who moved between different colonies, cities, and towns and experimented with photography.

Colonial Industrialization and The Formation of a Working Class

A key feature of modernity is industrialization. Photography in colonial Vietnam operates among a growing French interest in modernizing the colonies through technical expertise. When France consolidated its hold over Vietnam—seizing Cochinchina in 1862, imposing protectorates over Annam and Tonkin in 1883–1884, and folding them into the Indochinese Union in 1887—it justified conquest through the promise of *mise en valeur*, the economic “development” of the colony.⁴⁸ Yet the industrialization that followed was uneven, extractive, and oriented toward metropolitan and export markets rather than a diversified domestic economy. On the eve of the Second World War, French geographer Charles Robequain published a catalogue of the Indochinese economy in *The Economic Development of French Indo-China*, laying out the infrastructure and output figures such as the kilometers of railway and road laid down since the 1890s, the tonnage of cola hauled out of the Tonkin basin, the hectares of the Mekong delta brought under rice cultivation, the acreage of rubber planted on the southern “red lands.”⁴⁹ However, Robequain also acknowledged the unevenness of France’s economic development in the Indochinese peninsula and the racial division of labor that inherently undermined France’s utopian vision of the colony, thus remarking that “it will be asked whether

⁴⁸ Pierre Brocheux and Daniel Hémery, *Indochina: An Ambiguous Colonization, 1858–1954*, trans. Ly Lan Dill-Klein (University of California Press, 2009).

⁴⁹ Charles Robequain, *The Economic Development of French Indo-China* (Oxford University Press, 1944).

these responsibilities and anxieties will repay the mother country, since their profits are uncertain and in case would not mature for many years.”⁵⁰

Since the publication of Robequain’s detailed survey, historians have examined the impact of industrialization on the Vietnamese society using Robequian’s findings. Martin J. Murray and Irene Nørlund, for example, showed that the colonial state deliberately subordinated local manufacturing to French industry, discouraging competing production.⁵¹ They demonstrate how industrialization in colonial Vietnam followed the classic mercantilist principle of the *pacte colonial* (“colonial pact or “colonial compact”), which views a colony’s existence as a means to serve the economic interests of its mother country and that its trade and production should be organized to that end.⁵²

The economy’s most immediate effect on ordinary Vietnamese was to convert a largely peasant society into a reservoir of wage labor by stripping villagers of land and binding them to the cash nexus. In the Mekong delta, French land policy and speculation concentrated newly drained rice land in a small class of large owners, leaving the majority as tenants and laborers exposed to world price swings;⁵³ more coercively, as Ngô Vĩnh Long documents, decrees of the 1860s in Cochinchina confiscated land not demonstrably occupied by its owners and handed vast estates—some above ten thousand hectares—to French citizens and favored Vietnamese “collaborators” for nothing, so that peasants who returned to their villages often found

⁵⁰ Robequain, *The Economic Development of French Indo-China*, 347.

⁵¹ Martin J. Murray, *The Development of Capitalism in Colonial Indochina, 1870–1940* (University of California Press, 1980); Irene Nørlund, “The French Empire, the Colonial State in Vietnam and Economic Policy: 1885–1940,” *Australian Economic History Review* 31, no. 1 (1991): 72–95.

⁵² On the motivation for France’s economic expansion to Southeast Asia and its organization of capital accumulation, read “Metropolitan Capitalist Expansion and Late Nineteenth Century Colonial Rule,” in Murray, *The Development of Capitalism in Colonial Indochina, 1870–1940*, 10–44.

⁵³ Pierre Brocheux, *The Mekong Delta: Ecology, Economy, and Revolution, 1860–1960*, Monograph Series (Center for Southeast Asian Studies) (University of Wisconsin, Center for Southeast Asian Studies, 1995).

themselves reduced to tenants or sharecroppers on land they had cleared themselves.⁵⁴ The administration hollowed out the village further by letting officials sell off communal land, dissolving the shared reserve that had cushioned the poor.⁵⁵ Taxation completed the squeeze: the French replaced the Nguyễn practice of taxing villages collectively with a head tax on each individual, raised it steeply, and levied it regardless of landholding—while Europeans and collaborators went exempt—so that it could consume a fifth of a tenant’s after-rent income.⁵⁶ State monopolies on salt, alcohol, and opium, enforced by paid informers and venal officials whom Governor-General Doumer called “contractors,” pressed still harder on village life; whole hamlets were sold up to pay wine fines, and tax protest could be answered with gunfire.⁵⁷ Against this ledger, Ngô Vĩnh Long argues, the roads, railways, schools, and hospitals of the “civilizing mission” reached almost none of the peasantry—“a thin coat of whitewash over a decaying wall.”⁵⁸ Dispossessed, indebted, and taxed off the land, villagers, especially in the crowded north, became the migrant workforce that colonial industry required, severed from the land, ancestral graves, and communal ties that had defined who they were.

Nowhere was the new social organization starker than on the rubber estates of the southern “red lands.” Recruiters drew tens of thousands of northern coolies southward under indenture contracts, a coerced migration engineered jointly by employers and the colonial state.⁵⁹ On the plantations of Michelin and the Société des Terres Rouges, workers faced regimented labor,

⁵⁴ Ngo, *Before the Revolution: The Vietnamese Peasants under the French*, 11-12.

⁵⁵ Ngo, *Before the Revolution: The Vietnamese Peasants under the French*, 15-16.

⁵⁶ Ngo, *Before the Revolution: The Vietnamese Peasants under the French*, 62-64.

⁵⁷ Ngo, *Before the Revolution: The Vietnamese Peasants under the French*, 65-72; The unintended consequence of France's economic pressure is also evident in the ways certain food items such as fish sauce and rice liquor turned into symbols of a unified Vietnamese identity. On the social history of food and drink in colonial Vietnam, read Erica J. Peters, *Appetites and Aspirations in Vietnam: Food and Drink in the Long Nineteenth Century* (AltaMira Press, 2012).

⁵⁸ Ngo, *Before the Revolution: The Vietnamese Peasants under the French*, 72-76.

⁵⁹ Andrew Hardy, *Red Hills: Migrants and the State in the Highlands of Vietnam* (NIAS Press, 2003).

corporal punishment, malaria, and appalling mortality—conditions Michitake Aso situates within an ecological history of rubber and that Tran Tu Binh recalls from the inside in his memoir of Phú Riềng.⁶⁰ The plantation was a near-total institution that tore people from lineage and village and subjected them to industrial discipline enforced by violence. The same decades that regimented plantation labor also generalized the identification photograph: a worker bound by indenture, like a prisoner or an arriving migrant, was increasingly a worker whose likeness an employer or the state held on file. The railways that carried this labor were themselves built and run by coerced and then waged workers, forming another new occupational community.⁶¹

Comparable working classes formed in the Tonkin coal basin around Hòn Gai and in urban factories—the Nam Định cotton mill, Hải Phòng’s cement works, rice mills, distilleries, and breweries.⁶² These workplaces created something without precedent in Vietnam: a permanent wage-earning proletariat, including women drawn into textile labor, living in barracks and worker quarters rather than in village communities. Wage relations, cash budgets, and factory time began to reorganize household and gender roles, as women’s mill earnings and men’s migration for work loosened the patriarchal, land-based family economy. The same economy swelled the cities—Saigon—Chợ Lớn, Hanoi, Hải Phòng—and with them new social strata: a Vietnamese commercial and professional bourgeoisie, clerks and functionaries, and a Chinese merchant community that dominated rice milling and trade, all within a financial order centered

⁶⁰ Michitake Aso, *Rubber and the Making of Vietnam: An Ecological History, 1897–1975* (University of North Carolina Press, 2018); Tran Tu Binh, *The Red Earth: A Vietnamese Memoir of Life on a Colonial Rubber Plantation*, ed. David G. Marr, Monographs in International Studies, Southeast Asia Series No. 66, ed. John Spragens Jr. (Ohio University Center for International Studies, 1985).

⁶¹ David W. Del Testa, “Paint the Trains Red: Labor, Nationalism, and the Railroads in French Colonial Indochina, 1898–1945” (PhD dissertation, University of California, Davis, 2001).

⁶² Murray, *The Development of Capitalism in Colonial Indochina, 1870–1940*; Robequain, *The Economic Development of French Indo-China*.

on the Banque de l'Indochine (Bank of Indochina).⁶³ The interwar surge of metropolitan capital deepened these divisions rather than softening them.⁶⁴ Colonial capitalism thus produced not one new class but a whole stratified society. Among the new urban trades was photography itself. The commercial studio belonged to the same economy that built the mills and the mines: it depended on imported cameras, plates, chemicals, and papers, on a shopfront in a city with electric light and a postal service, and on a clientele with wages to spend. It produced, in turn, a recognizable occupational group of its own — the Vietnamese photographers who would come to be known collectively as *thợ ảnh*, worker-photographers, and who understood what they did as a craft rather than an art. Photography, in other words, was not simply a technology that recorded colonial industrialization; it was one of its industries.⁶⁵

These changes corroded the Confucian village order that had long organized rural life. As Alexander Woodside and Hy V. Luong show, monetization, new taxes, and the pull of wage

⁶³ The Banque de l'Indochine (Bank of Indochina) was the semi-official colonial bank that dominated the financial system of French Indochina — and, more broadly, French economic interests across East and Southeast Asia. Founded in 1875 in Paris, it was a private commercial bank granted a public privilege: the right to issue currency (the Indochinese piastre) for the colony. That made it simultaneously a note-issuing "bank of issue," a commercial bank, and an investment/business bank, an unusually concentrated position that put it at the center of colonial capital. In practice this meant the bank sat at the hinge between Parisian investors and ventures in the colony. It financed and held stakes in the big colonial enterprises — the rubber plantations, coal and tin mining, rice trading and milling, shipping, and public works — and its credit decisions shaped which sectors grew. Because it both printed the money and controlled much of the investment, historians treat it as the institutional core of colonial capital accumulation, linking metropolitan finance to Indochinese extraction. For more on the history and operation of the bank, read Yasuo Gonjo, *Banque coloniale ou banque d'affaires: la Banque de l'Indochine sous la IIIe République* (Comité pour l'histoire économique et financière de la France, 1993); Jean-Pierre Aumiphin, *La présence financière et économique française en Indochine (1859–1939)* (Hanoi, 1988).

⁶⁴ Martin Thomas, *The French Empire Between the Wars: Imperialism, Politics and Society* (Manchester University Press, 2005).

⁶⁵ Laurel Kendall, Nguyễn Văn Huy, and Bùi Thu Hòa, "The Work of Craft in the Age of Mechanical Reproduction: The Lai Xá Photography Village in Vietnam," *Visual Anthropology* 37, no. 3 (2024): 212–36. On photography read through its materials — silver, platinum, bitumen — and followed back to the mine, see Siobhan Angus, *Camera Geologica: An Elemental History of Photography* (Duke University Press, 2024). On technicians and their expertise as the substance of a media industry rather than a backdrop to it, Luci Marzola, *Engineering Hollywood: Technology, Technicians, and the Science of Building the Studio System* (Oxford University Press, 2021). On media as an instrument of capital and of the liberal world system, Lee Grieveson, *Cinema and the Wealth of Nations: Media, Capital, and the Liberal World System* (University of California Press, 2018); and on information processing as a response to the crises of control that industrialization produced, James R. Beniger, *The Control Revolution: Technological and Economic Origins of the Information Society* (Harvard University Press, 1986).

labor weakened the authority of the communal village and the scholar-gentry, unsettling inherited hierarchies of land, kinship, and status.⁶⁶ Into the newly opened space came new actors and ideas. A Western-educated intelligentsia and urban middle class argued over their society's future in a burgeoning print culture, a generation David Marr describes as putting Vietnamese tradition "on trial." Radical activists emerged whose milieu Hue-Tam Ho Tai traces to precisely these urban, transitional conditions.⁶⁷ The stark spatial segregation of the new order was legible in hill stations such as Đà Lạt, built as a European refuge above the colonized lowlands, while the visible poverty of the colonial city generated new discourses of charity and reform, and the prison became, in Peter Zinoman's account, at once an instrument of forced labor and an unintended school of political organization.⁶⁸

Industrialization also imported the representational technologies of the industrial age, which reshaped how Vietnamese saw themselves. Two of them mattered most, and they arrived together. The mechanized printing press was the first: European letterpress and lithography, wedded to the romanized *quốc ngữ* script, displaced woodblock printing and enabled affordable newspapers and books, generating the expanded reading public that Benedict Anderson linked to modern national consciousness and that underwrote the periodical culture Shawn McHale documents.⁶⁹ Photography arrived on the same industrial current and was, if anything, more

⁶⁶ Woodside, *Community and Revolution in Modern Vietnam*; Hy V. Luong, *Revolution in the Village: Tradition and Transformation in North Vietnam, 1925–1988* (University of Hawai'i Press, 1992).

⁶⁷ Marr, *Vietnamese Tradition on Trial, 1920–1945*; Tai, *Radicalism and the Origins of the Vietnamese Revolution*.

⁶⁸ Eric T. Jennings, *Imperial Heights: Dalat and the Making and Undoing of French Indochina* (University of California Press, 2011); Van Nguyen-Marshall, *In Search of Moral Authority: The Discourse on Poverty, Poor Relief, and Charity in French Colonial Vietnam* (Peter Lang, 2008); Peter Zinoman, *The Colonial Bastille: A History of Imprisonment in Vietnam, 1862–1940* (University of California Press, 2001).

⁶⁹ Anderson, *Imagined Communities*; Shawn Frederick McHale, *Print and Power: Confucianism, Communism, and Buddhism in the Making of Modern Vietnam* (University of Hawaii Press, 2004). On print as an agent of historical change and on the publics it constitutes, see Elizabeth L. Eisenstein, *The Printing Press as an Agent of Change* (Cambridge University Press, 1979); Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (Methuen, 1982); and Michael Warner, *Publics and Counterpublics* (Zone Books, 2002). On the older dream of a universal script that would render thought transparent and storable — the ambition the missionaries

deeply embedded in it. It reached the colony as an industrial product — factory-made cameras, imported dry plates, standardized printing papers — and it circulated through the very channels the press had opened, the illustrated magazine, the halftone reproduction, the mass-produced postcard. It served colonial ethnography and the administrative file even as Vietnamese-owned studios emerged to compete for state contracts and family portraits alike. And it underwrote the wider spectacle of empire: cinema and grand exhibition—above all the 1931 Exposition Coloniale—projected an imperial imaginary of “Indochine” that Panivong Norindr and Nicola Cooper show worked to naturalize colonial rule.⁷⁰ Yet this same apparatus equipped a new intelligentsia to contest colonial representations and imagine a nation of its own. The chapters that follow take photography as the clearest case of that double life, because it was at once the most administratively useful of these technologies and the one most quickly taken up by the people it was built to document.

The new social order carried its own antagonisms. Concentrated in mines, estates, and factories, workers discovered a collective power they had lacked as dispersed villagers: the mass strike at the Phú Riềng rubber plantation in 1930 and recurrent stoppages in the coal mines fused

brought to romanizing Vietnamese — see Paolo Rossi, *Logic and the Art of Memory: The Quest for a Universal Language*, trans. Stephen Clucas (University of Chicago Press, 2000).

⁷⁰ Nguyễn Đức Hiệp, “Photography in Vietnam from the End of the Nineteenth Century to the Start of the Twentieth,” *Trans-Asia Photography Review* 4, no. 2 (2014); Panivong Norindr, *Phantasmatic Indochina: French Colonial Ideology in Architecture, Film, and Literature* (Duke University Press, 1996); Nicola Cooper, *France in Indochina: Colonial Encounters* (Berg, 2001). On the exposition as an apparatus for staging empire, see Tony Bennett, *The Birth of the Museum: History, Theory, Politics* (Routledge, 1995); Timothy Mitchell, “The World as Exhibition,” *Comparative Studies in Society and History* 31, no. 2 (1989): 217–36; Paul Greenhalgh, *Ephemeral Vistas: The Expositions Universelles, Great Exhibitions and World’s Fairs, 1851–1939* (Manchester University Press, 1988); Robert W. Rydell, *All the World’s a Fair* (University of Chicago Press, 1984); and, joining photography to exhibition as a single apparatus, Anne Maxwell, *Colonial Photography and Exhibitions: Representations of the “Native” and the Making of European Identities* (Leicester University Press, 1999). On the postcard and the illustrated press as the channels through which colonial images circulated, Christraud M. Geary and Virginia-Lee Webb, eds., *Delivering Views: Distant Cultures in Early Postcards* (Smithsonian Institution Press, 1998); David Prochaska, “Fantasia of the Photothèque: French Postcard Views of Colonial Senegal,” *African Arts* 24, no. 4 (1991): 40–47; and Ali Behdad, *Camera Orientalis: Reflections on Photography of the Middle East* (University of Chicago Press, 2016).

economic grievance with anticolonial politics, and the industrial working class became a crucial constituency for the nationalist and communist movements that Christopher Goscha places at the heart of modern Vietnamese history.⁷¹ Photographers organized as well: by 1937 the photographers of Hanoi were petitioning the administration for a professional association of their own, a small instance of the same impulse, and one to which the first chapter returns.⁷² Colonial industrialization, seen this way, was less an engine of shared prosperity than a solvent of the old society and the crucible of a new one. It stripped many Vietnamese of land and autonomy, bound them to wage labor under often brutal conditions, and redrew the map of class, city, and countryside—producing, alongside coal and rubber, the very social forces that would drive the Vietnamese revolution.

This dissertation uses this colonial backdrop to reconstruct a historical account of how photography became a medium of nationalism in colonial Vietnam, a topic that has been overshadowed by the later impact of the Vietnam War.⁷³ Research on colonial photography in

⁷¹ On the 1930 strike, read Tran Tu Binh, *The Red Earth: A Vietnamese Memoir of Life on a Colonial Rubber Plantation*; Christopher Goscha, *Vietnam: A New History* (Basic Books, 2016).

⁷² “Association amicale des photographes de Hanoi,” administrative correspondence concerning the founding of the association, 1938. TTLTQGI. The petition and the administration’s conditions of approval are discussed in chapter 1

⁷³ In surveying a vast sea of literature on photography and colonialism, I noticed how there is a shortage of scholarship on photography in colonial Vietnam under the broader category of colonial photography. In other locales, such as India or the Middle East, the list of literature on this subject is extensive. At the same time, the US-centric field of cinema and media studies is littered with theories and analysis of the visual culture produced by the Vietnam War, from television to cinema and photography itself. The situation is entirely different when one looks at the current state of critical inquiries into photography in colonial Vietnam. A possible explanation for this phenomenon is the impact that the Vietnam War had on the Americans and their allies in the middle of the twentieth century, which produced not only cultural traumas but also canonical theories around the visual culture of the time. Both Susan Sontag and John Berger were influenced by the images of the Vietnam year during the years prior to writing their theoretical works. On the impact of the Vietnam War on their writings, read Susan Sontag, *Trip to Hanoi* (Farrar, Straus and Giroux, 1968); John Berger, “Photographs of Agony,” in *Understanding a Photography*, ed. Geoff Dyer (Penguin Classics, 2013), 37-47. On the colonial constitution of the archive itself, and on the institutional precarity that shapes what survives of a colonized nation’s media history, see Bliss Cua Lim, *The Archival Afterlives of Philippine Cinema* (Duke University Press, 2024). Lim names this an anarchival condition, and shows that the Philippines’ memory institutions grew out of American colonial entities founded between 1900 and 1901 — so that the colonial origins of the archive are constitutive of what it holds rather than incidental to it. Her account of historians working from paratexts and ephemera where the films themselves are lost describes the method this dissertation follows with contracts, petitions, tax cards, and police reports.

Vietnam have begun to challenge the notion of photography as a tool of Empire and consider how photography has never simply been a one-way colonial imposition. Édouard de Saint-Ours's 2024 dissertation on the role of photography in the French conquests of Indochina between 1845 and 1879 views photography as a social encounters, whereas Vietnamese elites converted a tool of colonial documentation into rituals of filial piety and ancestral memory while Jacqueline Hoàng Nguyễn's dissertation on the rise and fall of the renowned Vietnamese photographer Nguyễn Khánh Ký sheds light on untold stories of one of the most well-known Vietnamese photographers of the time.⁷⁴ They adhere to Erkki Huhtamo's caution, that critical studies of photography can easily slip into the pitfalls of "histories of carefully selected photographs" rather than examining photography as "a medium and overarching cultural phenomenon."⁷⁵ In a similar vein, researchers are also looking at photography as a site of compromise and resistance than mere adoption. In their ethnographic research of Lai Xá, a village in Vietnam that produced generations of photographers and studio owners beginning in the twentieth century, Laurel Kendall, Nguyễn Văn Huy, and Bùi Thu Hòa argue that photography was conceived by its Vietnamese practitioners as neither an art nor a technology, but as a craft.⁷⁶ In formulating their argument, the authors point to how handicraft has been perceived as a vanguard of the value of the human hand against industrialization but the Vietnamese photographers see themselves as craftsmen, who used the camera, the chemicals, and the prints as their tools. As the authors also point out, Vietnamese photographers were collectively known as *thợ ảnh* ("worker

⁷⁴ Édouard de Saint-Ours, "Conjuring Empire: Photography and Place During the Early Years of French Colonialism in Indochina (1845–1879)" (PhD diss., 2024). At the time of the writing of this dissertation, Jacqueline Hoàng Nguyễn is still writing their dissertation at the Konstfack University of Arts, Craft and Design, it's expected to be published during the summer of 2026.

⁷⁵ Erkki Huhtamo, "Elephants Photographicus: Media Archaeology and the History of Photography," in *Photography and Other Media in the Nineteenth Century*, ed. Nicoletta Leonardi and Simone Natale (Pennsylvania State University Press, 2018), 13-33.

⁷⁶ Laurel Kendall et al., "The Work of Craft in the Age of Mechanical Reproduction: The Lai Xá Photography Village in Vietnam," *Visual Anthropology* 37, no. 3 (2024): 212–36.

photographer”).⁷⁷ The emphasis is on “worker” here, as photography was conceived as a craft rather than an artform.

This dissertation thus adds to this growing body of scholarship another perspective on photography by analyzing the institutionalization of photography during the period. At the same time, this dissertation uses existing historical works on colonial Vietnam to provide a more critical assessment of photography as a powerful force behind the culture and politics of the period. In fact, several dissertations that I surveyed in developing this project situate photography as a subtopic, such as in Gregory Charles Seltzer’s research on aviation in French Indochina and Anh Sy Huy Le’s study of the inter-Asian interactions in colonial Vietnam.⁷⁸

There are three groups of historical works that inform the historical backdrop of this project: colonial institutions, visual culture, and nationalism. Each deals with a certain aspect of the period: social organization, cultures, and politics. Many historians have noticed how institutions are the means for the colonial state to restructure the social organization of the Vietnamese society. Institutions such as the prison, asylum, Church, library, and alcohol monopoly were designed to contest the Vietnamese conceptions of incarceration, mental illness,

⁷⁷ Kendall et al., “The Work of Craft in the Age of Mechanical Reproduction: The Lai Xá Photography Village in Vietnam,” 216. On vernacular and commemorative photography as a practice older than the institutional archive, see Geoffrey Batchen, *Forget Me Not: Photography and Remembrance* (Princeton Architectural Press, 2004); Marianne Hirsch, *Family Frames: Photography, Narrative, and Postmemory* (Harvard University Press, 1997); and, for the closest regional parallel, Karen Strassler, *Refracted Visions: Popular Photography and National Modernity in Java* (Duke University Press, 2010); Christopher Pinney, *Camera Indica: The Social Life of Indian Photographs* (University of Chicago Press, 1997). On the gap between the meanings a medium encodes and those its audiences decode, Stuart Hall, “Encoding and Decoding in the Television Discourse” (Centre for Contemporary Cultural Studies, University of Birmingham, 1973). On photographs that return to make claims their makers did not intend, Shawn Michelle Smith, *Photographic Returns: Racial Justice and the Time of Photography* (Duke University Press, 2020).

⁷⁸ Gregory Charles Seltzer, “The Hopes and the Realities of Aviation in French Indochina, 1919-1940” (Dissertation, University of Kentucky, 2017); Anh Sy Huy Le, “Taming the Intractable: Chinese Migrants, Inter-Asian Interactions, and the Transformation of French Rule in Colonial Vietnam, 1862-1940” (Dissertation, Michigan State University, 2021).

religion, literary, and commerce.⁷⁹ Across this body of scholarship, though distinct in respect to their objects of study, scholars agree that colonial institutions did not always function as intended. Limited budgets, local resistance, and unfamiliarity with the complexities of Vietnamese communities all contributed to the unintended operations of these institutions. Furthermore, this group of literature is also useful in highlighting how France's technological prestige could not uphold its promises when faced with colonial realities. As pointed out by Sylvie Fanchette and David Biggs, the Vietnamese people have a long history of co-inhabiting with the Mekong River Delta and the Red River Delta, with unique networks of canals and hydropower to support economic activities.⁸⁰ The shortcomings of France's attempt to transform the region into an economic powerhouse lie in this inattention to local knowledge.

In addressing the visual landscape of colonial Vietnam, scholars have pointed out the disconnection between how France imagined "Indochina" in the state-produced media productions and the realities there. Peter J. Bloom's and Dean Wilson's research on early cinema in colonial Vietnam emphasize the experimental nature of cinema at the turn of the century while criticizing how cinema was envisioned as a tool of propaganda for France's civilizing mission up until the interwar period.⁸¹ Sharing this interest in the mythologization of Indochina, Panivong

⁷⁹ Peter Zinoman, *The Colonial Bastille: A History of Imprisonment in Vietnam, 1862-1940* (University of California Press, 2001); Claire E. Edington, *Beyond the Asylum: Mental Illness in French Colonial Vietnam*, Studies of the Weatherhead East Asian Institute, Columbia University (Cornell University Press, 2019); Charles Keith, *Catholic Vietnam: A Church from Empire to Nation* (University of California Press, 2012); Cindy Anh. Nguyen, *Bibliotactics: Libraries and the Colonial Public in Vietnam*, 1st ed., Asia Pacific Modern Series; v.22 (University of California Press, 2026); Gerard Sages, *Imperial Intoxication: Alcohol and the Making of Colonial Indochina*, Southeast Asia: Politics, Meaning, and Memory (University of Hawai'i Press, 2017).

⁸⁰ Sylvie Fanchette, "The Craft Villages of the Red River Delta (Vietnam): Periodization, Spatialization, Specializations," in *Local Agri-Food Systems in a Global World: Market, Social and Environmental Challenges - Cambridge Scholars Publishing* (Cambridge Scholars Publishing, 2012), 259-273; David Biggs, *Quagmire: Nation-Building and Nature in the Mekong Delta* (University of Washington Press, 2010).

⁸¹ Peter J. Bloom, *French Colonial Documentary: Mythologies of Humanitarianism* (University of Minnesota Press, 2008); Dean Wilson, "Colonial Việt Nam on Film: 1896 to 1926" (Dissertation, The City University of New York, 2007). On cinema, race, and ethnographic spectacle in the imperial frame, see Fatimah Tobing Rony, *The Third Eye: Race, Cinema, and Ethnographic Spectacle* (Duke University Press, 1996); Ella Shohat and Robert Stam, *Unthinking Eurocentrism: Multiculturalism and the Media* (Routledge, 1994); Priya

Norindr argues that representations of Indochina in cinema and literature were as much a part of “colonialism” as the colonists. This colonial imagination is so deep that it continues to live in contemporary French psyche.⁸² As mentioned above, the lack of discussion on photography within the broader landscape of critical studies on the visual culture of colonial Vietnam is an urgent issue.

The last group of literature in colonial Vietnam that this project engages with is political histories of colonial Vietnam. In framing the political cultures of the region earlier, I have highlighted several key historians such as David Marr and Hue-Tam Ho Tai. Their works align with the common theme within the field, which is the focus on generational politics that explains the rise of communism and the victorious Viet Minh. However, within this body of scholarship, Anderson’s frameworks have been rarely applied besides Christopher Goscha’s *Going Indochinese*.⁸³ Two major works on the press, Shawn McHale’s *Print and Power* and Philippe Peycam’s *The Birth of Vietnamese Political Journalism*, rely on Jürgen Habermas’s frameworks of the “public sphere” rather than Anderson’s.⁸⁴ This methodology is rather peculiar given how Southeast Asia was Anderson’s specialty, whereas Habermas was writing specifically within European contexts. Goscha’s work, however, responds directly to Anderson’s frameworks by explaining how the Vietnamese never became “Indochinese” the way the Javanese became Indonesian in 1945, as observed by Anderson.⁸⁵ In this insightful work, Goscha argues that the

Jaikumar, *Cinema at the End of Empire: A Politics of Transition in Britain and India* (Duke University Press, 2006); Lee Grieveson and Colin MacCabe, eds., *Empire and Film* (BFI/Palgrave Macmillan, 2011); and, on the travelogue as the form through which metropolitan audiences consumed the colonies as scenery, Jeffrey Ruoff, ed., *Virtual Voyages: Cinema and Travel* (Duke University Press, 2006).

⁸² Norindr, *Phantasmatic Indochina*.

⁸³ Christopher Goscha, *Going Indochinese: Contesting Concepts of Space and Place in French Indochina* (NIAS Books, 2012).

⁸⁴ McHale, *Print and Power*; Philippe M. F. Peycam, *The Birth of Vietnamese Political Journalism: Saigon, 1916-1930* (Columbia University Press, 2012).

⁸⁵ Goscha, *Going Indochinese: Contesting Concepts of Space and Place in French Indochina*.

entire French Indochina was imagined as an embodiment of the Franco-Annamite relationship, which enraged the Laotians and Cambodians who did not see themselves being “Indochinese.”⁸⁶ Using Anderson’s frameworks, Goscha illustrates how the Vietnamese see themselves as Indochinese and possess a higher status than their neighbors.⁸⁷ However, the significant insights that this work offers lie within how the bureaucracy, the map, educational curriculum, and transportation networks all contributed to the materialization of Indochina.⁸⁸

A common observation among all historians is the standardization of *quốc ngữ* as the official writing *system* for Vietnamese. For most historians of Vietnam, the press indeed played an important role in shaping the cultural and political life in colonial Vietnam by illustrating the evolution of the Vietnamese language. Scholarship on this topic recognizes how early anticolonial sentiments can be detected in the French writings of the elite Vietnamese even though France controlled virtually all of the publications in French Indochina. Hue-Tam Ho Tai and Philippe Peycam have provided a careful analysis of how these intellectuals built their base by participating in political journalism at the time.⁸⁹ In his discussion of the press following the 1920s, Shawn Frederick McHale argues that it was the popularization of Buddhism in *quốc ngữ* in the press that made it the cornerstone of Vietnamese national identity.⁹⁰ He further remarks

⁸⁶ Goscha, “Revolutionary Geopolitics and Regional Solidarity,” in *Going Indochinese: Contesting Concepts of Space and Place in French Indochina*, 75-90.

⁸⁷ Goscha, “Revolutionary Geopolitics and Regional Solidarity,” in *Going Indochinese: Contesting Concepts of Space and Place in French Indochina*, 75-90.

⁸⁸ Goscha argues that “Indochina” was not a natural territory but a colonial construct made real through four concrete apparatuses — the shared bureaucracy, the map, the school curriculum, and transportation networks — which together turned an administrative fiction into lived, material space in which people worked, moved, and imagined themselves as “Indochinese.” Goscha’s key contribution is thus to show the materialization of space: an abstract idea becomes durable once it is embedded in filing systems, maps, textbooks, and rail lines, echoing the STS and infrastructure literature on how technical systems produce the grounds of social life. Crucially, this materialization was contested — the same infrastructures that produced an Indochinese consciousness also enabled Vietnamese expansion and provoked competing Vietnamese and Indochinese senses of belonging. Goscha, *Going Indochinese: Contesting Concepts of Space and Place in French Indochina*.

⁸⁹ Tai, *Radicalism and the Origins of the Vietnamese Revolution*; Peycam, *The Birth of Vietnamese Political Journalism*.

⁹⁰ McHale, *Print and Power*.

that the political writings failed to mobilize all Vietnamese because there is a gap between the revolutionary lingo and the conceptions of the world held by many Vietnamese in rural areas that the movement tried to appeal. At a linguistic level, this evolution described by these authors is not more than an expansion of the vocabulary. However, at a more material level, *quốc ngữ* operate at a much deeper level than what these authors originally assessed. Developed in the seventeenth century by Catholic missionaries, *quốc ngữ* is a Latin-based script for the Vietnamese language. Starting in the late nineteenth century, after the French conquest, French colonial administrators promoted the adoption of *quốc ngữ* as the official writing system in Tonkin, Annam, and Cochinchina.⁹¹ It later became the official writing system of modern Vietnamese.⁹² However, the adoption of *quốc ngữ* altered how Vietnamese written, not how it was spoken.⁹³

These overlapping currents—photographic theory shaped by the Vietnam War, the political histories of decolonization, and the emerging scholarship on colonial-era photography—underscore a shared lacuna: photography in colonial Vietnam has remained on the margins of multiple fields simultaneously. This dissertation intervenes at that intersection, treating

⁹¹ John DeFrancis, *Colonialism and Language Policy in Viet Nam*, Contributions to the Sociology of Language, 19 (Mouton, 1977).

⁹² In 1945, the newly proclaimed Democratic Republic of Vietnam under Hồ Chí Minh adopted *quốc ngữ* as the national script and launched mass literacy campaigns (the Bình dân học vụ, "popular education" movement, from September 1945) to spread it. For more on these literacy campaigns, read Marr, *Vietnam 1945: The Quest for Power*; Shaun Kingsley Malarney, "Literacy for the Masses: The Conduct and Consequences of the Literacy Campaign in Revolutionary Vietnam," in *Literacy for Dialogue in Multilingual Societies* (Linguapax Asia, 2011), 83-91.

⁹³ Foundational linguistics holds that a writing system is only a means of recording speech, not the language itself — as Leonard Bloomfield put it, "writing is not language, but merely a way of recording language by means of visible marks;" Leonard Bloomfield, *Language* (Henry Holt, 1933), 21; John DeFrancis extends this to the Vietnamese case, showing that *quốc ngữ* was a Romanized transcription of spoken Vietnamese, so its adoption changed how the language was written without altering how it was spoken, a point reflected in Thompson's grammatical description of the script as a phonemic rendering of the language. The one qualification these works together imply is that the orthography, fixed from seventeenth-century pronunciation, still preserves some sound distinctions that have since merged in modern speech, so the script records the spoken language rather than freezing it unchanged. For more on critical scholarship on Vietnamese language, read Laurence C. Thompson, *A Vietnamese Reference Grammar* (University of Hawai'i Press, 1987); John DeFrancis, *Visible Speech: The Diverse Oneness of Writing Systems* (University of Hawai'i Press, 1989).

photography not simply as an object of visual analysis but as an institutional practice embedded in the material and political life of the colony.⁹⁴ By situating colonial photography within the frameworks of infrastructure and nationalism, it proposes a method for recovering what has been systematically hidden in plain sight.

Chapter Summaries

The following case studies seek to uncover this materiality of photography in colonial Vietnam. Spanning across three different colonial institutions, these case studies underscore the instability of media technologies and the many ways photography became enmeshed in the fabric of colonial society. In no way does this project aim to cover every aspect of photography during the colonial period, nor arguing for materiality or infrastructures as the correct way to study photography, and more broadly, media technologies. Instead, by using infrastructure as an analytic tool to examine the scale and the politics undergirding the colonial state's institutionalization of photography, it emphasizes how photography can exist in many forms and have different meanings to different groups. It thus invites future scholars to look for photography in unsuspected sites where cultural meanings and practices of photography do not always adhere to its predetermined notions.

⁹⁴ Erkki Huhtamo and Jussi Parikka, eds., *Media Archaeology: Approaches, Applications, and Implications* (University of California Press, 2011); Siegfried Zielinski, *Deep Time of the Media: Toward an Archaeology of Hearing and Seeing by Technical Means*, trans. Gloria Custance (MIT Press, 2006); Lisa Gitelman, *Always Already New: Media, History, and the Data of Culture* (MIT Press, 2006); Jonathan Sterne, *The Audible Past: Cultural Origins of Sound Reproduction* (Duke University Press, 2003); Friedrich A. Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford University Press, 1999); John Durham Peters, *The Marvelous Clouds: Toward a Philosophy of Elemental Media* (University of Chicago Press, 2015). On the older medium-theory tradition from which these approaches descend, see Marshall McLuhan, *Understanding Media: The Extensions of Man* (McGraw-Hill, 1964); Harold A. Innis, *Empire and Communications* (Clarendon Press, 1950); and James W. Carey, *Communication as Culture: Essays on Media and Society* (Unwin Hyman, 1989). Innis is the founding statement that empires are held together by their communication media, each medium carrying a bias toward duration or toward extension in space.

The first case study turns to the photographic identification of the living body, asking how the mug shot — a technology Europe and the United States associate with Alphonse Bertillon and his system for scientifically classifying the convicted through body measurements and photographs — became an institutional practice in colonial Vietnam well before the Vichy government formally adopted it in the metropole in 1940.⁹⁵ The chapter traces the identification photograph through three institutions and three cities: the penitentiary at Poulo Condor, the immigration depots of Hải Phòng and Saigon, and the municipal tax system of Hanoi. These were not simultaneous experiments but successive ones, each modeled on the last, and together they reveal an emerging apparatus for controlling mobility across the colony. Reading the photograph as one element of a larger documentary system rather than as a self-sufficient image, the chapter argues — with Sekula — that "the central artifact of this system is not the camera but the filing cabinet": the identification photograph acquired its meaning only once it was bound to a number, a measurement, and a file.⁹⁶ Yet at each site the colonial state's utopian vision of a comprehensive, legible population met conditions it could not control. At Poulo Condor the state could remake a prisoner's body before the camera, but the photograph proved unable on its own

⁹⁵ Pierre Piazza, *Histoire de la carte nationale d'identité* (Éditions Odile Jacob, 2004). On the displacement of anthropometry by fingerprinting and the longer career of identification media, see Simon A. Cole, *Suspect Identities: A History of Fingerprinting and Criminal Identification* (Harvard University Press, 2001); Jonathan Finn, *Capturing the Criminal Image: From Mug Shot to Surveillance Society* (University of Minnesota Press, 2009); David Lyon, *Identifying Citizens: ID Cards as Surveillance* (Polity, 2009); and on the entanglement of biometric identification with racial classification, Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Duke University Press, 2015); Shoshana Amielle Magnet, *When Biometrics Fail: Gender, Race, and the Technology of Identity* (Duke University Press, 2011). On the fingerprint weighed against the photograph as evidence, with race deciding the outcome, Tory Jeffay, "Fatty Arbuckle's Fingerprints: Race, Photographic Evidence, and the Smudge," *JCMS: Journal of Cinema and Media Studies* 64, no. 2 (2025).

⁹⁶ Allan Sekula, "The Body and the Archive," *October* 39 (1986): 3–64, 16. Sekula's argument is made against an older account of the photograph as an image formed without human intervention, carrying the being of its object: André Bazin, "The Ontology of the Photographic Image," in *What Is Cinema?*, trans. Hugh Gray (University of California Press, 1967), 1:9–16. For the counter-emphasis to Sekula and John Tagg — that photography retains an identity not exhausted by the institutions that deploy it — see Geoffrey Batchen, *Burning with Desire: The Conception of Photography* (MIT Press, 1997); and Christopher Pinney and Nicolas Peterson, eds., *Photography's Other Histories* (Duke University Press, 2003). On the reconstruction of events from mechanical traces, Greg Siegel, *Forensic Media: Reconstructing Accidents in Accelerated Modernity* (Duke University Press, 2014).

to bind a face to a file, and the so-called cross-race effect — colonial officials' inability to tell Vietnamese faces apart — exposed the limits of colonial vision while the administration relocated that failure onto the colonized body itself. In Hải Phòng and Saigon, the apparatus depended on Chinese congregations the French had not created, provoked protests that forced the suspension of fingerprinting, and remained answerable to a foreign sovereign that could make French commerce pay for an over-zealous regime, so that the identification card emerged as a negotiated object rather than a pure expression of colonial will. And in Hanoi the camera passed decisively into Vietnamese hands: the municipal tax-card contracts were won by Vietnamese photographers, organized as a kin-based craft radiating from the village of Lai Xá, who supplied the state's identifying images even as they turned the same studios, equipment, and skills to family albums, ancestral portraits, and a flourishing commercial trade. Identification, this chapter shows, was never simply imposed; it was an infrastructure assembled from mundane parts — a numbered placard, a developing bath, a ruled register, a Romanized name — dependent on labor the colonial state did not command, and visible, like all infrastructure, chiefly at the points where it failed.

If *bertillonage* and its classificatory capacity are the imprint of photo identification, the map and its simplified representation of space overshadow the extensive labor and science that make the map possible. The second case study examines the cadastral survey that the Cadastral Service of French Indochina and the colonial Air Force carried out by aerial photography between 1919 and 1940, a project that mapped the colony from above not merely to chart it but to measure individual land parcels precisely enough to tax them. After World War I, aviation became a new technical terrain for France to assert its dominance in the global landscape following the victory of the Allied Powers, and while today aviation is celebrated for its speed,

the fascination with flying is also rooted in the belief that one can possess a “God’s-eye-view” by being in the air.⁹⁷ Reading the program through the seven-step workflow that a 1930 technical note codified—from the taking of aerial negatives to the calculation of parcel areas and the establishment of the land registers—this chapter argues that the workflow is best understood not as an administrative diagram but as a chain of labor the colonial record was designed to render invisible. Each step names an institution; none names a person. Yet the survey could not function without the Vietnamese workforce that staffed it at every stage: the assistant photographers who timed exposures against the aircraft’s drift, the field brigades that fixed the ground markers, the laboratory technicians who solved the mathematics of photogrammetric restitution by hand, and the village bookkeepers whose knowledge of local boundaries no aerial photograph could supply. The colonial laboratory at Hanoi, as the chapter shows, did not receive a finished European science; it matured photogrammetry in practice years before the metropole recognized the field’s value and built its own National Institute of Cartography (Institut géographique national) in 1940—the same science that today underpins Google Maps and facial recognition.⁹⁸ The cadastre, however, was never a neutral exercise: it converted Vietnamese skill and local knowledge into a fiscal claim upon Vietnamese land, displacing communal tenure and feeding the rural grievance that erupted in the peasant uprisings of Nghệ An and Hà Tĩnh. It also remained unfinished when the Japanese occupation overtook it, because the colonial state could neither manufacture nor compel the colonized expertise on which the survey depended.

⁹⁷ Caren Kaplan, *Aerial Aftermaths: Wartime from Above* (Duke University Press, 2018).

⁹⁸ On the history of the Institut géographique national, read Jacques Poulain, “L’Institut géographique national, hier et aujourd’hui,” *Mappemonde* 49, no. 1 (1998): 1–2; On the science behind photogrammetry, read Brooke Belisle, “Visible World: Photographic Maps and Computational Photogrammetry” in *Depths Effects: Dimensionality from Camera to Computation* (University of California Press, 2024), 115–163.

The last case study turns from the living body and the mapped territory to the ruin, asking how photography built the infrastructures through which the history of a vanished kingdom was produced, stored, and made to circulate. It examines the archaeological excavations of the Cham sites in central Vietnam carried out between 1901 and 1904 by the archaeologist Henri Parmentier and his photographer Charles Carpeaux, and the long afterlife of the photographic archive they generated.⁹⁹ The excavations were undertaken under the auspices of *École française d'Extrême-Orient* (the French School of the Far East, EFEO), the institution that held a monopoly over the study of the region's past. This chapter analyzes how photography functioned not as a neutral documentary instrument but as a constitutive technology of colonial knowledge: one that determined what could be seen and claimed about the Kingdom of Champa and who held the authority to preserve and interpret its ruins. Carpeaux's images—produced under conditions of extreme physical difficulty and known today largely through his posthumously published journal—document a collaborative undertaking made possible by hundreds of Cham and Vietnamese laborers, yet the official record systematically erased that labor, filing the peopled journal as personal memoir and the depopulated bulletin as science.¹⁰⁰ The chapter then follows the photographic archive into the museum, where it was conspicuously absent: when the *Musée Čam de Tourane* opened in 1919, Parmentier's catalogue cited not a single photograph, treating the drawn line—not the photographic exposure—as the only legitimate unit of scholarly knowledge.¹⁰¹ This exclusion, I argue, expressed a coherent representational theory that

⁹⁹ William Chapman, “Adjuncts to Empire: The EFEO and the Conservation of Champa Antiquities,” sec. 1, *Bulletin of the History of Archaeology* 28, no. 1 (2018): 1–12.

¹⁰⁰ Charles Carpeaux, *Les Ruines d'Angkor, de Dong-Duong et de Myson (Cambodge et Annam): Letters, Journal de Route et Cliches Photographiques Publiés Par Mme. J.-B. Carpeaux*, ed. Augustin Challamel (Librairie Coloniale, 1908).

¹⁰¹ Henri Parmentier, *Inventaire descriptif des monuments čams de l'Annam. Tome premier: Description des monuments*, vol. 1, Publications de l'École française d'Extrême-Orient, vol. XI; *Inventaire archéologique de l'Indochine*, II (Imprimerie Nationale; Ernest Leroux, éditeur, 1909).

subordinated the contingent, indexical photograph to the synthetic authority of the geometric drawing. Yet the destruction of Mỹ Sơn by American bombing in 1969 reversed that hierarchy: for monuments since lost, Carpeaux's photographs became not copies but the primary surviving record, and the medium colonial archaeology had confined to private documentary use became the public foundation of restoration and, in 1999, of UNESCO World Heritage inscription.¹⁰² Tracing this arc, the chapter shows how the colonial framing of the Cham as an extinct civilization was carried intact from the EFEO bulletin into the heritage regime that governs the sites today. The erasure of the Cham from the present manifests a larger and more insidious aim of the colonial empire: it implies, in Anderson's words, that the contemporary natives "were no longer capable of their putative ancestors' achievements."¹⁰³

Taken together, these three case studies trace an arc from identification to mapping to commemoration—from the surveillance of individual bodies to the aerial mastery of territory, to the erasure and reinvention of ethnic histories. Each chapter reveals a different dimension of photography's entanglement with colonial power, and each also uncovers the gaps, failures, and unintended consequences that undermined the colonial state's ambitions. In the space between what the French imagined photography could accomplish and what it actually did, a Vietnamese national identity took shape—not as a gift of empire, but as its inadvertent creation.

¹⁰² World Heritage Committee, "Decision 23 COM VIII.C.1: My Son Sanctuary (Viet Nam)" (Marrakesh, 1999).

¹⁰³ Anderson, *Imagined Communities*, 84.

Chapter 1

Have Your ID Ready: Citizenship, Identification Practices, and Mobility in Colonial Vietnam

Introduction

In 2022, after several modifications to the proposals on new identity cards, the Ministry of Public Security passed a new law, mandating that all Vietnamese citizens upgrade their identity documents to chip-based identity cards. This new practice is part of Project 06—a set of initiatives to modernize civil registration, digital ID, and banking authentication.¹ Similar to the requirements which were already in place, everyone must submit a physical copy of their new portrait photograph as part of the application. Within days, millions of people rushed to the police stations, bearing two copies of their photographs, to have their identification documents upgraded. While some were irritated by the new regulation, many were excited about the more modern look of their identity cards. However, the excitement about the new format of identity cards soon turned into an anxiety since just two years later, the state proposed another upgrade, now with additional biometrics such as iris scanning and voice recording. The proposed upgrade faced fierce resistance from several lawmakers and human rights lawyers who voiced concerns over privacy and data security.² Nonetheless, proponents of these initiatives argued that the new sophisticated ID card would make public services such as healthcare and social security more efficient and accessible.³

¹ Dinh Hieu, “Ministry Makes Pioneering Imprint on Digital Transformation,” *VietNamNet*, January 26, 2026, <https://vietnamnet.vn/en/ministry-makes-pioneering-imprint-on-digital-transformation-2481892.html>.

² Việt Nam News, “Privacy Concerns Raised as Proposed Citizen ID Card Amendments Debated,” *Politics & Law, Việt Nam News*, March 18, 2023, <https://vietnamnews.vn/politics-laws/1499247/privacy-concerns-raised-as-proposed-citizen-id-card-amendments-debated.html>.

³ VietnamPlus, “Nearly 11.8 Million People Use Chip-Based ID Cards to Access Healthcare Services,” *Society, VietnamPlus*, February 22, 2023, <https://en.vietnamplus.vn/nearly-118-million-people-use-chip-based-id-cards-to-access-healthcare-services-post248766.vnp>.

What strikes me about these upgrades and their debates is how photography has already been normalized as part of individual identification. As noted by James Scott in his book about modern statehood, the identification document is a powerful instrument to make legible a population which otherwise would have gone ungoverned by the state.⁴ The identification document has itself generated rich literature on its politics and colonial legacies, yet Vietnamese identification practices have not received much attention.⁵ Thus, this case study asks how photography, as a technology, became institutionalized by the state as a means of identification—a process that historians of Vietnam and scholars of visual studies alike have largely left unexamined. In this chapter, I examine the institutionalization of photography as an identification practice in Vietnam in the years following the French annexation of Tonkin in 1886, which started what historians often considered to be the beginning of the French colonial period in Vietnam. Drawing from archival materials from the National Archives Centers in Vietnam, I will demonstrate that a lesser-known debate about the use of facial images and fingerprints had already taken place in Vietnam during this period. I thus argue that the institutionalization of photography as a novel technology in colonial Vietnam encapsulates the Third Republic's utopian visions of colonies as laboratories of modernity, where technologies were not imposed but experimented.⁶ Seen as experimentation instead of a technocratic violence,

⁴ James Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (Yale University Press, 1998).

⁵ On the histories of identification document, read Craig Robertson, *The Passport in America: The History of a Document* (Oxford University Press, 2010); Jane Caplan and John Torpey, eds., *Documenting Individual Identity: The Development of State Practices in the Modern World* (Princeton University Press, 2001); John Torpey, *The Invention of the Passport: Surveillance, Citizenship and the State*, Cambridge Studies in Law and Society (Cambridge University Press, 2000); Valentin Groebner, *Who Are You? Identification, Deception, and Surveillance in Early Modern Europe* (Zone Books, 2007).

⁶ Gwendolyn Wright, *The Politics of Design in French Colonial Urbanism* (University of Chicago Press, 1991). The thesis that French colonies functioned as laboratories for planning techniques later reimported to the metropole also appears in Paul Rabinow, *French Modern: Norms and Forms of the Social Environment* (MIT Press, 1989), most fully in his account of Henri Prost's work under Lyautey in Morocco, which Rabinow calls "France's first comprehensive experiments in urban planning."

technologies thus unsettle the rigid dichotomy between modernity and coloniality, insofar as the material qualities of technologies open up new ways to consider how technologies are practiced by different populations.

In what follows, I trace the practices of photography through three different institutions established by the French rule: prisons, immigration, and taxation. Together, they reveal an identification apparatus that the French colonial authority envisioned for their empire. However, as the analyses will demonstrate, France's fetishization of the camera as a technology of legibility not only undermined its imperial goals but also paved the way for the Vietnamese to engage with the colonial state as equals. As the first of the dissertation's three case studies, this chapter establishes a pattern that the chapters on the map and the museum will trace in turn: a colonial technology of vision, imagined as an instrument of domination, that depended at every stage on Vietnamese labor and so escaped the purposes assigned to it. The continuity is not merely rhetorical. Project 06 proposes to bind a face, a set of fingerprints, an iris pattern, and a voice to a single retrievable record, which is the ambition Bertillon's clerks pursued with calipers and index cards; and the objections raised in 2024 — that the data will outlast the purpose collected for, that failure will fall unevenly — are the objections the Chinese congregations of Saigon raised in 1897, made in the vocabulary of data protection rather than of dignity.⁷

⁷ On the recurring failure of biometric systems to perform as promised, and on whose bodies those failures fall, Shoshana Amielle Magnet, *When Biometrics Fail: Gender, Race, and the Technology of Identity* (Duke University Press, 2011); and Btihaj Ajana, *Governing through Biometrics: The Biopolitics of Identity* (Palgrave Macmillan, 2013). On the continuity between nineteenth-century record-keeping and contemporary data surveillance — the argument that the digital identity system is the same evidential project by other means — Josh Lauer, "Surveillance History and the History of New Media: An Evidential Paradigm," *New Media & Society* 14, no. 4 (2012): 566–82.

At Sea: The Prisoners in Poulo Condor

Located about 180 kilometers off the southern Vietnamese coast, Poulo Condor is an archipelago known for its sandy beaches and soft crashing waves. It is a popular vacation spot for wealthy families because of the swanky hotels and resorts. However, most guests of the island would soon learn that this island once sheltered one of the most brutal prisons in the world, Côn Lôn. In *Thi Tù Tùt Thoi*, a journal of the Vietnamese revolutionary Huỳnh Thúc Kháng, he recalled his thirteen-year imprisonment at Poulo Condor, where disease, forced labor, and violence made death a constant feature of the penitentiary's operation.⁸ Kháng documented every step: from being arrested without a warrant to working as a clerk in the prison at Poulo Condor. His memoir provides a significant record of the carceral systems imposed on the colonial subjects by French colonists. As Kháng describes it, every prisoner had to shave his head before having his photograph taken at the station.⁹ As soon as they arrived at the prison, they had to wear a wooden placard with a number engraved on it, along with other information about their crimes and the date of release, if any.¹⁰ Imprisoned on an isolated island, they performed indentured labor in poor conditions and deaths were not uncommon, even for the guards. In his visit to the island in 1930, Jean-Claude Demariaux was struck by the number of graveyards of *matas* (the indigenous soldiers hired by the French colonial authority), who had died at the hands of the prisoners.¹¹

This system of identification inadvertently created a new social hierarchy among the indigenous. To all the guards and wardens, Kháng and the other prisoners were known by their

⁸ Huỳnh Thúc Kháng, *Thi tù tùt thoi* (Nam Cường, 1951).

⁹ Huỳnh, *Thi tù tùt thoi*.

¹⁰ Huỳnh, *Thi tù tùt thoi*, 31-32.

¹¹ Jean-Claude Demariaux, *Les Secrets des îles Poulo-Condore: Le Grand Bagne indochinois* (Editions J. Peyronnet, 1956).

numbers and not their names. Kháng's sequence records the moment of photographic identification from the position of its subject rather than its operator. The shaving of the head came first, before the camera; the placard and its engraved number came next; only then was the exposure made. Read in order, these were not three separate indignities but a single procedure, and that procedure worked by stripping away the very features through which a person is ordinarily recognized—hair, dress, name—and replacing them with marks the institution itself had assigned.¹²

What the photograph then preserved was not the man who had been arrested but the figure the prison had just manufactured: shaved, numbered, and posed. Kháng's insistence that the guards knew the prisoners only by their numbers is therefore not merely a complaint about cruelty but an observation about how the carceral image functioned. Before the camera reached Poulo Condor, a colonized subject was identified the way most people everywhere were identified: by the testimony of those who knew him, by his village registration, by the recognition of a local official who could vouch that this man was indeed the man named in the record. These were practices of recognition rooted in community and memory. What the penitentiary substituted for them was a practice of inscription. The shaved head and the numbered placard did not ask anyone to remember the prisoner; they asked only that the file be consulted. Identification, in other words, was being relocated—moved out of the web of human acquaintance that had always sustained it and into a documentary apparatus that the state alone

¹² On photography as a technique that produces the body it appears merely to record, see Suren Lalvani, *Photography, Vision, and the Production of Modern Bodies* (State University of New York Press, 1996); and, on the mug shot's passage from criminal record to general instrument of surveillance, Jonathan Finn, *Capturing the Criminal Image: From Mug Shot to Surveillance Society* (University of Minnesota Press, 2009). Tom Gunning's account of how photography, detection, and early cinema converged on the problem of tracking a body through a crowd is the fullest statement of the logic at work here: "Tracking the Individual Body: Photography, Detectives, and Early Cinema," in *Cinema and the Invention of Modern Life*, ed. Leo Charney and Vanessa R. Schwartz (University of California Press, 1995), 15–45. For the same procedure in a neighboring empire, and for its convict populations specifically, Clare Anderson, *Legible Bodies: Race, Criminality and Colonialism in South Asia* (Berg, 2004).

controlled. This relocation is the central concern of this case study, and the penitentiary is where it can be seen in its starkest form, because the prison was the one site where the colonial state could remake a person's appearance before photographing him and so guarantee that the image and the file would match.

France's establishment of the penal colony in Southeast Asia belonged to a new effort to reform the penitentiary system in Europe, which Foucault famously described as a transition from punishment to discipline.¹³ In an attempt to separate convicts from society, France established several penal colonies across the world, known collectively as the *bagne*. The *bagne* was never a single prison but a dispersed system, and the most comprehensive history of that system—the collective volume assembled by Jacques-Guy Petit and his collaborators—traces it from the royal galleys through the metropolitan hard-labor ports of Toulon, Brest, and Rochefort to the overseas penal colonies of the nineteenth century.¹⁴ What that long history reveals is a principle of organization that mattered as much as punishment itself: the *bagne* was designed to be invisible. Each successive relocation of the institution—from the city to the port, from the port to the distant island—moved the spectacle of forced labor further from the eyes of the public in whose name it was carried out. The metropolitan galley had once been a visible thing, its chained convicts a fixture of the harbor; the overseas *bagne* was its opposite, a punishment that worked precisely by disappearing. Stephen Toth has shown that the idea of sending criminals, and especially repeat offenders, to remote penal colonies was advocated by French intellectuals who believed that such men could do no harm where civilization did not exist.¹⁵ But remoteness

¹³ Michel Foucault, *Discipline and Punish: The Birth of the Prison*, trans. Alan Sheridan (Vintage Books, 1995).

¹⁴ Jacques-Guy Petit et al., *Histoire des galères, bagnes et prisons, XIIIe-XXe siècles : introduction à l'histoire pénale de la France* (Toulouse: Privat, 1991).

¹⁵ Stephen Toth, *Beyond Papillon: The French Overseas Penal Colonies, 1854-1952* (University of Nebraska Press, 2006).

did more than neutralize the convict. It also concealed the institution. A penal colony 180 kilometers out to sea, or seventeen thousand kilometers away in the forests of Guyane, could not be visited by a curious journalist, could not be photographed by an unauthorized eye, and could not become an embarrassment to the civilizing mission.¹⁶ The *bagne* was, in this sense, a deliberately unseen place—a machine for producing punishment without producing the image of punishment.

This logic of concealment shaped Côn Lôn from its founding. On February 1, 1862, Admiral Louis-Adolphe Bonard ordered the establishment of a penal colony on one of the islands of the archipelago, following the conquest of the southern part of Vietnam (Cochinchina). This island became known as Côn Lôn.¹⁷ The first few decades of the prison's operation were marked by plagues and frequent uprisings, making the colony almost uninhabitable. While the prison was originally built to hold only 200 inmates, the number of convicts sent to Côn Lôn soon exceeded its capacity, and a new decree was issued for the prison's expansion in 1903. Côn Lôn was not an isolated experiment but one node in the dispersed carceral geography that France had been assembling since the mid-nineteenth century. The penal colony in French Guiana, opened in 1852, and the much larger establishment in New Caledonia, which began receiving convicts in 1864, were the metropolitan models for transportation as a punishment that removed offenders from society by removing them from the continent altogether. The dedicated history of Poulo Condor by Frédéric Angleviel situates the island firmly within this imperial network rather

¹⁶ On critique of the ethos of France's "civilizing mission" and its expansion outside of Europe, read Alice L. Conklin, *A Mission to Civilize: The Republican Idea of Empire in France and West Africa, 1895-1930* (Stanford University Press, 1997); Robert Aldrich, *Greater France: A History of French Overseas Expansion*, European Studies Series (Macmillan, 1996).

¹⁷ Maurice Demariaux provides a useful overview of the history of this archipelago, from its conception as a carceral island to its transformation into a heritage-and-tourism destination in the 1990s. On history of Côn Lôn, read Maurice Demariaux, *Poulo Condore, archipel du Vietnam : du bagne historique à une nouvelle zone de développement économique* (L'Harmattan, 1999).

than treating it as a local peculiarity.¹⁸ What distinguished the Indochinese case was that its prisoners were overwhelmingly colonial subjects rather than metropolitan criminals, and that the island sat within, rather than an ocean away from, the territory whose population it was meant to discipline. A penitentiary 180 kilometers off the coast could absorb prisoners from across Cochinchina, Annam, and Tonkin, but it also had to be supplied, garrisoned, and connected to the mainland courts that fed it—an administrative burden that grew heavier as the convict population climbed. The 1903 expansion decree was a response to exactly this pressure. A facility designed for two hundred was, by the turn of the century, holding many times that number, and the decree authorized new cell blocks, additional labor camps spread across the archipelago, and an enlarged guard establishment. The expansion did not relieve the overcrowding so much as institutionalize it, converting an improvised colonial prison into a permanent penal complex whose scale would, in turn, make the tracking and identification of individual prisoners an urgent practical problem.

If remoteness made the *bagne* invisible, it also made it useful for a purpose that went beyond the punishment of ordinary crime. In French Indochina, the penal colony was designated as a site not only for repeat offenders but also for political prisoners, and it is here that the carceral system reveals its function within the colonial project most plainly. To grasp what it meant for the French to suppress Vietnamese nationalism, one must see that suppression was not only a matter of executions and prison sentences but also of geography. A nationalist confined in a central prison in Hanoi remained dangerous: he was close to his networks, close to the press that might report his case, and close to the other prisoners whom he might educate. The same nationalist transported across an ocean became, in the colonial calculation, harmless—not

¹⁸ Frédéric Angleviel, *Poulo Condore: un bagne français en Indochine* (Vendémiaire, 2020).

because his convictions had changed but because distance had severed him from everyone he might reach. Christèle Dedeabant documents the clearest instance of this strategy. Following the Yên Bái uprising of 1930, 670 people were arrested; of these, 538 male prisoners, aged seventeen to fifty and deemed fit to cross the ocean, were placed aboard the steamship *Martinière* and sent to a penal colony in Guyane.¹⁹ Sent to distant South America, these Annamite convicts were not held in the colonial authorities' existing prisons but in special compounds built specifically for them, where they were subjected to brutal forced labor to clear land and develop that vast French territory. The decision to isolate them from the regular prisons was explicitly aimed at preventing the spread of nationalist sentiment among the inmates already in Guyane.²⁰ Suppressing nationalism, in this case, meant something very precise: it meant using the carceral geography of the empire to quarantine an idea, to treat political conviction as a kind of contagion that could be contained by sufficient distance.

This use of transportation against nationalism also bears its own risks. On Poulou Condor, the scripted formalities of penal surveillance dissolved into an informal economy of bribery, smuggling, gambling, and prostitution that bound the matas and the prisoners together in mutual collusion — a distinctly Vietnamese world, founded on a shared background that the European staff did not share and, Zinoman argues, could not have entered.²¹ A state that wishes to quarantine political ideas must first be able to identify reliably the individuals who carry them, and it must be able to do so across enormous distances and through repeated transfers between institutions. The numbered placard and the photograph were not incidental to the suppression of

¹⁹ Christèle Dedeabant, *Le bagne des Annamites : les derniers déportés politiques en Guyane*, Archives du colonialisme (Solin / Actes Sud, 2024), 336.

²⁰ Dedeabant, *Le bagne des Annamites*.

²¹ Peter Zinoman, *The Colonial Bastille: A History of Imprisonment in Vietnam, 1862-1940* (University of California Press, 2001).

Vietnamese nationalism; they were among its instruments. A prisoner who could shed his identity—who could be released under another name, or could vanish into the general population during a transfer—was a prisoner the state could not reliably exile. The same Vietnamese bodies, moreover, traveled along the labor circuits of the empire as well as its carceral ones. Charles Forsdick has shown that indentured Vietnamese workers transported to New Caledonia from the 1890s onward were, like the convicts of Poulo Condor, identified by the French with a number used both to designate and to address them, and that the colony reused an offshore prison-island for “recalcitrant” laborers.²² The numbering of the colonized body was thus not confined to Indochina but extended across the French imperial world, wherever the state needed to convert persons into trackable units of labor or of danger. The penitentiary at Poulo Condor was one expression of an imperial habit, and the identification techniques developed there belonged to a system that reached from the Pacific to the coast of South America.

While the brutal conditions of the prisons have been well documented by historians, those same historians have noted that the absence of scholarship on the *bagne* is one of the most striking examples of postcolonial amnesia. At the *Archives nationales d’outre-mer*, there are only three extant files on prisoners at Poulo Condor and only two preserved sets of photographs that have been digitized. To write a history of photographic identification from an archive this thin is to confront a methodological problem rather than simply a shortage of evidence. This scarcity is itself another example of the messy administrative system that Peter Zinoman observed.²³ A penal system that processed tens of thousands of prisoners, and that—as later sections will

²² Charles Forsdick, “Graphic Histories of New Caledonia: Visualizing the Bagne,” in *Framing the Penal Colony*, ed. Sophie Fuggle, Palgrave Studies in Crime, Media and Culture (Palgrave Macmillan, 2023), https://doi.org/10.1007/978-3-031-19396-5_8.

²³ In writing about the mortality rate in the colonial prisons, Zinoman notes that records of prisoners are fragmentary and incomplete prior to the 1930s, a gap that constrains any attempt to quantify deaths at the penitentiary. Zinoman, *The Colonial Bastille*.

show—generated detailed identification cards as a matter of routine, has left behind almost nothing of that documentary apparatus in the metropolitan archive. This absence is consistent with the deeper design of the *bagne* as an institution meant to remain unseen. A penal colony built to be invisible to the public of its own time has, unsurprisingly, proven nearly invisible to the historians who came after; the thin archive is the afterlife of the original concealment. The photograph, the very medium the colonial state trusted to fix identity permanently, survives today only in fragments.

In order to understand how penal colonies operated within the French Empire, I examine how these colonies became integrated into a larger disciplinary system after France completed its final stage of annexation in 1886. As detailed by Zinoman in his comprehensive study of social life inside the prisons of French Indochina, the prison system in the region never followed the emergence of the modern penitentiary in Europe and the United States. Instead of focusing on modifying inmate behavior, it depended on coercion. After annexing Tonkin and consolidating all five regions into what it called the Indochinese Union, France formalized its penal system in the colony with three types of prison: central prisons in urban centers such as Saigon and Hanoi, local prisons in smaller towns, and penitentiaries in remote areas like Poulo Condor, which held the most dangerous prisoners—recidivists and those convicted of political crimes—serving lengthy sentences of forced labor. Many of the prisoners of Poulo Condor were in fact held in central and local prisons for a time before being transported to the penitentiaries.²⁴ This three-tier structure thus demonstrates how a single prisoner could move through several institutions over the course of a sentence—arrested and held in a central prison, perhaps transferred to a local one, and finally transported to a penitentiary like Poulo Condor.

²⁴ Zinoman, *The Colonial Bastille*.

Each transfer was a moment at which the prisoner's identity had to be re-established by officials who had never seen him before and had only paper to go on. The fact that the colonial prison ran on coercion rather than on the reformist ambition of the metropolitan penitentiary demonstrates how a system that did not aim to remake its inmates had little interest in their interior lives, but it had an acute interest in not losing track of their bodies. The tiered system thus produced, almost as a by-product, a continual administrative demand for portable, verifiable identification. A prisoner who could not be reliably matched to his record at each stage of transfer might be released in error, might serve another man's sentence, or might vanish from the system altogether. The photograph and the numbered placard were colonial answers to a problem that the prison's own geography had created. It is against this backdrop—a dispersed carceral network through which bodies were constantly in motion—that the colonial state's investment in photographic identification, and its repeated frustration with that investment, must be understood.

The turn to the camera marked a break with how identity had been established before. For most of the nineteenth century, and for centuries before it, a person was known through what may be called traditional practices of identification: the spoken testimony of neighbors, the genealogical registers kept at the village level, the physical recognition of an official who had encountered the individual before.²⁵ These practices were slow, local, and dependent on the continuity of a community. They worked well enough in a society where most people lived and died within a short distance of their birthplace, but they failed precisely where the colonial state most needed them to succeed—across distance, across the transfer of a prisoner from one institution to another, across the gap between the colony and the metropole. Photography

²⁵ Caplan and Torpey, *Documenting Individual Identity: The Development of State Practices in the Modern World*.

promised to solve this problem (or appeared to do so). A photograph could travel; it could be filed, copied, and consulted by an official who had never met its subject; it appeared to fix a likeness with mechanical certainty rather than fallible memory. In the colonial imagination, the camera was therefore not merely a new tool but a modern one, a technology that would replace the unreliable recognition of persons with the durable inscription of records. The penal colony was the proving ground for this ambition. By the late 1870s, when France was still mobilizing troops in the Indochinese peninsula, photography had already become a means of surveillance for the settlers. The shift it represented was not simply technical. It was a shift in who held the authority to say who a person was. Under the older practices, that authority belonged, however loosely, to the community; under the new one, it belonged to whoever held the file.

Yet the modern method did not perform as intended. The case of Poulo Condor presents a shift in the managerial style of the French Republic: the large number of prisoners, combined with the complexity of transporting them between colonies, demanded innovative ways of tracking them. But what the French colonists hoped to achieve through photography was, at first, an utter failure. In a 1900 letter to the Résident Superior of Tonkin, the Résident of Hải Phòng, Léon Jean Laurent Chavassieux, proposed a plan to photograph the 160 Vietnamese prisoners in Hải Phòng who would soon be released.²⁶ The Résident Superior of Tonkin rejected the plan, citing a failed attempt in 1872 to photograph Vietnamese prisoners on the grounds that the dissimilarities between Asians were too “insignificant”; this has come to be known as the “cross-race effect,” wherein people of one race have difficulty differentiating or identifying individuals of another.²⁷ He suggested instead that anthropometric systems such as fingerprinting were far

²⁶ “Photographies d’identité des prévenus.” TTLTQGI, No.3383, 1890.

²⁷ The effect is one of the most robust findings in the psychology of face perception; for the standard meta-analysis, Christian A. Meissner and John C. Brigham, “Thirty Years of Investigating the Own-Race Bias in Memory

more effective. The exchange between Chavassieux and the Resident Superior thus shows how colonial officials reasoned their way to a conclusion about photography that was empirically wrong but administratively decisive. The 1872 attempt had been abandoned nearly three decades earlier, yet it was still being cited in 1900 as settled proof that photographing Vietnamese prisoners did not work.

What the Resident Superior treated as a fact about Asian faces—that the “dissimilarities” among them were too slight to be useful—was in reality a fact about French observers. The episode reveals a failure of intercultural seeing. When members of one society encounter members of another for the first time, the encounter is not only political and economic but also perceptual: each party must learn to see the other, to register as meaningful the small variations of feature by which individuals are told apart. The perceptual literature now describes the difficulty the French experienced as the cross-race effect, and it is well established that this difficulty is not inherent in any face but is a product of unequal exposure: observers become accurate at telling apart the faces they see often and remain poor at telling apart those they do not. The French in Indochina encountered the Vietnamese overwhelmingly as a mass—as crowds of laborers, columns of prisoners, anonymous subjects of administration—and almost never as individuals whose faces they had reason to study. Their inability to distinguish one Vietnamese face from another was the perceptual residue of that social relation. The colonial encounter, in other words, produced its own blindness. But the administration could not admit this, because to

for Faces: A Meta-Analytic Review," *Psychology, Public Policy, and Law* 7, no. 1 (2001): 3–35. On the nineteenth-century conviction that character and type could be read from the face — the intellectual setting in which such a claim about Asian "sameness" became sayable — see Sharrona Pearl, *About Faces: Physiognomy in Nineteenth-Century Britain* (Harvard University Press, 2010); and Hans Belting, *Face and Mask: A Double History*, trans. Thomas S. Hansen and Abby J. Hansen (Princeton University Press, 2017). On photography's role in constituting racial difference as something visible, Mark Sealy, *Decolonising the Camera: Photography in Racial Time* (Lawrence & Wishart, 2019).

admit it would have placed the burden of the failure on the settlers themselves. It was far more convenient to locate the deficiency in the colonized body, to treat Vietnamese faces as objectively interchangeable, and to conclude that a different technology was required. The visual encounter between colonizer and colonized was thus quietly rewritten as a property of the colonized—an alleged sameness of the Asian face—rather than as a limit of colonial perception.

The recommendation of fingerprinting followed directly from this misdiagnosis. Fingerprints promised to bypass the problem of the illegible face altogether by relocating identity to a part of the body that did not have to be recognized, only matched. What looks in the correspondence like a neutral technical preference—phalanges over photographs—was therefore the trace of a racial judgment: the colonized subject could not be trusted to be visually distinct, so the state would identify him by his fingertips instead. The supposed failure of photography in the colony was, in this sense, never a failure of the camera. It was a failure of colonial vision that the administration preferred to attribute to its subjects. And yet the preference for fingerprints did not mean that photography was abandoned. It meant, rather, that photography would be kept on as one element of a composite record, valued not for what it could reveal on its own but for what it could confirm once a file had already been retrieved by other means.

Despite its mechanical achievements, photography still could not help the French settlers overcome the biases of the cross-race effect. The Resident Superior's preference for fingerprints registers a problem the metropolitan police had already confronted: photographs alone could not discipline a population of recidivists, and the medium became usable only once it was subordinated to a system of retrieval. That was precisely the wager of *bertillonage*—the system of criminal identification devised by the Paris police clerk Alphonse Bertillon in the 1880s, which bound together a series of standardized body measurements, a coded verbal description,

and paired frontal and profile photographs in a single, retrievable file. Bertillon's anthropometric archive made the photograph legible only by anchoring it to that set of bodily measurements, so that the image served as the last vehicle to confirm an identity rather than the first. The penitentiary at Poulo Condor reproduced this logic in miniature. The shaved head, the numbered placard, and the standardized exposure were not attempts to capture a likeness but devices for binding a face to a file, and the cross-race effect exposed how fragile that binding remained when the system was transposed onto a colonized population the French could not, or would not, learn to see. This gap between what the penitentiary system promised and what it delivered was not unique to the colony. In his review of the scholarship on the nineteenth-century French penitentiary, Jacques G. Petit observed that metropolitan penal practice was itself far messier than the reformist discourse that surrounded it—that the orderly system described in regulations and official reports corresponded poorly to the improvised, underfunded, and contradictory practices found in the archives.²⁸ The colonial penitentiary did not break down an otherwise functioning metropolitan model; it extended, into a setting of even greater distance and disorder, a system that had never matched its own self-description.

Commenting on bertillonage, Allan Sekula contends that the “central artifact of this system is not the camera but the filing cabinet.”²⁹ Unlike the common perception of a photograph as the bearer of objective reality, the early adoption of photography in policing demonstrates how the medium's widespread application was shaped by institutional practices. John Tagg, for example, argues that photographic truth is the product of a specific discursive order rather than of the mechanical properties of the photographs themselves. In particular, he notes how traces of

²⁸ Jacques G. Petit, “Le système pénitentiaire au XIXe siècle : problématique et recherches,” *Annales de Bretagne et des pays de l'Ouest* 88, no. 3 (1981): 363–68, <https://doi.org/10.3406/abpo.1981.3056>.

²⁹ Allan Sekula, “The Body and the Archive,” *October* 39 (1986): 16.

power can be identified through disciplinary photography: “the body isolated; the narrow space; the subjugation to an unreturnable gaze; the scrutiny of gestures; faces and features; the clarity of illumination and sharpness of focus; the names and number boards.”³⁰ Tagg’s list reads almost as an inventory of the procedure Huỳnh Thúc Kháng described from the other side of the lens. The isolated body, the unreturnable gaze, the number board: these were not the incidental features of colonial prison photography but its very purpose, the means by which a face was stripped of its social context and rendered as an entry in a file.

These principles took institutional form in the colony. In colonial Vietnam, the Judicial Identification Service was created in 1897 in Saigon, Cochinchina. Tasked with photographing and taking biometric data from all arrested individuals, this unit nonetheless did not begin implementing the project until 1909, when its sibling service was established in Hanoi.³¹ As the exchanges between state officials suggest, the identification service faced resistance at the local level, where disputes over budgets stalled its implementation. Nonetheless, the documents produced by the agency during this period suggest that it was able to create a somewhat comprehensive system for identifying and managing convicts. For example, in an exchange between two officials concerning the transfer of twenty prisoners in Hanoi, the warden of a local

³⁰ John Tagg, *The Burden of Representation: Essays on Photographies and Histories* (Minneapolis, MN: University of Minnesota Press, 2021), 85. On fingerprinting's displacement of anthropometry, and on the colonial origins of the technique the Résident Supérieur recommended, Simon A. Cole, *Suspect Identities: A History of Fingerprinting and Criminal Identification* (Harvard University Press, 2001); and Chandak Sengoopta, *Imprint of the Raj: How Fingerprinting Was Born in Colonial India* (Macmillan, 2003). On the way administrative categories bring into being the kinds of person they claim only to describe, Ian Hacking, "Making Up People," in *Reconstructing Individualism*, ed. Thomas C. Heller, Morton Sosna, and David E. Wellbery (Stanford University Press, 1986), 222–36. For a counter-emphasis to Sekula and Tagg — the claim that the photograph establishes a relation among persons that no filing system fully governs — Ariella Azoulay, *The Civil Contract of Photography* (Zone Books, 2008); and on photographs as objects with social lives beyond their institutional use, Elizabeth Edwards, *Raw Histories: Photographs, Anthropology and Museums* (Berg, 2001).

³¹ The delay in implementing anthropometric identification has been well studied by Melissa Anderson. For more information, read Melissa Louise Anderson, “For ‘the Love of Order:’ Race, Violence, and the French Colonial Police in Vietnam, 1860s-1920s” (Dissertation, University of Wisconsin-Madison, 2015).

prison submitted a database. Below is a snippet of it, along with an example of the bertillonage card of a convict.

N° d'ordre	Noms et prénoms	âge	Village	Canton	Motifs de l'arrestation	Motifs de l'arrestation	Nature et durée de la peine	
60	Dương Văn Lợi	39	Vinh Long	Thang Hoa (Hanoi)	Traffic de drogue	Traffic de drogue	gardie travail pénible	
61	Nguyễn Văn Ch�	44	Linh Khê	Sông Kê (Hanoi)	Défaut de carte d'identité	Défaut de carte d'identité	gardie travail pénible	
64	Dương Văn Vinh	32	Cố Lễ	Phước Lâm (Hanoi)	Concession	Concession	8 mois de prison	
65	Nguyễn Văn Xuân	46	Lạc Sơn	Lạc Sơn (Hanoi)	Vol	Vol	10 mois de prison	

Fig. 1.1. A page from a copy of the list of 20 prisoners photographed at the Hoan Long prison. "Liste de 20 prisonniers photographiés détenus à la prison de Hoan Long (Hanoi) dont trois partisans de Hoang Hoa Tham." TTLTQGI. G8.F68/No.71931.

Identificatif N° 71931 - 6 X 16,5 m/m - Hanoi imp. G. Tardieu & Co

Nom: *Nguyen*, Particule: *vân*, Tén: *Giung*
 Surnoms et pseudonymes: *dit Ba*
 Né le: *18 94*, à: *Châli Tân*, C^{on} de *Ngoc*, Prov^{ince} de *Hanoi*



1951 Ng. v. Giung
dit Ba 2690

Condamnations	Mesures anthropométr.	Interdiction de séjour
1 cont ^{re} l'ind. et vagabondage 5 ans d'interd ^{ic} de séjour Ordonné du R ^{es} p ^{ar} le J ^{uge} en date de 23 Septemb ^{re} 09 Applicable aux villes de <i>Hanoi et Haiphong</i>	TÊTE { long ^{eur} : 0m <i>18.4</i> large ^{ur} : 0m <i>15.9</i> hyzogie: 0m <i>13.2</i> Médias gauche: 0m <i>11.4</i> Coudée id. 0m <i>14.0</i> Pied id. 0m <i>26.3</i>	Commencé le <i>jour de la 1^{re} arrestation</i> Termine le <i>à l'expiration de la peine</i> Hanoi, le <i>6 Jan</i> 1910 Le Chef de Service de l'Identité, <i>[Signature]</i>
	Particularités <i>Pourvue milieu la</i> <i>dos du nez</i>	

Fig. 1.2. A bertillonage card of a prisoner from the list. TTLTQGI. G8.F68/No.71931.

The database here shows a familial history of the prisoners, with information about their names, birthplaces, parents, and the nature of their crimes, along with their unique numbers and mug shots, all organized in a tabular format. The prisoners were also classified by other categories such as age and gender. By referring to the number on a prisoner's placard, the biological classifications, and the mug shot from the database, the warden could identify a single individual from a group of prisoners. Thus this document represents the power the state held over its colonial subjects; it was a powerful organization of information available only to the wardens

and colonial officers. The tabular form itself does analytical work that is easy to overlook. By arranging names, birthplaces, parents, crimes, numbers, and mug shots into ruled rows and columns, the document converts each prisoner into a line of comparable data. The format makes individuals legible not as people but as entries, each occupying the same set of fields, each differing from the next only in the values those fields contain — a classification, in Bowker and Star's sense, whose ordinariness is exactly what allows it to carry judgments no one has to defend.³² This is what allows a warden who has never met a prisoner to “identify” him: identification here is not recognition but a lookup, a matching of a body to a row. The mug shot, significantly, is only one column among several. Thus, the photograph in this system was never self-sufficient since a face alone could not be searched. However, a face entered into a table, cross-referenced to a number and a set of measurements, could.

The table also encodes a particular theory of the person. By listing parents and birthplace alongside the crime, it treats identity as something inherited and fixed, locatable in genealogy and origin rather than in conduct. Here the new method and the old one meet in a revealing way. The colonial database did not simply discard the traditional, genealogical understanding of identity—the village register’s logic of descent and origin—but absorbed it, reducing what had been a living record kept by a community to a static column in a form held by the state. The *bagne* thus performed two operations at once: it modernized the technique of identification, substituting the file for the memory of neighbors, while preserving and even hardening the older

³² On classification as an infrastructure that silently encodes moral and political judgment, Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (MIT Press, 1999). On the “immutable mobile” — the inscription that can travel, combine, and be compared without deforming — Bruno Latour, “Visualization and Cognition: Thinking with Eyes and Hands,” *Knowledge and Society* 6 (1986): 1–40. On paper as an agent rather than a residue of bureaucratic action, Matthew S. Hull, *Government of Paper: The Materiality of Bureaucracy in Urban Pakistan* (University of California Press, 2012). For the longer arc from the ruled register to the database, Tung-Hui Hu, *A Prehistory of the Cloud* (MIT Press, 2015); and Wendy Hui Kyong Chun, *Control and Freedom: Power and Paranoia in the Age of Fiber Optics* (MIT Press, 2006).

assumption that a person's truth lay in his ancestry. The colonial database did more than store information about prisoners; it proposed that a prisoner simply was the sum of these fields, and that the state, holding the only complete copy, held the authoritative version of who he was. The numbered placard—visible in the top left corner of the prisoners' photographs—is an early model of the modern identity document, the object in which this new arrangement of power was made portable. While these early practices of identification were applied mostly to convicts, French settlers soon recognized that they could also be used to restrict the movements of individuals throughout the French Empire.

Driven largely by economic motivation, French colonial expansion into the Indochinese peninsula aimed to facilitate trade with other markets in the region. Since Vietnam occupied a strategic geographical location as a crossroads between multiple countries, it was frequented by large groups of foreign merchants, most prominently the Chinese, who had established their own communities in parts of Vietnam. Although they were not Vietnamese and occupied a higher-class status in the social hierarchy because of their economic position, the Chinese faced frequent harassment from French settlers, including the use of *bertillonage*-style anthropometrics. If the penitentiary was the site where the colonial state could remake a body before identifying it, the immigration depot was the site where it had to identify bodies it did not control—and where, as the next section shows, the people being measured could object. In the section that follows, I examine how the Chinese played a role in pushing back against the agenda of the Judicial Identification Service in Cochinchina, a resistance that delayed its implementation in the north until 1909.

By the Coast: The Chinese in Hải Phòng & Saigon

Citizenship is a central concept to nationalism, and it did not exist in France until 1889. For most of the nineteenth century, French law distinguished primarily *nationalité* (nationality) from citizenship and political rights. However, the colonial context prompted France to update its inclusion categories in light of racial differences. As noted by historians Peter Sahlins and James Lehnig, the concept of “foreigner” never fully distinct from the “citizen” before the Third Republic.³³ However, in French oversea colonies, this category hardened into an administrative problem. Nowhere is this clearer than in the figure of the Chinese merchant, who was neither a colonial subject nor a Frenchman, and whose presence forced the identification service to confront the question of which population its apparatus was actually built to capture. Within the colonial context in Vietnam, the term “Chinese” connotes an ethnicity rather than a citizenship. The history of Chinese migrants went back as far as 1644 when the first massive wave of Ming loyalists escaped the mainland to avoid the persecution of the Manchu-ruled Qing dynasty. They settled down in coastal areas of modern-day Vietnam like Saigon and Hội An. In the south, the Chinese population grew quickly and under the aggressive assimilationist policies of emperor Minh Mạng (1820-1841), Chinese officially became one of the many ethnicities in Vietnam. As an ethnic population with its own unique cultural and religious attributes, the Chinese must belong to one of a set of officially approved congregations based on their place of origin in China.³⁴ After France annexed the north, another wave of Chinese migrants moved to Hải Phòng, a coastal city which is only fifty miles east of Hanoi. For many centuries, Hải Phòng facilitated

³³ James R. Lehnig, *To Be a Citizen: The Political Culture of the Early French Third Republic* (Cornell University Press, 2001); Peter Sahlins, *Unnaturally French: Foreign Citizens in the Old Regime and After* (Cornell University Press, 2003).

³⁴ Tracy C. Barrett, *The Chinese Diaspora in South-East Asia: The Overseas Chinese in Indochina* (IB Tauris, 2012).

major transactions that reinforced the China-Vietnam diplomatic relationship. However, under the threat of France throughout the nineteenth century, Hải Phòng was closed until 1874.³⁵ The establishment of Tonkin as a French protectorate then turned Hải Phòng into a strategic port city and increasingly attracted the arrivals of new Chinese congregations.³⁶ Knowing exactly how powerful the Chinese were, the French settlers reluctantly recognized the congregations and their leaders after annexation.

What that recognition entailed deserves precision, because the congregation system was not merely a feature of Chinese communal life that the French tolerated; it became the very infrastructure on which colonial identification was built. As Anh Sy Huy Le has shown, the French did not invent their machinery for tracking the Chinese so much as appropriate an existing one.³⁷ The precolonial Nguyen state had already grouped Chinese migrants into ethnolinguistic congregations—the bang system—each headed by a chief responsible to the imperial government for taxation and registration. The colonial administration took this structure as a ready-made blueprint, reorganized it, and, with the ordinance of 23 January 1885, made congregation membership compulsory for every Chinese migrant in Cochinchina.³⁸ The consequence was that identification did not have to begin from nothing. Every Chinese migrant was, by law, attached to a congregation, and the congregation chief was made answerable to the state for knowing who his members were. Colonial law required these chiefs to submit monthly registers recording, in both French and Chinese, the names, addresses, and movements of everyone under their authority, and to report any change. The chief was thus simultaneously a

³⁵ Nguyễn Thị Hoài Phương, "The Port City of Haiphong, 1874–1940: The Position of the Chinese Community in a French Colonial City," *Lembaran Sejarah* 17, no. 2 (2021): 188–99.

³⁶ Nguyễn Thị Hoài Phương, "The Port City of Haiphong, 1874–1940."

³⁷ Anh Sy Huy Le, "Taming the Intractable: Chinese Migrants, Inter-Asian Interactions, and the Transformation of French Rule in Colonial Vietnam, 1862–1940" (Dissertation, Michigan State University, 2021).

³⁸ On the appropriation of the precolonial *bang* system and the compulsory-membership ordinance of 23 January 1885, see Le, "Taming the Intractable," 162–166.

leader chosen by the migrant community and a clerk of the colonial state, collecting its taxes and maintaining its records. Thus, the anthropometric service was not the first identification system imposed on the Chinese, but a second layer laid over an older one. Before any migrant was ever fingerprinted or photographed at the landing stage, he had already been entered into a congregational register. The camera and the measuring caliper were added to a documentary apparatus that the congregation system had been sustaining for decades, and it was the congregations—not the police alone—that made the Chinese population legible enough to be policed at all.

In the early 1890s, the French settlers faced severe obstacles in maintaining order throughout the regions. Pirates and smugglers from overseas often harassed business owners. Within their own congregations, the Chinese also recognized how Chinese pirates and gangs would hurt their own business, so congregation leaders were the first to support the expulsion of those who were involved with pirate groups. In 1894, the congregation leaders in Saigon requested an authorization to tattoo all expelled individuals since they knew convicts were able to evade surveillance with ease. However, the French government considered such method “contrary to our principles of civilization” and tabled the item so they could solicit new ideas from the metropole.³⁹ In 1897, the proposal by French forensic named Pottecher, student of Bertillon himself, for the establishment of the anthropometric service was approved with a small funding. The approval only came after recommendation to attach the service to the Immigration Department to monitor the Chinese, and not the Justice Department.

³⁹ “Le Chef de l’immigration et de l’identification V. Pottecher to Lieutenant-Gouverneur, Saigon, March 23, 1898”, TTLTQG II, IA21/151, quoted in Melissa Louise Anderson, “For ‘the Love of Order’: Race, Violence, and the French Colonial Police in Vietnam, 1860s–1920s” (PhD diss., University of Wisconsin–Madison, 2015), 271.

The brief exchange over tattooing marks the moment when one method of identification was rejected in favor of another, and the grounds of that rejection reveal what the colonial state believed a modern identification system should be. Tattooing was, after all, an effective technique: it bound a mark permanently to a body, it could not be discarded the way a paper could, and the congregation leaders who proposed it understood perfectly well that expelled men could otherwise slip back across the border unrecognized. What the French objected to was not its inefficacy but its visibility. A tattoo announces itself; it brands the person in the eyes of everyone he meets, and it does so permanently, regardless of whether he is later cleared or his sentence completed. Anthropometry, by contrast, made its mark in a register rather than on the skin. It promised the same durability of identification without the public stigma—the body would be measured, recorded, and filed, but the record would remain with the administration, legible only to those who held the file. When the French dismissed tattooing as “contrary to our principles of civilization” while embracing anthropometry, they were not rejecting the marking of bodies as such; they were expressing a preference for marks that were administrative rather than visible, retrievable rather than displayed.⁴⁰ This is the same logic that governed the penitentiary photograph, which fixed identity not on the prisoner but in the file, and it confirms that the turn to anthropometric identification was a turn toward a particular kind of modernity—one in which the state’s knowledge of a person was meant to be comprehensive and yet, to the public eye, invisible.

⁴⁰ On the shift from marks inscribed on the body to marks held in a register, and on the persistence of both, Edward Higgs, *Identifying the English: A History of Personal Identification, 1500 to the Present* (Continuum, 2011). Keith Breckenridge, *Biometric State: The Global Politics of Identification and Surveillance in South Africa, 1850 to the Present* (Cambridge University Press, 2014), traces a colonial administration that chose fingerprints over documents for precisely the opposite reason — because it distrusted the literacy of the population it was registering — and so shows how contingent the French preference was. On the long entanglement of biometric identification with racial classification, Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Duke University Press, 2015).

Border protocols proceeded like this: Chinese merchants and workers generally immigrated in Vietnam through Hải Phòng by boat. As soon as they arrived at the port, the Chinese were first examined on board by a health service worker. After depositing their personal belongings, the migrants embarked under escort in new boats and were then transported to a landing stage where the offices of the immigration and identification service were located. Subjected to a second brief medical examination, they were vaccinated. Men over 15 were then documented through fingerprinting both hands and taking body measurements, such as the height and bust. Imprints were also taken of the internal folds in the phalanges of their left index fingers. Finally, a precise inventory of facial features and distinguishing marks completed the individual processing. Women and children over seven years old underwent less detailed identity documentation.

The Hải Phòng landing-stage procedure demonstrates how a process originally designed for tracking recidivist offenders became a new method for immigration control. Set out step by step—inspection on board, the transfer under escort to fresh boats, the second medical examination, vaccination, fingerprinting, the taking of measurements, and finally the inventory of facial features and distinguishing marks—the protocol is a processing sequence, a series of stations through which an arriving person was converted into a documentary record. Each stage stripped away a measure of the migrant's self-possession and added a measure of administrative legibility. By the end of the sequence, the person who walked off the landing stage was accompanied by a card that the state could file, copy, and retrieve. The resemblance to the procedure at Poulo Condor is exact in form even though the populations could not have been more different. In the penitentiary, the sequence ran shave, placard, photograph; at the immigration depot, it ran inspect, measure, fingerprint, inventory. In both cases a body in motion

was halted, held, and rendered into a file. This is the central observation of the present section: the immigration service in Hải Phòng was running the same identification machine that the penitentiary ran, on a population that had committed no crime.⁴¹ The anthropometric apparatus that Bertillon had designed in the metropole to track recidivist criminals—and that Jean-Lucien Sanchez has shown was elaborated precisely to make repeat offenders legible to the state—was transposed, in the colony, onto arriving merchants and laborers.⁴² What in France was a tool for the surveillance of a criminal minority became, in Hải Phòng, a tool for the routine processing of an entire immigrant population. The colony did not invent a new technique; it widened the application of an existing one until the distinction between the criminal and the ordinary traveler, so far as the identification card was concerned, all but disappeared.

A rare first-person account lets us see this processing sequence from the position of the person moving through it. In May 1888, a Straits Chinese merchant named Tan Keong Sum traveled by steamship to Saigon and recorded his arrival in a travelogue later serialized in the Singapore Chinese newspaper *Lat Pau*.⁴³ Tan was struck first by the sheer apparatus of inspection—he counted dozens of maritime security posts as his ship was diverted from the main port to a more distant checkpoint—and then by the slowness and indignity of the procedure

⁴¹ The same transposition — an apparatus built for criminals applied to arriving migrants — was carried out simultaneously at American ports, and specifically against Chinese arrivals: Anna Pegler-Gordon, *In Sight of America: Photography and the Development of U.S. Immigration Policy* (University of California Press, 2009); and Erika Lee, *At America's Gates: Chinese Immigration during the Exclusion Era, 1882–1943* (University of North Carolina Press, 2003). On the emergence, in the same decades, of a global regime in which documented identity became the condition of movement, Adam M. McKeown, *Melancholy Order: Asian Migration and the Globalization of Borders* (Columbia University Press, 2008); and Radhika Mongia, *Indian Migration and Empire: A Colonial Genealogy of the Modern State* (Duke University Press, 2018). For the identity card as a surveillance form in its own right, David Lyon, *Identifying Citizens: ID Cards as Surveillance* (Polity, 2009); and, on the checkpoint as a site where the traveller is made to perform transparency, Rachel Hall, *The Transparent Traveler: The Performance and Culture of Airport Security* (Duke University Press, 2015).

⁴² Jean-Lucien Sanchez, “La relégation des récidivistes en Guyane française : les relégués au bagne colonial de Saint-Jean-du-Maroni, 1887-1953” (Doctoral thesis (PhD), History, École des Hautes Études en Sciences Sociales (EHESS), 2009).

⁴³ 陳笙山, “越南游記 [Yuenan Youji; A Record of Travel to Vietnam],” 叻報 [*Lat Pau*] (Singapore), May 9, 1888.

itself. Ordered off the steamship onto a junk boat, escorted to a building for examination, made to stand for hours, and then told to return the following day, he described the experience, in the company of his elderly parents, as the most painful and dehumanizing he could imagine. Only on a second day, after further questioning at a separate immigration office, was he issued a pass bearing an identification number, his name, and his age. Tan's account is valuable for the same reason Huỳnh Thúc Kháng's prison memoir is valuable: it records the identification system from below, as an ordeal undergone rather than a procedure administered. What the colonial file registered as the efficient production of a record, the traveler experienced as hours of standing in a shed "which resembled a stable," stripped of the ordinary dignity of movement. The parallel with the penitentiary is once again exact: in both the prison and the port, an arriving person was halted, held, processed, and issued a numbered document, and in both the person on the receiving end registered the experience as a humiliation. The difference is that Tan had committed no crime. He was a merchant on a week's visit, and the apparatus that processed him was the same one built for convicts.

One feature of the Hải Phòng protocol stands out: the identification of the migrant was interwoven, at every step, with the inspection of their health. The arriving Chinese were examined by a health worker before they were measured, examined again and vaccinated before they were fingerprinted, and only then documented through the full anthropometric routine. Identification and medical scrutiny were not separate procedures that happened to share a landing stage; they were fused into a single sequence, so that to be made known to the colonial state was, at the same moment, to be made an object of its sanitary surveillance. This fusion was not incidental. It expressed the colonial conviction that the foreign body was at once a security concern and a contaminant—that the Chinese migrant had to be tracked and, simultaneously,

cleansed. The card that the migrant carried away from the depot therefore certified two things at once: that he was who the state said he was, and that his body had passed through the state's hygienic threshold. The colonized subject was thus rendered legible along two axes at the same time, the juridical and the medical, and the identification document became the place where these two forms of knowledge about him were joined.⁴⁴ The procedure treated the arriving person less as a traveler than as a specimen to be registered, inspected, and certified before being admitted into the space of the colony.

Resentment of this kind did not stay quiet for long. Soon after the landing-stage procedures came into force, a powerful protest emerged in Saigon. The congregation leaders were protesting something specific, and their objection was not the one a modern reader might expect. They did not argue that they should not be identified, nor that the colonial state had no right to keep records of those who entered its territory. Their objection was to the kind of identification being applied to them—to being processed by an apparatus that had been designed for criminals. *Bertillonage* carried its origin with it. Every element of the procedure, from the standardized measurements to the frontal-and-profile photograph, had been developed in the prison and the police prefecture, and to submit a merchant to that procedure was to place him, symbolically, in the position of a convict. The humiliation the congregation leaders described was therefore not vague offense but a precise grievance about classification: a population that understood itself as respectable, propertied, and commercially essential was being made legible

⁴⁴ On the colonial port as a threshold where the migrant body was simultaneously identified and sanitized, Alison Bashford, *Imperial Hygiene: A Critical History of Colonialism, Nationalism and Public Health* (Palgrave Macmillan, 2004); Warwick Anderson, *Colonial Pathologies: American Tropical Medicine, Race, and Hygiene in the Philippines* (Duke University Press, 2006); and, on the medical examination as an instrument of racial and moral classification in the same period, Philippa Levine, *Prostitution, Race, and Politics: Policing Venereal Disease in the British Empire* (Routledge, 2003). On photography's authority as scientific evidence, which is what allowed the two examinations to appear as one procedure, Jennifer Tucker, *Nature Exposed: Photography as Eyewitness in Victorian Science* (Johns Hopkins University Press, 2005).

to the state through the very instrument that defined the criminal. The categories that the colonial order tried to hold apart—the citizen, the subject, the foreigner, the criminal—were not stable, and the identification apparatus was one of the places where their instability became visible. When the same card, the same measurements, and the same photographic format were used for a convict at Poulo Condor and a merchant at Hải Phòng, the apparatus itself collapsed, a distinction that the law claimed to maintain. The Chinese congregations grasped this immediately, and their protest was, in effect, a demand that the state honor its own categories—that it not identify the law-abiding individuals by the means reserved for the criminals. Their further complaint, that the head tax was being raised to pay for the very photographs that degraded them, sharpened the point: the racialized others were being compelled to finance the apparatus of their own surveillance.⁴⁵

The protest, however, was not as unified. Le's account makes clear that the fiercest opposition came not from the merchant elite but from poor Chinese laborers, and that it was often directed as much at their own congregation chiefs as at the French.⁴⁶ The grievance was, at bottom, a grievance about class. The colonial tax schedule assessed poor coolies and wealthy traders at flat or near-flat rates, so that an identification and tax regime nominally aimed at “the Chinese” fell hardest on those least able to bear it; for a coolie, the head tax could consume ten to twenty days' wages. When rates rose sharply in 1897, the Cantonese congregation in Saigon became, in Le's description, a turbulent site of conflict. Crowds of laborers mobbed their own headman for failing to prevent the increase, and in one episode an angry protester hurled a chair at the congregation chief, a printer named Nam Tai, who was obliged to explain that the colonial

⁴⁵ Ilse About, “Surveillance des identités et régime colonial en Indochine, 1890-1912,” *Criminocorpus (Revue)*, ahead of print, 2012, <https://doi.org/10.4000/criminocorpus.417>.

⁴⁶ Le, “Taming the Intractable,” 170–173.

government had never consulted him on the rate at all. The colonial police intervened less to suppress an anti-French demonstration than to prevent a congregation leader from being killed by the people he represented. This complicates the picture of resistance that this section has so far drawn. The congregation leaders who objected to bertillonage as degrading were the same men caught between a state that conscripted them as its record-keepers and tax collectors and a community that held them responsible for the burdens the state imposed. Their position was structurally impossible: to serve the identification regime was to lose the trust of their constituents, and to defend their constituents was to fail the administration that had appointed them. The protest against the identification apparatus was therefore not a simple confrontation between the Chinese and the French but a three-cornered one, in which the colonized intermediary absorbed the pressure of both sides.

The resolution of the Saigon dispute reveals something that distinguishes the Chinese case from every other population this chapter considers. When the congregation leaders re-established relationships with the officials of the Qing dynasty and raised the prospect of a Chinese boycott of French imports, they were able to bring pressure to bear on the colonial administration from entirely outside it. The Vietnamese had no such recourse; a colonized population whose own state had been dismantled could appeal only to the colonizer. The Chinese merchants of Hải Phòng and Saigon, by contrast, remained the subjects of a sovereign foreign power, and that power could make the cost of an over-zealous identification regime felt in the ledgers of French commerce. This Haiphomakes the Chinese a distinctive test case for the colonial identification project. They were a population the French wished to monitor closely—foreign, mobile, commercially powerful, and difficult to assimilate—and yet a population the French could not process with impunity, because it was attached to an external state that could

answer back. The identification regime, in their case, was not simply imposed; it was negotiated, and the record it produced was the residue of that negotiation rather than of administrative will alone.

Taken together, these episodes suggest that technologies are unstable objects, whose meanings and practices depend on constant intercultural contact. The Hải Phòng and Saigon material bears this out. The apparatus depended on congregations the French had not created and could not fully control; it provoked protests that forced the suspension of fingerprinting and its replacement, for a time, with photographs; it was constrained by a class politics among the Chinese that no decree had anticipated; and it remained answerable, through the threat of boycott and the intervention of the Qing and later Republican Chinese state, to a foreign power that could make French commerce pay for an over-zealous policing of bodies. The identification card that a Chinese migrant carried was therefore not the pure expression of colonial will that the penitentiary photograph, examined earlier, came closer to being. It was a negotiated object, its requirements raised and lowered, its techniques adopted and withdrawn, according to a balance of pressures the colonial state did not command. This is the central difference between the prison and the port. At Poulo Condor the state controlled the body it identified and could remake it before the camera; in Hải Phòng and Saigon it confronted a population that could answer back, and the identification regime that resulted bore the marks of that resistance.

Within a few years, the modifications allowed the service to produce over 120,000 cards. Chinese leaders continued to file complaints about the treatment, especially the brutality committed by the French officers including Pottecher himself. In 1904, Pottecher was removed from his post under heavy pressure by the congregation leaders. By re-establishing relationships with the officials of the Qing dynasty, Chinese congregations were able to force the French

ambassador in Peking to address the potential Chinese boycott against French imports in the region. In a surprising move to please the Chinese, General Governor of French Indochina at the time, Jean Baptiste Paul Beau instructed the service to only measure criminals.⁴⁷ The large volume of cards within a few years marks a milestone in France's attempt to accumulate and monopolize an archive of information. Once the immigration service held a collection of that size, it possessed not merely the ability to verify a particular migrant but a standing representation of the Chinese population of the colony as a whole—a paper population that could be counted, sorted, and cross-referenced independently of the living people it described. The value of each individual photograph and each set of measurements lay not in the image itself but in its incorporation into a searchable mass, and it was the mass, not the picture, that constituted the colonial state's real instrument of knowledge. The protests of the congregation leaders should be read against this growing archive. They were objecting not only to the indignity of a particular afternoon at the landing stage but to their people's steady conversion into a permanent collection of records held by a state they did not consent to. That the brutality of officers such as Pottecher accompanied the building of this archive only confirmed, for the Chinese, that the file and the fist were two aspects of the same regime.

The reliance on the *marché de gré à gré* in the north had a consequence that sets the Hải Phòng material apart from the penitentiary case examined earlier. At Poulo Condor, the colonial state controlled the entire apparatus of identification: the prison shaved the prisoner, the prison assigned his number, the prison's own service exposed and filed the photograph. The image and the file were produced and held by a single authority. In Hải Phòng, by contrast, the state did not hold the camera. Lacking the budget to staff an identification service of its own, the municipal

⁴⁷ About, "Surveillance des identités et régime colonial en Indochine, 1890-1912."

administration contracted the work out to private photographers, who bid against one another for the right to photograph the city's "Asian" population. This meant that one of the colonial state's most sensitive functions—the visual documentation of the people it sought to control—was, in the north, performed by commercial studios whose primary business was portraiture and postcards. The identification photograph and the souvenir *carte de visite* issued, quite literally, from the same premises and the same hands. Outsourcing introduced a gap between the state and its own record. The administration specified what it wanted and paid for the result, but it depended on a contractor to produce the image, and, as the disputed bids discussed below make clear, it could not always even agree internally on who that contractor should be. The colonial identification regime, in the north, was thus not a smooth exercise of state power but a patchwork stitched together from municipal budgets, private enterprise, and bureaucratic improvisation.

Unlike what happened in the south, French settlers in the north faced a different reality in which both foreign and local photographers competed with the French counterparts in their own field. When the 1897 decree was made, the anthropometric identification service was only created in Saigon and not elsewhere, yet the requirement for a residence permit for foreign Asians was applied to the entire peninsula. Therefore, the administrators in the north struggled with the fact that they had no budget to comply with the decree. French administrators in the north thus relied on contractors to carry out the tasks. Beginning in the late 1897, the City of Hải Phòng hired photographers through a *marché de gré à gré*. While there is no equivalence of the term in English, it could be understood as a "bidding war." A *marché de gré à gré* is a call of submissions from private businesses for the colonial government's contracts. After having received all the submissions, the administrators will review them and pick the most appealing bid.

Looking closer at the contracts in Hải Phòng, one can also notice how administrators and European photographers were also confused with new ideas of citizenship. The collection of letters between the mayor and the Resident Superior discussing the contract with M. Martin, an Austrian photographer, displays the bureaucratic redundancy and confusion over racial differences and nationalities. In 1900, the city announced another call for photographers with more specifications: the contractor must live in Hải Phòng, have a reliable business and would be responsible for taking photographs of the “Asians” in Hải Phòng.⁴⁸ Without any knowledge of another call which was made by the Resident Superior of Tonkin, the city approved the contract with Max Martin, an Austrian photographer who lived in Hải Phòng.⁴⁹ The approval upset the Head of the 3rd Bureau, which was the agency responsible for the operation of the French military in the region, because they already made a separate call earlier.⁵⁰ The Head of the 3rd Bureau argued that the contract must be voided, and the decision must be made by the Resident Superior, not the city. In a rebuttal, the Mayor of Hải Phòng, Eugène Domergue, defended the city’s decision and pointed out several inconsistencies with racial references in the call of photographers.⁵¹

The first thing the mayor pointed out is that the word “Asians” bears no meaning since the concept of race had not been yet articulated in French law. In fact, historians of the Chinese in colonial Vietnam have pointed out how the French official categories of Vietnamese “indigenous” versus Chinese migrants as “foreign Asians” expose an anxiety over racial solidarity.⁵² In order to uphold the “civilizing mission”, French settlers prioritized making

⁴⁸ "Fourniture des photographies des Indigènes de la ville de Haiphong," dossier 3592, TTLTQGI, 3-4.

⁴⁹ "Fourniture des photographies des Indigènes de la ville de Haiphong," dossier 3592, TTLTQGI, 5-6.

⁵⁰ "Fourniture des photographies des Indigènes de la ville de Haiphong," dossier 3592, TTLTQGI, 4.

⁵¹ "Fourniture des photographies des Indigènes de la ville de Haiphong," dossier 3592, TTLTQGI, 7-9.

⁵² Tracy C. Barrett, *The Chinese Diaspora in South-East Asia: The Overseas Chinese in Indochina* (I. B. Tauris, 2012), on the congregation system that held Chinese migrants to a legal status distinct from Vietnamese

Vietnamese natives “French” while keeping them afar from the Chinese influence. Thus, what the word “Asians” originally implies in the contract is the racist tendency to put all Asian populations under an umbrella term. Knowing exactly how that would create a new form of kinship among the Vietnamese and the Chinese, the Governor insisted on officials using the formal categories of “natives” and “foreign Asians.” The intention behind the establishments of these categories was to divide the diverse population in Hải Phòng and discourage the formation of a common sense of Vietnamese nationality by encouraging assimilation into a unique French identity. In colonial Vietnam, the state employed a segregated racial hierarchy in the police, with a European cadre overseeing a subordinated and much larger indigene (native) workforce. The assimilationist policies The French was dependent on non-European agents to carry out the operation of the colonial government. It was not until the end of the 20th century that historians began to take racial differences as a serious subject to study, given how European was a racial minority in the colonial society.⁵³ For instance, Michael Vann pointed out that the construction of “whiteness” as a normalized identity was intrinsic to the exercise of colonial privilege.⁵⁴

The dispute over the word “Asians” therefore reached well beyond bureaucratic tidiness. To insist on the formal categories of “natives” and “foreign Asians” was to use the identification apparatus as an instrument of political engineering. By classifying the Vietnamese and the Chinese as distinct administrative kinds, processed through different procedures and bearing different documents, the colonial state worked to keep the two populations from recognizing any

"indigènes"; and Melissa Louise Anderson, "For 'the Love of Order': Race, Violence, and the French Colonial Police in Vietnam, 1860s–1920s" (PhD diss., University of Wisconsin–Madison, 2015), chap. 6, "Racial Hierarchies at Work: The Case of Policing the Chinese."

⁵³ Herrick Chapman and Laura L. Frader, "Introduction," in *Race in France: Interdisciplinary Perspectives on the Politics of Difference*, ed. Herrick Chapman and Laura L. Frader (Berghahn Books, 2004).

⁵⁴ Michael G. Vann, "The Good, the Bad, and The Ugly: Variation and Difference in French Racial Thinking in Colonial Vietnam," in *The Color of Liberty: The History of Race in France*, ed. Tyler Stovall and Sue Peabody (Duke University Press, 2003), 187–205.

shared interest or common cause. The same logic that, earlier in this chapter, sent Vietnamese nationalists across an ocean to keep their ideas from spreading operated here in a quieter register: the careful maintenance of racial categories on identity documents was a means of preventing solidarity before it could form. Identification, in other words, was not only a technique for knowing who a person was; it was a technique for deciding who a person could become, and for foreclosing the kinds of collective identity—a shared Vietnamese nationality, a pan-Asian kinship—that the colonial order regarded as threats. The card and the category did quiet political work that the prison did by force.

Acknowledging that they were a racial minority in a colony, the French aimed to assert its colonial power through technologies. However, as Brian Larkin remarked, “technologies are unstable things.”⁵⁵ The meanings of technologies are vulnerable to changing social and political orders, especially in the colonial contexts. In fact, it was the practice of photographing Chinese immigrants, though caused a social uprising in the late 1890s, that paved the way for such practice to be accepted by the Vietnamese in the early 1900s.

If the identification card was the instrument through which the colonial state sought to fix and divide its populations, the people who actually produced the colony’s photographs were a far less orderly group than that ambition implied. The contracts and letters that survive from Hải Phòng show the identification regime depending, in practice, on a competitive and racially mixed community of commercial photographers whose interests did not align neatly with those of the state. To understand the identification photograph in the north, then, one must look at the photographic economy from which it emerged—the studios, the contracts, and the photographers who moved between portraiture, postcards, and the colonial commission.

⁵⁵ Brian Larkin, *Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria* (Duke University Press, 2008), 3.

While photography studios existed in both France and parts of the colonies in the nineteenth century, they catered to wealthy families and royals. As argued by Elizabeth Anne McCauley, the studio boom in the nineteenth century was an outcome of the *carte-de-visite*.⁵⁶ Proposals to use small photographs for legal identification were made throughout the 1850s, but the costs associated with such proposals were too high. Seeing the potential need for such use, Disdéri patented the *carte de visite* in 1854 and turned his business into a prominent studio in the 1860s. Copyright legislation that covered the work of photographers was passed, marking a moment when photographers entered an economy of reproductions already established by printmakers and painters.

Similar to how photography studios struggled in a changing market in mainland France, studios in Tonkin went through a hard time during the last decades of the nineteenth century.⁵⁷ Letters and contracts from the period showed that European photographers, and the colonial administrators struggled with a new market in a racially diverse Hải Phòng. In Hải Phòng, Pierre Dieulefils was the first photographer who was contracted by the city. He was tasked with taking photographs of Asians living in the city in 1895. However, in 1896, the city awarded the contract to Max Martin, an Austrian photographer who owned several studios in Singapore, Saigon, and Hải Phòng.⁵⁸ Martin's winning bid was contested by Dieulefils himself, who wrote to the mayor

⁵⁶ Elizabeth Anne McCauley, *A. A. E. Disdéri and the Carte de Visite Portrait Photograph* (Yale University Press, 1985).

⁵⁷ On the commercial studio as an engine of nineteenth-century mass visual culture, Vanessa R. Schwartz, *Spectacular Realities: Early Mass Culture in Fin-de-Siècle Paris* (University of California Press, 1998). For the colonial studio as a site of negotiation between European technique and local convention — the closest available analogue to the Haiphong and Hanoi trades — Christopher Pinney, *Camera Indica: The Social Life of Indian Photographs* (University of Chicago Press, 1997); and Zahid R. Chaudhary, *Afterimage of Empire: Photography in Nineteenth-Century India* (University of Minnesota Press, 2012). On the colonial market as a field in which metropolitan and local producers competed on terms the metropole could not set, Priya Jaikumar, *Cinema at the End of Empire: A Politics of Transition in Britain and India* (Duke University Press, 2006). For the French metropolitan context of the citizenship categories the Haiphong contracts confused, Gérard Noiriel, *The French Melting Pot: Immigration, Citizenship, and National Identity*, trans. Geoffroy de Laforcade (University of Minnesota Press, 1996).

⁵⁸ "A.s. de la fourniture des photographies pour la ville d'Haiphong," dossier 7827, TTLTQGI, 2.

expressing his dissatisfaction for how “only foreigners have been favored” and that major cities in the colony “have been in their hands for three years.”⁵⁹ Dieulefils ended the letter by requesting the city to favor French photographers, giving an example of how another French settler had to close his photography studio in Indochina only after two years.

During the second half of the nineteenth century, photography studios were owned by Europeans except Cẩm Hiếu Đường in Hanoi, which was owned by Đặng Huy Trứ, a court official. Most prominent European photographers like Hippolyte Arnoux and Émile Gsell chose Saigon (Cochinchina) as their homebase. Their collaboration in 1880 produced *Voyage de l'Égypte à l'Indochine*, which was the first photobook to introduce life in the colony through a collection of photographs. The establishment of European studios during this period paralleled a photographic boom in Latin America, following the end of Daguerre’s “magic box.” Europe and North America saw an explosion of new styles and motifs as photographers packed up their equipment and ventured beyond their studios. Photography thrived in Latin America, just as in French Indochina, because it was a new field and permitted both professionals and amateurs to compete as equals.⁶⁰

The pioneering work of European photographers in Cochinchina produced a new generation of young French men, who were bought into the rhetoric of the civilizing mission and enlisted in the army. Pierre Dieulefils joined the army in 1883 and insisted on going to French Indochina, where he picked up an interest in photography. He produced his first photograph in 1887 and continued training himself until he opened his own business in Hanoi, the first to do so in Tonkin. Unlike Gillet and Gsell, who were trained professionally, Dieulefils did not position

⁵⁹ "A.s. de la fourniture des photographies pour la ville d'Haiphong," dossier 7827, TTLTQGI, 3.

⁶⁰ Robert M. Levine, *Images of History: Nineteenth and Early Twentieth Century Latin American Photographs as Documents* (Duke University Press, 1989).

himself as a photographer or an artist, but as a technician and a retail dealer, offering a wide choice of items at his business such as negative plates, photographic paper, cameras, and other materials for amateur photographers like himself.⁶¹ In fact, his business was profitable by selling postcards.

This studio history is not a digression from the question of identification, for the two were bound together by the simple fact that they shared personnel and equipment. The same European photographers who produced *cartes de visite* for wealthy families, who sold negative plates and cameras to amateurs, and who issued the picturesque postcards on which men like Dieulefils built their fortunes were the very photographers the colonial administration contracted to document its “Asian” population. A single technical craft, and often a single business, served both the bourgeois desire for a flattering likeness and the state’s demand for an identifying record. This is worth stating plainly because it complicates any neat opposition between photography as art and photography as surveillance. In colonial Hải Phòng the two were not separate institutions but two contracts available to the same studio, and the photographer who took a family portrait in the morning might spend the afternoon at the landing stage photographing arrivals for the immigration service. The instability that Brian Larkin attributes to colonial technologies is visible here in the photographer himself, a figure who could not be securely assigned to either the decorative or the disciplinary side of the medium because he worked, by turns, on both. It is precisely this porousness—the fact that the camera in the colony was a general-purpose instrument passing through many hands rather than a dedicated organ of the state—that opened the possibility, pursued in the sections that follow, of the medium being taken up by the Vietnamese themselves.

⁶¹ Thierry Vincent, *Pierre Dieulefils: photographe-editeur de cartes postales d'Indochine : plus de 4800 références sur le Tonkin, Annam, Cochinchine, Cambodge, Yunnan, Chine* (Thierry Vincent, 1997).

This photographic economy was overwhelmingly European, but not entirely so, and its edges form the beginning of where Vietnamese photographers overtook the market. The single Vietnamese-owned studio of the period, *Cảm Hiếu Đường* in Hanoi, founded by the court official *Đặng Huy Trứ*, was an exception in a field otherwise held by French, Austrian, and other European operators. Yet the very fact that photography in the colony was a new and unsettled trade—one in which, as in Latin America, professionals and amateurs competed as near equals—meant that the medium could not remain a European monopoly for long. The identification practices traced so far in this case study were imposed from above, by penitentiary and immigration service alike. But the camera was also passing, gradually, into Vietnamese hands, and with it the capacity to make images on terms not set by the colonial state.

Inside the Metropolis: The Workers in Hanoi

This third site marks a pivot in the chapter's argument: where the penitentiary and the depot showed the colonial state imposing identification on bodies it controlled or processed, Hanoi shows the medium itself changing hands, and with it the question shifting from how the state photographed the Vietnamese to how the Vietnamese took up the camera. It is in Hanoi that the camera is no longer only an instrument of the disciplinary archive. It is a livelihood, a commodity, and a contested cultural form. If *Hải Phòng* was the gateway for the flow of goods during the colonial period, Hanoi was where the consumer culture began. Within the first decades following the absorption of the region into the Union, the French government made Hanoi its capital in 1902.⁶² Hanoi then became a political center where administrators and other

⁶² Hanoi was formally designated the capital of French Indochina in 1902, consolidating a status Paul Doumer had favored for the city since becoming governor-general in 1897; the new designation was marked publicly the following year by the Hanoi Exhibition of 1902–3. Kirsten W. Endres, "City of Lights, City of Pylons:

high-ranking officers resided, including Eugène Domergue, who left Hải Phòng to become the new mayor of Hanoi. Beginning as a settlement, Hanoi then underwent a transformation which was modeled after the Haussmannization of Paris in the mid-nineteenth century.⁶³ Two major infrastructural projects that the French government initiated to improve its bureaucracy were the installation of electric lighting in the streets of Hanoi and the postal service connecting the cities.⁶⁴ Although historians have often commented on how these new infrastructures gave Hanoi a new life, they were not accessible to most of the Vietnamese. Hanoi was redesigned to be a new commerce center, so the urban core of Hanoi (what tourists today often call the Old Quarter) was rebuilt with shophouses for French, Chinese, and even Indian businesses.⁶⁵ Factories were also erected in the city, pushing the Vietnamese to the suburbs. As noted by the French settlers at the time, “Hanoi’s borders are not just municipal; they are national frontiers.”⁶⁶

It is within these changes that a new cultural identity was forged inside Hanoi as a new capital of the colony. There are two major policies that set Hanoi apart from other urban centers in the region. First, Tonkin was technically a *protectorate* and not a *colony* like Cochinchina; therefore, many Vietnamese could find jobs working along the ranks of French settlers within the

Infrastructures of Illumination in Colonial Hanoi, 1880s–1920s,” *Modern Asian Studies* 57, no. 6 (2023): 1772; Michael G. Vann, “All the World’s a Stage,” Especially in the Colonies: L’Exposition de Hanoï, 1902–3,” in *Empire and Culture*, ed. Martin Evans (Palgrave Macmillan, 2004), 181–91; Nam Khanh Hoang, “The Formation and Dynamics of Colonial ‘Lived Spaces’: Urban Space and Society in Colonial Hanoi, 1883–1916,” *Columbia Journal of Asia* 4, no. 1 (2025): 38; Pierre Brocheux and Daniel Hémery, *Indochina: An Ambiguous Colonization, 1858–1954*, trans. Ly Lan Dill-Klein (University of California Press, 2009).

⁶³ Scholars have drawn a direct line between Doumer’s remaking of Hanoi and Haussmann’s reconstruction of Paris a half-century before: the same instruments — wide boulevards cut through existing fabric, authority concentrated in an executive answerable to no local assembly, and infrastructure built to be legible as evidence of the state’s modernizing capacity — were redeployed here at colonial scale. Gwendolyn Wright, *The Politics of Design in French Colonial Urbanism* (University of Chicago Press, 1991); Nam Khanh Hoang, “The Formation and Dynamics of Colonial ‘Lived Spaces,’” 41, describing the construction of Hanoi’s French Quarter as a transformation that “resembled the Haussmann reconstruction of Paris between 1853 and 1870.”

⁶⁴ Kirsten Endres, “Plugged into the Good Life: Living Electrically through the Ages in Urban Vietnam,” *Positions* 32, no. 1 (2024): 27–47.

⁶⁵ Philippe Papin, *Histoire Des Territoires de Hà-Nội: Quartiers, Villages et Sociétés Urbaines Du XIXe Au Début Du XXe Siècle*. (Les Indes Savantes, 2013).

⁶⁶ Bernard Joyeux and Henri Virgitti, “Le Péril Vénérien Dans La Zone Suburbaine de Hanoi,” *Bulletin de La Société Médico-Chirurgicale de l’Indochine*, 1937, 73–108.

administration, though the top positions were exclusively reserved for Frenchmen. Second, the urbanization of Hanoi also demanded a new tax called "municipal tax," imposed on the natives living in the city. The tax dates from the late 1890s, part of the fiscal reorganization Paul Doumer began on his arrival as Governor-General in 1897, and it required native residents of the city to register with the police and to pay annually.⁶⁷ The city reinforced the tax through a "municipal tax card" on which the particulars of the taxpayer were recorded. By 1904 that card also carried a photograph: the card preserved in the municipal records, reproduced below as Fig. 1.3, sets a portrait of the holder alongside his written details.⁶⁸ While the tax cards were the vehicles for the French to enforce policing, they were also the medium for the Vietnamese to assimilate themselves into a new colonial regime, especially through the production of the photographs itself. These two infrastructural projects, the electric lighting of the streets and the postal network linking the cities, were not merely background improvements to the new capital; they were part of what made Hanoi a site where the photographic identification of the population became thinkable. Scott McQuire has argued that the modern city and modern media did not develop along separate tracks but co-constituted one another: the rebuilding of nineteenth-century cities proceeded alongside, and by means of, new techniques of image-making and circulation, so that the city is best understood as a media city.⁶⁹ Colonial Hanoi is a clear instance of this. The Haussmannization of the urban core, the electric current that would later light the studios, and the postal service that could carry a photographic print or an identity document from one office to another were the "connective tissue"—to borrow Paul Edwards's term—without which a

⁶⁷ On the fiscal reorganization of the late 1890s and the personal taxes it established, see Henri Guermeur, *Le régime fiscal de l'Indochine*, text presented by Chantal Descours-Gatin (L'Harmattan), originally written 1909; and Montserrat López Jerez, "Colonial and Indigenous Institutions in the Fiscal Development of French Indochina," in *Fiscal Capacity and the Colonial State in Asia and Africa, c.1850–1960*, ed. Ewout Frankema and Anne Booth (Cambridge University Press, 2019), 110–36.

⁶⁸ Municipal tax card, Hanoi, 1904, TTLTQGI/No.2.6882.

⁶⁹ Scott McQuire, *The Media City: Media, Architecture and Urban Space* (London: Sage, 2008).

citywide regime of photographic identification could not have functioned.⁷⁰ An identity card is only as useful as the network that can transmit, file, and retrieve it; a tax photograph taken in Hanoi and consulted by an official elsewhere presupposes a postal and bureaucratic infrastructure capable of moving paper reliably across distance. The point is easy to miss because infrastructure, when it works, tends to recede from view. But the colonial state's turn to the camera as an instrument of identification was inseparable from its simultaneous construction of the mundane systems—electricity, post, the ruled and numbered street—that made the photographic document a usable object rather than an inert image.



Fig. 1.3. A copy of a tax card from 1904. TTLTQGI/No.2.6882.

⁷⁰ Paul N. Edwards, "Infrastructure and Modernity: Force, Time, and Social Organization in the History of Sociotechnical Systems," in *Modernity and Technology*, ed. Thomas J. Misa, Philip Brey, and Andrew Feenberg (Cambridge, MA: MIT Press, 2003), 185–225.

The figure above is an example of a tax card in Hanoi from 1904. The photograph was taken in the style of a mug shot. Instead of having the number placed next to his head, the sitter holds the placard showing his number. Other information in the card includes height, name, age, profession, address, and the issuance date written in French. While the card gives an impression of a dehumanizing experience for the Vietnamese and the French texts suggest a sense of western superiority, a closer look at the production of the photograph and the language of the period indicates the role the Vietnamese played in the making of the tax card. Not only the photographs were taken by the Vietnamese themselves, but a vernacular French language was also made and eventually led to the formalization of *quốc ngữ*, a Romanized Vietnamese alphabet.

The 1904 tax card functioned as an infrastructural object, and it was designed to do more than depict a face. The card bound together, on a single piece of paper, several distinct systems: the photographic image, the handwritten biographical entry, the assigned number, the annual tax payment, and the requirement of registration with the police. None of these was new in itself, but the card made them interoperate. It was the junction at which the camera, the register, the treasury, and the police force were made to act as a single apparatus, and it was only as a junction—only by holding these systems together—that it could function as an instrument of identification. Susan Leigh Star and Karen Ruhleder argued that infrastructure is best understood not as a thing but as a relation: something becomes infrastructure in practice, in the moment it links one system to another and is taken up in the routines of work.⁷¹ The tax card is infrastructural in this sense. Considered on its own it is a small rectangle of card; considered in use it is the connective device through which a Hanoi resident was simultaneously photographed, named, numbered, taxed, and policed. The card also reveals how the colonial state preferred its

⁷¹ Susan Leigh Star and Karen Ruhleder, “Steps Toward an Ecology of Infrastructure: Design and Access for Large Information Spaces,” *Information Systems Research* 7, no. 1 (1996): 111–134.

identification to work—quietly, as a condition of ordinary urban life rather than as a visible act of coercion. A resident did not experience the apparatus as a confrontation; he experienced it as a card he was required to keep, produce on demand, and renew. Identification had been folded into the mundane infrastructure of living in the city, and like all working infrastructure it was meant to be barely noticed by those who depended on it.

Unlike Hải Phòng, Vietnamese photographers in Hanoi were already active in the late nineteenth century. Many Vietnamese locals found jobs working as lab technicians for Chinese and European photographers. Beginning in the early 1900s, the new requirement of the photograph for the tax cards allowed the Vietnamese in Hanoi to compete with their masters. Without an anthropometric service in Hanoi and a limited budget, the Mayor of Hanoi Domergue applied what he did in Hải Phòng and initiated a call for bidders. The winner was the Vietnamese photographer Le-Dinh-Hung, who was able to propose taking photographs for 16 cents apiece, the lowest price pitched. In the following years, Vietnamese photographers continued to win these bidding wars and by the 1910s, European photographers finally realized that they could not compete with Vietnamese photographers anymore. In response to the 1911 call for contractors to photograph natives between 1912 and 1918, all the bidders were Vietnamese who had established their own studios in the city. The increasing number of Vietnamese-owned studios and their success in securing government contracts before and during World War I foreshadowed a prosperous period of cultural assimilation in the interwar years. By 1922, Vietnamese-owned studios already dominated the market. Advertisements for Vietnamese studios dominated newspapers with taglines such as “owned by Tonkinois” and “low prices.”⁷² No longer restricted

⁷² Examples can be found in *Trung hòa nhật báo*, no. 278, March 11, 1926, 4; and *Công luận báo*, no. 1086, September 21, 1928, 5, and no. 1100, October 8, 1928. The same newspapers also carry advertisements for pharmacies promoting photographic products alongside medicines, a common pairing in the colonial press; on the

to the market of government-issued photo ID, Vietnamese studios also sought to supply a new demand for family albums, reproductions for newspapers, and equipment for the amateur market.

The government contract, however, did not stand for the whole of what these studios did. The identification photograph was only one product of a Vietnamese studio economy that was, from the start, far broader than the colonial archive. Kendall, Nguyễn, and Bùi note that the Vietnamese *thợ ảnh* (“worker photographers”) of this period met a popular demand for domestic and personal portraits at the same time as they supplied the identity photographs required by colonial and, later, post-colonial authorities.⁷³ The same studio, the same operator, and the same equipment produced both. A studio in Hanoi might in a single day expose a numbered tax photograph for the municipal administration, a formal family portrait destined for a household altar, an artistic likeness posed in the manner of a celebrity photograph, and a print to be reproduced in a newspaper. As the section has already noted, by the 1920s Vietnamese studios had moved well beyond the government identity market into family albums, reproductions for the press, and the supply of materials to amateur photographers. This breadth of network thus shows how the camera, once it had passed into Vietnamese hands, was never confined to the disciplinary function the colonial state had first assigned it. The identification photograph and the ancestral portrait were made by the same craft, and a medium the state had introduced as an instrument of legibility was simultaneously being turned to commemoration, kinship, and self-fashioning.⁷⁴ The Vietnamese studio was at once a node of the colonial identification apparatus and a site where Vietnamese families produced images of themselves on their own terms.

pharmacy as a rapidly expanding colonial institution, see Laurence Monnais, *The Colonial Life of Pharmaceuticals: Medicines and Modernity in Vietnam* (Cambridge University Press, 2019).

⁷³ Kendall, Nguyễn, and Bùi, “The Work of Craft,” 216, 227–228.

⁷⁴ On vernacular and commemorative photography as a practice distinct from, and older than, the institutional archive, Geoffrey Batchen, *Forget Me Not: Photography and Remembrance* (Princeton Architectural Press, 2004); and Marianne Hirsch, *Family Frames: Photography, Narrative, and Postmemory* (Harvard University

To describe these Vietnamese photographers simply as competitors who undercut their European rivals is to miss what they actually were. They were not isolated entrepreneurs who happened to acquire cameras; they were practitioners of an emerging craft, organized much as other Red River Delta handicrafts were organized—through kinship, apprenticeship, and the village. As described by Kendall, Nguyễn, and Bùi, studio photography was passed down in the same way as weaving, ceramics, or bronze-casting: through genealogies of local apprenticeship in the workshops of kinsmen, with mastery acquired over years of menial labor and guarded technical secrets.⁷⁵ The Hanoi studio trade had a traceable origin in this craft. In 1909—the same year the municipal tax-card contracts began—Nguyễn Đình Khánh, known professionally as Khánh Ký, opened Khánh Ký Photos in Hanoi’s Old Quarter and began training the first of many generations of photographers from Lai Xá. His apprentices, mostly nephews and junior kinsmen, went on to establish studios across Hanoi and the rest of Vietnam, training their own kin in turn, so that the city’s Vietnamese studios came to form an extended network of professional lineages radiating from a single ancestral village.⁷⁶ The significance of this origin is twofold. First, it means the Vietnamese capture of the identification-photograph market was not the achievement of scattered individuals but of a craft community with its own structure of transmission. Second, that structure was itself genealogical. The same logic of lineage and native place that the tax card and the *đình bạ* registers used to fix the identity of the photographed was the logic through which

Press, 1997). For the closest regional parallel — a Southeast Asian studio trade in which identity photographs and popular portraiture issued from the same premises — Karen Strassler, *Refracted Visions: Popular Photography and National Modernity in Java* (Duke University Press, 2010). On photography and the making of a civil self among a population subject to documentary scrutiny, Thy Phu, *Picturing Model Citizens: Civility in Asian American Visual Culture* (Temple University Press, 2012). On the discipline’s own turn from photographs-of-people to photographs-as-social-objects, Christopher Pinney, *Photography and Anthropology* (Reaktion Books, 2011); and, for a body of work built on reading colonial photographic archives against their makers’ intentions, Patricia Hayes and Gary Minkley, eds., *Ambivalent: Photography and Visibility in African History* (Ohio University Press, 2019).

⁷⁵ Laurel Kendall, Nguyễn Văn Huy, and Bùi Thu Hoà, “The Work of Craft in the Age of Mechanical Reproduction: The Lai Xá Photography Village in Vietnam,” *Visual Anthropology* 37, no. 3 (2024): 212–236.

⁷⁶ Kendall, Nguyễn, and Bùi, “The Work of Craft,” 216–217.

the photographers transmitted their trade. A craft organized by descent was producing the colonial state's instrument for recording descent.

By the late 1930s this craft had become organized enough to seek a corporate existence. In a petition dated 27 December 1937, a group of Hanoi photographers led by one Nguyễn Bá Tiên applied for authorization to found an “Association amicale des photographes de Hanoi”—a Friendly Association of Photographers of Hanoi. The colonial response, preserved in an administrative letter instructing a subordinate on the conditions of approval, is revealing less for its decision than for the apparatus of control it brought to bear on a body of craftsmen who wished only to associate:

I have the honour to inform you that, by petition dated 27 December 1937, the persons named Nguyễn Bá Tiên and others, residing in Hanoi, are requesting authorization to found an association called the “Friendly Association of Photographers of Hanoi.” ... The association's funds must be deposited in an official credit institution, and these funds may be drawn upon only in the interest of the association itself ... The local Administration reserves the right to have the Society's accounts presented to it at any time, with a view to carrying out such verifications as it may deem necessary ... All changes occurring in the Board of Administration, any relocation of the registered office, as well as any modifications made to the statutes, must be brought to the attention of the authorities within one month.⁷⁷

The letter shows the colonial state regulating Vietnamese photographers along an axis this chapter has not yet considered. Where the penitentiary and the immigration depot identified individual bodies, the law of association reached the photographers as a collective. Their funds were to sit in an official institution and their books to lie open to inspection “at any time”; every change of officer or address was to be reported within the month. To organize as a craft was, in the colonial order, to make oneself legible in a new way—to exchange the obscurity of the

⁷⁷ “Association amicale des photographes de Hanoi,” administrative correspondence concerning the founding of the association, 1938. TTLTQGI.

individual workshop for the visibility of the registered association. And once a Vietnamese association existed, the state watched it. A second document makes this plain. A police report on the committee of a Hanoi association—nominally an alumni society of the teacher-training college—records each of its six officers in turn:

“President: Mr. Nguyễn Trọng Cảnh, born in 1918 at Sách Tuyết, phủ of Kỳ Đức (Hà Đông), son of the late Nguyễn Quang Lân and of Nghiêm Thị Quyền.
Employed at the ‘Bel-Photo’ studio in Hanoi
Vice-President: Mr. Phan Văn Tựu, born in 1913 in the village of Lai Xá, huyện of Đan Phượng, province of Hà Đông, employed at the ‘Central Photo’ studio
Secretary: Mr. Trần Tích Chu, employed at the ‘Métro Photo’ studio ... Treasurer: Mr. Tạ Văn Cát, manager of the ‘Hợp Dung’ studio.”⁷⁸

The report is revealing in two ways: in the employment type of the mentioned individuals and the lineage described. Although the association it concerns was nominally a society of teacher-training graduates, every one of its six committee members was by occupation a photographer or photo-studio employee—at Bel-Photo, Central Photo, Métro Photo, Hợp Dung, and Bazin Photo. The document is, in effect, an unintended census of the Hanoi studio craft at the end of the colonial period: a dense, named network of Vietnamese photographers, several of them sharing the same studios. The second is that the report’s Vice-President, Phan Văn Tựu, was born in Lai Xá. The photography village is thus not merely an ethnographic reconstruction; it surfaces directly in the colonial archive, in a French security document that places a Lai Xá man among the leaders of the Hanoi photographers’ milieu. But the deeper point lies in the form of the report itself. To survey the photographers, the colonial service recorded each man exactly as the tax card recorded its sitter—by name, year of birth, parents, and native village, the same genealogical schema traced earlier in this chapter. The craftsmen who produced the colony’s

⁷⁸ “Renseignements concernant les membres du comité de l’Association Amicale des Anciens Élèves de l’École Normale d’Instituteurs de Hanoi,” police report, p. 44. TTLTQGI.

identity images were, in the end, catalogued by the very categories their own work imposed on others.⁷⁹ The camera that the Vietnamese had taken up did not lift them out of the identifying gaze of the colonial state; it placed them, as a recognizable professional community, more squarely within it.

Seen across the whole arc traced so far—from the founding of Khánh Ký's studio to the kin networks of Lai Xá to the photographers' association catalogued by the police—the Vietnamese studio trade begins to look less like a scatter of small businesses and more like an infrastructure in its own right. It was a distributed, self-reproducing network: a system of studios, apprenticeships, kin ties, and a founding village through which the capacity to make photographs was transmitted and maintained across the colony. The Hanoi tax card, the contractor's bid, the monthly congregational register, the studio ledger: these unremarkable documents are the texture of an identification infrastructure, and the Vietnamese photographic craft was the part of that infrastructure that actually produced the images the system required. What makes the Vietnamese case distinctive is that this infrastructure was not simply imposed and then operated by the colonial state. The state introduced photographic identification, but it could not staff it; the work of producing the images fell to a Vietnamese craft network that the state neither created nor controlled. That network took a medium the colonial order had brought in as an instrument of

⁷⁹ On the identification photograph as a site where the subject exceeds the record, Tina M. Campt, *Image Matters: Archive, Photography, and the African Diaspora in Europe* (Duke University Press, 2012). On photographs made as instruments of control and later reclaimed by those they were made to police, Leigh Raiford, *Imprisoned in a Luminous Glare: Photography and the African American Freedom Struggle* (University of North Carolina Press, 2011). On the archive as a technology for producing racial classification rather than recording it, Shawn Michelle Smith, *American Archives: Gender, Race, and Class in Visual Culture* (Princeton University Press, 1999); and Cocco Fusco and Brian Wallis, eds., *Only Skin Deep: Changing Visions of the American Self* (Harry N. Abrams and the International Center of Photography, 2003). On the legal form that made such surveillance routine rather than exceptional, Nasser Hussain, *The Jurisprudence of Emergency: Colonialism and the Rule of Law* (University of Michigan Press, 2003); and, for the genealogical schema's other colonial career in Indochina, Christina Elizabeth Firpo, *The Uprooted: Race, Children, and Imperialism in French Indochina, 1890–1980* (University of Hawai'i Press, 2016).

discipline and built from it something else—a livelihood, a hereditary craft, an apparatus for making family portraits and ancestral images. This is the sense in which the photographic infrastructure of colonial Vietnam might be called a minor one: not minor in importance, but minor in the way a minor language inflects a dominant one, working within the colonial system of legibility while turning its central technology to ends the colonizer had not intended. The camera remained, on one face, the colonial state's instrument; on the other, it had become an infrastructure of Vietnamese social life.

To call the Vietnamese photographic craft an infrastructure is also to make a claim about what counted as infrastructure in the colonial city. The electric grid and the postal network were infrastructure in the obvious, physical sense; the photographers were not, and yet the identification regime could not have operated without them. AbdouMaliq Simone has argued that in cities where physical systems are thin or unreliable, it is often people themselves, their skills, their networks of cooperation, their willingness to improvise—who function as infrastructure, holding together what built systems cannot.⁸⁰ Colonial Hanoi exemplifies this case. The state had introduced photographic identification but had not built the human capacity to carry it out; that capacity was supplied by a Vietnamese craft network—the studios, the apprenticed kin, the contractors who bid for municipal work—which the state then relied upon without ever fully controlling. The photographers were, in a precise sense, the infrastructure of colonial identification in the north: the living, skilled, self-reproducing system through which the image the state required was actually made. This is why the doubleness noted earlier is not a paradox but a structural feature. An infrastructure made of people rather than of cables and current is an infrastructure with its own interests, its own kin loyalties, and its own commercial life, and it will

⁸⁰ AbdouMaliq Simone, "People as Infrastructure: Intersecting Fragments in Johannesburg," *Public Culture* 16, no. 3 (2004): 407–29.

exceed and partly escape the purposes of whoever depends on it. The colonial state could commission the photographers, but it could not reduce them to instruments. The same network that produced the tax-card portrait produced the family album, and the same hands that served the municipal contract served the household altar.



Fig. 1.4. A negative display at the Museum of Photography in Lai Xá, showing the sitter in traditional portraiture composition (Photo by the author, 2024).

If the Vietnamese studio economy was expanding into family portraiture and the amateur market, the older disciplinary use of the camera had not disappeared. Anthropometric measurement continued to be practiced on convicts after the establishment of the service in the north in 1909. However, the service yielded insignificant results, and the practices were inconsistent with the law. In a letter from the Resident Superior of Tonkin to the administrators of the city of Nam Định in 1912, he demanded a search for two Vietnamese men who escaped from the prison and attached the two photographs of them. This set of photos presents typical mug shots, with both side and frontal views. In the bottom left corner are the anthropometric measurements of the prisoners, followed by their names, written in Romanized alphabet, and index numbers. The Vietnamese sitters were shaved and dressed in ripped outfits, indicating that by the time these photos were taken, they were already convicted. The timing of taking the photographs here thus betrays the original goal of remedying recidivism since the photos were supposed to be taken at the time of the arrest to represent how a convict would like in everyday life. Inconsistencies in practices and the associated costs for the project eventually gave the Bertillon system an unreliable reputation. As France abandoned the Bertillon system in 1914 in favor of more accurate technologies such as fingerprinting, anthropometric agencies in the colonies also ceased to exist.

The fate of the anthropometric service in the north reads as a case of infrastructural failure. The 1912 escape that prompted the Resident Superior to circulate the two prisoners' photographs exposed precisely what the system could not do: the images existed, the measurements had been taken, and yet two men had simply walked out of the apparatus that was supposed to hold them. The photographs had been made too late—after conviction rather than at arrest—so they recorded not the men as they moved through the world but the men as the prison

had already remade them, shaved and in prison dress. An identification system that produced images of the wrong moment, inconsistently and at high cost, could not perform the one task that justified it. Scholars of infrastructure have observed that infrastructures become visible chiefly at the moment they break down; so long as a system works it recedes from notice, and it is failure that suddenly reveals how much had been depended upon.⁸¹ The colonial record of anthropometric identification in Tonkin is, in this sense, largely a record of breakdown made visible—letters chasing escapees, complaints of inconsistent practice, observations that the results did not justify the expense. When France abandoned the Bertillon system in 1914 in favour of fingerprinting, the anthropometric agencies in the colonies were allowed to lapse with it. But the lapse should not be read as the end of photographic identification. The camera did not leave the colonial state's service. What failed was a particular technique—the elaborate anthropometric measurement of the criminal body—while the photograph itself, attached now to the tax card and the residence permit rather than to the Bertillon file, became more deeply embedded in the ordinary administration of the population than it had ever been inside the prison. The infrastructure of identification did not collapse with the Bertillon system; it shed a failed component and continued.

⁸¹ On the visibility of infrastructure at the moment of its breakdown, see Edwards, "Infrastructure and Modernity," 188–189.

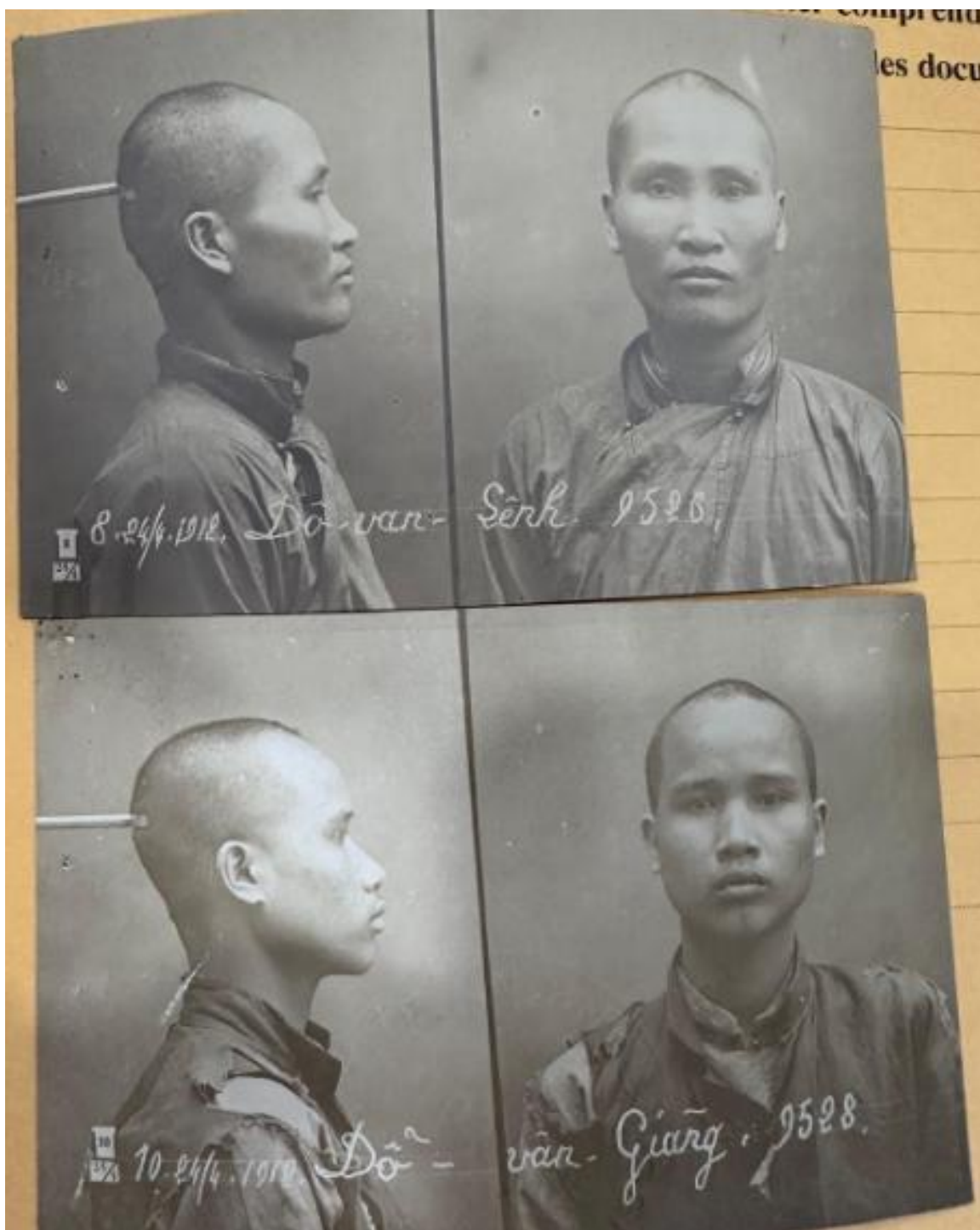


Fig. 1.5. A set of mug shots of the prisoners who escaped from the prison in Cao Bằng. TTLTQGI. F7. No.2651. 1913.

While the Vietnamese played a role in the production of the photographic images in this period, they also participated in the adoption of a Romanized alphabet of Vietnamese. As pointed

out by Keith Weller Taylor, unlike how modern historians understand the “civilizing mission” as an implication of how precolonial society was considered “backward,” French administrators and missionaries acknowledged the Vietnamese as a civilized people with their own history, religions, and ways of organizing their families. When the French settlers attempted to pacify the region after annexation, they acknowledged how the locals had a separate system of civil registration called *đinh bạ*, which are thorough records of family genealogies organized at the village level. The locals also organized their territories as “huyện” (districts) under the imperial administration. Given how the local organization was way too effective, the French settlers maintained such system and the tax cards reflect such sentiment by showing how “huyện”, as the Romanized version of the Chinese word 縣, was incorporated as an official administrative unit.⁸²

The colonial retention of the Vietnamese genealogical registers, the *đinh bạ*, shows the identification apparatus behaving as infrastructures characteristically do: by building on what is already in place rather than by starting afresh. The French did not abolish the village registration system and replace it with a colonial one. They kept it, and they kept the administrative units—the *huyện*—through which it was organized, transcribing the Chinese characters into quốc ngữ so that the existing apparatus could be read and operated by French officials. An infrastructure is rarely constructed on empty ground; it is layered onto, and splices into, the systems that preceded it, and it inherits their shape even as it converts them to new purposes. The tax card is the visible product of such a splice. Its photograph and its number belonged to the new colonial technology of identification; its categories of name, parentage, native village, and district reached back into the precolonial registers of descent. The Romanized script was the medium that allowed the two

⁸² Lê Quốc Thọ and Shinya Ueda, “Local Governance and Household Composition around Huế during the Nineteenth Century: An Analysis of Local Documents of Vồng Trì Village in Thừa Thiên Huế Province,” *Journal of Vietnamese Studies* 19, no. 2 (2024): 40–77.

to be joined—that made a centuries-old genealogical order legible to a colonial bureaucracy and bound it to a photographic image. This layering is also why the identification regime can at times be easily overlooked. A system assembled out of inherited registers, romanized transcription, routine paperwork, and small photographs presents itself as nothing more than ordinary administration; its workings are distributed across so many mundane components that no single one announces itself as a technology of power.

The popularization of the Romanized alphabet was a compromise made between the French settlers and the local. As the Vietnamese learned to speak French, French settlers in turn found it easier to be accepted by learning and respecting Vietnamese cultures. In fact, when the first Catholic missionaries came to Vietnam in the 17th century, they found it easier to spread Christianity by respecting local languages and cultures instead of eradicating them.⁸³ Thus, the mandate of quốc ngữ in 1910 faced little resistance from the locals. As Jack Sidnell argues, the Romanized alphabet is “a medium for rational, free-minded debate” and “an infrastructure for modern public life and civil society.”⁸⁴ Looking back at the mug shots, tax cards, and even the spreadsheets, the Roman texts and the photographs made up a visual medium which together render the Vietnamese and their names, along with their own histories and cultures, to be seen and interpreted by the French colonists.

Read together, the photograph and the Romanized script were two strata of a single infrastructure of legibility. The mug shot and the tax-card portrait rendered the Vietnamese body visible to the colonial administration; quốc ngữ rendered the Vietnamese name and the Vietnamese voice transcribable in a script the administration could read. Neither was simply a

⁸³ Anh Q. Tran, “Catholicism and the Development of the Vietnamese Alphabet, 1620-1898,” *Journal of Vietnamese Studies* 17, nos. 2–3 (2022): 9–37.

⁸⁴ Jack Sidnell, “The Inconvenience of Tradition: Phan Khôi’s Pragmatism and His Proposals for Modernizing Language Reform,” *Journal of Vietnamese Studies* 18, no. 3 (2023): 56–97.

technology the French switched on. Each depended on the other and on the mundane systems—studios, registers, schools, the post—that carried it, and each was built as much by Vietnamese practice as by colonial decree. The recent turn in media studies toward the analysis of infrastructure has insisted that the systems which appear most neutral and most technical—the ones that simply seem to work—are precisely the ones that organize social and political life most deeply, and that they reward attention at every scale and across long stretches of time.⁸⁵ The identification regime examined in this chapter was an infrastructure of exactly this kind. It was assembled out of unremarkable parts—a numbered placard, a developing bath, a ruled register, a Romanized name—and it has tended to disappear from the historical record as thoroughly as a functioning infrastructure disappears from everyday notice. Recovering it means treating those boring things as evidence and reading the deep history of the colonial document as seriously as media scholars have learned to read the deep history of the cable and the grid.⁸⁶ It also means recognizing that the Vietnamese were never merely the objects this infrastructure processed. They were, increasingly, the people who built and ran it—the photographers who exposed the plates, the clerks who kept the registers, the studio owners who trained their kin—and a medium does not stay the property of those who introduce it once the work of operating it has passed into other hands.

⁸⁵ Lisa Parks and Nicole Starosielski, eds., *Signal Traffic: Critical Studies of Media Infrastructures* (Urbana: University of Illinois Press, 2015).

⁸⁶ Shannon Mattern, “Deep Time of Media Infrastructure,” in *Signal Traffic*, ed. Parks and Starosielski, 94–113.

Conclusion

This chapter began from a deliberately simple question: what does the history of photography in Vietnam look like if photography is treated not as an art awaiting recognition but as one technology among the many that arrived with colonial rule? Pursuing that question across three sites—the penitentiary at Poulo Condor, the immigration depots of Hải Phòng and Saigon, and the studios of Hanoi—has yielded an answer at odds with the histories that valorize the camera’s mechanical novelty or its slow elevation into an art. The archival record shows something different. The cultural meaning of photography in colonial Vietnam was not given by the medium itself. Instead, it was produced, and repeatedly revised, through economic and political negotiation between the colonial state and the populations it sought to govern.

Photography entered Vietnam in the late 1880s as an instrument of recording and surveillance, a means for the French to fix and track the bodies of convicts. By the time the French left, it had become something its first users had not intended—a Vietnamese livelihood, a household and commemorative practice, an emblem of modernity claimed by the colonized rather than imposed upon them.

Read across the three sites, the instability of photography manifests how the colonial state’s utopian vision of photographic identification was never realized as designed, because at every site it met conditions it could not control. At Poulo Condor the state could remake a prisoner’s body before the camera, yet even there the photograph proved fragile, unable on its own to bind a face to a file, and the cross-race effect exposed the limits of colonial vision rather than of the colonized face. In Hải Phòng and Saigon the state confronted a population that could answer back—Chinese congregations that supplied the very infrastructure of identification, protests that forced the suspension of fingerprinting, a foreign sovereign that could make French

commerce pay for an over-zealous regime—so that the identification card emerged as a negotiated object rather than a pure expression of colonial will. And in Hanoi the camera passed decisively into Vietnamese hands: the same craft network that produced the colony's tax-card portraits produced family albums and ancestral images, and the photographers who operated the apparatus were themselves catalogued by the genealogical schema their work imposed on others. The identification regime, in short, was an infrastructure—assembled from mundane parts, dependent on labor the state did not command, and visible, like all infrastructure, chiefly at the points where it failed.

The institutional practices traced here were not grounded simply in the belief that a photograph reproduces reality; they belonged to a broader nineteenth-century confidence in the technical management of populations. Joshua Cole has shown how the statistical study of populations, given new authority by Émile Durkheim and the social sciences of the Third Republic, turned the population into an object available for intervention, and the photographic identification of individuals belonged to that same impulse.⁸⁷ The historiography of photography registered the shift. John Tagg argued that the systematization of criminal records under Bertillon in the 1880s was bound up with the restructuring of the police, the prison, the asylum, and the hospital, and Allan Sekula argued that histories of photography had too rarely read photographs as literal documents. Critics of both have countered that an emphasis on power preceding the photograph underplays the medium's own capacity to shape experience.⁸⁸ The Vietnamese

⁸⁷ Joshua Cole, *The Power of Large Numbers: Population, Politics, and Gender in Nineteenth-Century France* (Cornell University Press, 2000).

⁸⁸ Geoffrey Batchen, *Burning with Desire: The Conception of Photography* (MIT Press, 1997), which issues a challenge to the medium's postmodernist as well as its formalist critics; Christopher Pinney and Nicolas Peterson, eds., *Photography's Other Histories* (Duke University Press, 2003), which recasts photography as "a globally disseminated and locally appropriated medium" rather than an instrument of Western power; Ariella Azoulay, *The Civil Contract of Photography* (Zone Books, 2008); and Elizabeth Edwards, *Raw Histories: Photographs, Anthropology and Museums* (Berg, 2001).

material suggests that the opposition is less sharp than it appears. Photography in colonial Vietnam was an instrument of colonial power and a medium reappropriated by the colonized, and it was so at the same time and through the same studios. What the camera promised in colonial Vietnam was never a straightforward path to a better future. It was an occasion for the exchange of power—a site where the colonizer and the colonized, the old practices of recognition and the new techniques of inscription, met and compromised, and where the meaning of the technology was settled. If the camera in the prison and the immigration depot fixed the identity of the individual body, the next chapter follows it into the air, where the same colonial faith in mechanical objectivity—and the same dependence on Vietnamese labor—turned photography from a means of identifying persons into a means of measuring, and taxing, the land itself.

Chapter 2

On The High Sea of Clouds: Photographic Measurements and Land Tax in Colonial Vietnam during the Interwar Years

Introduction

Between 1919 and 1940, the Cadastral Service of French Indochina partnered with the colonial Air Force to fly hundreds of survey missions over the colony, not only to map uncharted regions but also to measure individual land parcels precisely enough to tax them. This collaboration was one of the most ambitious inter-institutional projects that the French colonial authority ever undertook in colonial Vietnam. A technical note written by the head of the Geographic Service, attached to a 1930 letter from Governor-General Pasquier to his administration, set out the cadastral project based on aerial photography as a sequential seven-step workflow that ran across several colonial institutions:

- 1° — taking of aerial negatives, by the Military Aeronautics;
- 2° — determination of restitution markers, by the local Cadastral Services;
- 3° — rectification and restitution of negatives, by the Photo-topography Section;
- 4° — inter-communal and parcel delimitation, by the local Cadastral Services;
- 5° — establishment of the draft plans, by the Photo-topography Section or by the local Cadastral Services;
- 6° — completion, in the field, of the draft plans, by the local Cadastral Services;
- 7° — calculation of parcel areas, completion of the regulatory formalities (announcements, publications, delivery of extracts), establishment of land registers, by the local services.¹

This workflow reflects the manual labor of measuring land before the modern computerized methods of remote sensing and satellite images, where images can be processed through complicated algorithms performed by computers. As processes, these steps also obscured the human layer, including the numerous Vietnamese staff who supported the process at

¹ Direction des Finances de L'Indochine, "Fonctionnement de La Section de Photographie Aerienne En Indochine," 1930-1938, L.9 No.5517, TTLTQG1.

every step of the workflow. Thus, as this chapter demonstrates, the colonial aerial-photography project, for all the scientific authority it claimed, could not have functioned without the Vietnamese workforce that staffed it at every step, and the workflow above is best read not as an administrative diagram but as a chain of labor the colonial record was designed to render invisible. Each step names an institution; none names a person. The list is not a description of the survey so much as an operation performed on it. What Bernhard Siegert calls a cultural technique — the grid, the filter, the list, procedures that appear merely to record a distinction while in fact producing it — is at work here twice over: once in the parcel grid the survey was built to lay across the delta, and once in the seven-step sequence itself, which sorts the work into institutions and, in the same gesture, sorts the people who did it out of the account.² Yet every step depended on individuals whose skill the documents reduced to a function and a number — the assistant photographer who timed an exposure against the aircraft's drift, the laboratory technician who solved the rectification by hand, the field surveyor who walked an obscured ground marker back onto the image, the village bookkeeper who alone knew which parcel belonged to whom. The French *cadastre* in Indochina did not impose a finished European science upon a passive colony.³

² Bernhard Siegert, *Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real*, trans. Geoffrey Winthrop-Young (Fordham University Press, 2015), read chap. 6, "(Not) in Place: The Grid, or, Cultural Techniques of Ruling Spaces." On the administrative document as an agent rather than a record of agency, see Cornelia Vismann, *Files: Law and Media Technology*, trans. Geoffrey Winthrop-Young (Stanford University Press, 2008); Lisa Gitelman, *Paper Knowledge: Toward a Media History of Documents* (Duke University Press, 2014); and Ben Kafka, *The Demon of Writing: Powers and Failures of Paperwork* (Zone Books, 2012), on paperwork's routine failures. On paper systems as recombinable storage, Markus Krajewski, *Paper Machines: About Cards & Catalogs, 1548–1929*, trans. Peter Krapp (MIT Press, 2011). On media as the condition of what can be stored and therefore known, Friedrich A. Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford University Press, 1999).

³ *Cadastre* is retained in French because English has no single equivalent. It names neither the map nor the register alone, but the whole apparatus that binds a measured parcel of ground to a named owner and a tax liability, together with the administration that maintains it — here a colonial service that carried the word in its own title, the Service du Cadastre. "Land register" is used in these pages for the resulting document, "cadastral" for the operations and personnel that produced it, and *địa bạ* for the Vietnamese land roll, which recorded holdings and obligations without measured parcel geometry and which the French treated as a cadastre's raw material rather than as a cadastre.

It assembled, out of military aircraft, a metropolitan mathematics, and a large body of colonized labor, a project that remained contested, collaborative, and finally unfinished when the Japanese occupation ended it. Like the identification regime traced in the previous chapter and the archival apparatus examined in the next, the cadastre was an *infrastructure* in the sense this dissertation has developed: a sociotechnical system, assembled from many institutions and many hands, whose smooth bureaucratic surface concealed the colonized labor that made it run.

This case study draws on three bodies of primary sources: the administrative correspondence held at the National Archives Center I in Hanoi, which records the program as its participants experienced it, piecemeal and frequently stalled; the published, promotional record including the military's own publishing 1930 *Historique de l'Aéronautique d'Indochine* and Edmond Rény's 1931 *Monographie générale du cadastre en Indochine*, which present the program as the colonial state wished it seen; and the institutional documentation of the Geographic Service of Indochina, which supplies the organizational anatomy the other sources assume. Reading these against one another shows the imposition of the French cadastral system for what it was, not a neutral administrative exercise but a profound reshaping of how a colonized population could hold, know, and lose its land, a process that generated resistance from quiet non-compliance to the peasant uprisings that swept Nghệ An and Hà Tĩnh in the 1930s.⁴

⁴ These uprisings, often grouped together as the Nghệ-Tĩnh Soviet movement of 1930–1931, saw waves of strikes and peasant demonstrations across the two provinces escalate, in several districts, into village-level governing bodies — the so-called soviets — that annulled taxes, cancelled debts, and redistributed communal land before the colonial state suppressed the movement by force. Scholars continue to debate the relative weight of rural immiseration, the burden of colonial taxation, and communist organization as its driving causes. For more on these uprisings, read Martin Bernal, “The Nghe-Tinh Soviet Movement 1930-1931,” *Past & Present*, no. 92 (August 1981): 148-168; William J. Duiker, “The Red Soviets of Nghe-Tinh: An Early Communist Rebellion in Vietnam,” *Journal of Southeast Asian Studies* 4, no. 2 (1973): 186–98.

Seeing Like the State

A decade of implementing aerial photography across the colonies and protectorates of French Indochina produced the codified seven-step workflow above. Vietnam first met aerial photography as a spectacle of modernity, but the colonial administration soon grasped its utility, and through the 1920s it built and codified a set of institutional bodies to standardize the procedure. The military flew the cameras; the local Cadastral Services, as civil agencies, then fixed the markers on the ground. At the center of the workflow stood the Photo-topography Section, which rectified and restituted the negatives the military produced. A decree of 1921 first established this section within the Geographic Service of Indochina (*Service Géographique de l'Indochine*), a scientific mapping body that a decree of 5 July 1899 had carved out of the army's topographic bureau at Hanoi.⁵ A senior colonial-army officer directed the Service, and three technical sections divided its work — the first handling geodesy and astronomy, the second topography and revision, the third cartography, reproduction, and printing. A laboratory of aerial photography joined this structure in 1921, originally attached to the Directorate of Economic Services, then absorbed entirely by the Geographic Service in 1927.⁶ The central establishment at Hanoi housed a calculation office and geodetic archive, drawing and cartography rooms, a zincography shop, a photography and heliogravure workshop, a lithographic press, an instrument-repair shop, and a drawing school that trained the apprentice draftsmen the Service recruited by competitive examination. Geodetic groups and topographic brigades carried out the fieldwork: a geodetic group usually consisted of one officer, two or three European assistants, and roughly ten indigenous auxiliaries, while a topographic brigade comprised a brigade chief, around six operator-officers, and some twenty indigenous staff.

⁵ "La vie indochinoise" [Indochinese life], *Les Annales coloniales* (Paris), February 2, 1923, 2.

⁶ Edmond Rény, *Monographie générale du cadastre en Indochine* (Imprimerie de la Seine, 1931), 93.

Setting the workflow against this anatomy clarifies the structure of this case study. The first two field operations (taking the negatives and fixing the restitution markers) mark a collaboration between a military and a civil service, where the Military Aeronautics flew the cameras and the cadastral brigades walked the ground. This collaboration produced the materials for steps three through five (rectification, delimitation, and the drafting of the parcel plans), which belonged largely to the workshop, to the laboratory and drawing rooms of the Geographic Service; the section on photogrammetry addresses them. The completion of the draft plans in the field (as step six) returned the work to the village so the local staff could verify and make appropriate adjustments. This step reveals what aerial photography could not do without human labor on the ground. The final step, the calculation of areas and the regulatory formalities that turned a plan into a tax roll, was an administrative and legal task. The workflow thus oscillated between field and workshop and field again, changing hands at least four times before a parcel became measured and taxable. The colonial sources present this division as efficiency but this is also a fragility of French colonial authority: a procedure assembled from three different colonial institutions, each answerable to a different authority and funded from a different line of the budget—a bureaucracy in the exact sense, a set of standardizing offices each governed by its own incompatible rules—could advance only as fast as its slowest and least-resourced link allowed, and at every handoff it depended on Vietnamese staff whom the budget retained precisely because the work could not be done without them.

The naming of each institution reflects a larger systemic attempt to standardize the process at the cost of erasing the autochthonous staff. The document names institutions, never people. “Military Aeronautics,” “local Cadastral Services,” “Photo-topography Section” — each step is assigned to an office, and the office absorbs the people inside it. This is the ordinary

grammar of administrative writing, but it is not neutral. To claim that the Military Aeronautics took the negatives is to make the institution the actor and the photographer invisible; to write that the Photography Section rectified the plates is to credit the office and erase the technician. The workflow note thus converts a chain of named and skilled people into a sequence of impersonal functions, and in doing so, it makes the colonial project look like a machine running itself rather than an enterprise running on colonized labor.

Military and the Formation of Aerial Vision

The first two steps of the workflow described above (taking the aerial negatives and determining the restitution markers on the ground) belonged to the military and to the field, and to understand them one must first understand how the French came to treat the view from above as a form of knowledge. Technologies that augment the senses mediate how people perceive the world and make time and space legible, and they are not a uniquely European phenomenon, however often the West has branded them as the signature of its own modernity. In the introduction to *Revolution in Time*, his study of horology, David Landes warns readers away from a Eurocentric reading by noting that, into the early Middle Ages, China led Europe in most areas of technology, horology included; European demand for precise timekeeping then drove scientific work over the following centuries, and by 1884 a system of standard time zones covered the globe.⁷ The development of longitude and latitude subjected the planet's curved surface to a geometrical grid that squared off empty seas and unexplored regions into measured boxes, and by the late nineteenth century time and space had become homogenous and had begun to reconfigure ordinary experience into that of a "modern" world. That reconfiguration

⁷ David Landes, *Revolution in Time: Clocks and the Making of the Modern World* (Harvard University Press, 1983).

had a concrete vehicle. Wolfgang Schivelbusch's history of the railway shows standard time arriving as an operational requirement rather than a philosophical one — trains could not share a line without a common clock — and shows the traveler's perception of landscape remade in the same movement, into something glimpsed at speed through a frame.⁸

The European conquests in Latin America and Southeast Asia formed part of this agenda, and in French Indochina the “civilizing mission” gave France a pretext to press indigenous populations to abandon their own ways of living.⁹ As Bliss Cua Lim puts it, “modern time consciousness is a means of exercising social, political, and economic control.”¹⁰ Before the annexation of Tonkin in 1886, Vietnamese kept time by the Chinese method of the clepsydra, the water clock, dividing the day into twelve double-hours of roughly two hours each, with the night reckoned in five watches measured by water flowing from a carefully designed ceramic cup; the mechanical clock displaced this method in the late nineteenth century, and in 1906, once France

⁸ Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (University of California Press, 1986).

⁹ The doctrine and its place in French republican imperialism are set out in the introduction; what concerns the argument here is its specifically aeronautical form. Flight gave the civilizing claim one of its most effective vehicles. Robert Wohl traces how the aeroplane became, between the wars, the emblem by which the West measured its own modernity: *The Spectacle of Flight: Aviation and the Western Imagination, 1920–1950* (Yale University Press, 2005). Gordon Pirie shows imperial civil aviation promoted as a service rendered to the colonies — speed, connection, medical evacuation — even as its routes traced the lines of imperial administration: *Air Empire: British Imperial Civil Aviation, 1919–39*, Studies in Imperialism (Manchester University Press, 2009), and, on its publicity, *Cultures and Caricatures of British Imperial Aviation: Passengers, Pilots, Publicity* (Manchester University Press, 2012). The same claim licensed violence as readily as benevolence: Priya Satia, “The Defense of Inhumanity: Air Control and the British Idea of Arabia,” *American Historical Review* 111, no. 1 (2006): 16–51, shows aerial bombardment in Iraq defended as the lighter and more humane instrument, and Martin Thomas, *Empires of Intelligence: Security Services and Colonial Disorder after 1914* (University of California Press, 2008), traces the parallel apparatus of aerial surveillance in the French mandates. Aerial photography gave the doctrine a visual form of its own, since the camera appeared to yield knowledge of a territory without the mediation of the people living in it; the clearest French instance is Antoine Poidebard, *La trace de Rome dans le désert de Syrie: le limes de Trajan à la conquête arabe; recherches aériennes (1925–1932)* (Paul Geuthner, 1934), an aerial survey published as the recovery of Rome's civilizing infrastructure and, by implication, as the warrant for France's own; on Poidebard see Lévon Nordiguian and Jean-François Salles, eds., *Aux origines de l'archéologie aérienne: A. Poidebard (1878–1955)* (Presses de l'Université Saint-Joseph, 2004). On the visual ideology specific to Indochina, Panivong Norindr, *Phantasmatic Indochina: French Colonial Ideology in Architecture, Film, and Literature* (Duke University Press, 1996).

¹⁰ Bliss Cua Lim, *Translating Time: Cinema, the Fantastic, and Temporal Critique* (Duke University Press, 2009), 11.

had finished building the Phủ Liễn Observatory near Haiphong, it placed the entire Indochinese peninsula under a standardized time zone.¹¹ The desire to make foreign land intelligible drew on the same Enlightenment tenets. Building on reconnaissance technologies such as tethered balloons and kites, powered flight offered an elevated perspective and a totality of vision that French culture had long prized, and Astrit Schmidt-Burkhardt notes that France incorporated the all-seeing perspective directly into its official state imagery, its commercial logos, and its money after the Revolution.¹² For the French, seeing from above transcended earthbound perceptual limits and approximated divine omniscience. That equation of altitude with knowledge has a history of its own, and an unstable one: as Paula Amad argues, aerial photography inherited a god's-eye ambition it could never quite satisfy, and its images oscillate between a claim to total legibility and an abstraction so complete that the human world drops out of them altogether.¹³ Vietnamese cultural life invested the sky quite differently, and along two distinct lines. In popular religion it was a godly arena, the domain of the supreme deity commonly called ông Trời, "the Old Man Sky," whom later Taoist influence identified with the Jade Emperor (Ngọc Hoàng).¹⁴ In the idiom of the Confucian court, by contrast, access to Heaven belonged to the

¹¹ On the history of the water clock, read Joseph Needham et al., *Heavenly Clockwork: The Great Astronomical Clocks of Medieval China*, 2nd ed. (Cambridge University Press, 1986); On the French imposition of standardized time, read Vanessa Ogle, *The Global Transformation of Time, 1870–1950* (Harvard University Press, 2015); Wayan Jarrah Sastrawan, "Temporalities in Southeast Asian Historiography," *History and Theory* 59, no. 2 (2020): 210–26.

¹² Astrit Schmidt-Burkhardt, "The All-Seer: God's Eye as Proto-Surveillance," in *CTRL [SPACE]: Rhetorics of Surveillance from Bentham to Big Brother*, ed. Thomas Y. Levin et al. (MIT Press, 2002), 16–31. On the longer genealogy of the god's-eye view in Western cartographic and cosmographic imagination, see Denis Cosgrove, *Apollo's Eye: A Cartographic Genealogy of the Earth in the Western Imagination* (Johns Hopkins University Press, 2001).

¹³ Paula Amad, "From God's-Eye to Camera-Eye: Aerial Photography's Post-humanist and Neo-humanist Visions of the World," *History of Photography* 36, no. 1 (2012): 66–86. On the aerial view as a formation in visual culture more broadly, see Mark Dorrian and Frédéric Pousin, eds., *Seeing from Above: The Aerial View in Visual Culture* (I. B. Tauris, 2013).

¹⁴ EFEO was particularly interested in Vietnamese religion and questioned whether it could be considered as a single thing, for early works of EFEO on this topic, read the ethnographic study of the French missionary-scholar Léopold Cadière, *Croyances et Pratiques Religieuses Des Vietnamiens* (École française d'Extrême-Orient, 1957).

emperor alone: as the "Son of Heaven" (thiên tử), he mediated between Heaven and his subjects through the great state sacrifice, a monopoly that made the sky a seat of sovereignty rather than a vantage any subject might occupy.¹⁵ Either way, the sky was heavenly and untouchable—precisely the domain the French aerial view now presumed to enter.

The French fascination with the elevated perspective predates the airplane by centuries. The panorama, an entertainment form that Robert Barker invented in 1787 and that Paris celebrated throughout the nineteenth century, let urban audiences look down on whole cities from an imaginary height, and it advanced a philosophical claim: that true understanding required a position of visual totality from which the fragmentary perceptions of everyday life could be organized into a coherent whole.¹⁶ Devices of this kind did not merely offer new sights. As Jonathan Crary argues, the optical apparatus of the nineteenth century helped constitute a new kind of observer, one whose vision was detached from the position of the body and reorganized around techniques of viewing that could be standardized, taught, and reproduced.¹⁷ That claim drove the development of aviation, yet aerial photography began, and long remained, a form of spectacle. When the French photographer and balloonist Gaspard-Félix Tournachon first attempted aerial photography in 1858, he produced no reliable images, because he could not keep the collodion plates stable in the air; he tried again in 1863 with the largest balloon in Europe, “Le Géant,” ran the project as a paying exhibition that drew some 80,000 to 100,000 spectators

¹⁵ Anh Q. Tran, *Gods, Heroes, and Ancestors: An Interreligious Encounter in Eighteenth-Century Vietnam*, AAR Religion in Translation (Oxford University Press, 2018); Alexander Woodside, *Vietnam and the Chinese Model: A Comparative Study of Vietnamese and Chinese Government in the First Half of the Nineteenth Century* (Harvard University Press, 1988).

¹⁶For more about panoramas as a phenomenon of the nineteenth century, read Bernard Comment and Anne-Marie Glasheen, *The Painted Panorama* (H.N. Abrams, 2000); Stephan Oettermann, *The Panorama: History of a Mass Medium*, trans. Deborah Lucas Schneider; 021 (Zone Books, 1997); Erkki Huhtamo, *Illusions in Motion: Media Archaeology of the Moving Panorama and Related Spectacles*, Leonardo (The MIT Press, 2013).

¹⁷ Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (MIT Press, 1990).

over two days, and watched the balloon crash on the third.¹⁸ The photographs still failed, and the military took aerial photography seriously only during the First World War. The spectacle did not end there but ran alongside the instrument. Teresa Castro has traced how the aerial view entered cinema in these same decades as a mode of attraction rather than of measurement, and Paula Amad's account of Albert Kahn's *Archives de la Planète* — a French project contemporaneous with the Indochinese surveys, undertaken to photograph the whole world exhaustively — shows how quickly a documentary ambition of that scale outruns the uses its sponsors imagined for it.¹⁹ This cultural backdrop shaped how France presented aviation to the Vietnamese. On the morning of 13 December 1910, the French Catholic newspaper *La Croix* reported that Charles Van den Born, a Belgian-born pilot, had flown the first airplane in French Indochina that week, and the 1930 report *Historique de l'Aéronautique d'Indochine*, which the Aeronautical Service wrote to attract investment at the 1931 International Colonial Exhibition, dated his flight to 10 December and called it the day “the skies of the colony were crossed by an airplane for the first time.”²⁰

Van den Born's demonstration exemplifies what Brian Larkin calls the “colonial sublime,” a strategy that provokes a sense of powerlessness in the colonized before the seemingly superhuman works of the colonial state.²¹ The French Army arranged further flights over Hanoi in the years that followed, and the spectacle entered an existing commercial

¹⁸ Alison Gernsheim and Helmut Gernsheim, *The History of Photography: From the Camera Obscura to the Beginning of the Modern Era* (McGraw-Hill, 1955), 507.

¹⁹ Teresa Castro, “Aerial Views and Cinematism, 1898–1939,” in *Seeing from Above: The Aerial View in Visual Culture*, ed. Mark Dorrian and Frédéric Pousin (I. B. Tauris, 2013); Paula Amad, *Counter-Archive: Film, the Everyday, and Albert Kahn's Archives de la Planète* (Columbia University Press, 2010). On the colonies as spectacle in early nonfiction film, see Jennifer Lynn Peterson, *Education in the School of Dreams: Travelogues and Early Nonfiction Film* (Duke University Press, 2013).

²⁰ Aéronautique militaire, *Historique de l'Aéronautique d'Indochine* (Imprimerie d'Extrême-Orient, 1930), 7.

²¹ Brian Larkin, “Infrastructure, the Colonial Sublime, and the Indirect Rule” in *Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria* (Duke University Press, 2008), 16–47.

infrastructure: picture postcards, made widely affordable by improvements in color lithography in the 1890s, circulated images of empire across class lines, and photographic studios in Saigon and Hanoi produced them in the millions. The airplane did not arrive in a media vacuum. It arrived in a visual culture already primed to picture the colonies as spaces of wonder and technological achievement, and the camera mounted in the aircraft would soon turn that wondering gaze into a fiscal instrument.

The 1930 report frames Van den Born's flight as a moment of pure marvel, and it presents the history of colonial aviation that followed as a smooth ascent toward mastery of the skies. The report was a document of persuasion, written for the 1931 Exhibition to attract metropolitan investment, and its triumphal arc had a political function. What the report does not say is that the same demonstration which thrilled a hundred thousand spectators at a Saigon racetrack rested, even in 1910, on a fragile and temperamental technology, and that the survey aviation which grew out of it would remain fragile and temperamental for three decades. The colonial sublime worked precisely by hiding the labor and the difficulty: the spectator saw a machine cross the sky and felt the power of the state that had placed it there, and saw nothing of the mechanics who had assembled and tuned the aircraft, nothing of the failures and the crashes, nothing of the slow, contested work that would be required to turn a flying camera into a cadastral plan.

The fragility was not incidental but intrinsic to aerial photography. Tournachon's failures of the 1850s and 1860s, recounted above, had stated the problem at the outset, and the spectacle had run ahead of the results ever since. Half a century separated Tournachon's spectacle from Van den Born's, and the photographic problem he had failed to solve — how to make a sharp, measurable image from an unstable platform moving through the air — was still, in its essentials, unsolved. The First World War would force a partial solution by pouring military resources into

reconnaissance photography, but even the wartime advances did not make survey photography easy; they made it possible. The interwar cadastral program in Indochina inherited a technology that worked, when it worked, only through sustained skilled effort, and that effort was overwhelmingly Vietnamese.

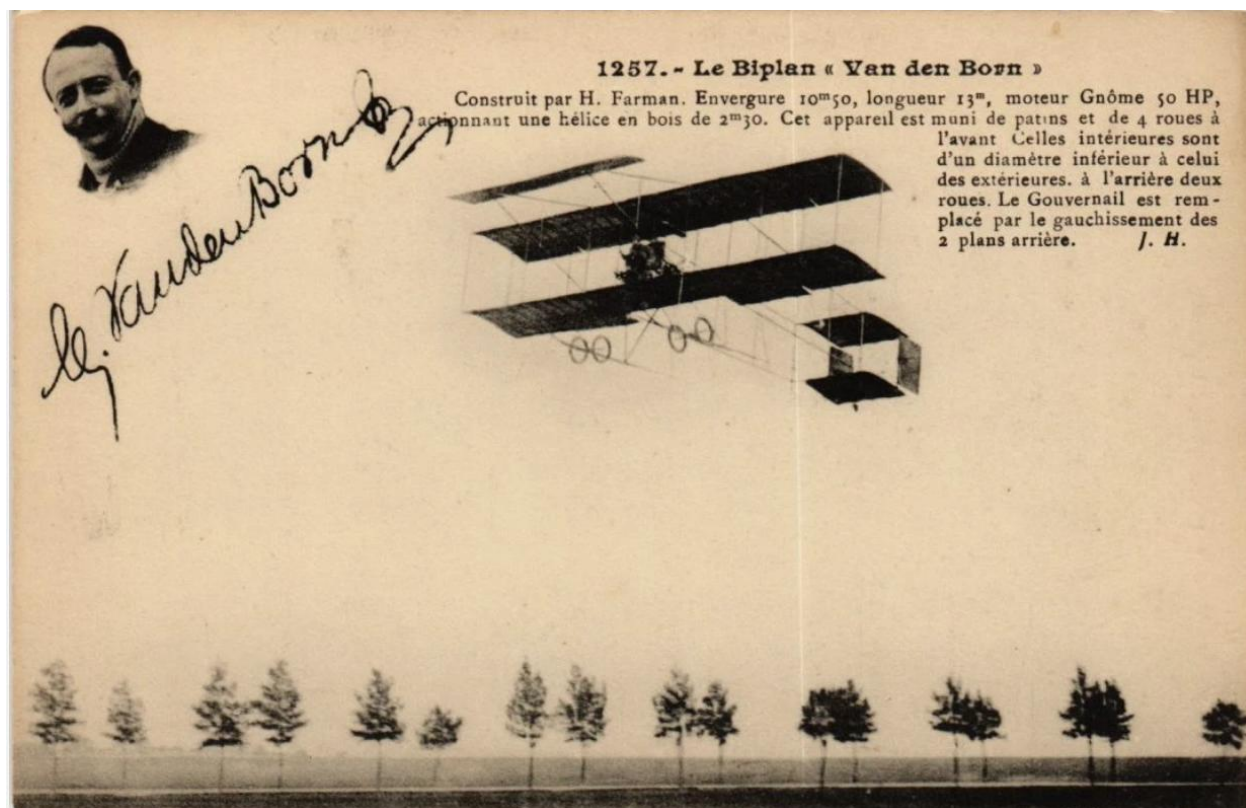


Fig. 2.1. A postcard of Van den Born's biplane from 1910, signed by the pilot. Author's personal collection.

The aerial camera did not arrive in a cartographic vacuum either. A military topographic bureau founded at Hanoi in 1886 had assembled the first maps of Tonkin from the surveys of the expeditionary corps, but its first chief, Lieutenant-Colonel Lubanski, admitted that, lacking a regular triangulation, the bureau could only stitch together so many “lambeaux géographiques” (“geographic shreds”) on an uncertain framework.²² The decree of 5 July 1899 created the

²² Claude-Eugène Maitre, “Notes sur l'histoire de la cartographie indochinoise,” in *Atlas général de l'Indochine française*, ed. M. de Chabert and Lucien Gallois (Imprimerie d'Extrême-Orient, École française d'Extrême-Orient, 1909), i–vi; the phrase is Maitre quoting Lt.-Col. Jules Lubanski, first chief of the Service géographique de l'Indochine.

Geographic Service to replace that assembly work with original scientific mapping, and the new Service laid a rigorous geodetic skeleton across the colony — baselines measured at Son Tây, Thanh Hóa, and Cape Saint-Jacques (present-day Vũng Tàu), meridian chains running some 1,700 kilometres along the coast — and mapped the deltas at 1:25,000 expressly for irrigation and cadastral work. When aerial photography entered this enterprise after 1919, it did not find colonial cartography; it accelerated a project already three decades old and inherited that project's division between a scientific mapping service and a fiscal cadastral one. The acceleration was measurable. The Service's own account of its collaboration with aviation records that the Cochinchinese squadron photographed 92,500 hectares for the Geographic Service in 1921, 154,000 hectares in 1922, and a further 47,700 hectares in the first three months of 1923 alone, for a running total approaching 300,000 hectares covered at 1:10,000; thanks to the aerial method, the Service reported, the fieldwork was carried out three times faster than before the war and was far more accurate.²³

That older mapping enterprise had itself depended on indigenous labor from the start, and the continuity is worth marking, because it shows that the cadastral program of the 1920s did not invent the colony's reliance on Vietnamese hands but inherited it. The expeditionary surveys and the Auguste Pavie missions of the 1880s and 1890s had moved through the country only with indigenous guides, porters, interpreters, and informants, and the topographic brigades that the Geographic Service sent out after 1899 were built, in their rank and file, from indigenous auxiliaries.²⁴ A geodetic group, by the Service's own description, joined one officer and two or

²³ "La vie indochinoise," *Les Annales coloniales*, October 26, 1923, 2.

²⁴ The Pavie Mission (Mission Pavie) was a series of French exploration, surveying, and diplomatic expeditions across mainland Southeast Asia between 1879 and 1895, led by Auguste Pavie (1847–1925). Pavie began as a telegraph official in Cambodia and rose to become France's leading agent in the region; he was nicknamed *l'explorateur aux pieds nus*, "the barefoot explorer," for traveling in local dress and style and cultivating close relationships with the peoples he encountered — an approach he later summed up in the title of his memoir, *À la conquête des cœurs* ("the conquest of hearts"). The missions mapped vast stretches of largely un-surveyed inland

three European assistants to roughly ten indigenous auxiliaries; a topographic brigade set a handful of European operator-officers over some twenty indigenous staff. The colonial map of Indochina, in every decade of its making, was produced by a workforce that was numerically and practically Vietnamese, supervised by a thin European cadre. Aerial photography changed the instruments of that work — it put a camera in an aircraft — but it did not change the social composition of the labor. It carried an existing dependence on a new technology.

The First World War made that acceleration possible. When the war began in 1914, aircraft were flimsy wood-and-fabric machines, and the combined fleets of the major powers numbered only a few hundred; by the armistice France alone had built roughly 68,000 aircraft, and the war compressed decades of likely development into four years.²⁵ Meeting that demand pulled small prewar workshops into mass production under government contract and, in the process, created the modern aerospace industry, setting a template of military requirement, private design, and battlefield refinement that would dominate the century.²⁶ The war also drew colonized labor into the French war economy. France recruited some 50,000 Vietnamese laborers, and although its methods were coercive — the administration relied on “corrupt

territory across Cambodia, Laos, Siam, Tonkin and Annam, and the borderlands with Yunnan and Burma, gathering cartographic, ethnographic, linguistic, and natural-history data — while quietly advancing French territorial claims. For Pavie’s own ethnographic work, read Auguste Pavie, *Pavie Mission Exploration Work: Laos, Cambodia, Siam, Yunnan, and Vietnam*, The Pavie Mission Indochina Papers, 1879–1895, Vol. 1 (White Lotus Press, 1999); For Pavie’s memoir of the mission, read Auguste Pavie, *À La Conquête Des Cœurs: Le Pays Des Millions d’éléphants et Du Parasol Blanc, Les Pavillons Noirs, Déo-van-Tri* (Bossard, 1921); Since Pavie’s mission spans across all regions, for his legacies in Thailand, read Patrick Tuck, *The French Wolf and the Siamese Lamb: The French Threat to Siamese Independence, 1858–1907* (White Lotus Press, 1995); Thongchai Winichakul, *Siam Mapped: A History of the Geo-Body of a Nation* (University of Hawai’i Press, 1994); For Laos, read Søren Ivarsson, *Creating Laos: The Making of a Lao Space between Indochina and Siam, 1860–1945*, (NIAS Press, 2008); Ryan Wolfson-Ford, “The Partitioning of Laos: Lost Voices from Both Sides of the Mekong River in 1893 and the Creation of Modern Laos,” *Journal of Lao Studies*, Vol. 8, no. 1 (December 2024): 1–21.

²⁵ John Howard Morrow, *The Great War in the Air: Military Aviation from 1909 to 1921*, Smithsonian History of Aviation History (Smithsonian Institution Press, 1993).

²⁶ J. M. Bruce, *British Aeroplanes, 1914–18*. (Putnam, 1957).

notables and mandarins” to round up peasants, mostly from a poor northern Tonkin and Annam²⁷ — Kimloan Vu-Hill has shown that many Vietnamese negotiated their own terms and volunteered. The Allied victory in 1918 then left warehouses full of unwanted airframes and pushed manufacturers toward land surveys and civil aviation,²⁸ and as John Tully notes, the figure of the “intrepid explorer” gave way to that of the “heroic aviator.”²⁹ The Vietnamese who had served as soldiers and mechanics vanished from this postwar imagery, even though the colonial aviation programs of the next two decades would depend on exactly their kind of labor; those who stayed in France, among them Hồ Chí Minh and Tôn Đức Thắng, sharpened their political skills through exposure to radical politics.³⁰

The wartime origin of survey aviation explains why the technology arrived in the colony already bound to reconnaissance and to the labor that reconnaissance required. Aerial photography became a serious instrument during the First World War not as an art but as a military necessity: armies needed to see the enemy’s trenches, batteries, and movements, and the camera in the aircraft was the means. The cameras, the films, the techniques of overlapping coverage, the very practice of treating a photograph as a measurable record rather than a picture — all of this was developed under wartime pressure, and all of it was developed as work, performed by trained crews under difficult conditions. When the war ended and the surplus aircraft and demobilized airmen flowed toward civil applications, they carried this character with them. Survey aviation in colonial Indochina was, from its first mission, a descendant of military reconnaissance, and like military reconnaissance it depended on a crew of skilled hands rather

²⁷ Mireille Le Van Ho, *Des Vietnamiens dans la Grande Guerre: 50 000 recrues dans les usines françaises* (Vendémiaire, 2014).

²⁸ Morrow, *The Great War in the Air*.

²⁹ John A. Tully, *France on the Mekong: A History of the Protectorate in Cambodia, 1863–1953* (University Press of America, 2002).

³⁰ Kimloan Vu-Hill, *Coolies into Rebels: Impact of World War I on French Indochina* (Les Indes Savantes, 2011).

than on a single heroic pilot. Survey aviation in colonial Indochina was, from its first mission, a descendant of military reconnaissance, and like military reconnaissance it depended on a crew of skilled hands rather than on a single heroic pilot. That descent has a name in media studies. Paul Virilio's account of the logistics of perception holds that the camera and the weapon developed as one apparatus, each refining the other's field of view, and Antoine Bousquet's genealogy of military perception runs from the telescope to the drone through precisely the interwar reconnaissance techniques the Indochinese cadastre borrowed.³¹ What the cadastre adds to that account is how readily a targeting apparatus converts into a fiscal one: the same overlapping strips that fixed a battery in 1917 fixed a taxable parcel in 1927. The colonial program inherited the wartime technology and, with it, the wartime truth that aerial photography was a labor-intensive collective practice. What the colony added was a particular division of that labor along racial lines, with Europeans in the cockpit and Vietnamese in every supporting role on which the cockpit depended.

For French Indochina, the wartime expansion of French aviation created both the material conditions and the human infrastructure for colonial aviation. The surplus aircraft, trained mechanics, and demobilized pilots that the war produced made possible programs that would have been unthinkable before 1914. Toward the end of the war the French government established the Service of Civil Aviation in Tonkin and Cochinchina, and in 1919 the Minister of Colonies strengthened the Indochinese Aeronautical Service, proposing mixed squadrons of

³¹ Paul Virilio, *War and Cinema: The Logistics of Perception*, trans. Patrick Camiller (Verso, 1989); Antoine Bousquet, *The Eye of War: Military Perception from the Telescope to the Drone* (University of Minnesota Press, 2018). On vertical vision and its politics, see Caren Kaplan, *Aerial Aftermaths: Wartime from Above* (Duke University Press, 2018); Lisa Parks and Caren Kaplan, eds., *Life in the Age of Drone Warfare* (Duke University Press, 2017); Lisa Parks, *Rethinking Media Coverage: Vertical Mediation and the War on Terror* (Routledge, 2018); Roger Stahl, *Through the Crosshairs: War, Visual Culture, and the Weaponized Gaze* (Rutgers University Press, 2018); and Derek Gregory, "From a View to a Kill: Drones and Late Modern War," *Theory, Culture & Society* 28, nos. 7–8 (2011): 188–215. Kaplan's insistence that aerial vision has a long colonial prehistory rather than beginning with unmanned flight applies directly to the Indochinese case.

airplanes and seaplanes across Hanoi, Haiphong, Phu-tho, and Nha-be. The new service faced two challenges at once: the blurred boundary between the military character of the Air Force and the civil mission of the Cadastral Service, and the mathematical problems the aftermath threw up — problems the Vietnamese workforce mediated on both counts. As the 1930 report describes, aerial photography served different masters. It served more of them than the report names. The same Air Force that flew the cadastral missions supplied the photographs from which Pierre Gourou, teaching at the University of Indochina, built *Les Paysans du delta tonkinois* — a study of village form in the Red River Delta published in 1936, in the same years and over much of the same ground the Cadastral Service was photographing for tax.³² Two enterprises with opposite premises drew on one apparatus: the cadastre sought to resolve the delta into taxable parcels, while Gourou read the same abstract forms as evidence of a social order that predated the French and put metropolitan France to shame. Neither could see the labor that produced the negatives. The Cadastral Service's employment of Vietnamese technicians, against the rule that barred indigenous workers from technical posts across the colonial world, marked a rare and revealing exception.³³

After the war a wave of migration carried French men to Indochina, where the colony offered a higher standard of living, paid holidays, and double pay, and among the arrivals were François Glaize and Charles Alexandre Borzecki.³⁴ Glaize, a former colonial officer, succeeded Alfred Guyomar as Commander of the colonial Air Force in mid-January 1920. The colony's first

³² Jeanne Haffner, *The View from Above: The Science of Social Space* (MIT Press, 2013), 26; on Gourou's reading of village form and the delta's precolonial unity, 19–20, 29.

³³ Daniel Ringrose, "Nomadic Technicians and Migration in the Francophone World," *Proceedings of the Western Society for French History* (Ann Arbor, MI) 32 (2004).

³⁴ For more on the migration of French soldiers to the colonies after the war, read Gilles de Gantès, "Migration to Indochina: Proof of the Popularity of Colonial Empire?," in *Promoting the Colonial Idea: Propaganda and Visions of Empire in France*, ed. Tony Chafer and Amanda Sackur (Palgrave Macmillan, 2002), 15–28.

aerial-photography assignment was flown over Saigon on 26 January 1920, and the first mission in Tonkin followed over Hanoi on 7 February 1920.³⁵ In February 1920 Captain Borzecki, a specialist in balloon photography who had risen to lieutenant during the war,³⁶ carried out one of these early Tonkin missions; trained as an electrical technician, he had registered a patent in 1919 for a cinematographic projection device,³⁷ and he would remain in Indochina from 1920 until 1946. His demonstration in 1920 caught the eye of the colonial government, and within the year several civil agencies were requesting his department's services.

The two men personify the gap between the colony's promise and its working reality. Glaize had a soldier's career and an administrator's burden. The colony expected him to build and maintain a functioning aeronautical service with insufficient funding, too few aircraft, and a chronic shortage of trained personnel, and the early years of the service were a record of crashes, mechanical failures, and missions abandoned to the weather, all of it documented in the dry administrative correspondence between the Aeronautical Service and the Governor-General's office. That correspondence conveys a sense of improvisation and crisis entirely absent from the 1930 report. Borzecki, by contrast, was a technician by formation and temperament. An electrical specialist who had turned to photography and cinematography, decorated for balloon observation during the war, came to the colony to do a particular kind of skilled work, and he did it for twenty-six years. His patent for a cinematographic projection device shows a man at home with optical machinery, and his long tenure made him one of the few Europeans in the colony with sustained, accumulated knowledge of what aerial survey actually required. Yet, as a later section

³⁵ Christophe Cony and Michel Ledet, *L'Aviation française en Indochine: Des origines à 1945* (Lela Presse, 2012), 40; Jean-Baptiste Manchon, *L'aéronautique militaire française outre-mer, 1911–1939* (Presses de l'université Paris-Sorbonne, 2013), 387.

³⁶ Jean Dacay, "Deux 'as' Observateurs: Borzecki et Homo," in *La Guerre aérienne illustrée: revue hebdomadaire* (July 26, 1917), 579-580.

³⁷ FR 522.168. November 15, 1919. "Poste double de projection cinématographique à appareil d'éclairage unique mobile."

shows, that very expertise isolated him, because the metropole had no interest in it; he accumulated a body of practical photogrammetric knowledge for which France, until the 1940s, offered no audience.

On 31 December 1920, Edmond Rény, head of the Cadastral Service in Tonkin, asked the Resident Superior of Tonkin for roughly 4,000 piastres to survey Hưng Yên, the one province of the Red River Delta still without a cadastral survey, basing his estimate on the Aeronautical Service's rate of 0.12 piastre per hectare.³⁸ Within a year several more provinces were requesting aerial photography to assess land tax. For the colonial administration, the view from above promised a visual totality that it tied directly to political authority, and as Jeanne Haffner puts it, aerial photographs of the colonies offered "unparalleled access into the inner workings of these societies, overcoming numerous linguistic and cultural boundaries."³⁹ Rény, writing to the provincial administrator in Vinh, claimed aerial photography would set land registration at ease, because "the native will find an indisputable guarantee of his property rights" and "will also know the proportion of property tax he is required to pay."⁴⁰ On 4 July 1921 a decree gave official standing to the aerial-photography laboratory already operating at Hanoi, placing it under the Directorate of Economic Services.⁴¹

Rény's Hưng Yên request is a small document, but it states the logic of the whole program in a sentence. He justified the expenditure by arguing that the land tax established through recent surveys had already improved the colonial budget — that the survey, in other words, would pay for itself and more. This was the premise on which the seven-step workflow

³⁸ TTLTQG1, M3. No.35675. "Application de la topographie et du cadastre par la photographie Aerienne."

³⁹ Haffner, *The View from Above*, 17.

⁴⁰ TTLTQG1, M3. No. 2870. "Execution des travaux de cadastre à effectuer dans la province de Nghe An par photographie aerienne," 15.

⁴¹ Rény, *Monographie générale du cadastre*, 93.

rested. Aerial photography was attractive to the colonial state not because it was scientifically elegant but because it promised to extend the taxable land register quickly and cheaply, and the cadastral correspondence returns again and again to cost per hectare, to rates and allocations, to the financial yield of the survey. The view from above was, from the first request, a fiscal instrument, and the “indisputable guarantee” of property that Rény offered the cultivator was inseparable from the tax assessment that the same plan would carry. The promise and the levy were two faces of one document. What the cultivator received as security, the treasury received as a claim.

The negatives and the restitution markers — steps one and two — came out of missions whose crews the colonial documents themselves enumerate, and the enumeration is where the dependence on Vietnamese labor first becomes legible. The instructions for the 1921 mission in Vinh list a standard survey crew of two pilots with three aircraft, two observers, one European mechanic, one native mechanic, eight further mechanics or workshop workers, one European non-commissioned officer, one non-commissioned draughtsman, and three native assistant photographers.⁴² Set the European staff against the indigenous staff in that list and the proportion is clear: the colony supplied the pilots and the senior observers, but the hands that loaded the cameras, maintained the engines, and worked the plates were overwhelmingly Vietnamese. The three native assistant photographers deserve far closer attention than histories of colonial aviation have given them, because they were not camera operators in any mechanical sense. They have also fallen outside a substantial literature on colonial photography, which has established how thoroughly the camera served imperial visualization and how colonized subjects appeared before it, but has attended far less to colonized technicians operating the apparatus on the state's

⁴² TTLTQG1, M3. No. 2870. “Execution des travaux de cadastre à effectuer dans la province de Nghe An par photographie aerienne”, 3.

behalf.⁴³ A studio photographer in Bombay or Java worked a commercial technology for his own clientele; the assistant photographer over Vinh worked a scientific instrument whose output the colonial treasury would convert into tax, and whose judgment entered a record that named neither.

Aerial photography in the 1920s demanded skill that hindsight tends to erase. The survey cameras were large-format glass-plate instruments mounted in specially modified aircraft, and they required careful loading and adjustment amid vibration, altitude cold, and the discomfort of an open or semi-open cabin. The photographer timed each exposure to the aircraft's speed and altitude to secure the overlap that stereophotogrammetric processing required, and in turbulence compensated by hand for every deviation in the aircraft's path — a single mistimed frame could break the overlap and waste the run. After the mission the crew unloaded, packed, and carried the exposed plates to the laboratory without damaging them, through tropical heat and across the difficult roads and waterways of rural Indochina. Each of these tasks demanded training, judgment, and physical endurance, and the colonial program assigned each of them, routinely, to Vietnamese staff. The aircraft that produced step one of the workflow flew, in practical terms, only because Vietnamese mechanics kept it airworthy in a climate that punished engines and because Vietnamese photographers could be trusted to bring back usable plates.

The crew manifest shows the colonial habit of mind that works enthusiastically to reduce the people to unidentified parts of the process. The list names “two pilots” and “two observers” without racial marking, because those roles were assumed to be European and the assumption

⁴³ James R. Ryan, *Picturing Empire: Photography and the Visualization of the British Empire* (University of Chicago Press, 1997); Eleanor M. Hight and Gary D. Sampson, eds., *Colonialist Photography: Imag(in)ing Race and Place* (Routledge, 2002); Ali Behdad, *Camera Orientalis: Reflections on Photography of the Middle East* (University of Chicago Press, 2016); Elizabeth Edwards, ed., *Anthropology and Photography, 1860–1920* (Yale University Press, 1992).

did not need stating.⁴⁴ It names “one native mechanic” and “three native assistant photographers,” the adjective “native” marking these workers as a separate and lesser category, and the noun “assistant” quietly demoting the photographers below a European standard even though the task they performed — operating the survey camera — was the mission’s central act.⁴⁵ The “eight further mechanics or workshop workers” are not individuated at all; they are a quantity of labor.⁴⁶ Read as the colonial administration wrote it, the manifest describes a properly ordered hierarchy with Europeans at the skilled apex. Read for what it actually records, it describes a survey crew that was, by simple count, predominantly Vietnamese, and whose Vietnamese members performed the loading, the firing, the timing, the maintenance, and the transport without which no European pilot’s flight produced a single usable negative. The manifest is, in miniature, the whole colonial situation: a document that registers Vietnamese indispensability in the very act of subordinating it.

The second step of this workflow, the determination of the restitution markers, carried the same dependence onto the ground. Before the laboratory could rectify a negative, a cadastral brigade had to walk the terrain and fix, for every negative, four readily identifiable points whose ground positions were precisely known, judiciously distributed across the roughly fifty hectares each negative covered. Those brigades were overwhelmingly indigenous in their rank and file. The Geographic Service’s own account of its field organization records that a 1:80,000 topographic brigade consisted of “one officer as brigade chief, six operator-officers, and some twenty indigenous staff,” and that a geodetic group joined one officer and “two or three

⁴⁴ TTLTQG1, M3. No. 2870, “Execution des travaux de cadastre à effectuer dans la province de Nghe An par photographie aeriennne,” 3.

⁴⁵ TTLTQG1, M3. No. 2870, “Execution des travaux de cadastre à effectuer dans la province de Nghe An par photographie aeriennne,” 3.

⁴⁶ TTLTQG1, M3. No. 2870, “Execution des travaux de cadastre à effectuer dans la province de Nghe An par photographie aeriennne,” 3.

European assistants” to “about ten indigenous auxiliaries.”⁴⁷ A handful of European operator-officers, in other words, directed a body of staff that was, by simple count, four to one Vietnamese. The markers on which the entire mathematics of restitution would later depend were therefore identified, measured, and recorded by Vietnamese surveyors walking the paddies, and the precision of step three was only ever as good as the ground knowledge of the people who performed step two. Yet the colonial archive records these workers, when it records them at all, by function. The Vinh crew manifest enters them as a “native mechanic” and as “native assistant photographers,” the adjective marking them as a separate category and the noun “assistant” demoting the photographers below a European standard; the institutional yearbooks, even when they list the field units “down to the indigenous technical agents,” reduce each worker to a class and a number. That anonymity was not a clerical accident but a way of registering Vietnamese labor as interchangeable and subordinate even as the work itself proved indispensable.

The survey aircraft was never a passive instrument, yet the colonial imagination, then and since, has pictured the camera in the sky as a neutral recording eye. A plane, unlike a tethered balloon or a helicopter, cannot hold still; it must keep moving, and everything that flies must contend with the wind. The photographer in the open cabin therefore worked against the machine that carried them: they had to fire each plate at the instant the aircraft’s ground track, speed, and altitude combined to place the next frame in correct overlap with the last, and when a gust threw the aircraft off its line they had to read the deviation and correct for it by hand, in the moment, with no second chance once the run was flown. A survey strip was a sequence of dozens of such judgments, each made in seconds, each unrepeatable. The colonial documents call the people who made those judgments “assistant” photographers, the adjective doing the quiet work of

⁴⁷“La vie indochinoise,” *Les Annales coloniales*, October 26, 1923, 2.

subordination, but the task they performed was the mission. Without it there were no negatives, and without negatives the remaining six steps of the workflow had nothing to act upon. The first step of the cadastral chain, the step the workflow note assigns flatly to “the Military Aeronautics,” was in practice executed in its decisive particulars by Vietnamese hands.

The maintenance of the aircraft tells the same story from a different angle. The tropical climate of the peninsula was punishing to engines and airframes: heat, humidity, monsoon damp, and dust attacked every moving part, and spare parts arrived slowly and sometimes not at all. The standard mission crew listed in the Vinh instructions placed a single European mechanic alongside one named native mechanic and eight further mechanics or workshop workers, and the ratio is not incidental — it records who actually kept the survey flight airworthy. The 1930 report itself, written to flatter the colonial enterprise, concedes the point in the course of trying to refute a prejudice. Pilots arriving from France, it notes, were warned to watch their mechanics as suspected communist saboteurs of the Young Annam associations, capable of cutting an aircraft’s controls; in practice, the report continues, the newcomer quickly learns that the judgment is false, that “the native mechanic is tough, courageous at his job, and very skillful,” that under the oppressive sun he overhauls the engine and readies the plane, and that “our aviators love these little companions, dedicated, impassive in adversity, and patient beyond compare.”⁴⁸ The condescension of the passage is unmistakable, and so is its admission: the colonial air program could not have left the ground without the very workers it suspected and patronized.

The skill the cadastre drew on did not appear from nowhere in 1920. As the previous chapter showed, Vietnamese photographers had built a reputation as accomplished technicians well before the First World War, and the studios of Saigon and Hanoi had trained a generation of

⁴⁸ Aéronautique militaire, *Historique de l’Aéronautique d’Indochine* (Imprimerie d’Extrême-Orient, 1930), 12.

operators in the chemistry of plates and the handling of large-format cameras. When the Aeronautical Service needed photographers who could load, fire, and unload survey cameras under field conditions, it drew on an existing pool of Vietnamese photographic labor, just as it drew on Vietnamese mechanical labor trained in the colony's workshops and garages. The colonial state did not create this expertise; it conscripted it. The "civilizing mission" narrative, which cast technical competence as a European gift carried to a grateful colony, inverts the actual flow of skill at the first step of the workflow, where French aircraft were made to yield usable negatives only because Vietnamese photographers and mechanics already knew how to make them do so.

This collaboration between the military and the civil services thus creates a unique partnership, which the rest of this case study unpacks. The military supplied the airframe, the metropole supplied the camera and the doctrine of the all-seeing view, and the colonized supplied the labor that turned both into a column of exposed plates and a field of measured markers. The workflow note records only the institutions — "Military Aeronautics," "local Cadastral Services" — and the institutional record, read against the grain, reveals the people inside them. The next section follows the negatives those people produced into the laboratory, where the same pattern holds with even greater force, because the mathematics of restitution, the most prestigious and seemingly the most European stage of the entire process, was carried out in colonial Hanoi almost entirely by Vietnamese technicians.

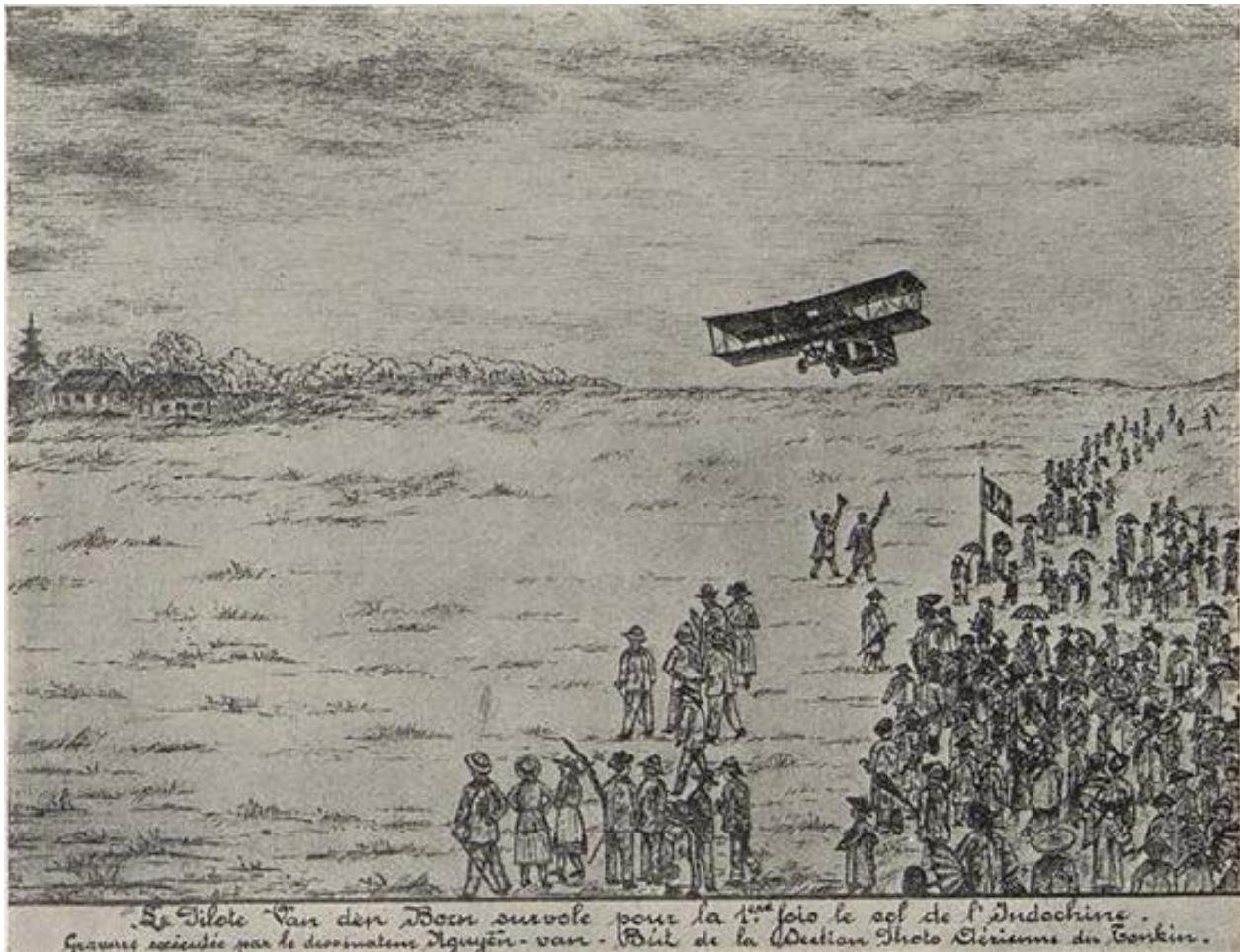


Fig. 2.2. An illustration represents the scene where Van den Born made his first flight in French Indochina.
Historique de l'Aéronautique d'Indochine.

Science as Labor: Photogrammetry and the Lab Work

The three steps listed in the workflow place photography at the center of the process. Steps three, four, and five (the rectification and restitution of the negatives, the inter-communal and parcel delimitation, and the drafting of the cadastral plans) moved the work from the aircraft into the workshop. Two French terms of this process are worth noting because they signal a unique technical process that was born out of aerial photography. The first is “redressement,” which translates to English as “straightening.” A tilted aerial negative records the ground in a skewed perspective: the aircraft banks, pitches, and drifts, so the photographed parcels appear

stretched on one edge and compressed on the other. Redressement is the optical and geometric operation that removes that skew, re-projecting the image as though the camera had hung perfectly level at a chosen altitude; “rectification” captures this better than “straightening,” and this chapter uses “rectification” for “redressement” throughout.

The second term, and the more important one, is “restitution.” In ordinary French, *restituer* means to give something back or to restore it to an earlier state. In photogrammetry, restitution does not mean returning the photograph to some prior condition. It names the procedure by which a technician extracts measurable spatial information — the true positions, distances, and areas of points on the ground — from one or more photographs that, in themselves, contain only perspective. Restitution, in other words, reconstructs the three-dimensional geometry of a place from its two-dimensional images. The “restitution markers” of step two are the ground reference points that make the reconstruction possible; the “restitution laboratory” is the workshop where it happens. To restitute a negative is to recover the survey hidden inside the picture. It shows that the laboratory technician did not merely tidy photographs. The technician performed the measurement itself, and at the Hanoi laboratory that technician was, with few exceptions, Vietnamese.

Rény’s 1931 monograph sets out, step by step, what restitution involved, and the detail repays attention because it shows how much skilled judgment each photograph absorbed before it became a taxable plan. The Military Aeronautics supplied a province with prints taken directly from negatives shot at roughly 1:6,000; a cadastral brigade then walked the ground, fixed the inter-communal boundary of each village, transferred that boundary onto the print, and measured the bases that anchored the restitution.⁴⁹ The brigades measured these bases with a Kern self-

⁴⁹ Rény, *Monographie générale du cadastre*, 82-83.

reducing tacheometer, an instrument that fixed a hundred-meter length to within a few centimeters, a precision the monograph calls more than sufficient, since the plans at 1:2,000 sought an accuracy no finer than one part in three hundred. The Hanoi laboratory then restituted each negative at 1:2,000, transforming it into a document that gave the exact position of every point in the usable part of the image. The laboratory printed each restituted negative onto sensitive paper glued to a calibrated glass plate; the plate did not deform, but it could not travel into the field, so a technician re-traced it onto gridded cartridge paper, and that cartridge sheet — the cadastral draft — became the authoritative archival document. Only the irrefutable details of the photograph appeared on it, and field brigades had to complete and verify the remaining fifth of the content by hand.

The monograph is equally precise about money, and the figures show how thoroughly the colonial state subordinated the science to the budget. Rény reports that the two operations the Phototopography Section performed — rectification and the drawing of the cadastral plans — cost about 0.16 piastre per hectare in 1930; a first rectified print cost 2.50 piastres and each further print 1.50, a plan sheet at 1:2,000 cost 0.40 piastre, and each drawn parcel about a hundredth of a piastre.⁵⁰ The whole apparatus aimed to recover its cost from the people it measured: the administration would hand every registered owner a charged extract of the *địa bạ*, and because a province of northern Annam held ten to fifteen parcels to the hectare, the extract fees would, the monograph calculates, cover the entire cost of establishing the plans. The 1930 workflow note attached a pricing schedule running from 0.13 to 0.35 piastres per hectare according to the level of service, and it framed aerial photogrammetry not as a scientific enterprise but as a cost-effective administrative instrument for extending the colonial land

⁵⁰ Rény, *Monographie générale du cadastre*, on the cost of rectification and plan-drawing, c. 1930, 110.

register across the seventeen million hectares of rice land that, by the Service's own reckoning, Indochina held under cultivation.⁵¹

The province of Thanh Hóa shows what steps three to five looked like when they functioned, and the monograph treats it as the model case. As early as January 1928 the Resident of Thanh Hóa worked from photographs taken the previous year to establish a cadastre, and although the 6,000 piastres allotted to him allowed only slow progress, the work fixed an approximate cost price and produced a precise program for 1929.⁵² The province's decisive choice was to abandon a costly ground triangulation in favor of the photographic method, because, as the monograph reasons, the aim was to locate the plan at the level of the individual parcel rather than the region, and in the densely divided Annamese delta a parcel always fell entire within a single negative. The colonial state intended the method to spread widely: the Resident Superior of Annam planned, between 1931 and 1935, to photograph the deltaic zones of seven provinces, amounting to the parcel plans of some seven to eight hundred thousand hectares, while Cambodia and Cochinchina drew up programs of their own. Where a province lacked the staff to run the workflow itself, the administration contracted the aerial and laboratory work to private companies — the Compagnie Aérienne Française and the Société Air-Orient among them — reserving the Phototopography Section for the rectification stage alone.

Yet the model case was exceptional, and the workflow strained wherever Thanh Hóa's organization was absent. Between 1920 and 1946 Borzecki travelled often across the peninsula on the survey missions provinces requested, and barriers and disagreement ran beneath the comfortable treatment the colonial government gave him. In 1921 Rény wrote to Glaize to

⁵¹ Direction des Finances de L'Indochine, "Fonctionnement de La Section de Photographie Aerienne En Indochine," 1930, TTLTQG1.

⁵² Rény, *Monographie générale du cadastre*, 81.

complain that the photographs the Air Force had produced for the Vinh mission would not serve: the Cadastral Service had adopted 1:1,000 as its standard scale, yet the Air Force had photographed Vinh at 1:2,000, a higher altitude covering a larger area that would, Rény argued, leave the prints defective once technicians enlarged them.⁵³ Glaize replied that photogrammetry offered no shortcuts, and that Roussilhe, head of the Cartographic Service of the Air Force, had pursued Laussedat's methods but had not yet built a simple device to speed the calculation. The exchange exposes a paradox: Rény wanted photographs that enlarged cleanly enough for a tax assessor to draw parcel boundaries, while Glaize ran an Air Force still learning how weather, aircraft speed, altitude, lens focal length, and the chemistry of emulsions interacted, and he insisted that the work amounted, for now, to "a step in the study of the problem."⁵⁴ The gap between the two men was not a bureaucratic misunderstanding; it reflected the provisional state of the technology itself.

The scale dispute repays a closer reading, because it shows that the workflow's difficulties were not failures of individual competence but structural mismatches built into the chain itself. Rény and Glaize were not careless administrators talking past one another. Each was reasoning correctly from the position the workflow had assigned him. Rény stood at the end of the chain, where a print had to be enlarged until a tax assessor could draw a parcel boundary on it, and from that position a photograph taken too high was simply a defective input. Glaize stood at the start of the chain, where a tropical sky, a moving aircraft, and an imperfect emulsion made every negative a compromise, and from that position Rény's demand for a particular scale was a request the physics of the mission could not always honor. The workflow note had divided the

⁵³ Service du Cadastre et de la Topographie du Tonkin, "Exécution des travaux de cadastre à effectuer dans la province de Vinh par photographie aérienne," 1921, TTLTQG1, 12-16.

⁵⁴ Service du Cadastre et de la Topographie du Tonkin, "Exécution des travaux de cadastre à effectuer dans la province de Vinh par photographie aérienne," 10.

labor cleanly on paper — the military takes the negative, the Section rectifies it, the cadastral service completes it — but it had not, and could not, divide the technical risk cleanly. A decision made at step one, about altitude and scale, determined whether step three could succeed, and the two steps belonged to different services with different priorities and different budgets. Every handoff in the workflow was a place where one institution's reasonable choice became another institution's defective input, and the colonial archive is full of exactly these disputes because the structure of the project generated them.

What Rény ultimately wanted from aerial photography was precision, and precision was the one thing the interwar technology could not reliably promise. A cadastral plan is a fiscal and legal document: the area it records becomes the basis of a tax and the proof of a boundary, and an error of a few percent is, in that context, not a rounding but a wrong assessment and a contestable title. The monograph is candid that the method delivered an areal precision of roughly one part in two hundred for a finished draft — adequate, Rény judged, for the purpose, but adequate only because the field completion of step six corrected what the photograph alone could not. The provisional quality of the technology was therefore not a temporary embarrassment to be apologized for; it was a permanent condition that the workflow was designed to manage. The seven steps existed because no single step could be trusted on its own. The aircraft's negative was provisional until the laboratory rectified it; the laboratory's draft was provisional until the field brigade completed it; and only the accumulation of corrections, each performed by a different set of hands, produced a document precise enough to tax a man's field. Precision, in the colonial cadastre, was not a property of the camera. It was a property of the whole laborious chain, and most of that chain was Vietnamese.

The transition the workflow accomplished, from a horizontal to a vertical mode of vision, was not a simple technical improvement but a change in the relationship between the colonial state and the territory it governed. As David Biggs argues of the Mekong Delta, aerial photography “shifted the colonial gaze from horizontal views, where interior spaces of villages and homes were hidden to surveyors, to vertical views ‘peering over the village hedge’” that showed “vibrant mosaics of fields, dikes, and villages.”⁵⁵ The horizontal gaze of the ground-level surveyor had to negotiate the physical presence of the village community and the opacity of domestic space; the vertical gaze bypassed all of it, and from survey altitude individual people disappeared, social life shrinking to the geometric traces it left on the land. The aerial photograph made legible not Vietnamese social life but the material infrastructure that organized it, in a form that translated directly into the cadastral categories of the colonial tax system. Rény himself framed the photograph as a gift to the governed, claiming it set before the cultivator’s eyes “the rice field that they had just replanted,” “the path that led to it,” and the “arroyo that irrigated it.”⁵⁶

The vertical view did more than record the land; it remade it. The mosaics of fields and channels that aerial photography assembled became, in the Mekong Delta, the working documents for a wholesale reengineering of the waterscape. The aerial survey helped France replace a centrally managed water grid with a modern system of casiers — compartments of land enclosed by protective dikes and canals, built by the Department of Public Works — and the photographs were the medium through which the engineers could see the existing pattern of water and decide how to overwrite it. Here the political stakes of the vertical gaze are plain. The

⁵⁵ David Biggs, *Quagmire: Nation-Building and Nature in the Mekong Delta* (University of Washington Press, 2010), 104-107.

⁵⁶ Rény, *Monographie générale du cadastre*, 92.

pre-colonial management of water in the delta was a dense social arrangement, the accumulated work of villages adjusting dikes and sharing channels over generations, and it was largely invisible from the air as a social fact, though its physical traces were not. The aerial photograph rendered the traces and discarded the arrangement; it handed the engineer a map of channels without a map of the customs that governed them. The casier system that resulted was more legible to the colonial state and, in important respects, less responsive to the cultivators who lived inside it. The vertical gaze, in other words, was not a neutral improvement in resolution. It was a transfer of authority over the land from the people who knew it horizontally to the institutions that could read it from above. That transfer has a comparative history. Chandra Mukerji's account of the Canal du Midi shows a monumental French waterwork built not by the engineer whose name it carries but by distributed local expertise the record does not credit, and Sara Pritchard's history of the Rhône traces how a river becomes an envirotechnical system, remade so thoroughly by state engineering that the natural and the built can no longer be separated. Michitake Aso's ecological history of rubber shows the same logic at work in Vietnam itself, where colonial science reorganized landscapes and the labor that worked them together.⁵⁷ The *casiers* belong to that history: a hydraulic order maintained by villages was overwritten by one maintained by a department, and the photograph was the instrument that made the substitution thinkable.

The register the colonial cadastre set out to replace had a long history of its own, and Rény's monograph traces it. The land roll of the Empire of Annam originated under the Emperor Gia-Long, who ordered a general measurement of the taxable lands in 1806; that survey

⁵⁷ Chandra Mukerji, *Impossible Engineering: Technology and Territoriality on the Canal du Midi* (Princeton University Press, 2009); Sara B. Pritchard, *Confluence: The Nature of Technology and the Remaking of the Rhône* (Harvard University Press, 2011); Michitake Aso, *Rubber and the Making of Vietnam: An Ecological History, 1897–1975* (University of North Carolina Press, 2018).

produced the *địa-bộ*, which for the whole of Annam, and parts of Tonkin, remained into the 1930s the sole document on which the land tax rested.⁵⁸ Each commune drew up its register in triplicate, one copy for the finance ministry at Huế, one for the provincial mandarin's archive, and one for the village. The monograph reproduces a 1912 study of Annamese land tenure by Pasquier — the same Pasquier who, as Governor-General, would later forward the seven-step workflow note — and Pasquier's text set out both the theory and the failure of the village register. In theory the institution of the *bộ* was perfect, at once a true land book and a basis for equitable taxation; in practice it failed, because the village distributed its assessed tax "at the pleasure of the notables," shifting the burden according to the friendships and enmities of the dominant faction, with no avenue of appeal for the cultivator taxed unfairly.⁵⁹ The aerial photograph promised to remove that local manipulation by making the parcel visible from a position no village notable controlled — a promise that was real and also self-serving, since the same vertical view that bypassed the notable also bypassed the cultivator and delivered the land to the assessment categories of the colonial treasury. The substitution of a register kept by villages for one kept from above is the recognizable form of what Peter Vandergeest and Nancy Peluso call territorialization: the conversion of customary, overlapping claims into bounded and exclusive ones that a state can map and enforce. Raymond Craib's history of the Mexican cadastre shows how regularly such surveys meet landscapes that refuse to hold still, and Timothy Mitchell's account of Egyptian land administration shows the same apparatus producing the categories of property it claims merely to record. Tania Murray Li names the rhetorical structure

⁵⁸ Rény, *Monographie générale du cadastre*, on the *địa bạ*, 77, and the land roll of Gia-Long; the study quoted is M. Pasquier's 1912 report on Annamese land tenure.

⁵⁹ Rény, *Monographie générale du cadastre*, 78.

of the promise itself, in which an administration diagnoses a defect and offers its own instrument as the remedy.⁶⁰

The question of land ownership cannot be separated from this displacement. Before the French arrived, a system blending Confucian bureaucratic principles with local custom governed Vietnamese land: in the Red River Delta of Tonkin, communal village lands, *công điền*, made up a large share of the cultivable territory, and councils of elders periodically redistributed them; in the Mekong Delta of Cochinchina, a class of landlords, *địa chủ*, dominated larger private holdings. Under the Nguyễn dynasty, village registers, *địa bạ*, recorded and taxed land, and the communities that maintained them understood them as documents of social memory as much as legal title, carrying genealogical information and the traces of community decisions reaching back generations.⁶¹ When the colonial state began to replace these registers with cadastral maps drawn from aerial photographs, it did not simply swap one set of records for another; it replaced a living social document, kept by the community for itself, with an abstract geometric representation that foreign technicians produced from the air and that only readers of European cartographic conventions could use. Aerial photography, in this sense, was not only a technological innovation but a mechanism of epistemic displacement.

This displacement was deliberate, for the colonial cartographic project set out to produce a new spatial imagination of the territory. As John Whitmore describes, pre-modern Vietnamese mapping was essentially Chinese, embedded in cosmology and concerned with the kingdom's

⁶⁰ Peter Vandergeest and Nancy Lee Peluso, "Territorialization and State Power in Thailand," *Theory and Society* 24, no. 3 (1995): 385–426; Raymond B. Craib, *Cartographic Mexico: A History of State Fixations and Fugitive Landscapes* (Duke University Press, 2004); Timothy Mitchell, *Rule of Experts: Egypt, Techno-Politics, Modernity* (University of California Press, 2002); Tania Murray Li, *The Will to Improve: Governmentality, Development, and the Practice of Politics* (Duke University Press, 2007).

⁶¹ Lê Quốc Thọ and Shinya Ueda, "Local Governance and Household Composition around Huế during the Nineteenth Century: An Analysis of Local Documents of Võng Trì Village in Thừa Thiên Huế Province," *Journal of Vietnamese Studies* 19, no. 2 (2024): 40–77.

boundaries rather than the individual parcel, though some southern maps took on a Western style: in 1816 Trần Văn Học completed a planimetric map of Gia Định province (present-day Hồ Chí Minh City and its environs), and by the 1830s most Vietnamese maps used this style, a sign, as Alexander Woodside notes, that Western influence reached Vietnamese culture well before the French invasion.⁶² Those maps, however, represented the boundaries of jurisdictions, not the ownership of individual parcels, and aerial photography arrived alongside the new land tax to render exactly that — the parcel, the owner, the assessable area. This form of belonging differs from the one Benedict Anderson assigns to maps in his account of colonial nationalism, where the map functions as a “logo” that reshapes popular imagination into an emblem for anticolonial movements;⁶³ as James Akerman observes, the use of maps to advance the ends of empire is itself modern and depends on the emergence of the modern state.⁶⁴ Aerial photography in colonial Vietnam adds a further dimension, showing how maps could anchor belonging at a material level, parcel by taxable parcel.

It is worth making explicit what kind of belonging the cadastral photograph produced, because it differs sharply from the belonging that cartography is usually said to confer. In Benedict Anderson's influential argument, the colonial map projects an image of a unified national space, and in doing so it unintentionally plants the idea of the nation as a community — the “imagined community” that anticolonial nationalists would later seize on and turn against the empire.⁶⁵ The cadastral plan worked at a smaller and more intimate scale. It did not picture a

⁶² John K. Whitmore, “Cartography in Vietnam,” in *The History of Cartography: Cartography in the Traditional East and Southeast Asian Societies* (University of Chicago Press, 1994), 478–508; Woodside, *Vietnam and the Chinese Model*.

⁶³ Benedict Anderson, “Census, Map, Museum,” in *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (Verso, 2016), 175–176.

⁶⁴ James R. Akerman, “Introduction,” in *The Imperial Map: Cartography and the Mastery of Empire* (University of Chicago Press, 2009), 1–9.

⁶⁵ Anderson, “Census, Map, Museum,” in *Imagined Communities*, 163–185.

nation but a parcel, and it bound the individual cultivator to the colonial state through the precise mechanism of a registered, taxable holding. The belonging it conferred was the belonging of a taxpayer to a treasury. To appear on a cadastral plan was to be known to the colonial state as the holder of a measured area and the owner of a tax liability, and that recognition was not optional: the workflow existed precisely to make every parcel, and so every holder, legible. Where the national map, in the familiar argument, offered the colonized a frame they could eventually turn against the empire, the cadastral plan offered them an individuated fiscal identity that tied them, one by one, into the colonial order. The scholarship on colonial cartography has largely worked at Anderson's scale. Matthew Edney's history of the trigonometrical survey of India, D. Graham Burnett's of the boundary surveys of British Guiana, and Sumathi Ramaswamy's of the globe as a pedagogical object all trace how imperial mapping constituted territories and taught colonial subjects to see them; J. B. Harley's argument that the map is a rhetorical rather than a transparent document, and John Pickles's history of cartographic reason, supply the ground those readings stand on.⁶⁶ The cadastral plan puts a different question to that literature. It asks not how a territory was imagined but how a household was assessed. The aerial photograph was the instrument that made this fine-grained, parcel-level binding possible, and it is why the cadastral survey, more than any national map, manifests a more material relationship to the map because it is where colonial cartography met the everyday life of the colonized.

⁶⁶ Matthew H. Edney, *Mapping an Empire: The Geographical Construction of British India, 1765–1843* (University of Chicago Press, 1997); D. Graham Burnett, *Masters of All They Surveyed: Exploration, Geography, and a British El Dorado* (University of Chicago Press, 2000); Sumathi Ramaswamy, *Terrestrial Lessons: The Conquest of the World as Globe* (University of Chicago Press, 2017); J. B. Harley, "Deconstructing the Map," *Cartographica* 26, no. 2 (1989): 1–20; John Pickles, *A History of Spaces: Cartographic Reason, Mapping and the Geo-Coded World* (Routledge, 2004).

blocked fiscal modernization further by keeping agricultural land under village control. The result was a regressive, inelastic fiscal system that preserved the pre-colonial power structures that neither the French nor their indigenous intermediaries had much reason to dismantle — and the aerial cadastre, for all its geometric precision, could not by itself overcome a problem that was social and political rather than optical.

The scale on which the colonial state intended to deploy the workflow makes the gap between ambition and execution especially clear. The 1930 documents and Rény's monograph together describe a federation-wide program: the Resident Superior of Annam planned, across the years 1931 to 1935, to photograph the deltaic zones of seven provinces, on the order of seven to eight hundred thousand hectares of parcel plans, and Cambodia and Cochinchina drew up comparable programs of their own. To extend a parcel-by-parcel land register across that much territory in five years was a vast undertaking, and the colonial state turned to private aviation companies — among them the Compagnie Aérienne Française and the Société Air-Orient — to fly and sometimes to process the photographs where a province lacked the staff to do so itself, reserving the Geographic Service's Phototopography Section for the rectification stage or for oversight of the contractors' work. The pricing schedule that accompanied the workflow note, running from 0.13 to 0.35 piastres a hectare, was the instrument that made this contracting possible: it turned restitution into a service that could be bought by the hectare. Yet the very fact that the work could be priced and contracted underscores the *topos* of this case study. What the colonial state was purchasing, whether from its own Phototopography Section or from a private company, was skilled labor — the labor of photographers, rectifiers, and draftsmen — and in Indochina that labor was, at every firm and every office, substantially Vietnamese. The market in aerial survey was a market in colonized skill.

The abstraction “rectification” hides a craft. The technician received a glass-plate negative exposed from a moving aircraft, tilted by some unknown amount in some unknown direction, and a record of the four-ground control points the field brigade had fixed within its frame. The task was to transform the skewed perspective the plate recorded into the perspective an ideal photograph, taken from a level camera at a chosen altitude, would have produced. Rény’s monograph describes the procedure: the technician glued a sheet of drawing paper to a glass screen ruled with a decametric grid identical to the one the printed plan would carry, and then, working from the control points marked on the negative, transferred each corresponding point to the gridded paper, so that the geometry of the real, tilted view gave way to the geometry of the ideal one. Henri Roussilhe had derived the mathematics of this transformation from the principles of stereography, and the service’s manual traced the apparatus back through Deville’s stereo-planigraph to Laussedat. But the mathematics on the page did not rectify a negative; a person did, by hand, case by case, judging each plate’s particular distortion and applying the formulas to it. The laboratory’s own instruction manual for restitution work, drawn up at Hanoi in 1940, makes the point with unintended force. It singles out the “pricking” of control points onto the negative gelatine — the act of fixing, with a needle, the exact topographic position of each reference point — as “the most delicate phase of the rectification work,” one that “only long practice” could render reliable, the difficulty compounded by the double inversion of edge and tone between the reversed negative and the right-reading print.⁶⁸ The manual quantifies what was at stake: a pricking error of two-tenths of a millimetre on the negative produced an error of four to six tenths in the finished rectification, depending on the enlargement coefficient, and it

⁶⁸ Service du Cadastre et de la Topographie du Tonkin, “Instruction pour les travaux de photorestitution exécutés avec la méthode ‘Roussilhe’ 1940,” Hanoi, Vietnam, 1940, TTLTQG1.

therefore insisted that the work be done “to within 1/10th of a millimetre.”⁶⁹ That margin was not held by the formula or the instrument. It was held by the trained hand and eye of the technician at the retouching desk. This is the labor that image systems characteristically conceal. Zeynep Devrim Gürsel's ethnography of the photo desk shows how much unrecorded human judgment stands between a photograph and its circulation as evidence, and Kelly Gates's history of facial recognition shows an ostensibly automatic imaging technology depending, at every stage, on human standardization and correction to work at all.⁷⁰ The colonial laboratory is an early case of the same arrangement: a procedure described as mathematical, performed by hands the description does not name. The restituted negative was then printed onto sensitive paper glued to a calibrated glass plate that would not deform, and because that plate could not be carried into the field, a draughtsman re-traced it onto gridded cartridge paper, producing the cadastral draft that step six would complete. Every stage of this sequence (the rectification, the printing, the re-tracing) was manual, skilled, and, at the Hanoi laboratory, performed by Vietnamese staff. It was also material at every stage. Glass, silver, gelatine, paper and needle were the substance of the survey, and Jussi Parikka's insistence that media be understood through their minerals and chemistry rather than only through their contents applies with unusual literalness to a laboratory where humidity spoiled emulsions and a calibrated plate was valued because it would not deform; Shannon Mattern's account of urban media infrastructures as layered accumulations rather than successive replacements describes what the laboratory sat within, a documentary

⁶⁹ Service du Cadastre et de la Topographie du Tonkin, "Instruction pour les travaux de photorestitution exécutés avec la méthode 'Roussilhe' 1940," 12.

⁷⁰ Zeynep Devrim Gürsel, *Image Brokers: Visualizing World News in the Age of Digital Circulation* (University of California Press, 2016); Kelly A. Gates, *Our Biometric Future: Facial Recognition Technology and the Culture of Surveillance* (NYU Press, 2011).

order in which a nineteenth-century land register and a glass negative did the same administrative work in different substrates.⁷¹

The instruction manual for photo-restitution work, prepared at the Tonkin laboratory in 1940, sets out the laboratory's organization in detail: the restitution proper was directed and executed by a "Restituteur," designated the Laboratory Team Leader, who worked with an assistant and the photographers under the verification of the Head of the Laboratory, while a second team leader directed the preparatory work of building templates and pricking points. And the manual carries, in the hand of one of its users, the trace the rest of the colonial record withholds. Inscribed on its title page is a name and a post: Doan Xuan Nung, *Chef d'Équipe — Restitution* — the restitution team leader.⁷² That a Vietnamese technician led the restitution team ran against the grain of the colonial technical cadres, which reserved the directing posts for the European establishment and confined Vietnamese personnel to auxiliary and subaltern ranks.⁷³ These technicians were not copyists or assistants. They applied Roussilhe's rectification formulas, by hand, to photographs taken under variable field conditions, and they produced the outputs that French administrators then used to assess land tax. Every calculation that the seven-step workflow assigned to step three passed through Vietnamese hands; every cadastral draft that

⁷¹ Jussi Parikka, *A Geology of Media*, Electronic Mediations 46 (University of Minnesota Press, 2015); Shannon Mattern, *Code and Clay, Data and Dirt: Five Thousand Years of Urban Media* (University of Minnesota Press, 2017).

⁷² Service du Cadastre et de la Topographie du Tonkin, "Instruction pour les travaux de photorestitution exécutés avec la méthode 'Roussilhe' 1940," 1.

⁷³ The colonial technical services divided their personnel into a superior European cadre and subordinate indigenous cadres, and the Geographic Service maintained a distinct cadre of Annamite "technical agents" beneath its European officers and assistants; on its abolition in 1932 and the resumption of recruitment in 1938, see Édouard de Martonne, "La topographie indochinoise en 1938," *L'Asie française*, November 1938, 317. Access to the superior cadres effectively required French citizenship, which the great majority of Vietnamese, as *sujets* rather than *citoyens*, did not hold; for more on this distinction, read Pierre Brocheux and Daniel Hémery, *Indochina: An Ambiguous Colonization, 1858–1954*, trans. Ly Lan Dill-Klein (University of California Press, 2009); Emmanuelle Saada, *Empire's Children: Race, Filiation, and Citizenship in the French Colonies*, trans. Arthur Goldhammer (University of Chicago Press, 2012); and Paul Sager, "A Nation of Functionaries, a Colony of Functionaries: The Antibureaucratic Consensus in France and Indochina, 1848–1912," *French Historical Studies* 39, no. 1 (2016): 145–82.

step five produced was traced and gridded by Vietnamese draftsmen. The ideology of the “civilizing mission” credited European agents with technical competence and cast the Vietnamese as passive beneficiaries of French expertise, but the actual knowledge of the colonial land — its measured geometry, its rectified planimetry, its taxable areas — rested on its autochthonous technicians.

The institutional record of the Geographic Service confirms how deep this dependence ran and how the colonial state acknowledged it without ever quite naming it. The Service’s central establishment at Hanoi employed, by the late 1930s, more than a hundred sedentary indigenous staff — by one account fifty-two draftsmen and thirty-two workmen, printers and photographers among them — and it ran a drawing school to train the apprentice draftsmen it recruited by competitive examination.⁷⁴ When the budget crises of the early 1930s fell, the Service shed European officers but kept this indigenous workshop staff, and it did so for a frankly stated reason: the indigenous staff was cheaper, and the constant work of drawing, printing, and updating maps had to continue regardless of how little new survey the reduced field brigades could produce. The cartographic output of the colony — the physical maps, the printed plans, the cadastral drafts — thus rested, through the leanest years, on Vietnamese hands. The colonial state recognized the indispensability of that labor in the only register it kept consistently, the budget: it retained the workers it could not do without, and it recorded them, as ever, by function and number rather than by name. The smooth diagram of the workflow concealed a workshop that ran on colonized skill.

⁷⁴ Martonne, “La topographie indochinoise,” 317. Martonne gives 105 sedentary indigenous officials employed at Hanoi, of whom fifty-two draughtsmen and thirty-two workmen, and states that the indigenous personnel were kept at strength “because of the relative cheapness of its employment.”

The depth of that crisis deserves to be stated in figures, because the figures show how thin the European cadre had become and, by implication, how much weight the indigenous staff carried. Where the 1932 budget had funded twenty-eight officers and twenty-five non-commissioned officers for fieldwork, the Geographic Service's strength on 1 January 1935 had fallen to eight officers and eight non-commissioned officers, a collapse that the temporary secondment of a few troops only partly offset. The Service's own annual report warned that, at the means then available, completing the regular map of the colony would take more than half a century.⁷⁵ In 1932 the administration abolished outright the cadre of Annamite "technical agents" and began to recruit it again only in 1938. Read against the workflow, these numbers carry a clear meaning. The institution that owned step three was being hollowed out at the European level even as the provinces pressed it for more rectified plans, and what kept step three functioning through the lean years was the indigenous laboratory staff whom the budget, by its own logic of economy, declined to cut. The colonial state did not preserve Vietnamese technical labor out of regard for it. It preserved that labor because the cadastre would have stopped without it.

The mathematics those technicians applied had a long and self-consciously European history, and recovering that history shows both what the colony imported and what it transformed. As Adam Perkins notes, the founding of the Royal Observatory at Greenwich in

⁷⁵ Geographic Service of Indochina, annual report summarized in *L'Avenir du Tonkin*, 24 May 1935: "The reduction of the personnel of officers and NCOs has had as its consequence an appreciable slowing of the Service's activity and a low yield of new work." The same summary gives the establishment figures — twenty-eight officers and twenty-five non-commissioned officers budgeted in 1932 against eight officers and eight non-commissioned officers outside the establishment on 1 January 1935, offset by the secondment of three officers and two non-commissioned officers from the troop corps — and the estimate that, at the means then available, more than half a century would be needed to complete the regular 1:100,000 map. For the abolition of the cadre of Annamite technical agents in 1932 and the resumption of recruitment in 1938, Martonne, "La topographie indochinoise," 317.

1675 pushed Europe toward systematic survey,⁷⁶ and by the late eighteenth century European states were surveying on an unprecedented scale: the Cassini family mapped France from the 1740s, the first complete sheet appearing only in 1815, and Britain triangulated all of India in the Great Trigonometrical Survey between 1802 and 1871. Triangulation — fixing a point by measuring only the angles to it from the two ends of a known baseline, and computing the rest by trigonometry — was the method these surveys rested on, and it was slow, demanding, and ill-suited to terrain that was flooded, forested, or politically hostile. In the 1840s Aimé Laussedat began testing a triangulation drawn from perspective views, and by 1861, at Buc near Versailles, he was deriving the spatial relations between objects from photographs taken at different angles — a technique he called *métrophotographie*, and which later earned him the title "father of photogrammetry."⁷⁷ Laussedat's method, however, demanded such consistency in the placing of the camera and such elaborate instruments of measurement that large-scale triangulation by photograph stayed out of reach.

The Canadian surveyor Édouard Deville carried the method forward, and his career illustrates the institutional path by which photogrammetry travelled from theory to colonial practice. Deville trained at the French Naval School at Brest, surveyed the Pacific, and emigrated to Canada in 1874, rising to Surveyor General; in 1889 he published a manual that advanced Laussedat's method and concentrated on teaching surveyors to read a terrain's real dimensions from photographic views alone. Photographic surveying went on to map some 47,824 square

⁷⁶ Adam Perkins, "King Charles and the Founding of the Royal Observatory," in *The History of Celestial Navigation: Rise of the Royal Observatory and Nautical Almanacs*, ed. Kenneth Seidelmann and Catherine Hohenkerk (Springer Nature Switzerland AG, 2020), 21-67.

⁷⁷ The attribution is conventional rather than settled. Laurent Polidori, "On Laussedat's Contribution to the Emergence of Photogrammetry," *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences* XLIII-B2-2020 (2020): 893–99, argues that Laussedat's contribution "remained mainly instrumental" (893) and that he passed over error computation, stereoscopy, and aerial photography, all available to him (897–98). The phrase is retained as a received designation, not as a claim about descent. See further Laurent Polidori, ed., *Aimé Laussedat (1819–1907): Le précurseur de la photogrammétrie* (Publi-Topex, 2020).

miles of the Canadian west between 1886 and 1923.⁷⁸ The Canadian context resembled the Indochinese one closely: both demanded the rapid mapping of large, difficult territories for administration, both confronted environments that ground triangulation could not easily manage, and both worked far from the metropolitan centers where photogrammetric research advanced. The solutions Deville developed in the rugged Canadian Rockies fed, by way of the manuals and the shared professional literature, into the approaches the Aeronautical Service adopted in the harder parts of the peninsula. As Brooke Belisle observes, Deville's stereo-planigraph marked the decisive turn: by placing two images of the terrain, taken from related angles, on panels, it let the mapmaker see not merely a picture but "a measurable form whose spatial dimensions modeled those of the terrain."⁷⁹

Henri Roussilhe had worked out a usable rectification method by 1915, and the colonies took it up; yet his work appears to have stayed largely unknown beyond a small circle of academics at the National School of Arts and Crafts in Paris, where Laussedat had taught until 1900. Photogrammetry remained, until the 1940s, more an object of study than a sustained pursuit of the government in Paris. This relative neglect is part of what gives the colonial laboratory its significance. The Air Force applied Roussilhe's ideas in Indochina during the interwar years, before the metropole had recognized their value, and the colonial laboratory therefore did not merely receive a finished European science test, refined, and proved one.⁸⁰ The thousands of photographs the Hanoi laboratory produced supplied the new field of photogrammetry in France with some of its most substantial datasets, and the method itself,

⁷⁸ Don W. Thomson, *Men and Meridians: The History of Surveying and Mapping in Canada*, vol. 2, 1867 to 1917 (Queen's Printer, 1967).

⁷⁹ Brooke Belisle, *Depth Effects: Dimensionality from Camera to Computation* (University of California Press, 2024).

⁸⁰ Gregory Charles Seltzer, "The Hopes and the Realities of Aviation in French Indochina, 1919-1940" (Dissertation, University of Kentucky, 2017); Jean-Baptiste Manchon, *L'aéronautique Militaire Française Outre-Mer, 1911-1939*.

imperfect and equipped with adequate instruments only in the late 1930s, was matured in colonial practice. The familiar phrase “laboratories of modernity” is thus not a metaphor.⁸¹ It also cuts against a durable story about colonial technology. Michael Adas has shown how thoroughly Europeans came to measure civilizations by their machines, and Daniel Headrick how those machines made conquest practicable in the first place; Gabrielle Hecht's account of French nuclear power adds the further point that a technical program can be an argument about national identity as much as an instrument of policy.⁸² The Indochinese cadastre was all three at once — a claim about French mastery, a means of extraction, and a demonstration mounted for metropolitan audiences at the 1931 Exhibition. What none of those framings anticipates is the direction of travel here: the technique was not exported from a confident metropole but matured in the colony and returned. The restitution laboratory at Hanoi was an actual laboratory, staffed by actual technicians, solving actual problems in projective geometry years before the metropole built its equivalent, and those technicians were Vietnamese.

⁸¹ Gwendolyn Wright, *The Politics of Design in French Colonial Urbanism* (University of Chicago Press, 1991); Helen Tilley, *Africa as a Living Laboratory: Empire, Development, and the Problem of Scientific Knowledge, 1870-1950* (University of Chicago Press, 2011).

⁸² Michael Adas, *Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance* (Cornell University Press, 1989); Daniel R. Headrick, *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century* (Oxford University Press, 1981); Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity after World War II* (MIT Press, 1998).

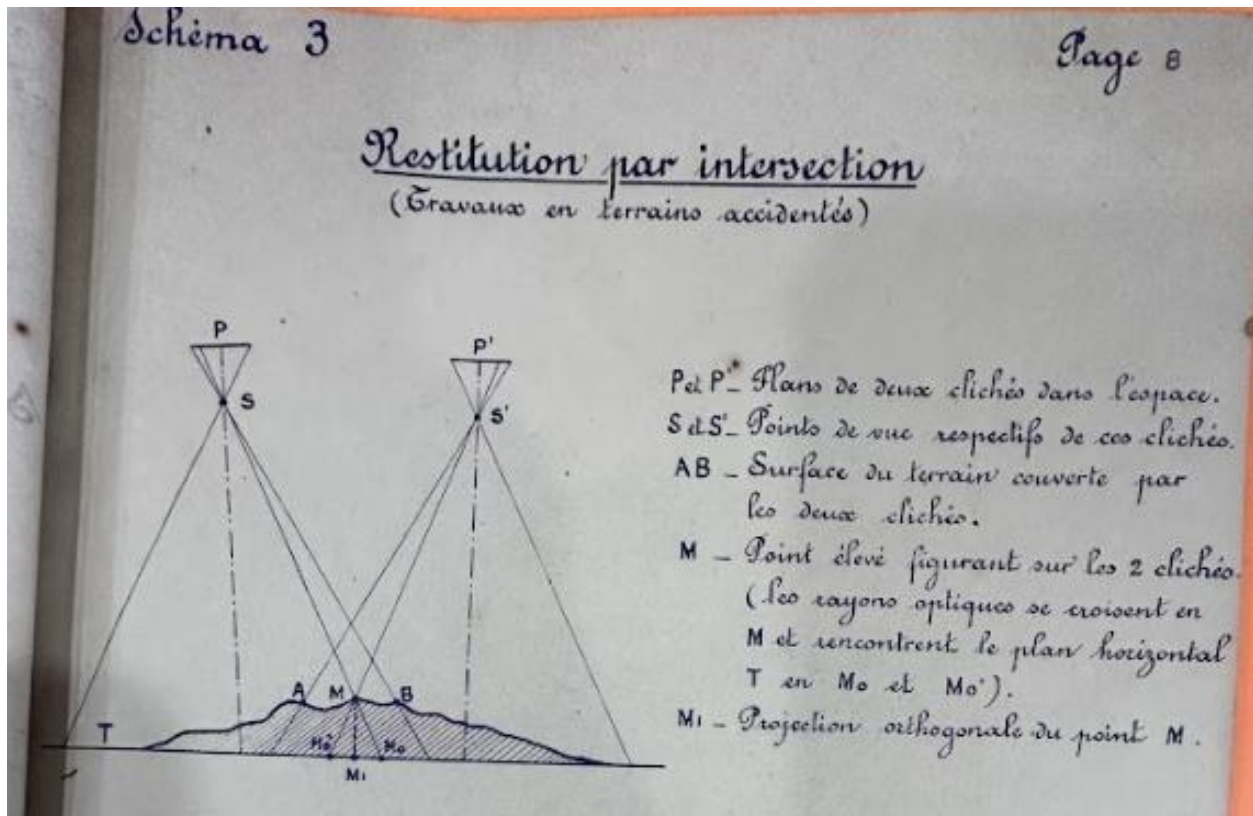


Fig. 2.4. A hand-drawn graph showing the method of rectification using the fundamentals of stereophotogrammetry in the manual for photo rectification by the Service (Photo taken by author).

This distinction cuts against a pervasive assumption in the colonial record: that the science belonged to France and the labor to the colony. In the case of restitution, that division is hard to sustain, since much of the work the colonial documents would classify as labor was itself a form of skilled, mathematical practice. A rectification was not simply a clerical transcription, designed by a trained European and merely executed by a native hand. Each negative posed its own problem: its own degree and direction of tilt, its own scatter of usable control points, its own defects of exposure and emulsion. Solving that problem meant applying projective geometry to a unique case, by hand, and arriving at a result precise enough to tax an individual's field on. The technician who did this was doing mathematics, not copying. When the colonial Manual for Photogrammetry records that the leader of the laboratory's staff was Vietnamese, it is evidence for how the most mathematically demanding stage of the colonial cadastre was, in its daily

substance, Vietnamese intellectual labor. The “civilizing mission” held that France brought science to a colony that lacked it. The restitution laboratory shows a colony in which the science was done, overwhelmingly, by the colonized.

The afterlife of photogrammetry confirms how consequential that colonial laboratory work was. The obstacles the interwar program could not overcome — the sheer labor of hand calculation, the dependence on weather and on usable negatives — were resolved only in the second half of the twentieth century, by computers and by satellite imagery, and the science behind Google Earth and the French Géoportail borrowed heavily from interwar photogrammetry. As Lisa Parks writes, without the satellite “it would be impossible to photograph the world as a ‘whole Earth.’”⁸³ Computational photogrammetry automated the thousands of geometrical calculations that the Hanoi technicians had once performed by hand: the work of an entire colonial laboratory can now be done by a processor. But the continuity is more than technical. Stereophotogrammetry, as Belisle notes, underlies even modern facial recognition, in which a depth map built from projected points is reduced to a mathematical representation — the same operation, in principle, that the Hanoi laboratory performed on a tilted negative of a Tonkin village.⁸⁴ The techniques the colonial cadastre matured did not die with the colony; they were repatriated, generalized, and built into the infrastructure of contemporary vision. The interwar laboratories of Hanoi and Saigon belong, in this sense, to the prehistory of the satellite image, and the Vietnamese technicians who staffed them belong to a history of spatial knowledge from which they have so far been erased.

⁸³ Lisa Parks, *Cultures in Orbit: Satellites and the Televisual* (Duke University Press, 2005), 2.

⁸⁴ Belisle discusses stereophotogrammetry at length in “Visible World: Photography Maps and Computational Photogrammetry” in *Depth Effects*, 145-155.

The postwar institutional history bears this out. France recognized photogrammetry as a subject worth state investment only in 1940, with the founding of the National Institute of Geography, and that recognition came amid the chaos of the German invasion and the collapse of the Third Republic. The Vichy government regarded the new institute with ambivalence, and only after the Liberation did the National Institute of Geography build the systematic aerial survey programs that produced the photographic coverage of metropolitan France now accessible through Géoportail. The methods and the institutional model for that achievement, however, were not invented in Paris in the 1940s. They had been worked out over the preceding two decades in the colonial laboratories of Hanoi and Saigon, by a Geographic Service that had three decades of continuous experience in geodesy, rectification, and the organization of photographic workshops, and whose officers moved through a single imperial career structure that carried colonial technique back toward the métropole. The aerial survey of France was not a purely metropolitan accomplishment later extended outward to the empire. In significant part it was the reverse: a body of practice matured in the colony and repatriated to the center. And because the colonial laboratory ran on Vietnamese technical labor, the genealogy of modern French aerial survey runs, unacknowledged, through the hands of Vietnamese technicians whose names the record did not keep.



Fig. 2.5. The view of the Citadel in Hanoi from an airplane. Source: EFEO, EFEO_VIE03761_a.

Return to the Field

The completion, in the field, of the draft plans is the process that most clearly exposes the limits of aerial photography. A cadastral draft that came off the laboratory's glass plate was geometrically correct as far as the photograph went, but it was not complete. The monograph is explicit: only the irrefutable details of the view appeared on the re-traced cartridge sheet, and the rest — about a fifth of the content — had to be completed and verified on the ground by the brigades of operators.⁸⁵ The vertical view that bypassed the village hedge also bypassed

⁸⁵ Rény, *Monographie générale du cadastre en Indochine*, 83.

everything the hedge concealed, everything cloud or shadow or vegetation obscured, and everything that left no physical trace a camera could record. Step six existed because the photograph, however precisely rectified, could not finish the cadastre by itself. It required people to walk back into the landscape and supply what the image lacked.

The work of step six belonged to the local cadastral corps, and the documents describe it concretely. For the rectification of step three to hold, technicians had to locate the ground control points within the image; in practice those points were often obscured or destroyed, and the cadastral corps then travelled to the site to determine where each point actually fell.⁸⁶ Inter-communal and parcel delimitation — fixing the exact legal and physical limits of property — likewise demanded that surveyors stand on the boundary itself, because a boundary is a legal and social fact before it is a visible one, and no altitude reveals whose field ends where. The brigade carried the draft plan into the village, checked it against the ground, corrected it, and filled its blanks. Only then did the draft become the document that step seven could turn into a tax roll. The workflow, in other words, began in the field with steps one and two, rose into the workshop for steps three through five, and returned to the field for step six — and the return was not a formality but the stage at which the abstract image was reconciled, at last, with the lived terrain.

That reconciliation depended on a class of Vietnamese intermediaries the colonial state could never recruit in sufficient numbers. The cadastre needed local officials who knew the land and its holders — the *chưởng bạ*, the “bookkeepers,” an office inherited from the precolonial period, who managed land registers and determined correct boundaries. With the imposition of the new mathematical gaze and the want of training, the administration could never find enough of them, least of all in districts far from the towns, and the shortage recurs through the archival

⁸⁶ Aéronautique militaire, *Historique de l'Aéronautique d'Indochine*, 39.

requests as a standing complaint.⁸⁷ The point is worth stating plainly: the most advanced instrument of colonial vision, the rectified aerial photograph, could not complete a single province's cadastre without the knowledge held by Vietnamese village officials whose office predated the French entirely. Step six was the bottleneck of the whole workflow, and the bottleneck was a shortage of Vietnamese expertise, not a shortage of aircraft or of mathematics.

The knowledge the *chuông bạ* carried was indispensable and, by the logic of the survey, provisional: it had to be confirmed from above before it could enter the record. That logic was not peculiar to the cadastre. Marcel Griaule, whose ethnographic missions used aerial photography in the same decade, valued the technique precisely because he distrusted the testimony of local informants, and because the photograph gave the ethnographer, in his words, the "advantage of administering proof by confrontation with various sources."⁸⁸ The aerial image was a device for checking indigenous testimony, and the cadastral survey used it the same way — except that here the testimony being checked was also the only thing that made the plan complete. A boundary in the Vietnamese countryside was not a line painted on the ground. It was a fact held in collective memory and in the village register, the product of inheritance, of sale, of the periodic redistribution of communal land, of generations of settlement of disputes. To know where one parcel ended and the next began was to know the social history of a village. The bookkeeper held that history, and the cadastral brigade that walked into a commune to complete a draft plan depended on him absolutely — to identify the holder of each plot, to reconcile the photograph's geometry with the village's own understanding of its limits, to distinguish a true

⁸⁷ Aéronautique militaire, *Historique de l'Aéronautique d'Indochine*, 59.

⁸⁸ Marcel Griaule, *Méthode de l'ethnographie* (Presses Universitaires de France, 1957), 91–92, quoted in Haffner, *The View from Above*, 33. On Griaule's distrust of informants and his use of military techniques — teamwork, aerial photography — to verify what local collaborators told him, see James Clifford, *The Predicament of Culture: Twentieth-Century Ethnography, Literature, and Art* (Harvard University Press, 1988).

boundary from a path or a ditch that merely looked like one from the air. The aerial photograph could show the brigade in the shape of a field. Only the bookkeeper could tell them whose field it was, and on what terms it was held. Step six was the point in the workflow at which the colonial cadastre had to ask the colonized to translate their own social world into the categories of the colonial tax roll, and it could not proceed until they did.

The physical work of step six was arduous and describing it restores the bodies that the workflow note's clean verbs — “delimitation,” “completion” — conceal. A field brigade carried the laboratory's draft into a commune and walked the terrain it represented, parcel by parcel, through flooded paddy, along dikes, and across the boundaries of villages. Where the photograph had recorded a ground control point that monsoon or cultivation had since obscured or destroyed, the brigade had to re-establish it on the spot, because the rectification of step three was anchored to those points and a lost point meant a plan that could not be trusted. Where the photograph showed a fifth of its content as blank or doubtful, the brigade filled the blank by direct observation and local inquiry. This was not the glamour of flight; it was weeks of measurement in the heat, and the brigades that performed it were, in their rank and file, overwhelmingly Vietnamese, a handful of European operator-officers directing some twenty indigenous staff. The completion of the cadastral plan, the step on which the legal force of the whole document depended, was Vietnamese physical labor performed on Vietnamese land, and the plan that resulted would be used to tax the very people whose neighbors and kin had walked it into being.

The asymmetry of that arrangement reflects a systemic erasure of the native workforce. A Vietnamese photographer, in a French-piloted aircraft, exposes the plates. A Vietnamese-staffed cadastral brigade walks the ground and fixes the markers. A Vietnamese technician, in the Hanoi laboratory, rectifies the negative and recovers its measurements. A Vietnamese draughtsman

traces the cadastral draft. A Vietnamese field brigade, guided by a Vietnamese village bookkeeper, completes the draft against the terrain. And at the end of this chain, the colonial treasury issues the cultivator a bill. At no point in the sequence is Vietnamese labor absent; at no point in the sequence does Vietnamese labor receive the recognition, the authorship, or the reward that the colonial record reserves for the European officer and the metropolitan science. The workflow is a machine for converting Vietnamese skill and Vietnamese knowledge into a French fiscal claim upon Vietnamese land, and it presents the conversion as the gift of a civilizing science. To follow the seven steps is to watch that presentation come apart. What the workflow actually documents, once its institutional language is read for the people inside it, is the dependence of the colonizer on the colonized, which is a dependence total enough that the colonized could and sometimes did bring the whole apparatus to a halt.

This is why the chronic shortage of bookkeepers was not a minor administrative inconvenience but a structural limit on the whole project. The colonial administration could buy aircraft, hire French officers, and equip a laboratory but it could not manufacture the local and social knowledge that the office of the *chưởng bạ* represented. Furthermore, it could not compel enough Vietnamese to enter colonial service in that role, least of all in districts far from the towns where colonial authority was thin and the rewards of collaboration few. The archival requests return again and again to this want of trained intermediaries, and the consequence was concrete: the cadastral survey remained an unfinished project when the Japanese occupation overtook it in the 1940s. The most technologically ambitious instrument of colonial vision could not complete a single province's land register without a corps of Vietnamese officials whose office predated the French entirely, and the colony never had enough of them. The bottleneck of

the workflow was neither the aircraft nor the mathematics. It was the colonized expertise without which the photograph could not be turned into a tax.

The dependence ran in a further direction that the workflow note makes visible only if read closely. Step six produced the completed draft, but the value of that draft to the colonial state lay in what step seven would do with it: calculate the area of each parcel, register it, and issue the owner a charged extract of the *địa bạ*. Rény's monograph describes a province of northern Annam where the 1929 mission distributed on the order of a hundred and forty thousand such extracts, and where the fees from those extracts were expected to cover the entire cost of the survey. But an extract is only as good as the completed plan behind it, and the completed plan existed only because a field brigade, guided by a village bookkeeper, had walked the boundaries and filled the photograph's blanks. The fiscal yield that justified the whole program to the colonial treasury therefore traced back, through step seven and step six, to Vietnamese field labor and Vietnamese local knowledge. The colonial state collected its land tax on the authority of a document that the colonized had, in large measure, produced. This is the circuit this case study has centered so far: the cadastre measured the Vietnamese in order to tax them, and it could measure them only by employing them.

The flooded, climatically punishing terrain of the colony shaped step six as much as any shortage of staff. The Indochinese peninsula ran from the perpetually cloudy highlands of Annam and the fog-prone Red River Delta to the sun-drenched paddies of the Mekong, and each environment defeated the camera in its own way: cloud and haze drained the contrast from photographs taken at altitude, turbulence kept pilots from holding steady flight paths, and heat and humidity warped plates and made developers behave unpredictably. Borzecki's field reports from the 1920s The flooded, climatically punishing terrain of the colony shaped step six as much

as any shortage of staff. The Indochinese peninsula ran from the perpetually cloudy highlands of Annam and the fog-prone Red River Delta to the sun-drenched paddies of the Mekong, and each environment defeated the camera in its own way: cloud and haze drained the contrast from photographs taken at altitude, turbulence kept pilots from holding steady flight paths, and heat and humidity warped plates and made developers behave unpredictably. The cadastral dossier for Hà Đông, Hòa Bình, Phú Thọ and Yên Bái preserves mission reports reaching back to 1927, and they record flight after flight aborted or repeated for weather, for equipment failure, or for the want of a usable landing field. The dossier covers four provinces of the delta and its uplands, but the conditions it registers were not local to them: whatever the laboratory achieved with a good negative, a poor one threw the work back onto the field brigades, and the gap between the clean geometry of photogrammetric theory and the messy reality of tropical survey was bridged, every time, by people walking the ground. The difficulty was not incidental to the colonial project but constitutive of it.⁸⁹ Peter Redfield's history of French Guiana shows a century of metropolitan technical ambition — penal, then aerospace — repeatedly rebuilt around what the equatorial environment would and would not permit, and Eric Jennings's study of Dalat shows the French in Indochina answering the same problem architecturally, retreating to altitude for the climate they could not otherwise master.⁹⁰ The survey could not retreat. It had to fly in the weather it had, and what it could not solve from the air it referred back to the ground. The colonial state advertised the colonies as a promising field for entrepreneurs, but men like Glaize found the work nearly impossible. In 1926 Glaize admitted he could not carry out his assignments, because

⁸⁹ "Travaux de cadastre par la photographie aérienne dans les provinces: Ha Dong, Hoa Binh, Phu Tho, Yen Bay. 1936–1944," TTLTQG1, M3 No. 208. The dossier is catalogued from 1936, but it preserves mission reports from 1927 onward.

⁹⁰ Peter Redfield, *Space in the Tropics: From Convicts to Rockets in French Guiana* (University of California Press, 2000); Eric T. Jennings, *Imperial Heights: Dalat and the Making and Undoing of French Indochina* (University of California Press, 2011).

he lacked the resources to manage military and civil duties at once: “no means have been put in the hands of the Commandant of Military Aviation to accomplish the tasks that come under the jurisdiction of this [civil aviation] function.”⁹¹ The triumphal narrative of the 1930 report, which presents the history of aviation in Indochina as steady progress toward mastery of the skies, omits this improvisation and crisis entirely, because the report was written to attract investment, not to record the difficulty of the work or the identity of the workers who absorbed it.



Fig. 2.6. A view of the Bâch Mai airport from a Breguet aircraft. *Historique de l'Aéronautique d'Indochine*.

A usable landing field was not a feature of the landscape but something the survey program had to build, and the building of it shows how far the aerial cadastre depended on a

⁹¹ Seltzer, "Chapter One--Developing an Aviation Infrastructure in Indochina" in "The Hopes and the Realities of Aviation in French Indochina, 1919-1940," 43, the quote is originally from ANOM, RSTNF 4280, "Note sur l'Aviation," n.d.

ground apparatus that the workflow never mentioned. The aircraft that produced step one could not simply rise from any clearing; a photographic mission needed a prepared airfield within reach of the zone it was to cover, and where no such field existed the survey could not advance. The Geographic Service's report for 1924 records the problem and its solution directly. The progress of the 1:25,000 aerial-photography map of Cochinchina, the report notes, "required the laying out of new landing grounds," and a commission was established at the start of the year for that purpose. With the help of the Cochinchina civil administration, two grounds were laid out over the summer of 1924 — at Trà Vinh and at Cái Lậy — and brought into service that November, judged sufficient to sustain the photographic missions for about two years and to allow further fields in the south to be organized, in the report's phrase, "rationally," without the program being overtaken by its own pace.⁹²

The fieldwork could also meet outright refusal, and the colonial sources record it. The geographer Édouard de Martonne, surveying Indochinese topography in 1938, followed the Geographic Service's field detachments into terrain that resisted them. He recounted a topographic brigade sent into the Kon Tum region of the Annamese highlands, where a movement against colonial authority forced the brigade to abandon its sheets and disband — a rare event, he noted, in the history of topography, which the rebels themselves had announced by warning the surveyors that arrows would meet anyone who entered certain zones. A second brigade, working a sheet barely fifty kilometres south of Hué, finished its survey only because the highland people of the district, after the recruited Annamese coolies had deserted, agreed to carry and guide the operators. The chief of the Service paid tribute to those mountain people for

⁹² Service géographique de l'Indochine, *Compte-rendu annuel des travaux exécutés par le Service géographique de l'Indochine, année 1924* (Imprimerie d'Extrême-Orient, 1925), 6, chap. 2, §C, "Terrains d'atterrissage en Cochinchine," <https://gallica.bnf.fr/ark:/12148/bpt6k3143980>. "Rationally" renders *rationnellement*, which the report applies to the scheduling of construction rather than to method.

a collaboration without which the work would have failed. Even the triumphal account, then, recorded a survey that ran on the consent and the labor of the very populations the cadastre was built to measure and tax. The Service's own annual reports register the same dependence in their own idiom: a geodetic group on the Cambodian frontier noted that the work grew "more delicate" near populations the report called "insufficiently tamed," while the brigade that completed the sheet south of Hué was said to owe its success less to its topographic skill than to a "profoundly human action" that won over the very Moï on whom the survey depended once the coastal coolies deserted.⁹³

The refusals that step six could meet were not random obstructions; they were political acts, and the interwar years gave them an increasingly organized political form. The same decades in which the cadastral survey advanced were the decades in which Vietnamese political consciousness was transformed. Professional associations and cultural societies in Saigon opened, as Philippe Peycam has shown, a new space in which colonial subjects debated political ideas, and in Tonkin and northern Annam the political culture drew on the Chinese Nationalist Party and on the Youth League that Hồ Chí Minh founded in 1925.⁹⁴ What these movements shared was a disillusionment with a colonial order that mobilized Vietnamese labor for the colonial machine and returned little for it. The cadastral survey was an instrument of exactly that order. Its plans displaced communal tenure, concentrated landholding among a small class of owners, and exposed cultivators to a market in land for which Vietnamese legal tradition offered no precedent, and the resentment this generated fed directly into the peasant uprisings that swept Nghệ An and Hà Tĩnh at the turn of the 1930s. Step six, the moment the survey touched the

⁹³ Martonne, "La topographie indochinoise," *L'Asie française*, 317.

⁹⁴ Philippe M. F. Peycam, *The Birth of Vietnamese Political Journalism: Saigon, 1916-1930* (Columbia University Press, 2012).

ground, was therefore also the moment it became most vulnerable to a population that had its own reasons to resist being measured, and the colonial archive's anxious references to communist mechanics and rebellious highlanders register, in their nervous way, a colonial state that knew its survey depended on a cooperation it could not assume.

This second to last step was the moment the abstract project touched the ground. The aircraft over Kon Tum could photograph the highlands whether or not the Moï consented; the brigade sent to complete the draft plan could not work there once they did not. This is the deepest sense in which the cadastre depended on the colonized: not only on their labor and their knowledge, but on their willingness, withdrawn at Kon Tum and extended south of Huế, to let the survey proceed at all. The workflow that began with an aircraft and a camera ended, at step six, as a negotiation between the colonial state and the people it was measuring. And it is a negotiation the state could lose. The Vietnamese were not the passive objects of the aerial gaze that the 1930 report and the metropolitan imagination supposed. They were the workforce that operated the gaze, the expertise that completed it, and, at the limit, the political actors who could refuse it.

This particular part of the workflow re-centers photography, but not as objective record as imagined. The aerial photograph was meant to settle questions of boundary and ownership by appeal to a mechanical, disinterested record — a picture no village notable had drawn and no faction could bias. Step six quietly contradicts that claim. If a fifth of every cadastral draft had to be completed by hand on the ground, and if the brigade doing the completing depended on a village bookkeeper to tell it whose parcel was whose, then the finished plan was never a pure photographic fact. It was a negotiated document, part camera and part testimony, and the testimony came from the colonized. The objectivity the colonial state advertised was, in practice,

assembled out of Vietnamese knowledge and labor and then presented as if the machine had produced it alone. The photograph lent the cadastre its air of science; the field brigade and the bookkeeper lent it its actual content. To recover the essence and the labor behind the brief description of this part is therefore to see that the authority of the colonial map rested on a foundation the map itself was designed to hide.

The unfinished state of the survey when the Japanese occupation arrived is, in this light, not a footnote but a verdict. The colonial state had aircraft, a metropolitan mathematics, a trained corps of French officers, and two decades of effort, and it still could not complete the cadastre of its own colony, because completion depended on a workforce and a body of local knowledge it could neither manufacture nor compel. Step six was where that dependence became a hard limit. The survey advanced where Vietnamese technicians staffed the laboratory, where Vietnamese brigades walked the boundaries, and where Vietnamese bookkeepers supplied the social knowledge of the land, and it stalled wherever those conditions failed. The seven-step workflow, read to its end, is thus the record of a colonial project that could not function without the colonized at any step, and that could be slowed, contested, or halted by them at the step where it touched the ground. The French cadastre in Indochina was, in its daily operation, a Vietnamese accomplishment that the colonial state directed and disavowed in the same breath.



Fig. 2.7. A map of provinces in Tonkin. The green section indicates areas that have been photographed. The yellow section is the areas that are still needed as a priority. The pink section is a lower priority. TTLQG1.

Conclusion

The last stage of the workflow (the calculation of parcel areas, the regulatory formalities of announcement, publication, and the delivery of extracts, and the establishment of the land registers) was an administrative and legal task rather than a photographic one. A photograph, however, completely rectified and verified, does not compute an area, does not issue public notice, and does not constitute a legal register. The return of the calculated measurements to the province to calculate their own taxes as described in step seven did all three, converting the cadastral draft into a tax roll and the tax roll into a claim the colonial treasury could enforce. Rény envisioned the administration handing every registered owner a charged extract of the *địa bạ*, parcel by parcel, so that, in his words, the cultivator would hold “an indisputable guarantee of

his property rights” and would know the tax they owed. The whole apparatus of aircraft, laboratory, and field brigade existed to feed this final, bureaucratic act, and the seven steps together describe how a colonized landscape was made legible, parcel by parcel, to a foreign treasury.

The aerial photographs the interwar cadastral surveys produced were therefore a doubly mediated form of knowledge: the physical and chemical processes of photography mediated them first, translating the reflected light of the Vietnamese landscape into silver grains on a glass plate, and the mathematics of photogrammetric restitution mediated them second, translating the distorted perspective on the plate into the planimetric certainty of a cadastral plan. The human layer of this process was overwhelmingly Vietnamese. The colonial record wrote the workflow as a sequence of institutions and rendered its workers anonymous, identifying them by function, “native mechanic,” “native assistant photographer,” and never by name. That anonymity was not a clerical accident but a way of registering colonized labor as interchangeable and subordinate, even as the photographer timed the exposure, the technician solved the rectification, the brigade fixed the markers, and the bookkeeper supplied the knowledge without which no draft could be completed. The cadastral plan that fixed the land tax of a farmer in Hưng Yên or Nghệ An was not a transparent representation of reality but a social construction, clothed in the authority of science precisely to obscure the colonized labor and the colonial purpose that produced it. This chapter has thus been, at once, a study of the colonial discourse of mechanical objectivity—the belief that the camera could deliver a modern, disinterested knowledge of the land—and of the Vietnamese human labor that continually corrected, supplemented, and completed what that discourse claimed the machine had done alone.

To recover that labor is to recover a history with living stakes. The cadastral survey that aerial photography served did not end as a neutral administrative record: it displaced communal tenure, concentrated land in the hands of a small class of owners, and left a peasantry whose grievance fed the revolution that ended French rule. The technology this chapter has followed — the camera in the aircraft, the rectified negative, the gridded cartridge sheet — was the instrument that made a foreign system of property legible and enforceable across a colonized countryside, and it was also, at every step, a technology that the colonized themselves operated. The standard histories of cartography and remote sensing narrate these techniques as a metropolitan achievement, tracing a line from the European geodetic surveys of the eighteenth century to the satellite programs of the Cold War, and they begin the French story of systematic aerial survey in 1940. The colonial archives of French Indochina show that narrative to be incomplete. The methods and institutional models were refined through two decades of practical experiment in the paddy fields and highlands of Tonkin, Annam, and Cochinchina, carried out by a workforce that was overwhelmingly Vietnamese. The aerial survey was not a French gift later extended to the colony; it was, in significant part, a colonial product built by colonized labor, and the people who made it work have a claim on its history that the existing narrative does not yet honor.

The camera in the aircraft did not serve the treasury alone. The same survey aviation that rectified a rice field into a taxable parcel also turned its lens on the monuments of the colony, and the institutions that mapped land for the cadastre lent their photographs to the institutions that mapped the past. By 1933 the *École française d'Extrême-Orient*, the French research school at Hanoi, had a topographic survey of the park of Angkor drawn up by aeroplane, and its archaeologists were assembling a general inventory of every monument of Indochina onto a

system of index cards keyed to map sheets and geographic coordinates.⁹⁵ The vertical view that this chapter has followed from the negative to the tax roll was, in those years, being trained on temple and citadel as well as on paddy and dike — the aerial photographs of Co Loa and of the Hanoi citadel that illustrate these pages came out of exactly that traffic between survey and excavation. The next case study follows the camera into that second enterprise, where the all-seeing perspective served not the land tax but the colonial science of the Indochinese past, and where, once again, the labor that made the photographs legible was overwhelmingly Vietnamese.

⁹⁵ “Chronique,” *Bulletin de l’École française d’Extrême-Orient* (Hanoi) 33 (1933): 1045-1146.

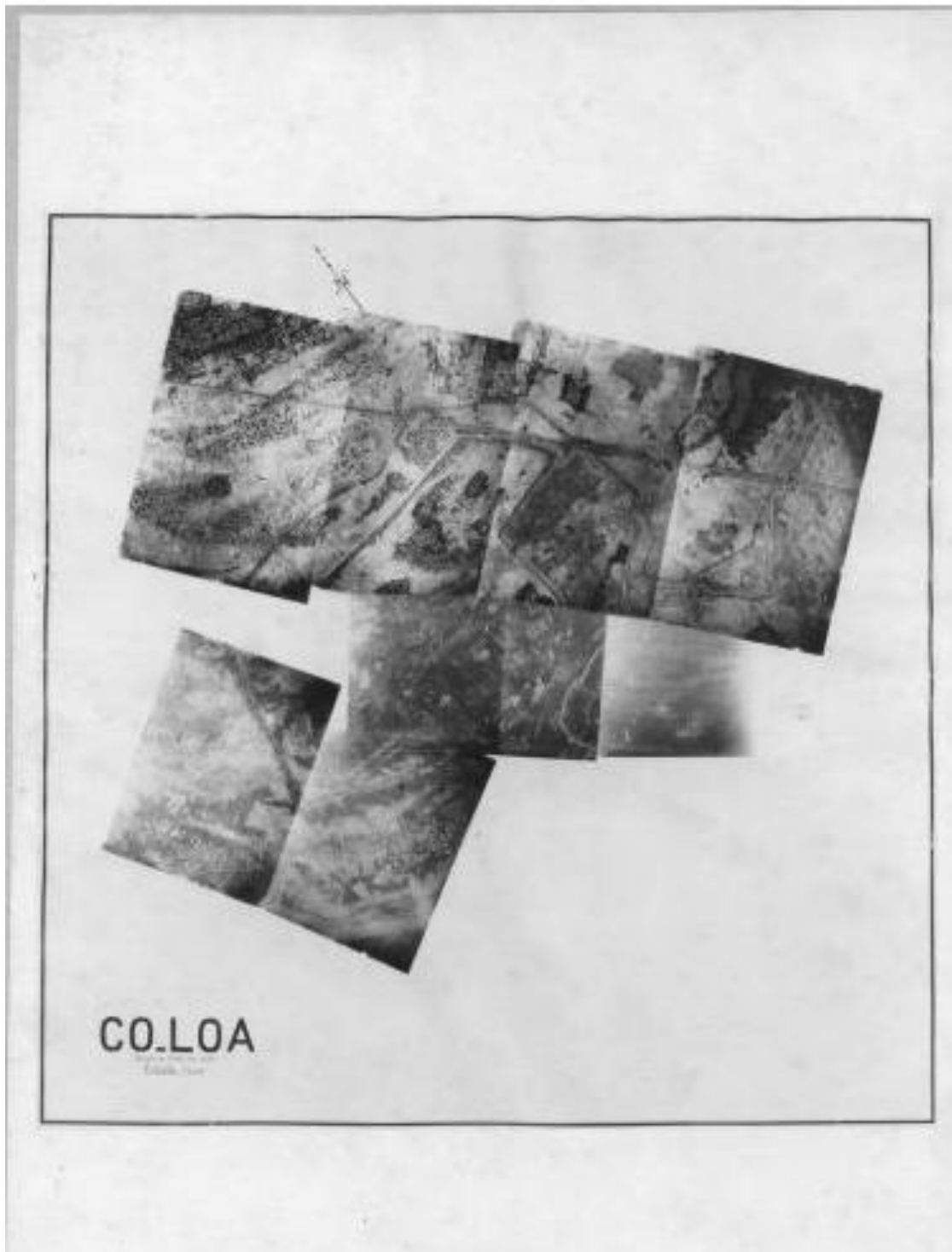


Fig. 2.8. A collage of several photos put together to shape a map of Co Loa Citadel. The aerial views were taken by the military as requested by EFEO. Source: EFEO, EFEO_VIE04073.

Chapter 3

The Valley of the Kings: Archaeology, Photography, and the Infrastructures of Memory

Introduction

From the very start, archaeology was central to the justification of photography's worth. When French troops stumbled upon the Mỹ Sơn ruins while surveying central Vietnam for a telegraph line in 1899, they did not simply discover ruins — they initiated a photographic project. Between 1901 and 1904, the archaeologist Henri Parmentier and his assistant and photographer Charles Carpeaux excavated four sites in Cambodia and Annam, and their photographic legacy remains alive today. In 2019, a collaborative project between the Institute of Social Sciences Information (ISSI) in Vietnam and the *École Française d'Extrême-Orient* (“the French School of the Far East,” hereafter EFEO) digitized over 60,000 photographs dating from 1870 to 1981, more than 4,000 of which document the archaeological excavations in French Indochina — including over 200 prints from the French duo's 1901–1904 project in Annam, against only four verifiable prints from their parallel work in Cambodia.¹ These are the earliest archaeological records of the Cham sites, and they set the cataloguing standards for the later excavations, most notably the 1935–1936 campaign. The EFEO maintains its own photographic database, assembled, as Philippe Le Failler notes, from the heterogeneous contributions of researchers, travelers, hobbyists, and government agents; but its Vietnam collection is unevenly documented, and many images carry no date at all.² For the purposes of this study, the ISSI

¹ The collection is accessible at <https://collection.efeo.fr/ws/issi/app/report/index.html>. The archive is organized by geographical locations and disciplines. For this research, I performed several filters to grasp the approximate numbers of the digitized prints. The numbers are approximate because several prints do not have the date listed.

² Isabelle Poujol et al., “Photographic Archives from the École Française d'Extrême-Orient,” *International Preservation News* (Paris), A Newsletter of the IFLA Core Activity on Preservation and Conservation, nos. 59–60 (August 2013): 15–18.

digitization is the more credible point of reference, because its catalogue records provenance and dating with greater consistency. From the facades of the monuments to the treasures of the Cham kings, these images are not inert records but the medium through which Cham history was first produced, circulated, and institutionalized — and through which it continues to be accessed today.

The relationship between photography and colonial archaeology was constitutive, not incidental. In 1853, the French photographer Auguste Salzmann traveled to Jerusalem to photograph architectural fragments his colleague Félicien Caignart de Saulcy had been unable to document convincingly through drawings; Salzmann's images silenced his colleague's critics and established the photograph as, in his own words, “more than accounts” — “facts endowed with a conclusive brute force.”³ This same evidentiary logic underwrote the Indochina excavations at Angkor Thom, Angkor Wat, Đồng Dương, and Mỹ Sơn.⁴ Photography did not merely document these ruins; it transformed them into monuments — detaching them from living communities, framing them as the remnants of extinct civilizations, and positioning the French as their rightful custodians.⁵ That transformation has proved durable: all four sites are now UNESCO World Heritage destinations whose interpretation remains shaped by the record the French produced.

³ Auguste Salzmann, *Jérusalem. Etude et Reproduction Photographique Des Monuments de La Ville Sainte Depuis l'époque Judaïque Jusqu'à Nos Jours* (Gide & Baudry, 1856).

⁴ The sites are named here by their modern Vietnamese forms, Đồng Dương and Mỹ Sơn. The primary sources differ, and differ from one another. The 1909 *Inventaire* prints Đồng Dương, Mĩ Sơn, Trà Kiệu, Bắng An, Chiền Đàng and Khương Mỹ, spaced and capitalized; Parmentier's 1919 catalogue hyphenates and lowercases the second element — Đồng-duong, Mĩ-son, Trà-kiệu, Chiền-đàng, Khương-mỹ; Carpeaux drops the diacritics altogether, writing Duong-Duong and Bang An, and the 1908 title page has Myson. Note also that Parmentier writes Chiền Đàng, with a final consonant the modern name has lost. Quotations and titles retain the form printed in the source.

⁵ On Angkor, read Michael Falser, *Angkor Wat: A Transcultural History of Heritage*, 2 vols. (De Gruyter, 2020).

This chapter examines how photography shaped the infrastructures for the production, presentation, and circulation of historical knowledge about the Kingdom of Champa — a Hindu-Buddhist polity that flourished along the coast of central Vietnam from roughly the fourth to the fifteenth century, its surviving brick temple-towers at Mỹ Sơn raised between the fourth and the thirteenth — through the case of the 1901–1904 excavations and their aftermath. Mỹ Sơn is today marketed as Vietnam's "Valley of the Kings," an epithet borrowed from Egypt and routinely credited, in guidebook and tour-operator copy, to French historians or French archaeologists. It appears in neither Parmentier's *Inventaire* nor his 1925 field instructions, and the attribution circulates without a source.⁶ The phrase performs in miniature what this chapter traces at length — a claim about the Cham past that borrows a colonial scholarly authority it cannot document, and that governs how the site is encountered regardless. To analyze photography as an *infrastructure*, in the sense this dissertation has developed, is to attend less to the individual image than to the systems through which images were produced, classified, stored, and made to circulate — the camps and darkrooms, the EFEO bulletins, the archive, the museum. The production of a colonial archive, as Ann Laura Stoler argues, is a consequential act of governance and a field of force.⁷ Drawing on the photographs produced by Carpeaux and institutionalized by EFEO, as well as the earliest scholarship on Champa produced under the

⁶ The phrase recurs across English- and French-language promotional material for the site, typically in an opening line and typically credited to unnamed "French historians." It appears nowhere in Parmentier's *Inventaire descriptif des monuments ċams de l'Annam*, vol. 1 (1909), or in his "Instructions" of 1925, the two bodies of French archaeological description of Cham monuments consulted for this chapter. The comparison is in any case descriptively inapt. The Egyptian Valley of the Kings is a royal necropolis; Mỹ Sơn is a temple sanctuary in which no burials have been identified, characterised in the World Heritage documentation as the religious and political capital of Champa and dedicated above all to Śiva. Temples founded in a deceased ruler's name, or bearing a *liṅga* that fuses his name with the god's — as Bhadreśvara fuses Bhadravarman with Īśvara — are acts of commemoration and posthumous divinisation, not interment. Cham royal funerary monuments do exist, the inscribed *kut* stelae, but they are found in Panduranga, several hundred kilometers to the south, and are considerably later; Parmentier inventories them at Pō Pan and Pō Panrauñ Kamar.

⁷ Ann Laura Stoler, "Colonial Archives and the Arts of Governance," *Archival Science* 2 (March 2002): 87–109.

EFEO's monopoly since its establishment in 1898 (as the *Mission archéologique d'Indochine*, renamed EFEO in 1900), I argue that photography was not a neutral documentary instrument but a constitutive technology of colonial knowledge production: one that determined what could be seen and claimed about the Kingdom of Champa, defined who held the authority to preserve and interpret its ruins, and generated a visual archive whose circulation continues to govern how these sites are understood today. Central to the chapter is a claim the following sections develop in detail: that “Cham art”—and arguably Cham culture as an object of knowledge—is not an antique inheritance but a twentieth-century colonial creation, assembled by French archaeology out of relics that themselves date from antiquity. This infrastructural role carried a characteristic paradox. Although photography is a visual medium, it operated here largely by becoming invisible: the photograph did its work not as a picture to be looked at but as a substrate folded into other things — a measurement converted into a drawing, a plate filed in an album, a document in a dossier, evidence beneath a scholarly claim. Like the infrastructures with which this dissertation is concerned, the colonial photograph was hidden in plain sight. Where the dissertation’s earlier chapters followed photography into the census and the map—Anderson’s first two institutions of colonial nationalism—this chapter turns to the third, the museum, and to the archaeological archive that fed it. I focus on Champa for two reasons: first, because the French branded the kingdom a “forgotten” civilization, one whose Hindu-Buddhist temples could be photographically recovered and narrated as evidence of a civilizing mission; and second, because the 1901–1904 excavations, funded by a colonial decree allocating 1,500 piastres to Henri Parmentier to “study and safeguard the Cham monuments,”⁸ offer a documented case of how photography, nationalism, and empiricism converged under colonial governance. I examine

⁸ Pierre Baptiste, “The Archaeology of Ancient Champa: The French Excavations,” in *Champa and the Archaeology of Mỹ Sơn (Vietnam)*, ed. Andrew Hardy et al. (NUS Press, 2009), 14-25.

the formation of EFEO's earliest photographic archive during the 1901–1904 excavations, the exclusion of these photographs when the museum first opened in 1919, and their subsequent afterlife. As my analysis demonstrates, the photographic archive operated according to the “invisibility thesis” of infrastructure studies: its reemergence was called for only in a moment of crisis — here, the risk of the monuments being destroyed by Western forces.⁹

Carpeaux's Photographs and the Production of an Archive

Between 1901 and 1904, the excavations undertaken by the archaeologists and Charles Carpeaux produced around two thousand photographs and about 700 of which are about Champa. Not all of them survived after a century of wars and conflicts, but at least 200 prints were retrieved and digitized in 2019. These images are documentation of the material culture of the Cham people, with objects and architecture documented by the mechanical eye and reorganized in systematic reporting. In each report, a pair of photographs are put together under a brief description of where and when the images were taken, with information about the angle of the camera and the direction the objects or the buildings face. Completely diverged from artistic convention, Carpeaux's photos dissect the centuries layered in the ruins. They form an assemblage in which ancient sites are mediated into textual and graphical forms that can be shared and discussed by an audience who do not have access to the sites. Furthermore, the absence of humans in these reports is conventionally taken to mark archaeology's standing as a science: the study of human history and prehistory through the excavation and analysis of

⁹ More on the politics of infrastructural invisibility and crises, read Lisa Parks, “Around the Antenna Tree: The Politics of Infrastructural Visibility,” *Flow: A Critical Forum on Television and Media Culture*, November 2009; Stephen Graham and Nigel Thrift, “Out of Order: Understanding Repair and Maintenance,” *Theory, Culture & Society* 24, no. 3 (2007): 1–25; Stephen Graham, *Disrupted Cities: When Infrastructure Fails* (Routledge, 2010); Steven J. Jackson, “Rethinking Repair,” in *Media Technologies: Essays on Communication, Materiality, and Society*, ed. Tarleton Gillespie et al. (MIT Press, 2014), 221–239.

artifacts, structures, and other physical remains left by past societies. But that absence is a convention of the report form rather than a property of the discipline, and it is productive.

Deborah Poole's account of the visual economy of empire describes images that acquire value by circulating away from the people and places that made them possible; the depopulated plate travels further, and counts for more, precisely because nothing in it anchors the monument to the labor, the negotiation, or the inhabitants that surrounded it.¹⁰ As the journal photographs discussed below make clear, the camera was not prevented from seeing that world.

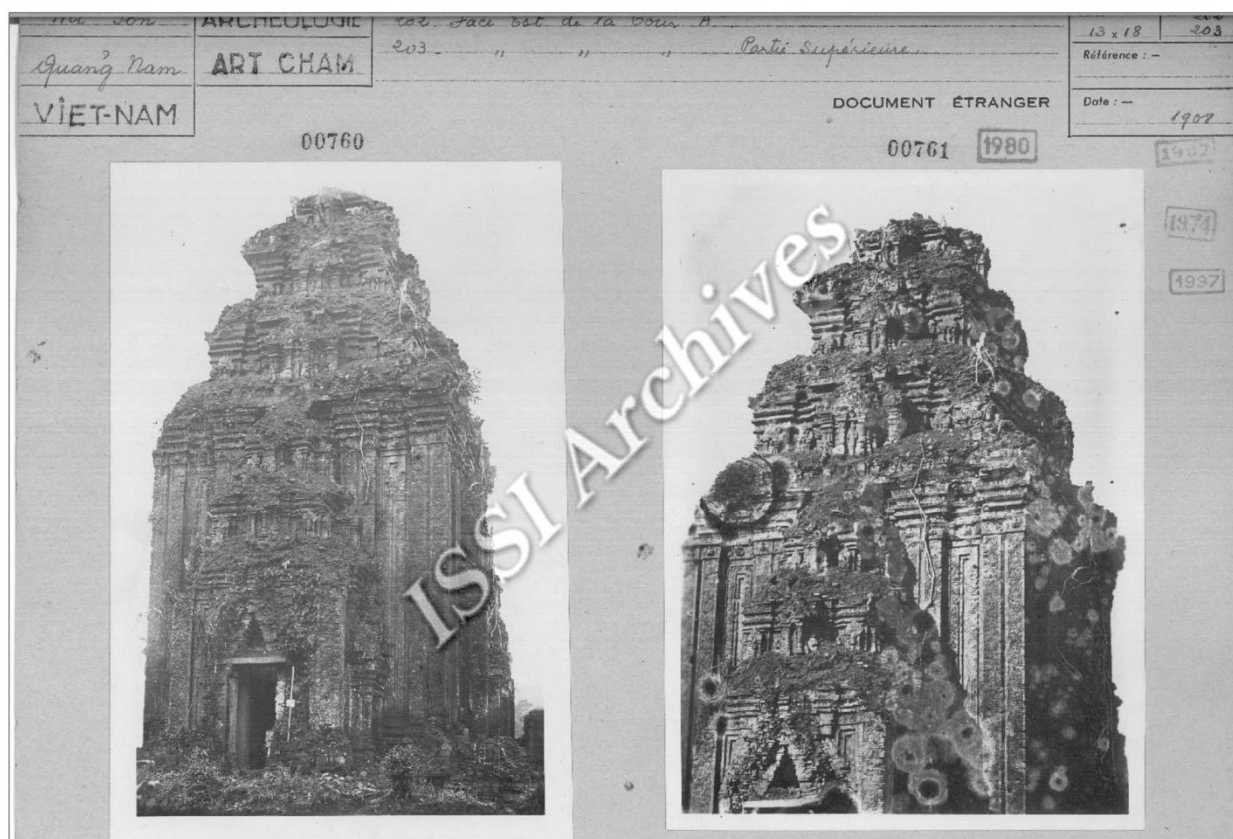


Fig. 3.1. A pair of photographs of Tower A1 taken by Carpeaux, the earliest photographic reproduction of the tower that is lost forever (ISSI Archives).

¹⁰ Deborah Poole, *Vision, Race, and Modernity: A Visual Economy of the Andean Image World* (Princeton University Press, 1997).

A1 is frequently singled out as *the* tower lost in the 1969 raids, but the destruction was not confined to it: the neighboring Tower A10 was also reduced to rubble, and the State Party's own condition survey records that both towers have collapsed. The two are nonetheless worth distinguishing. A1, at twenty-four meters the tallest structure at Mỹ Sơn, was a tenth-century monument and the type-site of the style scholars call "Mỹ Sơn A1"; A10, built before 875, belonged to the earlier Dong Duong style, and the dossier's architectural description reserves for it a particular elegy, recording that the tower "had a majestic imposing beauty representative for the Dong Duong style" before it "has been bombed by American airplanes in 1969 and has totally collapsed."¹¹ Covered partially in overgrowth, A1 appears to be about eighty-five feet tall in the photograph. It was built on a square foundation and comprised three symbolic parts: a solid base representing the world of human beings, a sacred tower body representing the world of spirits, and a tower top shaped like a figure offering flowers and fruits, representing elements close to both spirits and humans. The latter two are documented more closely in the second photograph, which, although bearing some damage, also shows in greater detail the intricate carvings and ancient Sanskrit inscriptions. Above the photograph is a description of the image, recording the numbering and size of the print, when it was taken, where the object is located, and what culture it is from. The photographs of the ruins function parallel to the art of observation, as described by Kelly Wilder, by singling out a moment of time usually too small for human perception to register.¹² While most photographers at the time think about this idea in the instances of seconds, the photographs of the ruins manifest a belief by archaeologists that the

¹¹ "Mỹ Sơn Sanctuary, Nomination File 949," 1999, World Heritage Centre, State Party documentation, accessible at <https://whc.unesco.org/en/list/949/documents>. The condition survey ("Present state of conservation," p. 22) states that both "the A1 tower has totally collapsed" and "the A10 tower has totally collapsed"; on A1's collapse see also Emmanuel Guillon, "The Art of Champa," in *Cham Art: Treasures from the Da Nang Museum, Vietnam* (River Books, 2001).

¹² Kelly Wilder, *Photography & Science* (Reaktion Books, 2009).

scale of their project, which spans across lifetimes, must be broken down into discrete moments in order for momentary vision to comprehend. In the case of the Mỹ Sơn, the photographs single out objects and patterns that otherwise would be impossible to understand as a whole. In other words, photography introduces not only a new way of observing the world but also of organizing it.

More importantly, photography represents the complex cultural landscape of the fin-de-siècle, when travel among difficult physical terrains posed a serious challenge for researchers. At the same time, the effortless ability of the camera to capture an image creates an illusion of presence and contributed to the construction of the “tropics” in European imagination.¹³ In this case, as seen through the journal of Charles Carpeaux, the ruins were inaccessible for most archaeologists, and Carpeaux’s life was taken away by the traveling to the sites. Carpeaux’s journal, which was published posthumously by his mother, provides significant insights into how this visual archive was produced. Carpeaux was attached to the École by an *arrêté* of 22 October 1901, and served through its first two campaigns as a temporary attaché, doing the School’s photography and moulding; he became *chef des travaux pratiques* — head of practical works — only on 19 April 1903, six weeks after setting out for the Mỹ Sơn excavations, eighteen months

¹³ Tropicality names the process by which “the tropics” was constituted less as a latitude than as a conceptual zone — alternately Edenic and pestilential, always defined against a temperate norm and always from outside it — so that climatic difference could be made to explain, and to license, political difference. The term was consolidated by David Arnold in the 1990s as an explicitly environmental extension of Said’s *Orientalism*, and it spread through postcolonial geography and environmental history over the following decade, in Nancy Stepan’s account of tropical nature as a picturing practice and in the collections Felix Driver assembled with Brenda Yeoh and with Luciana Martins. Its emergence was also an act of disciplinary self-scrutiny: tropical geography had itself been a colonial science — in the French case built substantially by Pierre Gourou, whose fieldwork in the Tonkin delta preceded *Les Pays tropicaux* (1947) — and tropicality turned that inheritance into an object of study rather than a method. More on “tropicality,” read David Arnold, *The Tropics and the Traveling Gaze: India, Landscape, and Science, 1800-1856*, Culture, Place, and Nature: Studies in Anthropology and Environment (University of Washington Press, 2006); Nancy Leys Stepan, *Picturing Tropical Nature*, Picturing History (Reaktion Books, 2001); Felix Driver and Luciana Martins, eds., *Tropical Visions in an Age of Empire* (University of Chicago Press, 2005).

into a service that would end with his death fourteen months later.¹⁴ He was the son of the sculptor and painter Jean-Baptiste Carpeaux and studied at the Musée du Trocadéro in Paris. He was commissioned through the 1901 decree to perform archaeological works in both Cambodia and Annam. From 1901 to 1904, Charles Carpeaux traveled between the protectorates frequently, using his artistic skills to photograph the sites as well as the sculptures. Due to the heavy travel schedule and the lack of medical support, Carpeaux became ill and died in Saigon in 1904 while waiting for his return to France. His journals and photographs were later collected and published with the permission of his mother, who wanted to ensure that “none of the efforts that cost him his life will be in vain.”¹⁵

The collection details the last years of Carpeaux in French Indochina, beginning with his departure to Southeast Asia from the port of Marseilles to his last visit to Cambodia in 1904. The collection is organized into four sections according to four excavations that Carpeaux was part of: the first mission to Cambodia, the two excavations in Annam with Henri Parmentier, and a short and final return to Cambodia in 1904. The collection also features 166 photographs of the scenes in French Indochina that Carpeaux took during his trips, both for his personal recollection and the archaeological missions.

¹⁴ Émile Senart, "Éloge funèbre de M. Charles Carpeaux, chef des travaux pratiques de l'École française d'Extrême-Orient," *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres* 48, no. 4 (1904): 396–98, at 397, for the appointment of 19 April 1903 and the preceding status of *attaché temporaire*; Henri Parmentier and L. Finot, "Charles Carpeaux (1870–1904)," *Bulletin de l'École française d'Extrême-Orient* 4 (1904): 537–38, at 538, for the *arrêté* of 22 October 1901. Senart dates Carpeaux's placement at the Director's disposal to October 1900; Parmentier's administrative date is preferred here.

¹⁵ Charles Carpeaux's mother wrote the preface to the photographer's posthumous memoir. Charles Carpeaux, *Les ruines d'Angkor, de Duong-Duong et de Myson (Cambodge et Annam): lettres, journal de route et clichés photographiques*, ed. Mme J.-B. Carpeaux (Paris: Augustin Challamel, 1908).

Carpeaux's practice of photographing objects from multiple angles — most explicitly noted in his effort to finally capture the southern bas-reliefs¹⁶ at Mỹ Sơn after repeated attempts, and in his systematic photographic surveys of tower groups at Angkor and Đồng Dương — constitutes a direct functional parallel with molding, even while remaining a two-dimensional medium. These are images made to be used rather than looked at: what Harun Farocki called operative images, and what Jussi Parikka has since developed into a broader account of pictures that function as instruments of measurement and modelling rather than as objects of contemplation.¹⁷ Set alongside Nicholas Mirzoeff's account of visuality as the authority to classify a world and then render it visible in the classified form, Carpeaux's campaign appears less as a documentary effort than as a technique for producing a monument that can be operated on at a distance.¹⁸ Where a single photograph, like a single view of a relief, captures only one face of a surface under one particular distribution of light, the accumulation of photographs taken from different vantage points, different angles of incidence, and at different times of day begins to reconstruct the three-dimensional geometry of the object through multiplicity.¹⁹ This is the logic of the mold extended into photography: the mold achieves its fidelity to three-dimensional form through physical contact at every point of a surface simultaneously; multi-angle photography attempts to approximate the same volumetric completeness through sequential acts

¹⁶ A relief is a sculptural technique where figures or designs project outward from a flat background surface. Alto-relievo (high relief) approaches three dimensions while bas-relief (low relief) is more similar to two-dimensional drawing.

¹⁷ Harun Farocki, "Phantom Images," *Public*, no. 29 (2004): 12–24; Jussi Parikka, *Operational Images: From the Visual to the Invisual* (University of Minnesota Press, 2023).

¹⁸ Nicholas Mirzoeff, *The Right to Look: A Counterhistory of Visuality* (Duke University Press, 2011).

¹⁹ More on the production of three-dimensional geometry of an object through multiplicity, read Mary Bergstein, "Lonely Aphrodites: On the Documentary Photography of Sculpture," *The Art Bulletin* 74, no. 3 (1992): 475–98; Geraldine A. Johnson, ed., *Sculpture and Photography: Envisioning the Third Dimension* (Cambridge University Press, 1998); Rosalind Krauss, "Photography's Discursive Spaces: Landscape/View," *Art Journal* 42, no. 4 (1982): 311–19; Marta Braun, *Picturing Time: The Work of Étienne-Jules Marey (1830–1904)* (University of Chicago Press, 1992).

of indexical registration, each image adding a new plane of information to a composite mental or archival reconstruction of the whole. The *vérascope*, Carpeaux's stereo camera, makes this parallel explicit in a single instrument, it exposed two plates simultaneously from slightly separated viewpoints, producing the binocular parallax that the mind reads as depth.²⁰ Stereo photography is, in this sense, the photographic equivalent of the mold: it uses the geometry of two viewpoints rather than one to recover the third dimension that a flat photograph suppresses. Carpeaux's broader practice of systematic multi-angle coverage extends this same principle across an entire shooting campaign, treating the archive of images as a collective solid rather than a collection of flat surfaces, a photographic mold assembled not in a single pressing but across time and from many positions.

This practice carries specific consequences for understanding photography as a colonial archival technology. The mold is spatially totalizing in a way that a single photograph is not: it claims the entire surface of an object simultaneously, leaving no angle unrecorded, no relief unstruck. By multiplying viewpoints to approach this totality, Carpeaux's photography aspires to the same completeness, and with it, the same possessive logic. The colonial archive, as Stoler argues, is not merely a record of what existed but an act of governance over what can be known and by whom, a structure of authority over the object's meaning and circulation.²¹ Multi-angle photography of this kind intensifies that claim: where a single photograph might be said to

²⁰ For more on the histories of the *vérascope*, read Selma Ahmed-Chaouch and Colette Morel, “Le Vérascope et La Collection de Stéréoscopies Jules-Richard (1890–1930), 1 : Des Plaques, Des Albums et Des Registres : Regards Croisés Sur Un Fonds Commercial,” *Entre-Temps : Revue Numérique d’histoire Actuelle*, 2025; Selma Ahmed-Chaouch and Colette Morel, “Le Vérascope et La Collection de Stéréoscopies Jules-Richard (1890–1930), 2 : L’altération Comme Témoin : Une Étude Des Plaques de Verre Stéréoscopiques,” *Entre-Temps : Revue Numérique d’histoire Actuelle*, 2025; Selma Ahmed-Chaouch and Colette Morel, “Le Vérascope et La Collection de Stéréoscopies Jules-Richard (1890–1930), 3 : À La Recherche de Louli D., Aux Sources de l’histoire d’un Modèle Dans Les Années 1900,” *Entre-Temps : Revue Numérique d’histoire Actuelle*, 2025; Barbara Maria Stafford and Frances Terpak, *Devices of Wonder: From the World in a Box to Images on a Screen* (Getty Research Institute, 2001); Michel Polge, “Le Fonds Photographique Jules Richard,” 2025.

²¹ Stoler, “Colonial Archives and the Arts of Governance.”

document a monument, a systematic multi-angle survey (combined with plans, rubbings, measurements, and moulages) amounts to a comprehensive appropriation of the object's information content, a dematerialization of the monument into a set of transferable data that can circulate in metropolitan institutions independently of the monument itself.²² The Cham towers at Đồng Dương and Mỹ Sơn, inaccessible, fever-ridden, tiger-haunted, and eventually bombed into rubble, become fully available to French scholarship through Carpeaux's archive because that archive attempted the volumetric completeness that molding sought through contact. The destruction of Mỹ Sơn in 1969 makes this logic retrospectively visible in its starkest form: what the colonial archive captured in its multi-angle totality is now, for many structures, the only remaining record of what existed. The archive did not merely accompany the object, it replaced it.

Carpeaux's photographs represent one of the most technically demanding field photography enterprises of the early 20th century, conducted under conditions of extreme heat, humidity, and physical remoteness. Appointed by the French School of the Far East specifically as photographer and molder, he arrived already equipped with technical manuals which he studied aboard ship, only to discover immediately that no darkroom existed on the vessel — a professional crisis that foreshadowed the improvisation that would define his entire campaign.

²² On the politics of reproductions from the colonies, read Bruno Latour, "Visualisation and Cognition: Thinking with Eyes and Hands," in *Knowledge and Society: Studies in the Sociology of Culture Past and Present, Volume 6*, ed. Henrika Kuklick (JAI Press, 1986); Bruno Latour, "Drawing Things Together," in *Representation in Scientific Practice*, ed. Michael Lynch and Steve Woolgar (MIT Press, 1990), 19-68; Kapil Raj, *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650–1900* (Palgrave Macmillan, 2007); John Law, "On the Methods of Long-Distance Control: Vessels, Navigation and the Portuguese Route to India," in *Power, Action and Belief: A New Sociology of Knowledge?*, ed. John Law (Routledge & Kegan Paul, 1986), 234-263; On how colonies were converted into catalogued, transportable knowledge, Bernard S. Cohn offers a case study of how India was imagined by the British Empire, Bernard S. Cohn, *Colonialism and Its Forms of Knowledge: The British in India* (Princeton University Press, 1996); On the reproductions of the monuments themselves, read Rune Frederiksen and Eckart Marchand, eds., *Plaster Casts: Making, Collecting and Displaying from Classical Antiquity to the Present* (De Gruyter, 2010); Mari Lending, *Plaster Monuments: Architecture and the Power of Reproduction* (Princeton University Press, 2017).

The journal never names the photographic process he used, but the evidence points clearly to factory-produced dry gelatin-bromide glass plates rather than wet collodion. The most decisive clue is the instrument itself: his primary camera was the *vérascope*, a stereo apparatus made by Richard Frères of Paris and introduced in 1893, which was designed specifically around pre-coated dry plates and would have been wholly incompatible with wet collodion, a process requiring the plate to be coated, sensitized, exposed and developed within minutes. The field logistics recorded in the journal confirm this: Carpeaux loads plates in darkness in advance, carries them intact across flooded rivers and mountain passes over hours or days before exposure, and develops them long after shooting, a workflow entirely inconsistent with wet collodion but entirely consistent with dry plates. He also carried at least one additional standard-format camera, and when his cameras eventually failed entirely under the accumulated punishment of tropical conditions in early 1904, a replacement sent by School director Foucher proved so complex to assemble that he remarked it would require a construction engineer.²³ Plate management was a constant logistical pressure: plates had to be loaded in absolute darkness and protected from water at all times — during one near-submersion of his carts in Kompong Thom, his first thought was whether the plates would end up in the river — and when he exhausted his supply in the Moï highlands, he simply missed irreplaceable subjects.

Developing was done routinely in the small hours after full excavation days, often until one or two in the morning, in a succession of improvised darkrooms: a rigged *chambre noire* at Angkor-Thom on New Year's Day 1902, the central tower of the Bayon repurposed as a developing laboratory, then the main tower at Đồng Dương, and finally a tower at Mỹ Sơn which he called his *laboratoire aquarium* (aquarium laboratory) when monsoon water dripped through

²³ Carpeaux, *Les ruines d'Angkor*, 214.

its cracked vault onto his developing trays, where he once found a wild turtle rearranging his plates.²⁴ The monuments under study were thus also the instruments of their own documentation. To follow John Durham Peters in treating environments as media rather than as the settings in which media operate is to see that the tower was not a shelter for the darkroom but a component of it, and that the monsoon entered the process at the same level as the developer.²⁵ The tropical humidity was relentless and particularly damaging: his *vérascope* suffered, mold grew on every leather surface, his revolver rusted, and sustained moisture degraded both equipment and emulsions throughout. The gelatin emulsion was not a neutral carrier of an image but a chemical system, and heat and damp acted on it directly; as Sean Cubitt argues, visual technologies are inseparable from the material processes that constitute them, so that a degraded plate is not a failed record of the monument but a record of the conditions of its own making.²⁶ Lighting inside the dark gallery interiors was an acute technical problem he attacked empirically, on one occasion burning a good quantity of wood inside the Bayon to improve the level of illumination — manufacturing, inside a twelfth-century temple, the light by which it would be seen.

²⁴ Carpeaux, *Les ruines d'Angkor*, 202.

²⁵ John Durham Peters, *The Marvelous Clouds: Toward a Philosophy of Elemental Media* (University of Chicago Press, 2015).

²⁶ Sean Cubitt, *The Practice of Light: A Genealogy of Visual Technologies from Prints to Pixels*, Leonardo Book Series (MIT Press, 2014).

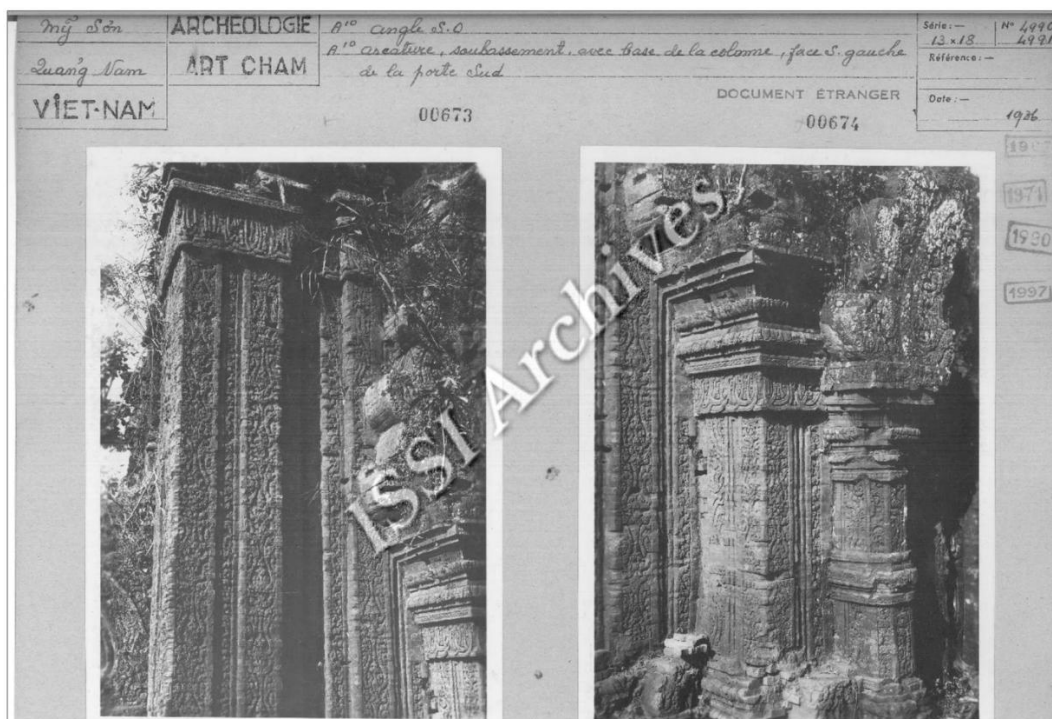


Fig. 3.2. A set of two photographs of Tower A10, taken by Jean Manikus during the 1935–1936 excavation campaign. These are the only known surviving images of the tower, which was destroyed in 1969; Carpeaux may have photographed A10 during the 1901–1904 missions, but no print from that campaign has been securely identified (ISSI Archives).



Fig. 3.3. A documentation of the altarpiece from the Principal Tower at Dong Duong (Source: ISSI Archives)

Carpeaux's photographic work at the Cham sites carries a significance that exceeds his Angkor campaign because photography was not a secondary instrument applied to already-known monuments but the primary means by which those monuments entered the domain of knowable objects at all. At Angkor, he was adding photographic density to a record that already existed in travelers' accounts, drawings, and the general awareness of Western scholarship dated back to the eighteenth century and therefore his five hundred negatives deepened and systematized a prior knowledge.²⁷ Furthermore, Angkor was not an isolated site but frequently visited and cared for by Buddhist monks. At Đồng Dương and Mỹ Sơn, there was no prior knowledge to deepen. The sites were buried deep in the jungle. The monuments emerged from the ground under the duo's supervision and passed directly in front of Carpeaux's camera — the photograph was in many cases the first record of an object's existence, made within hours or days of its excavation. This gave photography at the Cham sites an ontological weight it did not carry at Angkor: the image was not a representation of something already known but the founding document of something newly encountered, the act by which an object crossed from invisibility into the scholarly record. At Mỹ Sơn, the photograph frequently was the first record of an

²⁷ There is a robust reservoir of scholarship about Angkor produced by Europeans. Predominantly French and clustered in the decades around the establishment of the protectorate (1863), these works blend travel narrative, scientific survey, and photographic record, and together constitute the nineteenth-century documentary corpus through which Angkor was first rendered an object of Western knowledge. They characteristically frame the monuments as "lost" and awaiting European documentation — a framing later colonial scholarship inherited and recent historiography has sharply critiqued. For scholarship about Angkor produced before the establishment of the protectorate, read Charles-Émile Bouillevaux, *Voyage Dans l'Indo-Chine, 1848–1856* (Victor Palmé, 1858); Charles-Émile Bouillevaux, *L'Annam et Le Cambodge: Voyages et Notices Historiques* (Victor Palmé, 1874); Henri Mouhot, *Voyage Dans Les Royaumes de Siam, de Cambodge, de Laos et Autres Parties Centrales de l'Indo-Chine* (Hachette, 1868); Henri Mouhot, *Travels in the Central Parts of Indo-China (Siam), Cambodia, and Laos, during the Years 1858, 1859, and 1860* (John Murray, 1864); John Thomson, *The Antiquities of Cambodia: A Series of Photographs Taken on the Spot, with Letterpress Description* (Edmonston & Douglas, 1867); Adolf Bastian, *Die Völker Des Östlichen Asien: Studien Und Reisen. Band 4: Reise Durch Kambodscha Nach Cochinchina* (Hermann Costenoble, 1868); Louis Delaporte, *Voyage Au Cambodge: L'architecture Khmer* (Ch. Delagrave, 1880); Ernest Doudart de Lagrée and Francis Garnier, *Voyage d'exploration En Indo-Chine Effectué Pendant Les Années 1866, 1867 et 1868* (Hachette, 1873); Lucien Fournereau and Jacques Porcher, *Les Ruines d'Angkor: Étude Artistique et Historique Sur Les Monuments Khmers Du Cambodge Siamois* (Ernest Leroux, 1890); Frank Vincent, *The Land of the White Elephant: Sights and Scenes in South-Eastern Asia* (Sampson Low, Marston, Low & Searle, 1873).

object's existence, made within hours or days of its excavation, in conditions that gave each exposure a precarious, hard-won quality — plates loaded by hand in darkness, developed in a flooded tower-laboratory, exposed through monsoon light. The difficulty was not incidental to the result but constitutive of it: each successful image marked the moment at which a monument or relief became available to knowledge at all, the point at which the photographic archive absorbed it and made it permanent in a way that the fragile brick and jungle-surrounded stone of the original could not guarantee for itself. The 1969 bombing destroyed a significant portion of Mỹ Sơn, including Tower A1, the site's most important structure and the monument that gave its name to an entire period of Cham architectural style — a structure Carpeaux had photographed and whose style Parmentier had typologically defined on the basis of their joint campaign. For those specific monuments, Carpeaux's photographs are not copies of what once existed but the primary surviving record of what was lost, the archive having outlasted the object it was made to document.

This archival significance also transforms the meaning of Carpeaux's multi-angle photographic practice at the Cham sites. At Angkor, systematic documentation from multiple viewpoints was a methodological thoroughness applied to monuments that existed massively in stone and retained, even after centuries of vegetation damage, a robust physical presence. At Mỹ Sơn and Đồng Dương, the same practice carried a different weight, though Carpeaux could not have named it as such: the sites were remote, politically peripheral, materially fragile, and embedded in a colonial situation whose long-term instability was not yet visible but was structurally present. His effort to approximate volumetric completeness through accumulated viewpoints — to produce, through the accumulation of flat indexical records, something approaching the three-dimensional fidelity of a mold — was an effort to extract from each object

everything that photography could extract, because the object's persistence could not be assumed. The stereo *vérascope*, the systematic coverage of each face of each tower, the dogged repetition of attempts at difficult bas-reliefs in poor light: all of these practices, read in retrospect, constitute an archival maximalism, a drive toward photographic comprehensiveness whose value becomes fully visible only in differential terms — where the 1969 bombing left structures standing, Carpeaux's photographs serve as an early baseline for conservation and restoration work; where it destroyed them entirely, those photographs become the monument itself. Photography at the Cham sites was not merely a record of what Carpeaux found; it was the form in which the most vulnerable of those sites would continue to exist after the conditions that made their survival uncertain had done their work.

These sets of photographs are the first scientific evidence for research taken by historians and epigraphers who were unable to visit the sites due to budget constraints and the uncertain conditions of the travels. In 1904 the EFEO bulletin devoted a section to Mỹ Sơn under the joint rubric "Le cirque de Mi-son (Quang-Nam)": Henri Parmentier's survey of the monuments and Louis Finot's edition of the inscriptions, published back-to-back and running to more than 170 pages between them. Parmentier's half supplied detailed drawings of the temples and photographs of the site during the excavations; Finot's read the thirty-two stone stelae, in Sanskrit and Old Cham, dated between the fifth and twelfth centuries. Together they constitute the first scientific description of the site.²⁸ There were 71 buildings at Mỹ Sơn at the time of the excavations, organized into groups labelled A through N.²⁹ At Đồng Dương site, there were

²⁸ Henri Parmentier, "Les monuments du cirque de Mi-son," *Bulletin de l'École française d'Extrême-Orient* 4 (1904): 805–896; Louis Finot, "Notes d'épigraphie: XI. Les inscriptions de Mi-son," *BEFEO* 4 (1904): 897–977. The two studies appeared under the joint rubric "Le cirque de Mi-son (Quang-Nam)" and circulate as a single offprint under that title; they are cited separately here because the division of labor between them — architecture to Parmentier, epigraphy to Finot — is itself at issue below.

²⁹ Because of the 1969 bombing, only 32 towers still exist today with 20 are still in something close to their original state.

about thirty buildings and some remains of a main tower, which is usually referred to as the principal sanctuary by the scholars. Surrounding the main tower are four small subsidiary structures, a great hall with surviving pillars and wall sections, and further tower on the remains of the causeway, and the surrounding enclosure walls.

The 1904 studies “Le cirque de Mi-son” by Parmentier and Finot represents a landmark in colonial archaeological scholarship because together they achieved what most contemporary excavation reports did not: a complete architectural survey, a typological chronology, and a full epigraphic analysis, integrated within a single publication and grounded in the systematic photographic archive produced by Charles Carpeaux. Where the British Archaeological Survey of India, reorganized by Curzon in the same year and governed by the newly enacted Ancient Monuments Preservation Act of 1904, prioritized conservation and legislative protection over excavation, and where the Dutch Oudheidkundige Dienst in Java was focused primarily on the structural restoration of Borobudur through what would become the method of anastylosis, the EFEO's approach at Mỹ Sơn was documentary and analytical first — understanding what existed before intervening in it.³⁰ Parmentier's identification of the Cham architectural styles, named after their defining monuments and anchored in the Mỹ Sơn A₁ typology, established the chronological framework for Cham art history that remains in use today, while Finot's epigraphic reconstruction of the Cham royal succession from the 4th to the 12th century gave the site a historical depth that transformed it from an archaeological curiosity into the central document of an entire civilization.

³⁰ For the works on ASI, read Tapati Guha-Thakurta, *Monuments, Objects, Histories: Institutions of Art in Colonial and Postcolonial India*, Cultures of History (Columbia University Press, 2004) and Durba Ghosh, “Stabilizing History through Statues, Monuments, and Memorials in Curzon’s India,” *The Historical Journal* 66, no. 2 (2023): 348–69, Cambridge Core; The Dutch conservation project has been discussed at length in A. J. Bernet Kempers, *Monumental Bali: Introduction to Balinese Archaeology & Guide to the Monuments* (Van Goor, 1978) and Marieke Bloembergen and Martijn Eickhoff, *The Politics of Heritage in Indonesia: A Cultural History*, Asian Connections (Cambridge University Press, 2019).

The report's significance is further sharpened by what subsequently happened to the site it documented. The 1901–1904 excavations were the first systematic intervention at Mý Son, and Carpeaux's photographs — taken from multiple angles in the effort to approximate the three-dimensional completeness of the moulages he produced alongside them — constitute for several structures the only record of their appearance before the American bombing of 1969 reduced them to rubble. In this respect the 1904 report is not simply a contribution to scholarship but an archival object in the fullest sense: a record that substitutes for the monuments themselves where those monuments no longer exist. The methodological seriousness of the EFEO's approach — the combination of photography, molding, *estampage*,³¹ architectural drawing, and epigraphic analysis — meant that what was produced in 1904 was comprehensive enough to serve this substitute function, something that a purely conservationist or purely structural approach would not have achieved. Furthermore, the use of photography also adheres to a French administrative culture. In 1851, the French official Prosper Mérimée spearheaded the first systematic governmental attempt to use photography to document monuments across France, which was known as the Mission Héliographique of 1851. He stated that “prohibiting the imagination is the archaeologist’s first duty.”³² In this regard, photography takes up a prohibitive role as it guard the objects that it represents against the subjective and imaginary constructs that might be introduced by researchers. In other words, the fundamental logic is that photography as a precise, rapid, and reproducible surrogate for the monument in the hands of the restorer, though the scale, ambition, and technical sophistication of Carpeaux and Parmentier was vastly greater. The duo

³¹ This technique is sometimes called rubbing in English though the original French term implies a more rigorous and professional application than the casual rubbing. It is a technique for producing a flat, two-dimensional record of a relief surface (commonly an inscribed stone) through direct physical contact. The process involves pressing dampened paper firmly against the surface, working into every hollow space so that it takes the exact contour of the carved or incised relief. Pigment is then applied. The result is a precise negative impression of the surface. In the case of Carpeaux, this technique was mostly used for Sanskrit inscriptions.

³² Paul Léon, *Mérimée et Son Temps* (Presses universitaires de France, 1962).

exceeded Mérimée's attempts by permanently storing their findings within an institution (EFEO) where their works remain accessible and actively used by conservation and restoration projects to this day. On the other hand, many of the buildings that Mérimée and his assistants photographed were destroyed by Napoleon III and the bulk of the negatives are archived at the Musée d'Orsay while prints are exceedingly rare.³³

The systematic erasure of indigenous labor from the official record of the 1901–1904 excavations begins with the very structure of the archive that Carpeaux and Parmentier produced. The photographs that constitute the foundation of Cham scholarship are, almost without exception, images of monuments and objects — never of the Cham, Vietnamese, and other indigenous workers whose physical labor made those images possible. Yet Carpeaux's journal, published posthumously by his mother as a travelogue and never incorporated into the scientific record, reveals constant and intimate dependence on indigenous knowledge, bodies, and goodwill. At Angkor-Thom, he notes that the monks came to shake his hand on his departure and "have me told that they love me very much"; at Mỹ Sơn, he records how the local children, who "used to flee like arrows the moment they saw us, are now clinging to my coat-tails," drawn by the coins he gave them for flowers and insects.³⁴ He treats the sick among his workers with his own medical supplies, distributes quinine to feverish coolies, hunts for food to supplement the camp's provisions, and notes with evident warmth the Cham and Vietnamese families who provided lodging and navigation across terrain that he and Parmentier could not have traversed alone. On his departure from Đồng Dương after four months, he writes that "these good peasants

³³ For more on Mission Héliographique, read Françoise Berce, *La Naissance Des Monuments Historiques. Correspondance de Prosper Mérimée à Ludovic Vittel, 1840-1848* (Comité des travaux historiques et scientifiques - CTHS, 1998); Roland Recht, "Hommage à Prosper Mérimée. L'invention Du Monument Historique," *Comptes Rendus Des Séances de l'Académie Des Inscriptions et Belles-Lettres*, 2003, 1573–85, Persée.

³⁴ Carpeaux, *Les ruines d'Angkor*, 97 (Angkor-Thom) and 178 (children).

had grown somewhat attached to us during these months; and they gave us a triumphal send-off... followed by at least 300 people."³⁵ These passages record something the official photographs for the excavations systematically suppress: that the excavations were not a French enterprise conducted in the jungle but a collaborative undertaking made possible at every stage by hundreds of named and unnamed indigenous workers — the “coolies” who wielded machetes through five-meter reeds at Mỹ Sơn, who hauled rubble from the buried towers of Đồng Dương in rail wagons they had constructed themselves, who loaded and carried Carpeaux's glass plates and moulage crates across flooded rivers, who cleared lichen from bas-reliefs under Carpeaux's personal supervision because the work was too delicate to be left unsupervised. None of these workers are named, counted, or credited in any of the published reports. Parmentier's study describes the architectural typology of the towers with meticulous precision, and Finot's the content of the inscriptions; neither records the labor of excavation except in the passive voice, as though the debris had cleared itself. In that generic separation between journal and bulletin lies a constitutive act of erasure: the journal, where the labor is visible, was filed as personal memoir; the report, from which the labor is absent, was filed as science.

³⁵ Carpeaux, *Les ruines d'Angkor*, 180.



Fig. 3.4. Plate 72 from Carpeaux's journal, titled "Le Hu Yen de Phan Tiet en costume royal" – "The Hu Yen of Phan Thiet in royal costume." Carpeaux, *Les ruines d'Angkor*, 95.



Fig. 3.5. Plate 92 from Carpeaux's journal, titled "Qui Nhone. — Embarquement du Résident de la province" — "Quy Nhon: the embarkation of the Résident of the province." Carpeaux, *Les ruines d'Angkor*, 122.

The contrast between memoir and report is not only textual; it is photographic as well. The posthumous travelogue assembled by Carpeaux's mother reproduces a body of images strikingly unlike the monument plates that entered the scientific record, and their difference in subject is also a difference in tone. Plate 72, captioned "Le Hu Yen de Phan Tiet en costume royal," is characteristic: it shows a group portrait on a village path, five figures before thatched houses, the costumed Hu Yen set among the plainer-dressed men around him.³⁶ This is a photograph made in the register of encounter rather than evidence, a record of a person met and a place passed through, not a typological specimen, though the distinction is less stable than it

³⁶ Carpeaux, *Les ruines d'Angkor*, 95.

appears. Fatimah Tobing Rony has shown how readily the encounter portrait shades into the type, the individual becoming a specimen of a people held to be vanishing; and Trinh T. Minh-ha's critique of documentary's claim to transparent access cautions against treating the informal image as the truer one simply because it appears less mediated.³⁷ The journal text that surrounds such images moves in the same register. Carpeaux notes the Mass said at six in the morning by Father Durand, his companion, in a church that was "simply a room in an Annamese house," the men to the right and the women to the left, most of them with "their hair unbound over their shoulders"; he records a distribution of rice wine and honey syrup after which the Hu Yen and his retinue are "beginning to be much moved," his euphemism for drunk; he describes a climb "terribly hard" that opens onto "splendid sites," and a night march in single file with the Hu Yen "at the head of the column, the missionary in the middle and I at the rear," watching for stragglers "whom the tiger would not have missed."³⁸ These are pictures and pages made of incident, weather, hospitality, and risk, the texture of a life lived on site rather than the monument the expedition was dispatched to secure. Yet they are not, for that reason, an innocent counter-archive. The encounters they record are structured throughout by colonial hierarchy: the local official posed in royal costume and named by his office, the missionary as fixed companion, the "most able-bodied men" selected and put "to the heavy loads," the porters arranged in a marching order designed around their expendability.³⁹ The journal's photographs and the bulletin's photographs were produced by the same camera, the same photographer, often on the same days; what distinguishes them is not that one is humane and the other cold, but that

³⁷ Fatimah Tobing Rony, *The Third Eye: Race, Cinema, and Ethnographic Spectacle* (Duke University Press, 1996); Trinh T. Minh-ha, "Documentary Is/Not a Name," *October* 52 (1990): 76–98.

³⁸ Carpeaux, *Les ruines d'Angkor*, 96 (the Mass and the congregation), 102 (rice wine and the climb), 107 (the order of march).

³⁹ Carpeaux, *Les ruines d'Angkor*, 107.

one admits the peopled, contingent, hierarchically organized world of the excavation while the other evacuates it. That a single field campaign generated both, and that only the depopulated archive was deemed admissible as knowledge, is itself evidence of the sorting at work, and a reminder that the silence of the scientific record about that world was a choice about what a photograph was permitted to be, not a limit on what the camera could see. Tina Campt's practice of listening to images — attending to what photographs made under administrative and colonial conditions register beyond the intentions of those who made them — suggests that these plates can be read for more than the hierarchy they document.⁴⁰

Beyond this division between memoir and report, the photographs reinforced the erasure structurally. Carpeaux records with a mixture of amusement and satisfaction that the local laborers were terrified of the sculptures they unearthed (the Buddha at Đồng Dương, the inscribed stones the workers addressed as Ong Đá) and that their superstitions worked to the excavators' advantage, since no worker wanted to keep what was dug up. What he does not record, and what the photographs do not show, is that this labor was coerced within a colonial system in which workers had no formal claim on the objects they unearthed, no recognition in the reports their labor made possible, and no presence in the archive their hands produced. The clean, minimalist framing of Carpeaux's photographs (monuments isolated against blank sky or jungle background, objects centered on neutral surfaces) is not merely an aesthetic choice but an epistemological one: it evacuates the human context of production from the image, presenting the ruins as though they had been discovered rather than excavated, found rather than made available through the organized coercion of indigenous bodies.

⁴⁰ Tina M. Campt, *Listening to Images* (Duke University Press, 2017).

This erasure of indigenous labor speaks to what Monica Landa describes as the politics of state-building, which prioritizes perception rather than reality. She remarks that the process of nation-state building must be examined "not as a project of monumental construction but as a disjointed and ongoing process of fragment accumulation."⁴¹ For the Cham people this erasure operated at an even higher level: not only were the laboring bodies absent from the archive, but the very narrative of who the Cham had been was composed for them, from the outside. The 1901–1904 excavations made possible Georges Maspero's *Le Royaume de Champa* (1910), the first and most ambitious attempt to sketch a "master narrative" of the kingdom — from the migration of the Cham to the Indochinese peninsula in the fourth century to the conquest of 1497 — and Parmentier's 1909 *Inventaire descriptif* was published in part to furnish that narrative with the descriptions of monuments and objects it required. Maspero, a colonial official who would become mayor of Haiphong and later Senior Resident of Cambodia, built his account from Chinese and Vietnamese literary sources and from Carpeaux's photographic reproductions of inscriptions, and the narrative he produced went essentially unquestioned for the first half of the twentieth century. Its authority rested less on completeness than on monopoly. As Bruce Lockhart has shown, Maspero and his EFEO colleagues viewed Champa through the prism of "Indianization," treating Cham civilization as worth studying only insofar as it bore Indian elements, a framework so dominant that George Coédès would later repeat it for Cambodia in his classic study of the "Hinduized states" of Southeast Asia.⁴² That a single colonial historian could fix the master narrative of an entire civilization, and that it could stand unchallenged for fifty

⁴¹ Monica Landa, *Visible Ruins: The Politics of Perception and the Legacies of Mexico's Revolution* (University of Texas Press, 2024), 16.

⁴² Bruce M. Lockhart, "Colonial and Post-Colonial Constructions of 'Champa,'" in *The Cham of Vietnam: History, Society and Art*, ed. Bruce M. Lockhart and Kỳ Phương Trần (NUS Press, 2011), 1-53; George Coédès, *The Indianized States of Southeast Asia*, ed. Walter E. Vella, trans. Susan Brown Cowing (Australian National University Press, 1975).

years, is itself a measure of the erasure: the French monopoly over epigraphy, archaeology, and history allowed the colonial state to produce a totalizing account of a people it had not fully understood and perhaps never would. The framework has not been held. Post-1954 scholarship has steadily contested Maspero's conclusions, and Yamagata Mariko's excavations at Trà Kiệu (1993–2004) have since uncovered evidence of strong Chinese influence in Champa's early centuries, but by then the narrative had already done its work.⁴³ As materials and objects excavated from the sites became available during the excavations, they needed a home, and a museum became the next step in this process of nation-state building, where the branding of the Cham as a lost civilization gave these objects their worth.

Museum and the Absence of Photography

In order to understand the significance of the 1901–1904 excavations, it is important to situate their findings among a network of knowledge institutions in which the museum is the dominant mode. As described by Anderson, the museum became a key pillar among the census and the maps in making a colonial nationalist program a reality because it's the force that re-organizes how history is gathered, presented, and interpreted.⁴⁴ Governed by EFEO, the libraries, museums, and later the excavation sites themselves became the infrastructures of knowledge accumulation—what Tony Bennett has called the “exhibitionary complex,” a coordinated apparatus through which colonial power ordered and displayed the cultures it claimed to study and preserve.⁴⁵ Museum was first and foremost a form of exhibition, and its history is

⁴³ Yamagata Mariko, “Trà Kiệu during the Second and Third Centuries CE: The Formation of Linyi from an Archaeological Perspective,” in *The Cham of Vietnam: History, Society, and Art*, ed. Bruce M. Lockhart and Kỳ Phương Trần (NUS Press, 2011), 81-101.

⁴⁴ Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (Verso Books, 2016), 256.

⁴⁵ Tony Bennett, *The Birth of the Museum: History, Theory, Politics*, Culture: Policies and Politics (Routledge, 1995).

intertwined with the institutionalization of archaeology as a discipline in Europe.⁴⁶ It is also, in these same decades, a media history. Alison Griffiths has shown that the turn-of-the-century museum, the international exposition, and early cinema belonged to a single visual-cultural formation, and that the museum operated as a medium in its own right, with a viewing regime that positioned the spectator and governed what could be seen and in what sequence.⁴⁷ The gallery that opened at Tourane in 1919 was not a neutral container for the objects the excavations produced; it was the final stage of the apparatus that produced them. In the nineteenth century, at the peak of the conquest of the Indochinese Peninsula, there was also a desire for antiquities from the colonies in France. In December 1891 and January 1892, Charles Lemire, a French colonial administrator in Annam, gathered some fifty Cham sculptures — chiefly from Trà Kiệu — and had them transported to Tourane. Rather than being sent to Saigon, the collection was first assembled in a public garden at Tourane, the *Jardin de Tourane*, which formed the "embryo" of the future museum; only later were some of the most significant pieces moved to Saigon, when the *École française d'Extrême-Orient* established its first museum there.⁴⁸ The formation of a museum dedicated to Cham culture is consequential to this accumulation of objects.⁴⁹

⁴⁶ For more on the museum as a form of exhibition, read Carol Duncan, *Civilizing Rituals: Inside Public Art Museums* (Routledge, 1995); Timothy Mitchell, "The World as Exhibition," *Comparative Studies in Society and History* 31, no. 2 (1989): 217–36; Timothy Mitchell, *Colonising Egypt* (University of California Press, 1991); On the institutionalization of archaeology as a scientific discipline, read Christopher Whitehead, *Museums and the Construction of Disciplines: Art and Archaeology in Nineteenth-Century Britain* (Duckworth, 2009); Suzanne L. Marchand, *Down from Olympus: Archaeology and Philhellenism in Germany, 1750–1970* (Princeton University Press, 1996); Nélia Dias, *Le Musée d'ethnographie Du Trocadéro (1878–1908): Anthropologie et Muséologie En France* (Éditions du CNRS, 1991).

⁴⁷ Alison Griffiths, *Wondrous Difference: Cinema, Anthropology, and Turn-of-the-Century Visual Culture* (Columbia University Press, 2002); Alison Griffiths, *Shivers Down Your Spine: Cinema, Museums, and the Immersive View* (Columbia University Press, 2008).

⁴⁸ Julian Richard Brown, "The Field of Ancient Cham Art in France: A 20th Century Creation — A Study of Museological and Colonial Contexts from the Late 19th Century to the Present" (SOAS, University of London, 2013), 200.

⁴⁹ Eilean Hooper-Greenhill offers a Foucauldian account of the museum as specific apparatus that produces knowledge by imposing classification and order on objects that have no intrinsic meaning, and her genealogical

In 1908, Parmentier proposed the establishment of a dedicated museum in his formal report to the Director of EFEO, citing the large volume of artifacts excavated from the sites and the inadequacy of existing storage arrangements, but this request was initially turned down. As documented by Pierre Baptiste and Thierry Zéphir, the museum's genesis was marked by persistent bureaucratic obstruction, shifting jurisdictions between EFEO, the Residency, and the municipality of Tourane, and a series of failed compromises about whether the collection should be housed in Tourane or transferred to Hanoi.⁵⁰ It was not until 1915 that construction began, and the Musée Cham de Tourane did not open its doors until April 1919—nearly seventeen years after the excavations that made it possible. The building itself was designed by architects Auguste DélaVal and then Auclair on the rocky knoll that had been Lemire's sculpture garden, and the sculptures that Parmentier had spent fifteen years urging officials to protect were finally installed inside it.⁵¹

The museum welcomed its first visitors in 1919 with a catalogue written by Parmentier himself, listing and describing all 268 artifacts stored and displayed at the museum. That catalogue remains to this day the only true catalogue of the collection ever produced. Its 114 pages are organized by category—inscriptions, cult images, architectural elements, decorative fragments—and each entry records the object's classification number, designation, museum location, origin, description, date, material, dimensions, provenance history, and bibliographic references. What the catalogue does not contain—what it conspicuously, systematically, and one might say programmatically excludes—is any mention of photography.

method treats the museum as a contingent effect of prior conditions rather than a natural destiny. For more on this apparatus of classification, read Eilean Hooper-Greenhill, *Museums and the Shaping of Knowledge* (Routledge, 1992).

⁵⁰ Pierre Baptiste and Thierry Zéphir, *Trésors d'art Du Vietnam : La Sculpture Du Champa, Ve-XVe Siècles* (2005; Réunion des musées nationaux : Musée des arts asiatiques Guimet, 2005).

⁵¹ Henri Parmentier, "Catalogue du Musée Čam de Tourane," *Bulletin de l'École française d'Extrême-Orient* (Hanoi) 19, no. 3 (1919): 1–105, 107–114, 3.

Given the enormous quantity of photographs produced by Charles Carpeaux during the 1901–1904 missions—approximately two thousand negatives in total, of which over two hundred prints documenting the Cham sites were digitized by the ISSI and EFEO in 2019—this absence is not incidental. The photographic archive existed, was large, was recognized as scientifically significant, and had already been drawn on in published EFEO bulletins. Carpeaux's name appears in the division of labor documented by the researchers at Guimet: he was charged with photography and the making of molds, while Parmentier handled architectural documentation.⁵² And yet not a single photograph was displayed at the museum when it opened, and Parmentier's 1919 catalogue does not cite a single photograph, acknowledge Carpeaux's name, or use the word “photographie” anywhere in its 114 pages.⁵³ Photography was, for Parmentier, a documentary technology for internal use—a tool for recording artifacts during excavation—not an object worthy of exhibiting or even citing alongside the stones themselves.

To understand why, it is necessary to read Parmentier's own explicit statement of his representational theory, laid out in the introduction to *the Inventaire descriptif des monuments čams de l'Annam* (1909)—the two-volume inventory he published a decade before the museum opened, and the work that the 1919 catalogue repeatedly cites as its bibliographic foundation. The introduction, addressed to his professional peers and colleagues within the EFEO, is the only place in Parmentier's substantial published output where he reflects systematically on the

⁵² Simon Delobel et al., *Missions Archéologiques Françaises Au Vietnam, Les Monuments Du Champa, Photographies et Itinéraires, 1902 et 1904* (Réunion des musées nationaux – Grand Palais, 2005).

⁵³ Parmentier, “Catalogue du Musée Čam de Tourane.” The claim rests on a search of the complete text: no form of *photographie* — nor *photographique*, *photographié*, *cliché*, *épreuve*, or *phototypie* — occurs anywhere in the catalogue; no illustration is credited to a photographer; and Carpeaux is named nowhere. The silence is pointed rather than incidental. Ten years earlier the *Inventaire* had discussed photography at length across its introduction (xiv–xviii), had grounded the honesty of the *géométral* in “the photographic general views in the first volume and ... the rich collection of negatives of Čam buildings which the École française d'Extrême-Orient at this hour possesses” (xvii), and had closed by recalling “the memory of my lamented friend, Ch. Carpeaux” (xx). The catalogue of the museum built to house the objects those campaigns produced does neither.

methodological choice between drawing and photography. What he writes there is not incidental to the museum's epistemic character: it is its theoretical charter.

Parmentier's argument begins with the problem of illustration. The *Inventaire* would need to be accompanied by images; the question was which kind. For the sculptures, he writes: "for the sculptures, over photography, which gives the raw mass and exaggerates detail in illuminated areas while drowning the dark regions in a pale magma, we prefer drawing."⁵⁴ For the monuments, the objection is different but equally decisive: "for the monuments, no serious information can be provided here on their plans and interiors by photography; as for the proportions of facades, these are falsified by perspective, above all in a country where the abundance of vegetation makes any stepping back impossible."⁵⁵ The remedy, in both cases, is the geometric drawing, the *dessin géométral*: plans, elevations, cross-sections, and axonometric reconstructions executed at a uniform scale of three-quarters of a centimeter per meter.⁵⁶ That scale was not a neutral convenience. Parmentier arrives at it by weighing two incompatible demands — plates small enough to remain physically manageable, large enough to remain legible — and settles on a single figure applied to every monument regardless of size, so that a tower and a minor shrine differing sevenfold in dimension are rendered by the same rule. A uniform scale of this kind does what Jonathan Sterne argues formats do: it settles, in advance and for every object that will ever pass through it, what is worth preserving and what may be let go.⁵⁷ Sixteen years later the 1925 Instructions convert the standard into an obligation, prescribing the

⁵⁴ Henri Parmentier, *Inventaire descriptif des monuments çams de l'Annam. Tome premier: Description des monuments*, vol. 1, Publications de l'École française d'Extrême-Orient, vol. XI; *Inventaire archéologique de l'Indochine*, II (Imprimerie Nationale; Ernest Leroux, éditeur, 1909), <https://gallica.bnf.fr/ark:/12148/bpt6k98804b>, xiv-xv.

⁵⁵ Parmentier, *Inventaire*, xiv-xv.

⁵⁶ Parmentier, *Inventaire*, xv.

⁵⁷ Jonathan Sterne, *MP3: The Meaning of a Format*, Sign, Storage, Transmission (Duke University Press, 2012).

squared paper, the ruled ground glass, the numbered notice and the graphite number written on the gelatin — an archive defined not by what it narrates but by its rules of address, in Wolfgang Ernst's sense of an archive that is operative rather than narrative.⁵⁸

The depth of Parmentier's commitment to this standard becomes clear in what follows. He describes in meticulous detail how the geometric surveys were conducted—measurements taken from the plumb of surviving verticals, dimensions of obscure vault heights estimated from the number of brick courses “jagged on a considerable average,” incomplete facades reconstructed by combining the best-preserved elements from multiple damaged faces.⁵⁹ Where direct measurement was impossible because the structure was too dangerous to climb, he developed what he calls “a personal technique”—for deriving geometric accuracy from distorted photographic plates, correcting for the inclination of the lens when the camera had been tilted due to the impossibility of standing back far enough from the monument. Photography here enters his methodology, but only as an instrument subordinate to the drawing: the photograph is a raw datum from which the geometric truth must be extracted, not itself a form of knowledge. He writes: “complete series of photographs taken of each edifice and for all its faces... were converted to geometric projection by the usual methods on the very precise base provided by the meticulous drawing of the plan.”⁶⁰ The photograph is processed into a drawing. The drawing is the product. The camera is the means.

Parmentier also offers a validation of his method that reveals how seriously he held it. During the consolidation of the Pô Nagar tower at Nha Trang, scaffolding allowed him to check his geometric restitution against direct measurement. The result: an error of 0.28 meters over a

⁵⁸ Wolfgang Ernst, *Digital Memory and the Archive*, ed. Jussi Parikka, Electronic Mediations (Minneapolis: University of Minnesota Press, 2013).

⁵⁹ Parmentier, *Inventaire*, xviii.

⁶⁰ Parmentier, *Inventaire*, xvii.

height of 22.48 meters, “an error in drawing at our scale of less than one millimeter per 10 meters of actual height.”⁶¹ This is the language of precision measurement, of engineering verification, of scientific method as it was understood within the Beaux-Arts tradition from which Parmentier’s training descended. The drawing is not merely prettier than the photograph; it is, by this standard, demonstrably more accurate.

The clearest evidence that this representational hierarchy was not Parmentier’s private conviction but the operating doctrine of the EFEO is a document he composed sixteen years after the *Inventaire* and six years after the Musée Ćam opened its doors. In the 1925 volume of the *Bulletin de l’École française d’Extrême-Orient*, the institution’s annual *Chronique* reproduced, over some twelve printed pages, the *instructions* Parmentier had drafted for the inspectors of the Archaeological Service who were to compile the definitive inventory of Khmer monuments. Where the *Inventaire* introduction had stated Parmentier’s representational theory as a justification for choices already made, the 1925 instructions translate that theory into a procedure, a set of binding directives addressed to his subordinates and colleagues both at home and overseas, telling them in detail how knowledge of a monument was to be produced. Read against the museum, the document set up a framework for institutionalizing knowledge of the indigenous in its most explicit form: it is the methodological charter of EFEO archaeology written out as a manual, and photography appears in it exactly where the museum had placed it—present, useful, and firmly subordinate to the drawn line.

The instructions open by ranking the three available means of documentation, and the ranking is unambiguous. “Our documentation,” Parmentier writes, “must therefore consist of a detailed written description and a complete representation by drawing and photography.” But the

⁶¹ Parmentier, *Inventaire*, xviii.

three are not equal. The inspector is told that the written description “at least ought to suffice entirely by itself, and consequently that sketches, surveys, or photographs should never come except as a supplement, in such a way that their loss could never render the pure description insufficient.”⁶² The criterion is survival under loss: the description must be built so that, were every sketch and plate to vanish, the record would still stand. Photography is defined here not as a form of knowledge but as a contingency—a supplement whose disappearance must cost nothing. Parmentier even concedes the human appeal of the image against the labor of the word—“it is a tiresome and tedious rule—it is easier to make a sketch than a long and delicate description”—before insisting that the description is nonetheless “the best means of filling the deficiencies inherent either in the drawing, always seen from a single point, or in photography, with its mishaps and the too frequent opacity of its shadows.”⁶³ The objection to photography is the same one stated in the 1909 introduction, now hardened into a rule for others to follow: the photograph drowns the dark regions, and what it shows is bound to a single point of view.

Where the photograph is admitted, it enters under conditions that confirm its instrumental status. The most revealing passage is Parmentier's account of the *géométral photographique* — the photographic orthographic drawing — a procedure he credits to Dr. Le Bon and says was “of great assistance to me for the establishment of the *Inventaire des monuments čams*,” and which he now sets out as a teachable method.⁶⁴ The instruction is then made mechanical: a water level fitted permanently to the camera's baseboard, a ground glass ruled in squares parallel to the axes of the plate, so that “the slightest displacement of the camera then betrays itself by the immediate

⁶² Henri Parmentier, “Instructions pour l'établissement des notices de l'inventaire détaillé des monuments khmers,” in “Chronique,” *Bulletin de l'École française d'Extrême-Orient* 25, no. 3/4 (1925): 574–575. Translations from the French are the author's own.

⁶³ Parmentier, “Instructions,” 575.

⁶⁴ Parmentier, “Instructions,” 576. For the 1909 antecedent, see *Inventaire descriptif des monuments čams de l'Annam*, vol. 1, xvii, where Parmentier describes “a procedure of our own” (*un procédé qui nous est propre*) for re-establishing the *géométral* from a negative distorted by the tilt of the camera.

discordance of the horizontals or of the verticals of the image with the divisions of the ground glass.”⁶⁵ The photograph is valuable only insofar as it can be disciplined into the geometry of a measured drawing—corrected for the tilt of the lens, keyed to a plumb-line and a graduated rule, and finally “converted to geometric projection.” Parmentier offers to perform that conversion himself: “I will make these perspective restitutions at Hanoi if need be, if you send us the photographs under these conditions.”⁶⁶ The plate travels from the field to Hanoi not as a finished document but as raw material for the architect’s pencil; the knowledge is manufactured at the center, out of the drawing, from a photograph treated as a distorted datum to be rectified. The one place the instructions attend to the photographic negative as a physical object is a footnote about filing: Parmentier reminds inspectors that a number written in graphite pencil on the white gelatine in the darkroom “always holds during development without hindering it, and remains visible after the fixing of the plate.”⁶⁷ The negative matters as an object to be catalogued and stored, the same fate the 1909 introduction had assigned to Carpeaux’s prints in the albums of the Trocadéro. It is administered, not exhibited.

If photography is the instrument, the description is the act of synthesis. The 1925 instructions make the synthetic character of the procedure unusually visible, because Parmentier is forced to say out loud what the description is *for*. He directs the inspector not to take down a single edifice in isolation but to abstract a type: “avoid descriptions that gather together several similar edifices,” and instead “take a typical one, of which a detailed study will be made,” relating the others to it “*individually*, with mention of the slight differences.”⁶⁸ The instructions

⁶⁵ Parmentier, “Instructions,” 576.

⁶⁶ Parmentier, “Instructions,” 576. The procedure is Parmentier’s *géométral photographique*: he credits it to Dr. Le Bon, “who has himself used it in his works,” and notes that it “was of great assistance to me for the establishment of the *Inventaire des monuments éams*.” The remark on numbering negatives is the footnote to the same passage (576 n. 1).

⁶⁷ Parmentier, “Instructions,” 576 n. 1.

⁶⁸ Parmentier, “Instructions,” 575.

then supply, in numbered paragraphs, the very categories of analysis the museum would later use to arrange its galleries — plan, exterior aspect, base, cornice, colonnette, lintel, pediment — and they ask the inspector to assign each monument to a stylistic period: "primitive Khmer art of the simple or of the rich type, art of Jayavarman II, of Indravarman, of Sūryavarman, of Añkor Vat, archaïsing period."⁶⁹ This is the same typological scaffolding, primitive, classical, and derivative, through which the 1919 catalogue ordered 268 Cham sculptures. The fieldwork procedure and the museum display share a single epistemology: both move from contingent particulars to an ordered whole. The inspector composes the type out of scattered ruins, and the gallery then re-presents that composition to the visitor as the settled history of an art.

The instructions also disclose what the museum's finished arrangement could not: the indigenous labor on which the synthetic record depended, and the colonial hierarchy through which it was filtered. Parmentier tells the inspectors to take names down "by ear" and to have them "written in original characters by a lettered native of the place," since "the exact transcription will be made afterwards at the School by the philologists" — while warning them to "be wary of the corrections of the natives employed on the spot, and notably of the interpreters, or even of the bonzes," who "too easily, with their habitual pretension, believe they are restoring the learned form of the name."⁷⁰ He likewise instructs them to "make little use of the native draughtsmen, who are always very mediocre in survey work."⁷¹ The Vietnamese and Cambodian workers who carried the survey, naming the sites, transcribing the inscriptions, and drawing under direction, appear in the procedure only to have their competence pre-emptively discounted, their knowledge admitted as raw input and then disqualified as unreliable. The chronicle that

⁶⁹ Parmentier, "Instructions," 579 (§9, "Exterior aspect"). The numbered rubrics run §§5–40, 579–587; base and cornice are §§23–24, colonnettes §26, lintel §27, pediment §§28–29.

⁷⁰ Parmentier, "Instructions," 578 (§4, "Designation and localization").

⁷¹ Parmentier, "Instructions," 575 (§2, "Method").

surrounds the instructions makes the same labor visible in passing: it records that the stones reached the museum through the “benevolent assistance” of customs officials and the unnamed crews of mining prospectors, and that the EFEO’s own removals of décor were to be governed by the warning that an ancient edifice left unguarded is “easily transformed into a precious cheap quarry of materials.”⁷² The drawn line that the museum presented as the pure distillate of scholarship was produced by hands the same scholarship was careful never to credit. This is the structural erasure traced earlier in this chapter, here visible at the level of the field manual itself.

One further feature of the instructions bears directly on the museum’s epistemic character. Parmentier insists that the record be kept “in an integral manner and without ever troubling about repetitions,” which “will be suppressed only in the definitive redaction,” and that conjecture be quarantined from description: every hypothesis about “arrangements presumed and not carried out” belongs in a supplement, “each article having itself to give the rigorous description of the simple present state.”⁷³ The same scruple governs the inscriptions: the architect-inspector is to describe an inscription’s physical support and fix its location exactly, leaving the reading of the text to the philologists at Hanoi. Knowledge, in this scheme, is assembled in stages and at a distance from the object, each provisional notation revisable by argument. This is the scholarly mode the section has contrasted with the image. Parmentier is explicit that both media fail, and fail differently: the written description is “the best means of filling the deficiencies inherent either in the drawing, always seen from a single point, or in photography, with its mishaps and the too frequent opacity of its shadows.”⁷⁴ The 1925

⁷² Parmentier, “Instructions,” 578 (designation and localization; native draughtsmen at 575). On the circulation of objects to the museum and the risk of monuments serving as quarries, see “Chronique,” *BEFEO* 25, no. 3/4 (1925): 571, 578.

⁷³ Parmentier, “Instructions,” 577 (§2, “Method”).

⁷⁴ Parmentier, “Instructions,” 575.

instructions thus close the circuit between the field and the gallery. The museum that opened in 1919 displayed objects whose meaning had been fixed by the drawn line; the 1925 manual shows that same line being specified, six years later, as the mandatory product of all future EFEO fieldwork. Photography is written into the procedure, named and explained and even taught, but always as the means and never as the end. The Musée Čam de Tourane was not photographically silent by oversight. It was the exhibition wing of an institution whose field manual instructed its agents to convert every photograph into a drawing and to treat the drawing as the only thing worth keeping.⁷⁵

Peter Galassi's 1981 work *Before Photography: Painting and the Invention of Photography* gives this opposition a name and a history. It provides a framework for understanding why Parmentier's position was not personal idiosyncrasy but the expression of a coherent and historically grounded epistemology of representation, one whose roots run deep into the Western pictorial tradition. Galassi argues that photography was "not a bastard left by science on the doorstep of art, but a legitimate child of the Western pictorial tradition,"⁷⁶ born of a centuries-long transformation in how Western painters understood the relationship between vision and picture-making. The crucial transformation, in Galassi's account, is the shift from what he calls synthesis to analysis as the dominant strategy of pictorial representation.

The synthetic tradition, exemplified by Paolo Uccello, begins with the picture plane and composes the world into it: the painter constructs a rational, comprehensive, hierarchically ordered image in which every element is given its proper place and significance relative to the

⁷⁵ Parmentier, "Instructions," 577 (integral documentation and the treatment of epigraphic supports). The instructions explicitly position his notice as the developed continuation of the inventory begun by Lajonquière and of Parmentier's own supplement in *BEFEO* 13, no. 1, confirming the methodological continuity with the 1909 *Inventaire descriptif* discussed above.

⁷⁶ Peter Galassi, *Before Photography: Painting and the Invention of Photography* (The Museum of Modern Art: Distributed by New York Graphic Society, 1981).

whole. The analytic tradition, exemplified by Edgar Degas, works in the opposite direction: the painter seizes an aspect of a pre-existing world, accepting the contingent, fragmenting consequences of a particular viewpoint and a particular moment. As Galassi writes, “Uccello worked from pieces to a whole: he synthesized. Degas worked from a whole to an aspect: he analyzed.”⁷⁷ The photographer, try as he might, could not follow Uccello’s procedure: “the photographer was powerless to compose his picture. He could only, in the popular phrase, take it.”⁷⁸ Photography therefore belongs constitutively to the analytic tradition—it produces “a new pictorial syntax of immediate, synoptic perceptions and discontinuous, unexpected forms... devoted to the singular and contingent rather than the universal and stable.”⁷⁹

Parmentier’s preference for drawing over photography maps onto this fault line. The architectural drawing—the *dessin géométral*—is a quintessentially synthetic medium: it begins from the established plane of the picture, constructs a rational ordering of the monument’s three-dimensional form into two dimensions, and produces an image in which every element is given its proper place and measurable relationship to every other. It “composes” in Galassi’s sense and is an act of the mind organizing what the eye has seen. The photograph, by contrast, is analytic. It records “not the physical reality before the lens but its visible aspect, determined by a specific point and scope of view, at a particular moment, in a particular light,”⁸⁰ exactly what Parmentier objects to when he writes that photography “exaggerates detail in illuminated areas while drowning the dark regions in a pale magma.”⁸¹ The photograph gives too much of the wrong kind of information, the contingent surface appearance of one particular afternoon—and not

⁷⁷ Galassi, *Before Photography: Painting and the Invention of Photography*, 17.

⁷⁸ Galassi, *Before Photography: Painting and the Invention of Photography*, 17.

⁷⁹ Galassi, *Before Photography: Painting and the Invention of Photography*, 25.

⁸⁰ Galassi, *Before Photography: Painting and the Invention of Photography*, 29.

⁸¹ Parmentier, *Inventaire*, xiv.

enough of the right kind: the monument's architectural logic, its proportional system, its structural relationships, its formal identity across time. Mary Ann Doane uses the term "contingency" to describe this excess, the photographic image's registration of the particular and the unrepeatable, and she argues that the modern archive is the apparatus assembled to absorb and manage it.⁸² Parmentier's response is of a different order. Rather than storing the contingent and sorting it afterwards, he converts it at the moment of drawing into the general, so that the archive he builds contains no contingency to manage.

Galassi finds the cultural articulation of this divide in Baudelaire's 1859 Salon review, the first Salon to include photographs. Baudelaire condemned both photography and the landscape painting it resembled for the same reason: each opened a window and treated "the whole space contained in the rectangle of that window—trees, sky and house—" as a "ready-made poem."⁸³ For Baudelaire, imagination was a synthetic faculty, "the queen of the faculties": art must be composed, not merely taken.⁸⁴ Parmentier was not Baudelaire, and his objections to photography are technical rather than aesthetic. But his position is grounded in the same fundamental conviction: the picture must be composed. The camera captures what happened to be in front of it; the architect's pencil renders what matters. The photograph is an index of a visible aspect; the drawing is an analysis of an architectural truth.

The 1919 catalogue enacts this hierarchy in its documentary practice. Three moments make the substitution of drawing for photography structurally visible. In the entry for the Trà Kiệu pedestal ensemble (catalogue no. 22,2), Parmentier notes that a drawing published in the

⁸² Mary Ann Doane, *The Emergence of Cinematic Time: Modernity, Contingency, the Archive* (Harvard University Press, 2002).

⁸³ Charles Baudelaire, "The Salon of 1859," in *Art in Paris, 1845-1862*, ed. and trans. Jonathan Mayne (Phaidon, 1965).

⁸⁴ Baudelaire, "The Salon of 1859."

Inventaire descriptif contains a drafting error—the spout of the ablution basin is drawn 0.23 meters too long at the scale used—and he provides the corrected dimension from his own measurements. In the entry for a gable antefix fragment from Phong Lê (28,3), he records the height dimension from “one of my old measured drawings”—explaining that the upper portion of the piece has since broken off; the drawing is now the sole record of the object’s original state.⁸⁵ And in the entry for the Ba Nghi garuḍas (41,3–5), he criticizes a published plate of one of the figures as incomplete: the wings and feather halo are missing from the illustration, and the muzzle is not rendered with sufficient distinctiveness. In each case, the drawn line functions as the standard against which the physical object is measured, corrected, and remembered. The photograph is absent from all three entries—not because Carpeaux’s camera had not been at these sites, but because the photograph is not, for Parmentier, a form of scholarly evidence.

⁸⁵ Parmentier, “Catalogue du Musée Čam de Tourane,” 70.

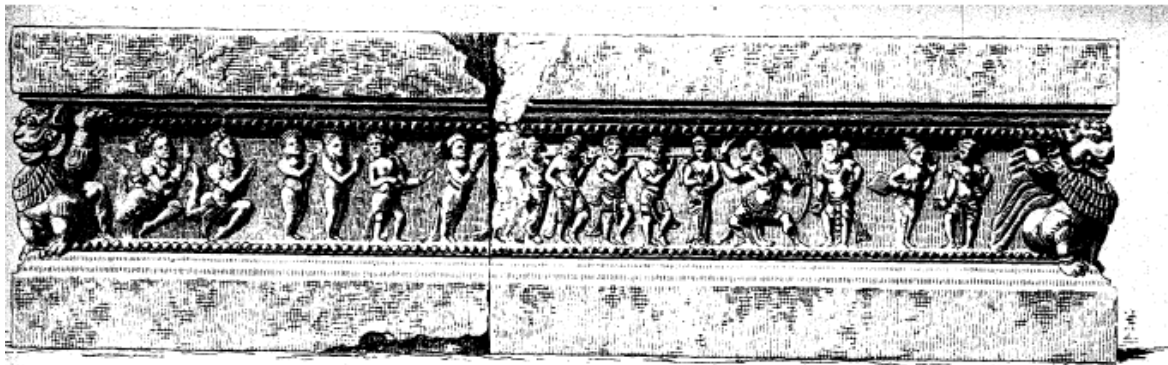


Fig. 61. — Trà Kiệu. — Piédestal, face A. Longueur : 1 m. 91.

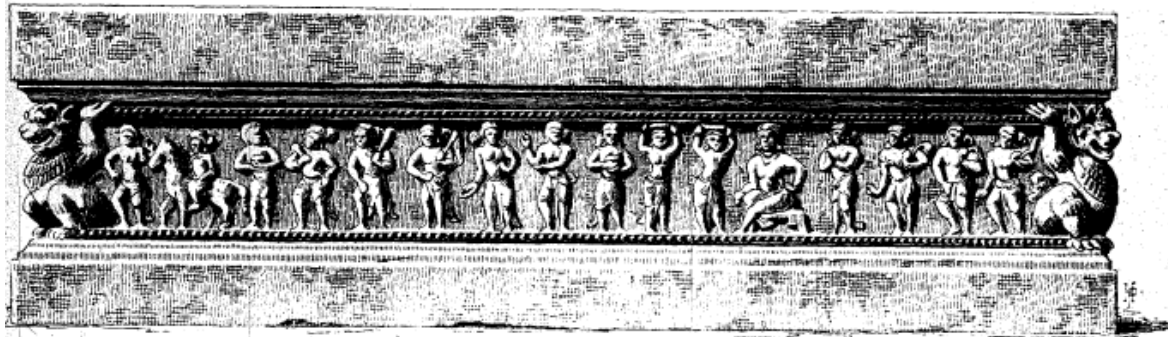


Fig. 62. — Trà Kiệu. — Piédestal, face B. Échelle : 10 centimètres par mètre.

Fig. 3.6. The drawings 61 and 62 by Parmentier illustrate the pedestals at Trà Kiệu (*Inventaire*).

The most extended instance of Parmentier's interpretive methodology—and the one that reveals what drawing could do that photography could not—is his description of the frieze of miniature figures running around the four faces of the Trà Kiệu pedestal, the object the 1919 catalogue calls the finest piece of Cham art and catalogue no. 22,2 identifies as a *lînga* pedestal of the Primitive period. The pedestal's die is carved with a continuous frieze of figures approximately fifteen centimeters tall—dancers, attendants, horsemen, flying apsaras, figures in attitudes of prayer, submission, and meditation—which Parmentier believes retrace “the different phases of a legend.”⁸⁶

His description of this frieze is not a verbal supplement to a photograph. It is the primary record, the authoritative document of what the frieze contains. Parmentier works around the

⁸⁶ Parmentier, *Inventaire*, 293.

pedestal face by face, figure by figure, numbering each in sequence and recording its attitude, gesture, costume, and relationship to its neighbors with a precision that no contemporary photograph of the object at that scale could have conveyed. He notes, for each figure, the position of the hands and arms, the direction of movement, the character of the drapery, the presence or absence of specific attributes. Of figures 13 and 14 he observes that they are “barely clothed” and that their “absence of costume might cause them to be taken for slaves or savages.”⁸⁷ Of figures 15 and 16 he records that they are flying “right leg bent downward, left leg folded in the air,” and that the latter at least holds a lotus bud. Of the horseman at figure 15 on Face B he writes that his “right arm at the horse’s ears, left hand hanging on the thigh.”⁸⁸

What Parmentier is doing here is not description in the ordinary sense—it is interpretation performed through the medium of precise verbal notation, which functions in close coordination with the drawn plates in the *Inventaire*’s atlas. The text tells the reader what each figure is doing and where; the plate shows the figure’s formal properties in geometric projection. Together they produce an account of the object that the photograph cannot: one that translates the contingent surface of the carved stone—weathered, unevenly lit, difficult to resolve at fifteen centimeters—into a rational, legible, analyzable record. Parmentier is explicit about the limits of this procedure. He acknowledges that the attitudes of the figures are “rather difficult to distinguish” and that his interpretation is “given in a precise form in order to avoid repeated dubitative modes, has only a hypothetical value.”⁸⁹ Precision is thus, for Parmentier, a methodological choice, not a claim to certainty. It is a refusal of the photograph’s characteristic

⁸⁷ Parmentier, *Inventaire*, 296.

⁸⁸ Parmentier, *Inventaire*, 297.

⁸⁹ Parmentier, *Inventaire*, 293.

mode in favor of a scholarly convention that commits the analyst to a specific reading, flagged as provisional, which can be argued with and revised.

Julian Richard Brown, in his dissertation on the formation of Cham art as a colonial category, argues that Parmentier's line drawings were not neutral instruments of record but "subjective constructions"—interpretive acts that selected, idealized, and normalized the objects they depicted.⁹⁰ This is correct as far as it goes, and the Trà Kiệu pedestal description confirms it: Parmentier's verbal and drawn rendering of the frieze is indeed an interpretation, and the choice of which faces to describe first, which figures to linger over, and which attributes to note is inevitably selective. But Brown's formulation of "subjective constructions" risks implying that the photograph would have been more objective, more neutral, more faithful to the object as it actually is. Galassi's analysis complicates this assumption. Photography, for Galassi, is not the vehicle of objectivity against which drawing's subjectivity is measured. In highlighting how early practitioners of photography often struggled with how the camera included too little or too much detail, Galassi argues that photography is a medium with its own constitutive conditions of representation, recording "not the physical reality before the lens but its visible aspect, determined by a specific point and scope of view, at a particular moment, in a particular light."⁹¹ Both drawing and photography are interpretive acts; the difference is in the nature and direction of the interpretation. The drawing synthesizes, idealizes, and analyzes; the photograph indexes a contingent appearance — though the index, as Tom Gunning has argued, guarantees considerably less than the evidentiary rhetoric around photography has claimed, since a causal

⁹⁰ Julian Richard Brown, "The Field of Ancient Cham Art in France: A 20th Century Creation: A Study of Museological and Colonial Contexts from the Late 19th Century to the Present" (PhD thesis, SOAS, University of London, 2013).

⁹¹ Galassi, *Before Photography: Painting and the Invention of Photography*, 29.

link to what stood before the lens says nothing about the truth of what the image appears to show.⁹² Thus, Parmentier knew which kind of knowledge he was after and he chose accordingly.

This privilege of drawing over photography was structural to the Beaux-Arts training Parmentier had received as a government-certified architect and to EFEO's institutional epistemology. Galassi's history locates the synthetic tradition—to which the architectural drawing belongs—in the perspective-based practice of Renaissance and post-Renaissance painters who conceived of the visual pyramid as “a static, neutral container, within which he organized the elements of his picture.”⁹³ The Beaux-Arts school in which Parmentier trained perpetuated this synthetic ideal in its purest form: the plan, the elevation, and the cross-section are the instruments through which the architect grasps the three-dimensional object and renders it knowable in two dimensions without the distortions that perspective—and photography—inevitably introduce. The geometric drawing “composes” in exactly Galassi's sense: it is the mind organizing what the eye has seen, extracting the rational structure from the contingent appearance.

The *Inventaire*'s introduction reveals how fully Parmentier inhabited this tradition. His description of the survey methodology at the most difficult sites—where the structure was too dangerous to climb and exact measurements were impossible—is a statement of what the synthetic tradition demands even at the limit of its practicability. He will not represent what he has not verified; he will not draw an element “never, despite any established personal conviction, to represent a single element which does not still figure in that place at some point or other of the building.”⁹⁴ The drawn line is not merely a representation of the monument; it is a claim about

⁹² Tom Gunning, “What's the Point of an Index? Or, Faking Photographs,” *Nordicom Review* 25, nos. 1–2 (2004): 39–49.

⁹³ Galassi, *Before Photography: Painting and the Invention of Photography*, 16.

⁹⁴ Parmentier, *Inventaire*, xvi.

what the monument actually is, answerable to the discipline of verification. This is the epistemological backbone of the 1919 museum catalogue: the objects displayed are known (their formal properties established, their stylistic relationships analyzed, their art-historical significance determined) through the drawn line. Photography, which can only show how something looked on a particular afternoon, adds nothing to this knowledge and might distract from it.

This hierarchy had direct institutional consequences. When the museum opened in 1919, visitors encountered 268 Cham sculptures arranged by site of origin and art-historical period, labelled and described according to Parmentier's typological system, with reference numbers keyed to his printed catalogue. The display was organized to communicate the history of Cham artistic development: primitive, cubic, mixed, classical, derivative, pyramidal, as Parmentier had reconstructed it through the comparative analysis of formal features. What it did not communicate was the process by which those objects had been found, transported, and transformed into museum pieces: the excavations, the camps, the negotiations with residents and priests, the work of unnamed Vietnamese laborers who moved multi-ton sandstone blocks through terrain without roads. Carpeaux's photographs, had they been displayed, would have made that process visible.

In an analysis of the formation of the museum, Brown argues that "Cham art" is not a stable historical object but a twentieth-century colonial creation. Brown traces how the choices made by Parmentier and his successors of what to collect, how to classify, what to display, were not neutral acts of preservation but active constructions of knowledge. The exclusion of photography from the museum's inaugural moment is one of those choices, and it shaped the institution's epistemic character for decades. The Musée Čam de Tourane that opened in 1919

was a museum of objects, not of processes; of products, not of labor; of form, not of event. The drawn line, not the photographic exposure, was its fundamental unit of meaning. And as Galassi's analysis makes clear, this was not merely a conservative preference or a disciplinary habit: it was the expression of a coherent and historically grounded representational theory, one in which the photograph was constitutively unsuited to the kind of knowledge the museum was in the business of producing.

There is one place in Parmentier's published writings where Carpeaux's contribution is acknowledged. It appears not in the body of any scientific publication—not in the *Inventaire*, not in the 1919 catalogue, not in the EFEO bulletins—but in the closing acknowledgments of the *Inventaire*'s introduction, after the tributes to Finot, Cadière, and Durand, after the thanks to his brother for proofreading: “Finally I wish most especially to recall here the memory of my lamented friend, Ch. Carpeaux, who for two years (1902-1903) brought to these researches an assiduous help and whose devoted collaboration made less painful the arduous, but so fruitful, task of the excavations of Mĩ Son and of Đồng Dương.”⁹⁵ The word “mémoire” (memory) signals a hard truth, that Carpeaux had been dead for five years by the time the *Inventaire* was published. However, he is commemorated as a personal loss, not credited as a scientific collaborator. His contribution is characterized as “aide” (assistance) and “collaboration dévouée” (devoted collaboration). The camera, the plates, the two thousand negatives produced under conditions of extraordinary physical difficulty: none of these appear. The scientific record that those negatives made possible does not acknowledge the medium through which it was produced.

⁹⁵ Parmentier, *Inventaire*, xx.

This erasure is consistent and structural. Photography does not appear in the *Inventaire*'s introduction as a form of knowledge. It appears only as a subordinate instrument: photographs are taken to produce measurements that are then converted into geometric drawings; the photographs themselves are deposited in the EFEO's archives, where "a certain number of prints figure in the albums of the Trocadéro."⁹⁶ The albums are thus the destination of the souvenir, not the laboratory of knowledge, and Carpeaux's photographs are filed under personal memory and institutional decoration. The drawn plates—Parmentier's and those executed from his instructions—are the mediated scientific products. The museum, when it finally opened in 1919, was built on this foundation: a monument to the synthetic tradition, staffed by the drawn line, photographically silent.

The photographs eventually found their way into the museum—but only much later, and under very different circumstances. Photographs of the Cham ruins currently displayed at the Museum of Cham Sculpture in Da Nang and at the Mỹ Sơn Sanctuary include images that are the last surviving records of structures since destroyed—most notably Tower A1 and A10 at Mỹ Sơn, the par excellence of Cham architecture carpet-bombed in 1969 and now existing only in the photographs from Carpeaux and Manikus. This irreversible loss clarifies what was at stake in Parmentier's original exclusion: by treating photography as a private documentary tool rather than a public historical medium, EFEO consigned photographic archive to institutional obscurity for decades, leaving the photographs to re-emerge only once the structures they recorded had ceased to exist. The photograph's afterlife was precisely the life of what it had replaced.

⁹⁶ Parmentier, *Inventaire*, xvii.

From Deserted Ruins to a Theme Park

If the museum enclosed the Cham sculptural archive within stone walls and drew strict lines around what counted as legitimate knowledge, the ruins themselves were subjected to a very different process—one that moved them not inward toward the archive but outward toward the world, from deserted overgrowth to UNESCO World Heritage Site, from scientific specimen to tourist destination, with photography performing the crucial work of transformation at every stage. To trace this trajectory of how these monuments were “forgotten” and then “remembered” is to understand how the same photographic logic that Parmentier excluded from the museum was, simultaneously, being mobilized beyond its walls to produce the global heritage that the museum could never have created on its own.

That trajectory is, before it is anything else, the construction of a category. The transformation of the ruins and artifacts of the Cham culture from a “forgotten civilization” into a UNESCO inscription exemplifies how the French excavations inadvertently produced colonial nationalism in Anderson’s formulation. The very word that would name the outcome was itself a recent formation. In Vietnamese, the term “heritage” is not an old indigenous word but a part of the modern Sino-Vietnamese vocabulary that solidified in the twentieth century—*di sản*. Both elements come from Chinese roots: *di* (遺) means “to leave behind, to bequeath, what remains,” and *sản* (產) means “property, produce, assets,” so the literal sense is close to “left-behind property” or “inherited estate”—near the etymology of the English heritage (from the Latin *heres*, “heir”) and closer still to “inheritance.”⁹⁷ In Vietnamese, the word now used for heritage — *di sản* — is Sino-Vietnamese rather than an inherited native term, and its arrival in the

⁹⁷ Thụy Bất Nhi, “Đừng cúng nhắc với từ ‘di sản,’” Văn Hóa, *Báo Đà Nẵng*, November 13, 2022, <https://baodanang.vn/dung-cung-nhac-voi-tu-di-san-3026830.html>.

language of cultural protection is recent and datable. The state has legislated on cultural property since Edict 65 of November 1945, but under a succession of other keywords: *cổ tích*, "antiques," in that edict and in the 1957 decree that replaced it; *di tích*, "vestiges," in the 1984 ordinance on historical-cultural vestiges and scenic spots and its 1985 implementing decree. Only with the Law on Cultural Heritage of 2001 — Vietnam's first law, as distinct from edict, decree, or ordinance, on the subject — does *di sản văn hóa* become the operative statutory term, in a text built expressly on the 1992 Constitution and on the UNESCO instruments Vietnam had been acceding to since ratifying the World Heritage Convention in 1987.⁹⁸ The term arrived, in other words, two years after the site it would be used to describe had already been inscribed, and it arrived as part of the vocabulary of international integration rather than out of the Vietnamese past.

This relationship between heritage and nationalist historiography has been a frequent subject for scholars of the museum world. Tunbridge and Ashworth define heritage broadly as “a contemporary product shaped from history.”⁹⁹ Holtorf’s theoretical work considers heritage a vehicle in which cultural memory and the various phenomena of “history culture” reside.¹⁰⁰ The geographer David Harvey takes these coordinates to formulate a historical narrative of how the heritage process has been deployed and articulated through developments in technology, arguing

⁹⁸ On the periodization and the successive keywords, Nguyen Le Uyen Phuong, "Vietnam's Cultural Heritage Protection Laws (1900–2023) and Their Pros & Cons from the Position of Vietnam's New Generation: Case Studies," *Gdańskie Studia Azji Wschodniej*, no. 25 (2024): 225–49, which observes that the 2001 law marks "the first official use of the term 'cultural heritage' in a document, rather than using synonymous terms as in previous texts" (233). The instruments are Sắc lệnh 65 (23 November 1945); Nghị định 591 (29 October 1957); Pháp lệnh 14, *Bảo vệ và sử dụng di tích lịch sử, văn hóa và danh lam, thắng cảnh* (4 April 1984); Nghị định 288 (31 December 1985); Luật Di sản văn hóa, Law No. 28/2001/QH10 (29 June 2001, in force 1 January 2002), amended by Law No. 32/2009/QH12 (18 June 2009). *Di sản văn hóa* appears earlier in constitutional language — 1992 Constitution, art. 30 — so the claim here concerns the statutory vocabulary of cultural-heritage law specifically.

⁹⁹ J. E. Tunbridge and G. J. Ashworth, *Dissonant Heritage: The Management of the Past as a Resource in Conflict* (Wiley, 1996).

¹⁰⁰ Cornelius Holtorf, *Monumental Past. Lifehistories of Megalithic Monuments in Mecklenburg-Vorpommern (Germany)* (Center for Instructional Technology Development, 2001).

that the making of heritage requires institutions to participate in making whole a history of which the ruins are only a part. Such gaps, as Bohrer argues through his reading of Emile Béchard's photographs of the ruins of Egypt, materialize in the empty space the ruins create: most of the structure is absent, and is thus occupied by the viewer's imagination of what might be reconstructed within its bounds.¹⁰¹ In other words, in the making of a nation's heritage a national past is imagined rather than found.

If the national past is imagined, photography was the instrument that allowed it to appear simply discovered. Archaeology and photography were the joint forerunners of the heritage-making process. The first usage of the term *archéologie* in French literature dates to 1837; two years later, the photograph was announced to the world. Archaeology at that moment was itself emerging from a centuries-long tradition of antiquarianism, and from the very start it stood at the center of the justification of photography's worth. In François Arago's report to the French Chamber of Deputies on behalf of Daguerre, which laid out the scientific significance of the new invention, Arago singled out its importance for archaeology in particular:

“Everyone will imagine the extraordinary advantages which could have been derived from so exact and rapid a means of reproduction during the expedition to Egypt; everybody will realize that had we had photography in 1798 we would possess today faithful pictorial records of that which the learned world is forever deprived of by the greed of the Arabs and the vandalism of certain travelers. To copy the millions of hieroglyphics which cover even the exterior of the great monuments of Thebes, Memphis, Karnak, and others would require decades of time and legions of draughtsmen. By daguerreotype one person would suffice to accomplish this immense work successfully... Since the invention follows the laws of geometry, it will be possible to re-establish with the aid of a small number of given factors the exact size of the highest points of the most inaccessible structures.”¹⁰²

As a mathematician and physicist, Arago was captivated by the mechanical aspects of photography and its capacity to make copies of the real. Photography was, first, an agent of

¹⁰¹ Frederick N. Bohrer, *Photography and Archaeology* (Reaktion Books, 2011).

¹⁰² Josef Maria Eder, *History of Photography*, trans. Edward Epstean (Dover, 1945), 234-35.

preservation and restitution—a means to salvage and to hold permanently the objects in danger of being lost. The irony is striking: Arago explicitly pits photography against the “draughtsmen,” arguing that the photograph can replace the drawn approximation with a faithful pictorial record. In the Cham context, as the previous section showed, Parmentier would take the opposite position, privileging the drawn line as the vehicle of scientific understanding and confining the photograph to private archival use. The Arago–Parmentier tension marks the fault line along which the history of Cham heritage would eventually fracture. That the field which studies these images still calls its own method archaeology is not a coincidence but an inheritance: media study borrows its figure of buried strata and patient excavation from the very discipline whose photographic practices this chapter is reconstructing.¹⁰³

The ruins of Angkor provided the model for the circulation of ruin photography. When John Thomson wrote about his first photographs of the ruins during his 1866 journey to Cambodia, he dismissed the ability of the indigenous people to care for the monuments. His survey was part of a broader amateur trend in which British photographers traveled across the nation and the colonies to document the conditions of modernity and to build an archive of anticipated futures. Thomson’s Angkor photographs appeared in several important works, most notably James Fergusson’s influential *History of Architecture*, in which the author observed that Thomson’s photographs produced so sharp a reproduction of the carvings at Angkor that “photographs are almost equal to actual personal inspection.”¹⁰⁴ The picturesque depiction of the

¹⁰³ Thomas Elsaesser, *Film History as Media Archaeology: Tracking Digital Cinema* (Amsterdam University Press, 2016).

¹⁰⁴ James Fergusson, *History of Indian and Eastern Architecture: Forming the Third Volume of the New Edition of the “History of Architecture* (John Murray, 1876).

ruins in Thomson's work prompted a new way of thinking about how photography could satisfy the curiosity of viewers, documenting the ruins "stone by stone, and sculpture by sculpture."¹⁰⁵

Monuments and heritage sites became, in this period, a new arena in which colonists could exercise power in the name of cultural preservation. As Penny Edwards observes in her study of the place of Angkor in the French imaginary, the heritage-making projects of Angkor and other ruins "were among the many nineteenth-century pioneers of the concept of a global heritage subsequently enshrined in the statutes of UNESCO."¹⁰⁶ Yet this cultural program was not without its critics, since a fundamental part of the French conquest was the destruction of the very sites the French considered symbols of Vietnamese imperial rule. In the 1880s, the French destroyed the Bao Thien Pagoda in Hanoi, considered one of the Four Great Treasures of Annam. The pagoda was a thirteen-level tower built in 1057, using over seven tons of bronze for a bell and doors at its summit; destroyed by the Ming in 1414, it had been repaired in 1434, only to be demolished definitively by the French, who replaced it with the St. Joseph Cathedral, modeled on Notre-Dame in Paris. French settlers also razed an eighteenth-century temple in Hanoi to build the city hall, and replaced other pagodas and historical buildings with colonial infrastructure. In response to such destruction, Sergeant Frédéric Garcin, who had taken part in the conquest of Hanoi, wrote to the French administrators to protest the erasure of cultural heritage:

"Here is one of the masterpieces of Annamite architecture!... With what art these fantastic animals have been sculpted! What a dramatic aspect they give to the pagoda! And yet we treat the Annamites as savages!... Are we the product of such a grand civilization, we who in such a monument have set up weapons magazines and vulgar artillery emplacements? Who knows where the fine Buddhas have gone?... What would

¹⁰⁵ John Ruskin, *Seven Lamps of Architecture* (John Wiley and Son, 1855), 14.

¹⁰⁶ Penny Edwards, *Cambodge: The Cultivation of a Nation, 1860-1945* (University of Hawaii Press, 2008),

even the least pious of us say if, in France, an invader similarly profaned our cathedrals?¹⁰⁷

Garcin was the first French settler to draw a parallel between the vandalism that followed the French Revolution and the brutalization of Hanoi, exposing the internal contradiction of the civilizing mission. In 1886, Governor-General Paul Bert recognized the need for pacification and established the Académie Tonkinoise to promote and preserve Vietnamese culture. It was short-lived, but it paved the way for the institution that would follow.

That institution was the École française d'Extrême-Orient. Situating the establishment of EFEO within the nineteenth-century development of both photography and archaeology makes clear that the founding of an intellectual institution in the colony had long been anticipated. Created in 1898, EFEO quickly became a powerhouse across Asia, regularly undertaking surveys in neighboring countries, from the Angkor ruins in Cambodia to the Borobudur temple in Java. As the previous sections have shown, EFEO played a key role in stimulating the study and debate of Cham culture; it also set the stage for the preservation of heritage across the colonial world. From the start, EFEO's scholarship—though it presented itself as neutral—placed colonial heritage within an imaginary hierarchy of civilization, in which the humanitarian ethos of the French imperial program became the very function of history. In Pierre Nora's influential theory of *lieux de mémoire* (sites of memory), these sites are the places where “memory crystallizes and secretes itself.”¹⁰⁸ Nora was concerned with the gap between memory and history in modern French historiography: history is the way humans organize the past, while memory is an unmediated recollection that shapes a collective identity. Abandoned sites such as

¹⁰⁷ France Mangin, *Le Patrimoine Indochinois: Hanoï et Autres Sites*, Archithèses (Éditions Recherches/Ipraus, 2006). Translated by author.

¹⁰⁸ Pierre Nora, “Between Memory and History: Les Lieux de Mémoire,” *Representations*, nos. 26, Special Issue: Memory and Counter-Memory (Spring 1989): 7–24.

Đồng Dương and Mỹ Sơn presented France with a window of opportunity to reappropriate them *as lieux de mémoire*.

Before the First World War, these sites functioned as locations available for scientific research. During the interwar years, they were becoming something else: a theme park. EFEO was fundamental in exporting the images of the colonies to mainland France, including the construction of models of Angkor Wat for the colonial exhibitions at Marseille in 1906 and 1922, which turned the temple complex into the symbol of French colonialism in the first half of the twentieth century. Angkor Wat is the clearest example of the transformation. Known as Angkor Park in this period, the site attracted growing numbers of European visitors whose experience of the ruins was shaped, in advance of their arrival, entirely by photographs. Pasquier, the Governor-General of French Indochina, saw the potential of the archaeological enterprise as valuable tourist bait. In 1931, France spent over 12.5 million francs on these efforts, and the sites were reproduced relentlessly through drawings, photographs, and models. The photographs and models displayed at the exhibitions were the very objects that symbolized the reach of the French empire, even though their original purpose had been documentary. No longer restricted by the difficulty of travel, the French at home could look upon the ruins of Mỹ Sơn and Angkor and find a connection to them—not through any collective indigenous identity but through a sense of nationalism that prided itself on the power of technological innovation. As Anderson observes, “it was precisely the infinite quotidian reproducibility of its regalia that revealed the real power of the state.”¹⁰⁹

This image-making belonged to what Peter J. Bloom has called a “colonial media apparatus,” a documentary emphasis underwritten by a language of humanitarian and civilizing

¹⁰⁹ Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (Verso Books, 2016), 183.

social reform.¹¹⁰ The preexisting notion of a less civilized population in French Indochina continued to dominate EFEO's image-making, and the photographs of the ruins and of the "savages" became an unimpeachable index of race, creating what W. E. B. Du Bois described as a double consciousness, in which a person of color "sees one's self through the eyes of others."¹¹¹ As William Chapman has observed, this colonial hierarchy was inscribed into the very visual culture of the institution: photographs of EFEO staff invariably show the French director and his scholars surrounded by unnamed Vietnamese workers, a visual grammar of authority and erasure that mirrored the organization of the excavations themselves.¹¹²

Within this same interwar moment, EFEO's activities underwent a decisive shift. No longer purely focused on excavation, its researchers began to participate in the restoration and preservation of the ruins, which thereby took on a new identity as "cultural heritage."¹¹³ In the late 1920s, the young architect Jean-Yves Claeys had been working on the excavation of the Champa remains at Trà Kiệu, itself an important military and administrative center for the colonial government. By the early 1930s, Claeys and other architects proposed a restoration of the ruins, and it was then that a new set of photographs of Mỹ Sơn was taken as documentary

¹¹⁰ Peter J. Bloom, *French Colonial Documentary: Mythologies of Humanitarianism* (University of Minnesota Press, 2008); on cinema as an instrument of imperial administration more broadly, see Lee Grieveson and Colin McCabe, eds., *Empire and Film*, Cultural Histories of Cinema (London: British Film Institute, 2011).

¹¹¹ W. E. B. DuBois, *The Souls of Black Folk* (Oxford University Press, 2007).

¹¹² William Chapman, "Adjuncts to Empire: The EFEO and the Conservation of Champa Antiquities," sec. 1, *Bulletin of the History of Archaeology* 28, no. 1 (2018): 1–12.

¹¹³ On the critique of heritage as a Western construct, read Denis Byrne, "Western Hegemony in Archaeological Heritage Management," *History and Anthropology* 5, no. 2 (1991): 269–76, <https://doi.org/10.1080/02757206.1991.9960815>; Laurajane Smith, *Uses of Heritage* (Routledge, 2006); Rodney Harrison, *Heritage: Critical Approaches* (Routledge, 2013); Astrid Swenson, *The Rise of Heritage: Preserving the Past in France, Germany and England, 1789-1914*, New Studies in European History (Cambridge University Press, 2013); Astrid Swenson and Peter Mandler, eds., *From Plunder to Preservation: Britain and the Heritage of Empire, c. 1800-1940*, Proceedings of the British Academy (Oxford University Press for the British Academy, 2013); Michael Falser, ed., *Cultural Heritage as Civilizing Mission: From Decay to Recovery*, Transcultural Research - Heidelberg Studies on Asia and Europe in a Global Context (Springer International Publishing, 2015); Bernard S. Cohn, *Colonialism and Its Forms of Knowledge: The British in India*, Princeton Studies in Culture/Power/History (Princeton University Press, 1996).

reference before restoration began. The restoration at Mỹ Sơn itself began in 1937 under Louis Bezacier and Nguyễn Xuân Đồng, using cement, gravel, and iron to shore up the foundations and walls of the structures, along with a dam built in 1939 to limit the damage caused by the course of the nearby river. The work continued until the French administration ceded Vietnam to Japanese forces in 1945. In eight years, the architects reconstructed seven towers, including the twenty-eight-meter A1 temple, considered a masterpiece of Cham architecture, only for it to be flattened in 1969.



Fig. 3.7. A view of Đồng Dương from an airplane, showing the remains of the site, the village, the rice fields near the site. Source: EFEO, EFEO_VIE00183_2.

Here photography's relationship to the ruins underwent a decisive mutation. At the moment of the 1901–1904 excavations, photography had been strictly subordinated to

archaeological knowledge-production—images made privately, circulated internally, cited in bulletins but never displayed in the museum. The restoration phase of the 1930s turned photography into something different: a technical standard, a before-image against which after-images could be measured, a form of institutional memory for which the drawn plan could not adequately substitute. The photograph now had to do what the drawing could not—preserve the precise visual texture, the specific irregularity, the unrepeatable particular that restoration might accidentally smooth away. The ruins themselves were demanding the photograph.

That demand would prove tragically prophetic. The A1 temple was destroyed in 1969, after B-52 bombers carpet-bombed the site while the A10 temple was completely destroyed. In December 1969, Philippe Stern, the chief curator of the Musée Guimet in Paris, wrote to the White House to express his dismay at the indiscriminate bombing of cultural heritage in the former French colony. A month later, Richard Nixon instructed American troops to take all measures to ensure that military operations did not damage monuments—but the instruction came too late for A1.¹¹⁴ The twenty-eight-meter tower, reconstructed by Bezacier and Nguyễn Xuân Đồng between 1937 and 1945 and bombed in 1969, now exists only in the photographs made by Carpeaux. This arc—from Carpeaux's camera to the bomb to the photograph's posthumous function as the sole surviving record—is the history of colonial photography's unintended consequence: images made to document knowledge ended up preserving existence itself.

The photographs' public career, however, was not launched by French archivists but by the long work of reconstruction and by the global heritage institutions that followed it. Nowhere is this logic more visible than in the restoration campaign that began after the war. When the

¹¹⁴ Carl Heffley, *The Arts of Champa* (The US Information Service, Cultural Affairs, 1972).

Polish–Vietnamese conservation mission led by Kazimierz Kwiatkowski began work at the site in the early 1980s, it confronted a landscape that the bombing of 1969 had reduced, in many of the temple groups, to mounds of collapsed brick laced with unexploded ordnance. There was little standing fabric from which to reason outward. What the conservators possessed instead was the colonial archive: Carpeaux’s systematic multi-angle negatives from the 1901–1904 missions, Parmentier’s measured drawings, and the restoration photographs produced by Jean-Yves Claeys and his colleagues in the 1930s. Anastylis—the method the Polish team adopted—depends on knowing where each fallen element originally belonged, and at Mỹ Sơn that knowledge survived primarily in photographic form. The image functioned as the template against which rubble could be sorted, matched, and returned to position. The very practice Carpeaux had developed in the field—photographing each face of each tower from successive angles in an attempt to approach the volumetric completeness of a mold—now found its retrospective justification: where his campaign had left structures merely documented, his photographs became the baseline for conservation; where it had recorded structures since destroyed, those photographs became the only authority a reconstruction could obey.¹¹⁵ This is the condition Marita Sturken describes in her account of how American memory of the war was constituted through images and monuments rather than recovered through them — with the difference that at Mỹ Sơn the mediating image is not a memorial erected afterwards but a colonial survey plate made sixty-five

¹¹⁵ On the Polish–Vietnamese mission and the restoration of the Cham temples, read Hoang Dao Kinh, “The Archaeology of Ancient Champa: The Vietnam–Poland Conservation,” in Andrew Hardy et al., eds., *Champa and the Archaeology of Mỹ Sơn (Vietnam)* (NUS Press, 2009), 26–32. On the post-inscription geophysical survey, read World Heritage Committee, Decision 26 BUR XII.98–100: Mỹ Sơn Sanctuary (Viet Nam) (Paris, 2002), which records the UNESCO–Lerici Foundation campaign of 1999–2001 to map the site’s buried archaeology and remnants from the Vietnam War. For more on the current conservation project of the Cham sites, read Quang Dai Tuyen, “The Conservation of Cham Cultural Heritage in Vietnam,” in *Heritage Conservation and Tourism Development at Cham Sacred Sites in Vietnam: Living Heritage Has A Heart* (Springer Nature Singapore, 2023).

years before the bombing, so that what stands in for the destroyed tower is the record of the regime that first claimed it.¹¹⁶

The Polish mission did not simply consult this inherited archive; it extended it, documenting and consolidating groups A–D in the 1980s and returning to groups E–H between 1990 and 1996.¹¹⁷ This new layer of images served a double function. As a working instrument, it allowed conservators to compare a wall's present condition against Carpeaux's and Claeys's earlier exposures of the same surface, isolating what had been lost, what had shifted, and what could still be recovered; the photograph became a means of measuring damage across time, a differential record in which three separated campaigns—colonial, interwar, and socialist-era—could be laid over one another. As an evidentiary instrument, it built the documentary case that any future nomination would require, since a reconstruction that cannot show its own process cannot easily claim authenticity. The criticism later directed at the mission—that cement had been used in some interventions at Mỹ Sơn, departing from the original brick technology—was itself adjudicated photographically and through the chemical and material studies that accompanied the imaging, debates conducted over images of joints and surfaces rather than over the monuments in the abstract. Photography, in other words, was not merely how the restoration was recorded; it was the medium in which the restoration was argued, tested, and justified.

¹¹⁶ Marita Sturken, *Tangled Memories: The Vietnam War, the AIDS Epidemic, and the Politics of Remembering* (University of California Press, 1997).

¹¹⁷ On the phasing of the Polish–Vietnamese campaigns at Mỹ Sơn, see ICOMOS, "Advisory Body Evaluation: Mỹ Sơn Sanctuary (Viet Nam), No. 949" (1999), which records that a PKZ delegation began work with specialists from the Vietnamese Ministry of Culture and Information in 1980, that a joint Committee for the Restoration of Champa Remains was constituted, and that documentation and consolidation proceeded on groups A–D before a second phase addressed groups E–H between 1990 and 1996. For the participant account, see Hoang Dao Kinh, "The Archaeology of Ancient Champa," 26–32. On PKZ's documentation methods and the export of Polish conservation practice more broadly, read Alicja Gzowska, "Exporting Working Patterns: Polish Conservation Workshops in the Global South during the Cold War," *ABE Journal* 6 (2014).

The restoration thus inverted the original hierarchy of the archive. In Carpeaux's practice, the photograph had been a record subordinate to the monument; in the work of the 1980s and 1990s it became the authority to which the monument itself was made to conform. Where the colonial drawing had abstracted and idealized, the surviving photographs preserved the contingent particulars, the precise course of a cornice, the spacing of a decorative register, the lean of a wall before it fell, that a reconstruction now had to honor in order to be credited as authentic. Mỹ Sơn was inscribed on the UNESCO World Heritage List in 1999, and this inscription marked the endpoint of a heritage-making process directly enabled by photography. UNESCO's criteria require demonstrable outstanding universal value, and ICOMOS evaluation procedure expects a nomination dossier to be substantiated by photographs, maps, and architectural surveys alongside the State Party's text; the Mỹ Sơn nomination file conforms to this pattern, pairing photographs of the monuments with measured architectural drawings of the kind Parmentier had pioneered.¹¹⁸ For a site so comprehensively damaged, the dossier could not rest on textual description of the present state of the monuments alone, and the ICOMOS evaluation itself grounds the site's documented history in the survey and inventory work carried out by Henri Parmentier in the early twentieth century. The photographic record on which any restoration and any nomination necessarily depended thus reached back, through Claeys's interwar campaigns and the post-war conservation work, to the documentary tradition the colonial archive had originated. Whether Carpeaux's own 1901–1904 plates were physically among the images submitted in 1999 cannot be established from the nomination file; what the

¹¹⁸ On the UNESCO nomination materials, see "My Son Sanctuary, Nomination File 949, and Advisory Body Evaluation (ICOMOS)," 1999, World Heritage Centre; and World Heritage Committee, "Decision 23 COM VIII.C.1, My Son Sanctuary (Viet Nam)," Marrakesh, 1999. On the documentary requirements of the dossier, see ICOMOS, "The ICOMOS Procedure for Evaluating Nominations to the World Heritage List" (Paris: ICOMOS), which specifies that nomination dossiers comprise State Party documentation together with photographs, slides, maps, and architectural surveys.

file does show is a process in which photography supplied both a means of attesting that an extraordinary monument had existed and a measure of how faithfully it had been recovered. What had begun as a private instrument of colonial archaeological knowledge-production had become part of the evidentiary basis of global heritage recognition.

This public operation of photographs had its own politics. Colin Sterling notes that the endless reproduction of photographic images of ruins is rooted in a focus on memory—not on how the people who once inhabited the space lived, but on the desire of travelers who visited the sites for a physical thing to remind them that they had been there, and that the sites might one day disappear.¹¹⁹ The global circulation of photographs thus created a distinction between “real” memories and “false,” settler-generated ones, raising a set of ethical questions about the production and consumption of the images. The domain of “heritage photography” became a new methodology for categorizing the past, positioning cultural heritage as a colonial spectacle and, in extreme cases, as a parallel to what Brian Larkin has termed the colonial sublime—the sense of overwhelming physical powerlessness that new technological infrastructures can produce.¹²⁰ In the case of the ruins, the logic of the colonial sublime rests on two claims: first, the supposed inability of the indigenous to uphold and expand the legacy of their predecessors; and second, the measurable, quantifiable scientific study of the ruins that justified the colonial power’s role as the guardian of heritage. Photography supplied visual evidence for both claims at once: it showed the ruins in their abandoned state, and it showed the Europeans who were measuring them.

¹¹⁹ Colin Sterling, *Heritage, Photography, and the Affective Past* (Routledge, 2019).

¹²⁰ Brian Larkin, *Signal and Noise: Media, Infrastructure, and Urban Culture in Nigeria* (Duke University Press, 2008).

Yet to say that the inscription rested on the colonial archive is to say more than that it borrowed the archive's images; it also inherited the archive's assumptions. The photographs the dossier mobilized were never neutral documents. As this chapter has argued, Carpeaux and Parmentier's practice constituted the Cham monuments as the remnants of an extinct civilization—detaching them from any living community and positioning European scholarship as their rightful custodian and interpreter. When that archive became the evidentiary foundation of the World Heritage nomination, this framing was not discarded but ratified in the language of international law. The criterion under which Mỹ Sơn was inscribed derives from a category in UNESCO's Operational Guidelines that recognizes a property as evidence of a civilization that has disappeared, and the Committee's own decision presents the site as the Champa Kingdom “vividly illustrated by the ruins.” It locates the Cham firmly in the past tense, as a kingdom that *was* rather than a people who *are*. What Viet Thanh Nguyen calls the industries of memory — the institutions that determine whose war, and whose past, is remembered and in what form — operate here through a heritage apparatus rather than a cinematic one, but to the same effect: the site is preserved as evidence of disappearance, and the Cham present has no place in the criterion under which it was inscribed.¹²¹ Critics of the World Heritage system have shown that this is not an idiosyncrasy of one nomination but a structural feature of the regime, which has long been charged with an inherited Eurocentrism—with universalizing a European conception of the monument, of authenticity, and of heritage as something archaeological and bounded rather than inhabited and ongoing.¹²² Michael Di Giovine has argued that World Heritage designation

¹²¹ Viet Thanh Nguyen, *Nothing Ever Dies: Vietnam and the Memory of War* (Harvard University Press, 2016).

¹²² Since 2016, a wave of scholarship has emerged to critically examine how the international monument-protection apparatus was built, with particular attention to the legacy of Eurocentrism. For the most notable works, read Christoph Brumann and David Berliner, eds., *World Heritage on the Ground: Ethnographic Perspectives*, EASA Series ; Volume 28 (Berghahn Books, 2016); Lynn Meskell, *A Future in Ruins: UNESCO, World Heritage, and the Dream of Peace* (Oxford University Press, 2018); Lucia Allais, *Designs of Destruction: The Making of*

operates as a global “placemaking” process that folds a site into a meta-narrative of universal human heritage, and that this universalizing gesture characteristically obscures the meanings and claims of particular, living stakeholders.¹²³ At Mĩ Son the stakeholders so obscured are the Cham themselves, who did not vanish in the fifteenth century and for whom the towers are not the relics of an extinct civilization but elements of a still-meaningful religious and cultural landscape.

This complicates the structural reversal with which this chapter is concerned. It remains true that photography underwent a reversal of status—that the medium colonial archaeology confined to private documentary use became the public medium of global heritage. But the reversal of the medium’s status did not entail a reversal of the medium’s content. The colonial proposition about the Cham—that they belong to the past, that their monuments are therefore available to be known, restored, and administered by others—was carried intact from the EFEO bulletin into the nomination dossier and from there into the inscription itself. Photography was the vehicle of that continuity. Because the photographic archive was the only sufficiently complete record of the pre-bombing monuments, any restoration and any nomination had to pass through it, and in passing through it necessarily absorbed the interpretive frameworks in which those images had been made. The grief for Tower A1 is, in this sense, doubly photographic: the structure survives only as an image, and the image carries with it the colonial judgment that the culture which built the tower is itself a thing of the past. The reconstruction returned the brick to the valley; it did not return the Cham to the narrative. The hundreds of thousands of tourists who visit Mĩ Son each year encounter the site first through photographs and through the interpretive

Monuments in the Twentieth Century (The University of Chicago Press, 2018); Christina Marie Luke, *A Pearl in Peril: Heritage and Diplomacy in Turkey* (Oxford University Press, 2019).

¹²³ Michael Di Giovine, *The Heritage-Scape: UNESCO, World Heritage, and Tourism* (Lexington Books, 2009).

apparatus that the World Heritage designation set in motion—an apparatus that, for all its celebration of the site, continues to present the Cham largely in the past tense. The drawn line that Parmentier privileged has long since receded into the archive; it is the photograph that now mediates the world’s relationship to Cham civilization—and that mediation is neither innocent nor complete.

Today these sites are open to the public and are among the principal sources of revenue for Vietnam’s tourism industry. There are currently twenty-four groups of Cham towers, of which three are the most important for research and tourism. The first and best-preserved complex is Po Nagar, in the coastal town of Nha Trang, built between the seventh and twelfth centuries. The second group lies around Da Nang—formerly Tourane under French rule—and includes five sites: Đồng Dương, Trà Kiệu, Bàng An, Chiên Đàn, and Khương Mỹ. Đồng Dương, covered in unruly overgrowth before the French excavations, was once the capital city of Indrapura, one of several principalities that shaped the Kingdom of Champa; under the reign of Indravarman II, elements of Buddhism were incorporated into an architecture that had been characteristically Hindu, and it was this fusion that drew the interest of the French. The third and most celebrated group is the Mỹ Sơn Sanctuary, ringed by mountains as a defensive measure and comprising around seventy temples built of low-fired brick with stone pillars and sandstone relief decoration. To cross the entire area, visitors are now carried on electric cars, with specific zones closed for preservation.

That ongoing work is not only a matter of fieldwork but of the archive itself. In May 2026, the Da Nang Cham Sculpture Museum—the institutional descendant of Parmentier’s Musée Čam de Tourane—and the EFEO held a joint seminar, “Bridges of Heritage,” and signed a memorandum of understanding for 2026–2028 covering research, academic exchange, and the

cooperative archiving of documents. Ariella Aïsha Azoulay argues that imperial archives are not neutral holdings to be shared but structures whose very organization enacts the dispossession that produced them, and that unlearning imperialism means refusing to treat their contents as settled.⁵ The question the memorandum leaves open is whether cooperative archiving alters that structure or extends it under new auspices.¹²⁴ The seminar's central concern was what one museum officer, Nguyễn Hoàng Hương Duyên, called the “blank areas” in the museum's documentation: the period of direct EFEO management before 1954 has left the museum without the excavation diaries, professional correspondence, artifact import-and-export records, architectural diagrams, site drawings, inscription rubbings, and photograph collections that would allow the history of the collection—and the provenance of individual objects—to be reconstructed.¹²⁵ The consequence is not merely scholarly inconvenience. As Duyên noted, the absence of archival records makes it difficult to establish where an artifact was found or which excavation it belonged to, a gap with direct legal and ethical stakes for the repatriation of objects now dispersed in foreign museums; she cited the case of a statue of Shiva in the Boston Museum of Fine Arts, whose passage out of the Tourane museum cannot be securely traced for want of documentation. The museum's proposed remedy is telling. What Duyên called a “repatriation of digital documents”—the copying, through cooperation with the EFEO and French archives, of the very photographs, diaries, and drawings that the colonial institution had produced and then dispersed.¹²⁶

The fieldwork, too, continues. Philippe Le Failler, head of the EFEO's Hanoi office, observed at the same seminar that documents once thought lost still resurface—Parmentier's

¹²⁴ Ariella Aïsha Azoulay, *Potential History: Unlearning Imperialism* (Verso, 2019).

¹²⁵ Sơn Hoàng, “Giải bài toán khoảng trống tư liệu di sản Chăm,” *Thanh Niên*, May 18, 2026, <https://thanhnien.vn/giai-bai-toan-khoang-trong-tu-lieu-di-san-cham-185260518220706745.htm>.

¹²⁶ Sơn, “Giải bài toán khoảng trống tư liệu di sản Chăm.”

early records of Mỹ Sơn, made as early as 1903, were rediscovered only recently in a museum in Ho Chi Minh City—and the Da Nang museum now looks ahead to the centenary of the Trà Kiệu excavation in 2027.¹²⁷ More than a century after the 1901–1904 missions, in other words, EFEO scholars are still at work in Vietnam, and the Cham past is still being excavated—both from the ground and from the archive. Andrew Hardy, contributing to the recent edited volume *Champa: Territories and Networks of a Southeast Asian Kingdom*, argues that the Cham retained a considerable degree of agency even after their major military defeat by the Đại Việt in 1471, supporting the claim with examples of how Cham elites continued to participate in subsequent Việt dynasties.¹²⁸ Hardy further remarks that further research into the processes of collaboration between different Cham ethnic groups and other ethnic communities through ethnography, archival research, and archaeological work are still needed since much of Cham history still lies buried beneath the Vietnamese land. The photographs of the ruins, as the most durable product of the original French excavations, remain the starting points for that ongoing research—and, as the restoration of Mỹ Sơn and the Da Nang museum’s search for its own lost records both demonstrate, the indispensable foundation of the heritage that research now serves. What began as a colonial documentary tool became, through the long passage of time and destruction, an irreplaceable archive of what was: not merely a record of the monuments but, for the structures that no longer stand, the reconstructions that have taken their place, and the museum that can no longer trace its own collection, the very source of their continued existence.

¹²⁷ Sơn, “Giải bài toán khoảng trống tư liệu di sản Chăm.”

¹²⁸ Andrew Hardy, “Champa, Integrating Kingdom: Mechanisms of Political Integration in a Southeast Asia segmentary state (15th c.)” in Arlo Griffiths et al., eds., *Champa: Territories and Networks of a Southeast Asian Kingdom* (École Française d’Extrême-Orient, 2019), 221–252.

Conclusion

The archaeological reports surveyed above—Parmentier's systematic inventories, Maspero's master narrative, and EFEO's institutionalization of knowledge—present the French colonial excavation of Champa as a coherent, authoritative, and above all scientific enterprise. Yet this official record was produced by suppressing another account: the firsthand experience of Charles Carpeaux, the photographer whose images underwrote the entire project, but whose perspective was systematically excluded from the published scholarship. Carpeaux's posthumous travelogue, compiled from his letters and journals after his death in 1904, tells a fundamentally different story about the excavation, one in which the conditions of knowledge production are made visible, the labor of photography is rendered legible, and the contradictions of the civilizing mission are exposed from within.

However, as Michael Harrigan argues in his study of travel narratives between the seventeenth and twentieth centuries in Europe, these narratives were necessarily mediated through the observer's pre-existing conceptual and linguistic tools for understanding and transmitting the experience of strangeness.¹²⁹ In Annam, Carpeaux and Parmentier depended on a network of locals, both Cham people and European settlers, who helped them navigate the region. They were assisted by a French priest named Durand, who arranged accommodations, and a Vietnamese interpreter who spoke French. Through these contacts, they were welcomed by Cham people, who let them participate in local customs and festivities. Despite the clearly documented interaction between the French and the Cham, subsequent French scholarship still followed the narrative that the Kingdom of Cham, as an example of a great civilization, had ended in the fifteenth century. This erasure is not an error but an intentional dehumanization.

¹²⁹ Michael Harrigan, *Veiled Encounters: Representing the Orient in 17th-Century French Travel Literature* (Rodopi, 2008).

Both Carpeaux and Parmentier participated in cultural activities with the Cham population with a problematic curiosity. Carpeaux described the surviving Cham as *bien dégénérés*, in a sentence that first makes them arrivals — "Malays who came from Java in very remote times," whose "few descendants are much degenerated."¹³⁰ *Dégénérescence* carried a hereditary rather than merely evaluative sense in French usage of the period, and the sentence divides before it judges, separating the people who built the towers from a residue held incapable of it: the formal ideological program Benedict Anderson attributes to colonial archaeology, in which "contemporary natives were no longer capable of their putative ancestors' achievement."¹³¹

This hierarchy was not only imposed to delineate the differences between the “civilized” and the “uncivilized.” Since the first interactions between Catholic missionaries and the indigenous in Vietnam in the seventeenth century, France was aware of the diversity of ethnicities in the region as well as the “Southern Advance” that fueled the territorial expansion and constituted evidence of the Việt ethnic group’s military superiority.¹³² Thus, Carpeaux also observed that the Vietnamese mandarins were very “intelligent and cultured”—a sentiment that echoed France’s desire to turn the ethnic Viet people “French,” as they were considered far more superior to the dehumanized ethnic Cham.¹³³ What photography captured, in other words, was not simply the stones of Mỹ Sơn but the entire social grammar of colonial encounter, a grammar that the museum’s stone walls and drawn lines worked systematically to erase.

The arc from Parmentier’s exclusion of photography in 1919 to UNESCO’s reliance upon it in 1999 is thus not a story of belated recognition but of structural reversal. The medium that

¹³⁰ Carpeaux, *Les ruines d’Angkor*, 95.

¹³¹ Anderson, *Imagined Communities*, 181.

¹³² Claudine Ang, “Regionalism in Southern Narratives of Vietnamese History: The Case of the ‘Southern Advance’ [Nam Tiến],” *Journal of Vietnamese Studies* 8, no. 3 (2013): 71–119.

¹³³ Carpeaux, *Les ruines d’Angkor*, 125.

colonial archaeology treated as a private instrument, too indexical, too particular, too full of irrelevant information, became the public medium of global heritage precisely because of its indexicality, its particularity, its surplus of information. Where the drawing abstracted and idealized, the photograph preserved the contingent and the damaged. Where the museum curated silence, the photograph carried memory across its own destruction. The Cham ruins are now known to the world because Carpeaux was there with his *vérascope*, and the world knows them, paradoxically, most intimately through the images of what no longer stands.

Conclusion

Between 1901 and 1904, in the malaria-ridden valley that French archaeologists had begun to call the Valley of the Kings of the Far East, Charles Carpeaux exposed several hundred glass negatives of brick towers as they emerged from the earth. Many of the structures he photographed no longer stand. In 1969, American bombs fell on the sanctuary of Mỹ Sơn and reduced a number of its towers—among them A1, the tallest monument on the site and the type-specimen of an entire stylistic period—to rubble.¹ What survives of those towers does so, for the most part, as photographs: as the latent image that Carpeaux fixed in silver that outlived the brick it was made to describe. This dissertation has argued that a photograph outlasting the original and the standing in as an archive of the object it once merely documented is not an accident of wartime destruction but the fullest expression of a logic that ran through the entire photographic enterprise in colonial Vietnam. The camera did not simply record the colony. It produced the colony as an object of knowledge, and in doing so it bound the most ordinary acts of colonial administration (identifying a prisoner, taxing a rice field, cataloguing a ruin) to a single technology for which authority rested precisely on its claim to add nothing to what was already there.

That a photograph could become the last trace of a monument is a vivid case, but it is only the limit point of something far more ordinary. Long before any bomb fell, the colonial camera had been quietly substituting its images for the things it photographed: a face became a card in a police file, a field became an area on a fiscal plan, a temple became a plate in a learned society's album. In each instance, the photograph entered a circuit of production, circulation, and

¹ On the 1969 bombing of Mỹ Sơn and the destruction of Towers A1 and A10, and on the surviving Carpeaux negatives as the primary record of what was lost, see Chapter 3.

administration in which it could travel, be copied, and be acted upon in places the original could never reach, and in which it gradually acquired an authority the original did not possess. The destruction at Mỹ Sơn made visible, in the starkest possible way, a displacement that the colonial photographic enterprise performed as a matter of routine. This dissertation draws together three case studies to ask what the photographs mean for the colonial archive's troubled persistence into the present. It does not aim to argue for a totalizing claim of what photography must be or how mechanical reproduction is the causation of nationalism in the colonial world. Instead, this dissertation weaves together different strains of inquiry, between media studies and Vietnamese history, to render visible an operation of photography which was buried in the mountain of archival documents from the French colonial period in Vietnam.

This research began from a deceptively simple observation: that photography was everywhere in the archive of French Indochina and almost nowhere in its histories. The colonial state photographed its prisoners and its immigrants, its rivers and its rice paddies, its temples and its severed reliefs; it pasted photographs into identity booklets, folded them into cadastral plans, and filed them in the dossiers of a learned society. Yet in written histories, these images have tended to appear as illustration rather than as apparatus—as evidence of what the colonial state saw, rather than as one of the instruments through which it learned to see at all. The wager of the preceding chapters has been that photography is better understood not as a window onto colonial Vietnam but as a piece of its infrastructure: a sociotechnical system, assembled from many institutions and many hands, that helped constitute the very objects the colonial state claimed merely to administer. And the central, and deliberately paradoxical, claim that has organized the dissertation is this: that the unified “Vietnam” this infrastructure helped to make visible was an inadvertent consequence of colonial administration rather than its aim—a byproduct of the

institutions the French built to count, map, and display their subjects, and not an intentional gift the colonizer gave.

Throughout this dissertation, Anderson's influential *Imagined Communities* provided a theoretical cornerstone. Anderson's explanation of colonial nationalism is, at bottom, an argument about media: about how print-capitalism and the serial logics of the census, the map, and the museum taught colonized populations to imagine themselves as bounded communities. But he treats those three institutions largely as grammars—as systems of classification and seriality—and passes quickly over the question of how their abstractions were made to seem like simple transcriptions of the real. A census category, a mapped boundary, a museum's periodization: each had to be produced, materially, by some technology of inscription, and each had to acquire the authority of fact. Photography, this dissertation has shown, was the technology that did that work across all three institutions in colonial Vietnam. It is the missing material middle term between Anderson's abstractions and the colonial ground—the apparatus that converted the state's administrative categories into things that could be seen, filed, and believed. To restore that middle term is to make Anderson's argument less a claim about the grammar of nationalism than a claim about its infrastructure.

Infrastructure, or the Photograph That Disappears

To call colonial photography an infrastructure is to make a claim about how it exercised power. We are often accustomed to attend to photographs as images: to ask what they show, how they compose their subjects, what ideological work their framing performs. The colonial photographs at the center of this dissertation certainly did that work. But the deeper argument has been that these photographs exercised their most consequential power precisely when they

stopped being pictures and became substrates, when they disappeared into other things. The identity photograph did its work not as a portrait to be contemplated but as a likeness glued into a booklet and matched against a face at a checkpoint. The aerial negative did its work not as a striking view of the delta but as a measurement converted into a line on a cadastral plan. The archaeological photograph did its work not as an evocative image of a jungle-bound tower but as a piece of evidence folded into a dossier, beneath a scholarly claim, inside an album in a learned society's library.

This is what it means to say that the colonial photograph was hidden in plain sight. Like the pipes, cables, and roadbeds that infrastructure studies of the past two decades have taught us to notice, the photograph became powerful by becoming invisible, by sinking below the threshold of attention into the routine operations of administration. Its objectivity-effect—the sense that a cadastral area or an anthropometric record or an archaeological attribution was simply a fact about the world, rather than the outcome of a long and contestable chain of human work—was a function of this disappearance. A picture invites argument; a substrate invites use. By migrating from the first category to the second, the colonial photograph converted interpretation into infrastructure and judgment into data.

This objectivity-effect had a history, and photography stood at its center. The nineteenth century had elevated a particular ideal of knowledge—mechanical objectivity, the aspiration to let the object inscribe itself on the record without the distorting intervention of human hand or judgment—and no instrument embodied that ideal more fully than the camera, which seemed to draw with the pencil of nature itself.² The colonial state inherited this ideal and put it to

² On photography as the emblematic instrument of the nineteenth-century ideal of letting the object inscribe itself without the intervening hand or judgment of the observer, read Lorraine Daston and Peter Galison, *Objectivity* (Zone Books, 2007).

administrative use. The promise that an aerial survey or an anthropometric record was the work of the apparatus rather than of any interested party was precisely what allowed the resulting document to function as evidence: as a fact about a parcel or a face rather than a claim advanced by an official with a stake in the outcome. The colonial deployment of photography did not invent the objectivity-effect; it weaponized an ideal the metropole had already enshrined, and it did so in a setting where the people whose bodies, lands, and pasts were being inscribed had no say in how the inscription was made or read. To historicize mechanical objectivity in the colony is to see how a metropolitan epistemology became an instrument of colonial government.

Recovering this invisible work has required reading photographs against the manner in which the colonial archive itself filed them: not isolating the arresting image, but following the negative through the workflow and watching it become a measurement, a card, a citation. It has also required treating the photograph's technical and chemical mediations as part of its meaning rather than as a neutral substrate beneath it. The aerial cadastre, as Chapter Two argued, produced a doubly mediated knowledge—the physics and chemistry of the exposure translating reflected light into silver grains, and the mathematics of photogrammetric restitution translating the distorted plate into the planimetric certainty of a plan. To recover the labor and the contingency folded into each of those translations is to deny the finished document its claim to have been produced by the machine alone. This, the dissertation's reconceptualization of the colonial photograph as infrastructure rather than illustration, is its second contribution, and it is the one with the broadest reach beyond the Vietnamese case: wherever the modern state has governed through documents, photographs have very often been the quiet substrate on which the documents' authority rests.

The Labor in the Image

If the first finding concerns the institutional reach of colonial photography and the second its infrastructural form, the third concerns the human beings without whom neither would have been possible. Across all three chapters, the colonial photographic apparatus turned out to run on Vietnamese labor that the colonial record was designed to render anonymous. The penitentiary's identity work, the cadastre's aerial survey, and the École française d'Extrême-Orient's (EFEO) archaeological documentation each named institutions and procedures while reducing the people who performed them to functions and numbers: the "native assistant photographer," the "native mechanic," the unnamed surveyor, the village bookkeeper credited, if at all, only with a "profoundly human action" that won over a recalcitrant population. That anonymity, the dissertation has insisted, was not a clerical accident but a way of registering colonized labor as interchangeable and subordinate, and of crediting the camera with what the camera could never have done by itself.³

The point is not merely to add Vietnamese names to a French story, important as that recovery is. Rather, it is to show that the colonial discourse of mechanical objectivity—the belief that the camera delivered a modern, disinterested, automatic knowledge—was structurally dependent on the human labor it disavowed, and that the disavowal was the discourse's condition of possibility. A cadastral plan accurate to one part in two hundred could be presented as the achievement of an aerial camera only because the field brigades that corrected what the camera could not resolve had been written out of the account. "Cham art" could be presented as a French discovery only because the Vietnamese workmen who dug the relics from the ground and the

³ On the phrases the reports used for Vietnamese personnel, see Chapter 2, notes 42 and 93; the underlying sources are TTLTQG1, M3, No. 2870, "Execution des travaux de cadastre à effectuer dans la province de Nghe An par photographie aerienne," 3, and Édouard de Martonne, "La topographie indochinoise," *L'Asie française*, November 1938, 317.

local knowledge that located the sites had been reduced to background. The machine's objectivity was, in each case, a property not of the camera but of the whole laborious chain—and most of that chain was Vietnamese.⁴

The archive yields this dependence in fragments. The Geographic Service's own reports concede that a geodetic group on the Cambodian frontier found its work growing "more delicate" among populations the report called insufficiently pacified, and that a brigade completing a survey sheet south of Hué owed its success less to its topographic skill than to a "profoundly human action" that won over the very people on whom the survey depended once its coastal laborers had deserted.⁵ At Mỹ Sơn, the plates that founded the scholarly knowledge of Champa were loaded by hand in darkness, developed in a flooded tower turned laboratory, and exposed through monsoon light, each successful image marking the moment at which a monument became available to knowledge at all. In the cadastral drawing rooms, the planimetric certainty of the finished plan was reached only because field brigades had walked back onto the image the markers the camera could not resolve. None of these is a marginal detail; each is the hidden precondition of a document that presented itself as the work of a machine. Read together, they compose an alternative history of colonial knowledge in which the decisive actors are not the apparatus and the administrator but the colonized workers whose skill the record reduced to a function.

This is where my overall argument speaks most directly to the wider study of science and the colonial state. It is by now a commonplace that colonial knowledge was co-produced, that the colonizer's science leaned on indigenous intermediaries and informants. What the photographic

⁴ James Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (Yale University Press, 1998). See Chapter 2 for the cadastre as a project of legibility that could not, in fact, see without Vietnamese eyes.

⁵ Martonne, "La topographie indochinoise," 317; see note 3 above.

material adds is a particularly sharp account of how that dependence was simultaneously necessary and erased—of how the very document that recorded the dependence (the annual report, the technical monograph, the excavation diary) was also the instrument of its erasure. Photography is an unusually revealing site for this dynamic because the camera's ideological promise is so total: of all the colonial technologies of knowledge, it most insistently claimed to remove the human hand. To show the hand inside the photograph—timing the exposure, developing the plate in a flooded tower, retouching the rectified draft—is therefore to strike at the heart of the objectivity claim on which colonial authority leaned. The recovery of that labor is the dissertation's third contribution, and it is meant as a methodological proposal as much as a historical finding: that the colonial photograph should be read, always, as a record of work.

Instrument and Reappropriation

To insist on the camera's entanglement with colonial power is to invite an old objection, and the dissertation has tried to meet it rather than evade it. The historiography of photography has long been divided between two emphases which prioritize a rigid dichotomy of photography as either art or science. This dissertation, however, investigates photography as a site of mediation. It renders visible a colony that the colonial state was itself still in the process of assembling—counting it, mapping it, and cataloguing it into a single, governable object—even as the same image would, in time, give the Vietnamese the means to imagine a nation of their own.

For in colonial Vietnam photography was an instrument of colonial power and a medium reappropriated by the colonized at the same time, and frequently through the same studios. The photographer who produced identity portraits for the colonial administration in the morning

might produce family portraits, commercial work, and images of Vietnamese public life in the afternoon, on the same equipment, with the same skill. The competence the state conscripted was competence the colony owned, and ownership of the means of photographic production carried possibilities the state could neither foresee nor contain. To choose between photography-as-discipline and photography-as-agency is to miss what is most distinctive about the colonial situation, in which the two were not alternatives but aspects of a single, shared technology. The dissertation's account of photography as infrastructure is what makes it possible to hold both together: an infrastructure is precisely the kind of thing that can serve its builders' purposes and be diverted to others', often at once.

To say that colonial photography helped make a unified "Vietnam" imaginable is emphatically not to say that photography was a technology of decolonization, or that the camera was on the side of the colonized. The Vietnamese photographers who took up the medium were not, by that act, resisting the colonial order; many were its beneficiaries and its participants, and the studios were thoroughly enmeshed in the colonial economy. The argument is more oblique, and more in keeping with the inadvertence that has been its keyword throughout. Anderson's insight was that anticolonial nationalism was an unintended consequence of the colonial state's own institutions of classification—that the census, the map, and the museum taught colonized subjects to picture, as a single bounded thing, the territory the state had assembled for its own administrative convenience.⁶ Photography, this dissertation has argued, was the technology that gave those institutions their grip on the real. To imagine a unified Vietnam was a precondition of decolonization, not yet a claim to sovereignty; and the colonial photographic infrastructure, built

⁶ Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (Verso Books, 2016), 256.

to identify, to tax, and to catalogue, helped make that imagining possible without ever intending to. The latent image the colonial camera fixed was never the one its makers meant to develop.

This reframing has consequences for how the colonial period in Vietnam is narrated. The historiography of modern Vietnam has understandably been drawn to the drama of political resistance and the machinery of economic extraction—to the rise of anticolonial movements and to the plantation, the mine, and the *corvée*. The photographic infrastructure traced here operated in a quieter register, and it shaped the colonial encounter in a way that neither the story of resistance nor the story of exploitation fully captures. It worked through the document rather than the decree, through the category rather than the command, through the slow accretion of files in which a population became countable, a territory mappable, and a past collectible. Attending to it does not displace the histories of resistance and extraction; it supplies their missing substrate, showing how the very terms in which colony and nation came to be imagined—“Vietnam” itself as a single object of knowledge—were laid down in the photographic routines of an administration that believed it was only keeping records.

The Afterlife of the Colonial Archive

The story does not end with the colonial period, because the colonial photographic archive did not. One of the dissertation’s recurring concerns has been the strange persistence of these images, their continuing power to govern how the places and peoples they captured are understood long after the regime that produced them has gone. Nowhere is this clearer than at the Cham sites, where the destruction of 1969 turned an archive that had been one record among others into the only record that remains. The photographs Carpeaux made in the first years of the century stand in, for several vanished towers, the monuments themselves; conservation,

restoration, and scholarship proceed from the colonial negative because nothing else survives. The colonial logic that Chapter Three traced—the dematerialization of the monument into transferable photographic data—has become, by a grim historical accident, the condition of the monument’s continued existence. The colonial archive has outlasted the object it was made to document, and in doing so it has inherited an authority over the past that no one ever voted to give it.

This afterlife is not merely a matter of scholarly dependence; it carries direct legal and ethical stakes in the present. As Chapter Three showed through the recent cooperation between the Da Nang Cham Sculpture Museum—the institutional descendant of Parmentier’s Musée Čam de Tourane—and the EFEO, the “blank areas” in the museum’s own documentation, the consequence of decades of colonial and then wartime custody, now make it difficult to establish where a given object was found or to which excavation it belonged. That gap has consequences for the repatriation of Cham antiquities now dispersed in foreign museums, whose passage out of the country often “cannot be securely traced for want of documentation.”⁷ The proposed remedy is itself revealing: what the museum has called a *repatriation of digital documents*—the copying, through cooperation with French archives, of the very photographs, diaries, and drawings that the colonial institution produced and then carried away.⁸ The colonial archive, having displaced the object, must now be partially returned in order to make the object’s own history legible again. There is no clearer illustration of the long reach of the infrastructure this dissertation has described, nor of the bind in which it leaves the postcolonial nation: to know its own patrimony, Vietnam must consult the archive of the power that took it.

⁷ Sơn Hoàng, “Giải bài toán khoảng trống tư liệu di sản Chăm,” *Thanh Niên*, May 18, 2026, <https://thanhnien.vn/giai-bai-toan-khoang-trong-tu-lieu-di-san-cham-185260518220706745.htm>.

⁸ Sơn, “Giải bài toán khoảng trống tư liệu di sản Chăm.”

The same persistence operates, in a gentler key, in the present-day life of the sites as heritage and as spectacle. The Cham towers are now among the principal sources of revenue for Vietnam's tourism industry; visitors are carried through Mỹ Sơn on electric cars past zones closed for preservation, encountering a Champa whose very legibility as a destination was shaped by the colonial campaigns of classification this dissertation has examined. The categories through which the modern Vietnamese state presents Cham heritage to its citizens and to the world—the periodization, the stylistic groupings, the canon of major sites—descend in large part from the photographic and archaeological apparatus assembled a century ago. To recognize this is not to deny the reality or the value of Cham heritage, nor to reduce a living patrimony to a colonial fiction. It is to insist that the frame through which that patrimony is seen has a history, and that the history is photographic. The afterlife of the colonial image is the dissertation's final substantive theme, and it is the one that most directly connects the archival past to the contested present.

To dwell on these afterlives is also to confront a bind that implicates the historian. A study that recovers the colonial photograph in order to read it, as Ann Laura Stoler put it, “against the grain” must also reproduce, describe, and re-circulate that photograph, and in doing so it keeps the colonial image in motion, extending the very afterlife it sets out to analyze.⁹ There is no position outside the archive from which to write its history; to work on these materials is to work along the archival grain even while pressing against it. The dissertation has tried to address this challenge not by pretending to escape it but by making it explicit—by treating the colonial photograph never as a transparent source but always as an artifact with a history and a politics, and by keeping in view, at every stage, the labor and the violence folded into its production. The

⁹ Ann Laura Stoler, *Along the Archival Grain: Epistemic Anxieties and Colonial Common Sense* (Princeton University Press, 2010).

aim has not been to rescue these images for a redemptive narrative, nor to refuse them in the name of a purity the historian cannot occupy, but to read them as what they are: documents of an exchange of power whose terms are still being negotiated—in the museum, in the repatriation claim, and in the tourist’s itinerary—today. The sources on which this dissertation rests are, overwhelmingly, the records of the institutions it sets out to analyze: municipal records, penitentiary files, bureaucrats’ exchanges, cadastral monographs, the publications and dossiers of the EFEO. To read these against the grain, to recover from them the labor and the contingency they were designed to conceal, is a method with real reach, but it is also a method bounded by what the colonial archive chose to keep. The Vietnamese photographers, technicians, surveyors, and workmen who move through these pages remain, for the most part, more legible in their effects than in their words; the interior life of the Hanoi studio, the self-understanding of the assistant who timed the exposure, the village bookkeeper’s sense of the survey he made possible—these can be inferred and argued for, but they cannot, on the present source base, be fully recovered. The “blank areas” that the Cham museum laments are, in a different form, the limits of this study too.

The colonial record is not a second-best route to photographic agency. The dossiers, contracts, and mission reports read here were generated by the state in the ordinary course of its operations, and they register Vietnamese labor precisely where that labor was indispensable and therefore had to be accounted for — the assistant photographer, the mechanic, the surveyor whose local knowledge decided whether a sheet was completed. Read against the intentions of those who compiled it, the archive has yielded what testimony alone could not: the identification photograph, the cadastral survey, and the museum inventory as a single apparatus, and the dependence of that apparatus on the people it was built to classify. A history built on the

Vietnamese-language press, the papers of Vietnamese studios and professional associations, and the family and commercial archives held outside state collections would carry it into the medium's reappropriation; a comparative study would test how far the camera's role as the shared infrastructure of census, map, and museum holds in other colonial settings, and what difference the specific institutional configuration of French Indochina made. And the infrastructure itself invites a longer chronology since it did not vanish in 1954 when France lost its power in the region following the decisive Battle of Điện Biên Phủ. The identity document, the cadastral plan, and the heritage site remain with the Vietnamese today, and their genealogies run back through the materials I have examined.

Beyond these specific extensions, the framework developed here and the argument that photography served as the shared infrastructure of the modern state's institutions of identification, measurement, and display are not, in principle, confined to French Indochina or even to the colonial world; they describe a configuration that recurs wherever governments have learned to rule through documents whose authority rests on a mechanical image. The identity photograph, the aerial survey, and the catalogued artifact are now global forms, and the objectivity-effect on which they depend is, if anything, more pervasive in the age of digital capture and biometric identification than it was in the age of the glass plate. To have shown, in one colonial setting and in fine archival detail, how that effect was manufactured—how much human labor it concealed and how much contingency it smoothed away—is to offer a way of reading the photographic substrate of state power elsewhere and since. The history of a colonial cadastre and a colonial museum turns out, in this respect, to be a history of the present.

What the camera promised in colonial Vietnam was never a straightforward path to a better future, and this dissertation has refused to make it one. The photograph was an instrument

of colonial power and a medium the colonized turned to their own ends; it rendered Vietnamese labor invisible and depended on that labor utterly; it displaced the objects it documented and became, in the end, their only surviving trace. It was, in short, an occasion for the exchange of power—a site where the colonizer and the colonized, the old practices of recognition and the new techniques of inscription, met and compromised, and where the meaning of the technology was settled and resettled, frame by frame. To read the colonial photograph as infrastructure, as labor, and as latent image is to recover that contest from beneath the smooth surface the colonial archive gave it, and to return to the people on both sides of the lens the history that the camera was built to erase.

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