MAKING SETTLER SPACE
George Dawson, the Geological Survey of Canada and the
Colonization of the Canadian West in the Late 19th Century

by

Jason William Grek Martin

A thesis submitted to the Department of Geography
In conformity with the requirements for
the degree of Doctor of Philosophy

Queen’s University
Kingston, Ontario, Canada
(September, 2009)

Copyright © Jason William Grek Martin, 2009
Abstract

This dissertation examines George Dawson’s efforts to traverse several of the significant blank spaces that pervaded the map of Western Canada in the two decades following Confederation in 1870-71 on behalf of the Geological Survey of Canada (GSC). By analyzing how Dawson went about making these vast, remote and hitherto poorly-known territories legible we can better understand how he and his GSC colleagues helped to transform the Canadian West into a settler space that miners, traders, loggers, ranchers and many more could inhabit and exploit. As Dawson’s survey work in British Columbia and the North-West Territories reveals, the GSC helped to transform the Canadian West into settler space in two important ways. First, his western reconnaissance surveys yielded a wealth of practical knowledge about travel routes, natural resources, soils, climates, existing Native populations, potential hazards and the overall suitability of particular districts for settlement and resource extraction. This information was widely distributed in published reports and maps and served to draw the lands, natural resources and Indigenous inhabitants of the West more fully into the administrative orbit of the Dominion government. Moreover, Dawson’s reports and maps often depicted colonization as both inevitable and imminent, giving scientific weight and tangible expression to a colonial imaginary that, in practice, was never as certain nor as swift to unfold as these depictions intimated. Second, the GSC’s scientific surveys signified Canada’s desire and capacity to assert its epistemological dominion over the West. In this context, the work of a publicly-funded scientific survey was a profound symbol of authority because a state’s power to explore and map its national territory signified its power to rule over that territory. By exploring and reporting on these lands, Dawson and
the Survey helped to cement the Dominion’s authority over its recent territorial acquisitions and affirm their status as a *Canadian* West. By offering important practical and symbolic contributions to Canada’s colonization of the West in the decades following Confederation, the Geological Survey of Canada played a vital role in transforming this region into a Canadian settler space.
Acknowledgements

I would first like to thank my supervisor, Dr. Anne Godlewska, for the unreserved enthusiasm, persistence and wise counsel she provided throughout this protracted project. Her patience was undoubtedly tested on numerous occasions but her staunch support never wavered. I am also grateful to Dr. Peter Goheen, Dr. Laura Cameron and Dr. Sergio Sismondo, not only for their valued feedback as members of my dissertation committee, but also for the numerous edifying conversations I have had with each of them over the course of my degree and for the assistance they have rendered in the formative stages of my academic career. I extend warm thanks to Dr. Matthew Evenden who provided excellent critical feedback at two important moments in the course of this project and who has been unreservedly generous with his time and encouragement. I would also like to thank my many comrades—too numerous to name—within the ranks of the Queen’s Geography graduate program over the past several years. Intelligent conversation, good humour and strong collegial support were all in abundance during my days in Mac-Corry, ensuring that the torments of the doctoral pursuit never became too much to bear. I am likewise grateful to my new colleagues at St. Mary’s, who have been extremely accommodating, supportive and patient over the past two years. I am grateful to my Mom for her frequent words of encouragement and her gentle nudging at crucial moments along the way. Thanks go to my wife Jenn for her cartographic contributions, her editorial élan and her diplomatic skills when called upon as a sounding board. More importantly, I thank her for her love, her faith and her patience over the course of this long journey. Finally, I dedicate this dissertation to the memory of my father, my first and most enthusiastic geography teacher.
Table of Contents

Abstract ........................................................................................................................................... ii
Acknowledgements ......................................................................................................................... iv
Table of Contents ........................................................................................................................... v
List of Figures ................................................................................................................................... vi
Chapter 1: Introduction .................................................................................................................. 1
Chapter 2: Reconnaissance Surveying and the Debate Over ‘Practical’ Science ....................... 29
Chapter 3: The Challenges of Reconnaissance Surveying ......................................................... 101
Chapter 4: Evoking Epistemological Dominion and Anticipating Settler Space .................... 159
Chapter 5: George Dawson’s Contributions to Salvage Anthropology .................................. 226
Chapter 6: ‘Vanishing’ the Haida ............................................................................................. 272
Chapter 7: Conclusion .................................................................................................................. 310
Bibliography ................................................................................................................................. 348
List of Figures

Figure 1.1: Portrait of George Dawson in 1885 ............................................................ 21
Figure 3.1: George Dawson’s routes in 1877 and 1881 ................................................. 113
Figure 3.2: George Dawson’s route in 1887 ............................................................... 134
Figure 3.3: A portion of George Dawson’s map of the Yukon District, 1889 ........... 155
Figure 4.1: George Dawson’s route in 1878 ............................................................... 162
Figure 4.2: George Dawson’s map of the Queen Charlotte Islands, 1880 ............... 164
Figure 4.3: A portion of George Dawson’s map showing De la Beche Inlet, 1880 ...... 165
Figure 4.4: A portion of George Dawson’s map showing Lyell Island, 1880 .......... 166
Figure 4.5: A portion of George Dawson’s map showing Burnaby Island, 1880 ....... 167
Figure 4.6: A portion of George Dawson’s map of southern British Columbia, 1881 168
Figure 4.7: A portion of George Dawson’s map of central British Columbia, 1879 . 169
Figure 4.8: Two of George Dawson’s geological diagrams, 1880 ............................... 186
Figure 4.9: A portion of George Vancouver’s map of the Pacific Northwest, 1798 ... 191
Figure 4.10: A portion of a British Admiralty Chart of the BC Coast, 1867 .......... 192
Figure 4.11: A portion of George Dawson’s map showing Juan Perez Sound, 1880 . 198
Figure 5.1: George Dawson’s photograph of the village at Forward Inlet, 1878 .... 226
Figure 5.2: George Dawson’s map of British Columbia’s Native peoples, 1884 ... 261
Figure 6.1: George Dawson’s map of Virago Sound and Naden Harbour, 1880 .... 275
Figure 6.2: George Dawson’s lithograph of Skedans village, 1880 ............................... 291
Figure 6.3: George Dawson’s photograph of Chiefs Edenshaw and Weah, 1878 ...... 292
Figure 6.4: George Dawson’s photograph of the village at Forward Inlet, 1878 ....... 307
Chapter 1

Introduction

Point of Departure

On March 7, 1890 an eclectic group of amateur, academic and government-employed botanists, geologists and ornithologists—collectively known as the Ottawa Field Naturalists Club—convened in the nation’s capital to hear one of their own present a paper on “Some of the Large Unexplored Regions of Canada.” George Dawson, a celebrated geologist with the Geological Survey of Canada\(^1\), had been a prominent member of the club since its inception in 1879 and would commence a three-year term as president the following year. As a field scientist, Dawson had spent much of the previous fifteen years exploring some of the most remote and poorly known regions of the North-West Territories and British Columbia, following their acquisition from Great Britain in 1870 and 1871.\(^2\) He was uniquely qualified to outline the various regions of the Dominion that had not yet been subjected to extensive exploration and to justify the need for such work:

Fortunately or unfortunately as we may happen to regard it, the tendency of our time is all in the direction of laying bare to inspection and open to exploitation, all parts, however remote, of this

---

\(^1\) In the interest of brevity, I will generally refer to this organization as the GSC or ‘the Survey’ throughout the dissertation.

\(^2\) In 1870 a British Order in Council transferred authority over Rupert’s Land (the land drained by Hudson Bay) and the North-Western Territory (the land drained by the Arctic Ocean) to the Dominion of Canada. These acquisitions were named the North-West Territories and encompassed all of present-day Manitoba, Saskatchewan, Alberta, and the Yukon Territory, as well as much of present-day Northwest Territories, Nunavut, northern Ontario and northern Quebec. Later that same year, Manitoba was established as Canada’s fifth province and, the following year, British Columbia joined the Dominion as Canada’s sixth province. For both a cartographic depiction and a historical timeline of this territorial evolution, see Norman L. Nicholson and Charles F. J. Whebell, “From Sea to Sea: Territorial Growth to 1900,” in The Historical Atlas of Canada, Volume II: The Land Transformed, 1800-1891, ed. R. Louis Gentilcore (Toronto: University of Toronto Press, 1993), Plate 21.
comparatively small world in which we live, and though the explorer himself may be impelled by a certain romanticism in overcoming difficulties or even dangers met with in the execution of his task, his steps are surely and closely followed by the trader, the lumberer, or the agriculturalist, and not long after these comes the builder of railways with his iron road. It is, therefore, rather from the point of view of practical utility than from any other, that an appeal must be made to the public or to the government for the further extension of explorations, and my main purpose in addressing you to-night is to make such an appeal, and to show cause, if possible, for the exploration of such considerable portions of Canada as still remain almost or altogether unmapped.3

For Dawson, surveying Canada’s unexplored regions provided much more than fodder for romantic tales of derring-do to be recounted for delighted audiences on winter evenings at the club. It was the critical first step that prepared the way for settlement, resource exploitation and administrative control to be successfully established in even the most remote corners of the Dominion. Dawson also felt that scientific exploration signified something important about the Canadian character, making its neglect intolerable: “till this great aggregate of unknown territory shall have been subjected to examination, or at least till it has been broken up and traversed in many directions by exploratory and survey lines, we must all feel that it stands as a certain reproach to our want of enterprise and...curiosity.”4 As far as Dawson was concerned, eradicating the remaining blank spaces on the map of Canada would provide practical benefit and symbolize an important milestone in the progress of the burgeoning nation.

This dissertation examines George Dawson’s efforts to traverse several of the significant blank spaces found on the map of Western Canada in the two decades following Confederation in 1870-71. By analyzing how Dawson went about “laying bare

---

to inspection and open to exploitation” these vast, remote and hitherto poorly-known territories we can better understand how he and his GSC colleagues helped to transform the Canadian West into a settler space that miners, traders, loggers, ranchers and many more could inhabit and exploit. Understanding the Survey’s work in the West helps broaden our understanding of the ways in which the Dominion of Canada colonized its newly-acquired territories in the wake of Confederation. Illuminating the Survey’s contributions to the making of settler space responds to Cole Harris’s call for a wider and more empirically-grounded discussion of the colonial geographies constructed within 19th-century Western Canada.

As Dawson’s survey work in British Columbia and the North-West Territories reveals, the Geological Survey of Canada helped to transform the Canadian West into settler space in two important ways. First, the GSC’s western reconnaissance surveys yielded a wealth of practical knowledge about travel routes, natural resources, soils, climates, existing Native populations, potential hazards and the overall suitability of particular districts for settlement and resource extraction. This information was widely distributed in published reports and maps and served to draw the lands, natural resources and Indigenous inhabitants of the West more fully into the administrative orbit of the Dominion government. Moreover, the Survey’s reports and maps often depicted colonization as both inevitable and imminent, giving scientific weight and tangible expression to a colonial imaginary that, in practice, was never as certain nor as swift to unfold as these depictions intimated. Second, these scientific surveys signified Canada’s desire and capacity to assert its epistemological dominion over the West. Legal dominion

had been established with the land transfers of 1870 and 1871 but owning the territory and knowing it were two different matters. To reinforce Canada’s sovereignty over the West it was imperative that the fledgling nation take swift measures to establish epistemological control over its new acquisitions. In this context, as Raymond Craib suggests, the work of a publicly-funded scientific survey was about more than gathering useful information about resources and terrain—it was also a profound symbol of authority because a state’s power to explore and map its national territory signified its power to rule over that territory.6 By exploring and reporting on these lands, the Survey helped to cement the Dominion’s authority over its recent territorial acquisitions and affirm their status as a Canadian West. By offering important practical and symbolic contributions to Canada’s colonization of the West in the decades following Confederation, the Geological Survey of Canada played a vital role in transforming this vast and poorly-known region into a Canadian settler space.

A Brief Review of the Relevant Literature

By suggesting that the GSC was helping to ‘make settler space’ in the Post-Confederation Canadian West, I wish to both invoke and contribute to an existing and quite fruitful body of work on the geographical dimensions of colonialism in this region. Daniel Clayton has examined how the British Columbia coast, particularly Vancouver Island, was fashioned as a space of British imperialism in the first half of the 19th century, primarily based on the exploration and mapping carried out by George Vancouver at the end of the 18th century. Britain’s willingness to engage in “boundary-making procedures

---

and place-holding tactics” in the Pacific Northwest, Clayton asserts, laid the territorial foundations for the settler colonialism that came to shape British Columbia in the second half of the 19th century.\(^7\) As the century unfolded, Euro-Canadian settlement in what became Western Canada inaugurated the colonial project of ‘making Native space’—a project that Cole Harris and Kenneth Brealey have helped illuminate with respect to British Columbia.\(^8\) As Harris and Brealey illustrate so effectively, making Native space involved both the discursive adjudication of the contentious ‘Indian Land Question’ and the material displacement of the province’s Indigenous inhabitants to a number of small Native reserves during the latter decades of the 19th century.\(^9\) By establishing reserve space as the only legitimate Native space in British Columbia, government officials cleared the vast majority of the province’s territory for settlers and resource capitalists to acquire. As Harris argues, “the line separating the Indian reserves from the rest became,


\(^9\) As Harris summarizes, the Indian Land Question that gripped British Columbia at various moments throughout the 19th century came about because: “most whites assumed that Native people would have to be assimilated into what they considered civilized society, but disagreed about how this should be done and at what pace. Related to this were disagreements about how much land should be reserved for Native people and about the access they should have to off-reserve land.” See Harris, *Making Native Space*, esp. xxiii-xxiv. Moreover, as Harris discusses at length in the first part of the book, the Indian Land Question was also concerned with the issue of whether Natives held legal title to their land that needed to be extinguished through formal treaties before reserves could be established and before settlement could proceed.
in a sense, the primal line on the land of British Columbia, the one that facilitated or constrained all others.”

In telling the story of how such a line came to be drawn, Harris focuses his attention on the small parcels of reserve land that this line came to contain and that he considers “the province’s most basic colonial spaces.” But what of the vast swaths of territory to be found on the other side of this ‘primal line’? Were these not also spaces that, like the reserves, had been made by the various processes of colonialism that shaped BC and other parts of the Canadian West in the second half of the 19th century? I would suggest that ‘settler space’ in the West was not simply the territory left over once reserve boundaries had been surveyed and legally codified. Like Native space, settler space had to be actively called forth through a multitude of discursive and material practices—practices that transformed extensive expanses of wild and undifferentiated “Crown Land” into targeted resource localities where Euro-Canadian settlement and resource exploitation could be both encouraged and facilitated. Harris has urged scholars to identify, untangle and compare the material, quotidian and often mundane practices of colonialism to reveal the true nature of colonial power. Studying the practices that constituted the making of settler space in Western Canada is valuable because such practices comprised “different components of the colonial arsenal” than those that Harris and Brealey associate with the making of ‘Native space’ or the ones Clayton links to the making of ‘imperial space.”

---

10 Harris, *Making Native Space*, xviii.
11 Ibid, xxi.
13 Ibid, 168.
In evaluating the Survey’s contribution to making settler space in the West, I will focus on the ways that the organization’s reports and maps discursively framed Canada’s new territorial acquisitions. Analyzing how the surveyed territories were depicted in published texts is germane to the discussion of making settler space because, as Daniel Clayton reminds us, “colonialism does not start with occupation alone, and it does not work solely on land; it also works with images and representations, with imaginative geographies that precede, and to a degree anticipate, colonialism.” In effect, Clayton is suggesting that remote and little-known lands often had to be colonized in the mind in order to be effectively colonized on the ground and that the colonial imagination provided a framework, impetus and indeed confidence for action. In this regard, Clayton takes Edward Said’s ideas on the cultural underpinnings of colonialism seriously: “[the colonial struggle over geography] is complex and interesting because it is not only about soldiers and cannons but also about ideas, about forms, about images and imaginings.” By producing reports, maps and other publications that constructed imaginative colonial geographies of Western Canada the GSC helped conceive the region as ‘settler space’ well before the bulk of colonization was undertaken in the West. Moreover, as Bruce Braun asserts, the “representational practices, scientific discourses and imaginative geographies” deployed by Dawson and his Survey colleagues may have helped establish the discursive framework that “underwrote” the more overtly colonial work of the Indian

14 Clayton, Islands of Truth, 166.
Reserve Commissioners analyzed by Harris and Brealey. Such a claim is difficult to definitively prove but I think that Braun is correct to suggest that the evolving colonial imaginary that emerged from scientific surveying is as worthy of analysis as the more tangible practices that gave rise to the geography of Native reserves in the Canadian West in the late 19th century.

In 19th-century settler societies such as Canada, colonial imaginings were deeply intertwined with the aims and practices of modern statecraft. Indeed, by “laying bare to inspection and open to exploitation” the lands, resources and peoples of the West, Dawson and his Survey colleagues were engaged in what James Scott calls a “state project of legibility and simplification.” According to Scott, the central dilemma of modern states was to transform complex, highly illegible and often quite localized social relations into ones that were rational, orderly and easily monitored by the centralized bureaucracy of the state. In this regard, Scott’s analysis has important parallels to Michel


17 As Daiva Stasiulis and Nira Yuval-Davis point out, settler societies such as Canada, Australia, the United States and New Zealand complicate the “neat dichotomy between Europe and the rest of the world” because their large populations of European settlers “maintained relations of dependency with their original ‘sponsors,’ even as they achieved considerable political and economic autonomy from European colonial powers.” Such autonomy, Stasiulis and Yuval-Davis argue, permitted settler societies to implement “extensive systems of exclusion and exploitation of both ‘indigenous’ and ‘alien’ peoples within, exercised through a variety of coercive, ideological, legal, administrative and cooptative mechanisms.” Such policies were largely inspired by and built upon the established administrative practices of the original colonial power, further blurring the distinction between European colonialism and modern statecraft in these emerging settler societies. See Daiva Stasiulis and Nira Yuval-Davis, “Introduction: Beyond Dichotomies – Gender, Race, Ethnicity and Class in Settler Societies,” in *Unsettling Settler Societies: Articulations of Gender, Race, Ethnicity and Class in Settler Societies*, ed. Daiva Stasiulis and Nira Yuval-Davis (London: Sage Publications, 1995), 1-38, esp. 3-4. See also Lynette Russell, ed., *Colonial Frontiers: Indigenous-European Encounters in Settler Societies* (New York: Manchester University Press, 2001), David Trigger and Gareth Griffiths, ed., *Disputed Territories: Land, Culture and Identity in Settler Societies* (Hong Kong: Hong Kong University Press, 2003) and John C. Weaver, *The Great Land Rush and the Making of the Modern World, 1650-1900* (Montreal and Kingston: McGill-Queens’s University Press, 2003).

Foucault’s discussions of ‘governmentality.’ For Foucault, modern forms of government rationality—or governmentality—first emerged in Europe between the 16th and 18th centuries, when states began focusing on two related problems: how to render their populations visible to bureaucrats and how to produce “governing effects” that would compel citizens to act in ways that would improve the collective condition of all, in terms of health, education, economic prosperity, social cohesion and other dimensions of the public good. To affect such improvements, modern states began to develop new administrative apparatuses (such as census bureaus, revenue agencies, public records offices, et cetera) designed to monitor citizens and regulate their social and economic interactions. Both Scott and Foucault recognize that territory was heavily implicated in these state projects of rationality because social relations were fundamentally grounded in, and enacted through, particular places, such that the reordering of social relations involved a concomitant reordering of geographical relations. As Scott puts it, the modern state’s aim is to “make the terrain, its products, and its workforce more legible–hence manipulable–from above and from the center.”

Surveying was an essential tool of statecraft because it generated reports and maps that made the terrain, natural resources and inhabitants of the surveyed territory legible to state administrators. Just as significantly, the reports and maps distilled a complex reality into a simplified

---

19 Foucault’s principal ideas on this subject can be found in his essay “Governmentality,”—a posthumous distillation of ideas first raised in a series of lectures at the Collège de France in the late 1970s—which can be found in The Foucault Effect: Studies in Governmentality, ed. Graham Burchell, Colin Gordon and Peter Miller (Chicago: the University of Chicago Press, 1991), 87-104. Several geographers have applied Foucault’s theory of governmentality to their work. Of particular relevance to my research are Kirsch’s, “John Wesley Powell and the Mapping of the Colorado Plateau,” esp. 552-554, and Bruce Braun’s, “Producing Vertical Territoriality: Geology and Governmentality in Late Victorian Canada,” Ecumene (now Cultural Geographies) 7, 1 (2000): 7-46, esp. 12-13 and 26-28. For a book-length geographical study that draws heavily on this theory, see Matthew G. Hannah, Governmentality and the Mastery of Territory in Nineteenth-Century America (New York: Cambridge University Press, 2000).

20 Scott, Seeing Like A State, 2.
representation, depicting only those details that interested state officials and permitted them to administer the territory effectively. For Scott, surveys like the GSC helped the Canadian government ‘see like a state’ and this makes the Survey worth analyzing in more detail.

While state-sponsored scientific surveys undoubtedly rendered the lands, resources and Indigenous peoples increasingly legible to administrators, Bruce Braun cautions that such legibility should not be taken for granted. According to Braun, both Foucault and Scott are guilty of seeing the territory of the state, as well as its various ‘natural’ attributes, as mere raw materials that can be objectively inventoried and unproblematically manipulated as part of the state’s rational attempts to regulate and optimize social relations amongst its citizens. What such perspectives fail to appreciate are the contingent social practices through which particular understandings of the territory and its qualities take shape at particular times and in particular places. Braun attempts to demonstrate this point with reference to Dawson and the GSC’s work in the Canadian West, arguing: “to Foucault’s concept of governmentality must be added the problem of nature’s intelligibility. Geology did not simply ‘exist’ in a given territory. Rather, as a set of rules governing what was visible in nature, geology brought a ‘territory’ with its ‘qualities’ into being, and thus opened a space – simultaneously epistemological and geographical – that could be incorporated into forms of political rationality.” For Braun, territory is never self-evident and, thus, the act of surveying is never simply an act of ‘reading off’ the land and faithfully reproducing it in the form of maps and reports. Raymond Craib concurs, arguing: "space does not merely display itself

21 Ibid, 3.
23 Ibid, 28.
to the world, as if it were somehow ontologically prior to the cultural and semiotic codes through which its existence is expressed. Such myths of mimesis turn the historical into the natural, concealing its social, cultural and political underpinnings.”

Instead, as several historians of cartography have argued, surveyors’ maps and reports produce the territory they purport only to reflect; by framing how we are able to perceive the territory, by anticipating the geographical form the territory will eventually take, and, thus, by providing a blueprint for the material transformation of the land, the map, at a fundamental level, is the territory.

Craib takes the argument a step further: maps not only produce the state’s territory but also help bring into being the state itself. For Craib, the state was the “structural, metaphysical effect of a multitude of disciplinary formations.” As such, it lacked coherence and tangibility in the eyes of the public it served. In this context, state-sponsored surveying initiatives were vital because they produced maps of the national territory that would “provide a textual tangibility to an otherwise metaphysical entity….National maps did not simply imagine the nation-state into existence, but they did function as a means through which such an object could be more effectively

---

24 Craib, *Cartographic Mexico*, 5. In this passage, Craib is building on Paul Carter’s notions of ‘spatial history,’ which focuses on how explorers and surveyors constituted the land by “choosing directions, applying names, imagining goals, inhabiting the country.” In contrast, Carter rejects conventional accounts of colonial exploration and settlement as “diorama history” that frames colonial territory as “stage space”—land deemed to be “‘natural’, passive, objectively ‘there’,” merely waiting to be mapped and occupied as part of the ‘inevitable’ unfolding of colonization. See Paul Carter, *The Road to Botany Bay: An Exploration of Landscape and History* (Chicago: The University of Chicago Press, 1987), xxi.


imagined, propagated, and circulated.”27 By making legible a national territory, state-sponsored surveys defined the spatial field within which the state could intervene and, in so doing, provided an important tangible backdrop against which the otherwise inchoate state could come into view. Thus, in a very important sense, scientific surveys and the states that sponsored them were mutually constitutive.28 As Braun notes, this has important implications for understanding Dawson’s work, and that of his GSC colleagues, in the Canadian West. It is a mistake, he argues, to consider the Survey’s work in the West as a project carried out “in the interests of a state whose power existed prior to, and apart from, how its territories were rendered legible.”29 From this perspective, the Survey was no mere instrument wielded by an already-established and coherent Canadian State. Instead, the GSC was an important component of the nebulous construct that was the post-Confederation Dominion of Canada and its efforts to make the lands, resources and peoples of the West known played an important role in grounding the fledgling state within its emerging national territory and in shaping the administrative direction the Dominion would take with respect to that territory. In short, the Survey’s work helped to define both the western territory to be administered and the Canadian State that would be responsible for its administration.

In this regard, the Survey acted as an important mediator between the newly-acquired western territories and the state apparatus in Ottawa. Scott Kirsch has identified a similar mediation performed by John Wesley Powell in the course of his federally-sanctioned surveys of the Colorado Plateau in the 1870s. What interests Kirsch about Powell’s surveys in this period is the “traffic of knowledge” they initiated between the

27 Ibid, 9.
28 Ibid.
29 Braun, *Intemperate Rainforest*, 47.
plateau country and Washington DC. As Kirsch notes, “observations, measurements, photographs, paintings and ethnographic objects…were routed from the arid lands to Washington, where they could be reconstructed—and often made available for public consumption—in maps, books, popular magazines, scientific journals, and museum and exhibition displays.”

This traffic of knowledge was far from unidirectional. As government surveyors such as Powell moved west, they carried with them the institutional backing and administrative authority of the United States government, extending the reach of the state further with every field season and incorporating hitherto unmarked territories—along with all that each contained—into the emerging national map of the United States. As Kirsch notes, the traffic of knowledge facilitated by the western surveys allowed a ‘legible west’ to flow east in ways that permitted the American State’s administrative authority to, in turn, flow west, producing “new spaces, boundaries, and classification schemes” in the plateau country of the Colorado watershed and elsewhere. In this regard, Kirsch’s ‘traffic of knowledge’ has important parallels to Bruno Latour’s ‘cycles of accumulation’—a framework that Braun has applied to his analysis of Dawson’s surveys in the Canadian West. For Latour, the explorer’s principal task was to collect various ‘immutable mobiles’—written observations, measurements, topographic sketches, photographs, specimens, et cetera—that could withstand the rigours of the journey and be brought back from the field intact. These artefacts would then be analyzed, compared and combined in the ‘centre of calculation’—in Dawson’s case, the Survey offices in Montreal and, later, Ottawa—to produce new knowledge about the surveyed region. This knowledge would then form the

---

31 Ibid, 549.
basis for additional surveys in the region, as well as for other administrative interventions on the part of the state, inaugurating another ‘cycle of accumulation’ designed to amass knowledge in the distant centre of calculation and foster ‘action at a distance.’ Thus, for both Kirsch and Latour, attending to the geographical flow of knowledge is an important part of understanding how surveys mediated interactions between national territories and the various state agencies created to administer those territories.

Kirsch argues that government-sponsored scientific surveys also constructed the intellectual authority and, on occasion, the celebrity of the survey scientists themselves. Powell was valorized for his ‘heroic’ descent of the Colorado River in 1869 and for his visionary recommendations concerning land and water resources in the arid West, articulated over the following decade. Dawson achieved less public notoriety than his American counterpart but nonetheless enjoyed a sterling reputation in international scientific circles thanks to his numerous reconnaissance surveys in the Canadian West in the late 19th century. Scientific surveyors in Dawson’s day were accorded such esteem because their maps and reports transformed terrae incognita into legible, orderly and seemingly governable territories for the first time. Yet, as a number of scholars have noted, the assuredness of a surveyor’s maps and reports often belied the numerous challenges encountered in the field. As Graham Burnett suggests, explorers had “dynamic encounters with dynamic spaces: their views were sweat-befogged, personal, and often costly.” In this sense, Burnett builds on the work of Paul Carter, who was one of the first scholars to focus on the tension that explorers and surveyors faced when confronted

with the task of producing an objective, detached account of the lands they traversed despite the fact that their engagements with these lands were intimate, embodied and highly subjective. As Carter puts it, the explorer “does not gaze on the world as through a window, but rather inhabits it….His perception of space is grounded in his bodily nature, in the fact that his biological constitution is itself a spatial configuration.”

While surveyors struggled to transcend their own subjective, embodied encounters with the landscapes they were charged with objectively observing, they also faced many external obstacles in the field. Bad weather, inadequate supplies, unforeseen delays, impassable terrain and indifferent or obstructive local inhabitants could all conspire to hinder the surveyor’s work. Given these realities, Burnett notes, it is no longer satisfactory to consider surveyors as highly-efficient “cogs in a coordinated, rational, and centrally controlled” colonial/state machine whose explorations effortlessly amassed comprehensive, systematic and authoritative representations of the territories surveyed. Instead, we need to be sensitive to the ways in which the subjective and partial traces produced in the field gave way to robust and seemingly objective depictions presented in published maps and reports—a transformation that is well illustrated in Dawson’s work.

Of course, the scientific surveys sponsored by various state and colonial regimes during the 19th century were rarely conducted in vacant lands. As such, surveyors encountered numerous Indigenous groups in the course of their travels—groups that


37 Raymond Craib notes, for example, that state-sponsored surveyors in Mexico encountered numerous subtle acts of resistance from local inhabitants as they laboured to conduct a systematic survey of the national territory in the 1870s; marking posts were uprooted, cultural landmarks were moved and local guides would willfully mislead the surveyors in order to subvert the survey and, by extension, the authority of the state. See Craib, *Cartographic Mexico*, 145-148.

38 Burnett, *Masters of All They Surveyed*, 11.
posed surveyors problems when it came to depicting the land. On the one hand, as Ken Brealey notes, Native peoples were often simply ‘mapped out’ of the surveyed lands as though they did not exist.\(^{39}\) Colonial cartography, then, was a powerful instrument of discursive dispossession, denying Native communities a presence on the lands they had occupied for generations. On the other hand, Native peoples were important objects of study for surveyors with ethnographic interests and commitments. Scott Kirsch notes that the Native communities of the Colorado Plateau were a significant part of the traffic of knowledge that Powell oversaw in the 1870s. In addition to his associations with the fledgling United States Geological Survey, Powell was heavily involved with the Bureau of Ethnology and was thus committed to offering detailed studies of the Native peoples he encountered in the West, despite the fact that such peoples were largely absent from his maps of the region.\(^{40}\) Bruce Braun has documented a similar paradox of cartographic erasure and ethnographic interest in Dawson’s work in the Canadian West. Like Powell, Dawson offered little sense of a Native presence on his geological maps of the West but looked to include detailed accounts of Native customs, social structures, geographical distributions and other relevant data as part of his published reports whenever possible. Braun pays particular attention to Dawson’s discussion of the Haida in conjunction with his 1880 report on the Queen Charlotte Islands, and accounts for the paradox by arguing that Dawson depicted these Native peoples as inhabiting a few isolated villages, with virtually no connection to the surrounding wilderness. By drawing a sharp and disproportionate geographical divide between natural and cultural landscapes on the Charlottes, Braun argues, Dawson justified settlement and resource extraction in the vast,
unoccupied portions of these islands. While Braun offers a provocative explanation for Dawson’s paradoxical treatment of the Haida, I think a more nuanced reading is possible by adding a temporal dimension to the analysis. Dawson did discursively displace Native peoples from their territories but I suggest that he did so by positioning them in a vanishing past that could not be sustained in the wake of contact with Euro-Canadian settler society. This discourse of the Vanishing Indian permitted Dawson to paint a picture of future Euro-Canadian settlement and prosperity in the West that did not include the Indigenous peoples who had inhabited these lands ‘since time immemorial.’ This discourse also served to justify the creation of Native reserves—those quintessentially colonial spaces that have been the focus of Harris’s recent work.

What Lies Ahead

I will return to these points in more detail over the course of the pages that follow, as I seek to explain how George Dawson’s reconnaissance surveys in the last quarter of the 19th century contributed significantly to the colonial project of making settler space in the Canadian West. In so doing, I will eschew a biographical or chronological framework in favour of a thematic approach that seeks to elucidate the objectives, challenges and practices—both material and discursive—that framed Dawson’s efforts to render the West legible. Before developing this argument I must first introduce George Dawson in more detail to justify why I have chosen him as the focus for this project. This I do below, in the final section of this introductory chapter. With Dawson’s significance established, I turn, in Chapter 2, to the objectives that guided the Survey’s work in the West, as revealed in the course of parliamentary hearings presided over by the House of

Commons Select Committee on Geological Surveys in 1884. What these hearings made clear was that the Survey’s scientific explorations in the Canadian West were not endorsed by all segments of the Dominion’s scientific community, business community or elected officials of the day because they were not deemed of sufficient practical benefit to the nation. Equally clear was that senior GSC officials regarded such surveys as essential practical contributions to the Dominion and their testimony in defence of the Survey reveals their commitment to transforming the Canadian West into settler space. Chapter 2 also demonstrates that the Survey had the power to rebuff its critics and continue its established practices in the West despite pressure from the Select Committee to reform—illustrating that the Survey was a quasi-autonomous component of the emerging Canadian State, rather than a mere instrument at its disposal. In Chapter 3, I analyze Dawson’s field work to reveal the various struggles and obstacles associated with his reconnaissance surveying practices. My particular focus is Dawson’s 1887 field season in Northern British Columbia and the southern Yukon District because the numerous trials and hardships endured that summer reveal just how circumscribed, imprecise and subjective such traverse surveying could be—an important fact to bear in mind when assessing the robust and beguiling reports and maps that Dawson produced as a result of his various field reconnaissances. Chapter 4 turns to these reports and maps, using Dawson’s 1880 report on the Queen Charlotte Islands to illustrate the discursive power of his scientific publications. In particular, I address how Dawson’s published depictions of the Charlottes (and other surveyed regions) contained two important messages about these territories. First, Dawson’s writings and cartographic representations signified that the Canadian State—through the work of the GSC—was
establishing epistemological dominion over the West, supplementing its legal authority over its newly-acquired territories with an intellectual authority that both signified and facilitated its ability to rule. Second, Dawson’s published reports and maps were infused with an anticipatory rhetoric that implied that the transformation of even the Dominion’s most remote territories into productive settler spaces was both inevitable and imminent. In this regard the Charlottes were a bountiful resource hinterland that would soon support loggers, miners, fishermen and farmers without difficulty. Yet, complicating these imaginative geographies of resource development was the presence of the Indigenous inhabitants who had owned and occupied these lands since time immemorial. As Chapter 5 reveals, Dawson was fascinated with the various Native peoples he encountered in the field and he did his utmost to document their languages, customs, physical features, geographical distributions and socio-political systems in the course of his western explorations. Dawson’s ethnographic efforts were motivated by more than curiosity. Like many in his day, he felt that the Native peoples of North America were vanishing as a result of sustained contact with peoples of European descent and he felt that he had an obligation to salvage as much information as possible about the Indigenous communities he encountered before they were completely assimilated into Canadian society. A significant portion of Dawson’s career was spent carrying out or coordinating ethnographic investigations in the Canadian West. Yet, as we see in Chapter 6, Dawson’s depictions of Western Canada’s Native peoples as ‘Vanishing Indians’ also justified their erasure from the imaginative geographies of settlement and resource extraction that his reports and maps anticipated for the West. In effect, Dawson ‘mapped Natives out’ of his representations of Western Canada’s future resource landscapes by writing them back
into a ‘primitive’ past deemed to be vanishing forever. This argument is developed in relation to Dawson’s depiction of the Haida in his 1880 report on the Queen Charlotte Islands—the clearest example of how Dawson conceptually cleared the resource landscapes of the West of their Native inhabitants through the strategic deployment of salvage anthropology.

A Brief Biography of George Dawson

In developing my argument about the making of settler space in the Canadian West, I will focus on George Dawson (Figure 1.1), paying particular attention to several of the key reconnaissance surveys he carried out in the course of his brief but celebrated field career with the GSC. As Dawson’s work reveals, making settler space in the West was never a straightforward process for Survey officials. Dawson encountered a number of impediments to his efforts: in Ottawa, where Parliamentary overseers did not always share the Survey’s view on what constituted appropriately ‘practical’ science, supported by and in service to the Canadian public; in the field, where numerous challenges, obstacles and diversions arose each season, impinging upon his ability to carry out systematic survey work; and in terms of his own perceptions, where some of the common prejudices of the age prevented Dawson from meaningfully anticipating the fate of the various Native peoples he encountered in the course of his field work. Despite these obstacles, Dawson did more than any other field scientist of the day to make the lands, resources and Native peoples of the West legible to government administrators and the Canadian public alike and his contributions to the making of settler space in Western Canada are worthy of careful consideration.
George Dawson was born in Pictou, Nova Scotia on August 1, 1849.\^{43} He was the eldest of four children born to John William Dawson and Margaret Mercer Dawson.

\footnote{\textsuperscript{42} Library and Archives Canada, Photograph: PA-025522.}
Dawson’s father was a renowned geologist and naturalist who had amassed an enviable collection of rock and fossil specimens from various Nova Scotia localities and who had cultivated a personal friendship with Sir Charles Lyell after guiding the vaunted British geologist around Pictou’s coal deposits in 1842. In addition to his scientific pursuits, William Dawson became Nova Scotia’s first Superintendent of Education, a position that led to his appointment as the Principal of McGill University in 1855. As a result, George and his family moved to Montreal, taking up residence on the grounds of the McGill campus. There, the elder Dawson shared his scientific passions with his entire family, with George his keenest pupil. Indeed, with the university’s facilities at his disposal, William was able to offer George an advanced tutelage in the principles of scientific inquiry. From a young age, George Dawson cultivated an interest in scientific investigation, under the watchful guidance of his father.

The best biography of Dawson was written by his niece, Lois Winslow-Spragge, who published the *Life and Letters of George Mercer Dawson, 1849-1901* privately in 1962. In 1993, Bradley Lockner, a historian who has studied Dawson for many years, revised and expanded Winslow-Spragge’s earlier work. See Lois Winslow-Spragge, *No Ordinary Man: George Dawson, 1849-1901*, ed. Bradley Lockner (Toronto: Natural Heritage/Natural History Inc., 1993). The biographical details that follow are drawn from this second, more recent, account. Those interested in Dawson might also wish to examine a recent book by Phil Jenkins, *Beneath My Feet: The Memoirs of George Mercer Dawson* (Toronto: McClelland and Stewart, 2007). Jenkins takes considerable liberties in calling his work a memoir, however. While the narrative is presented to readers in an autobiographical style, many of the words do not belong to Dawson. Rather, Jenkins has mined Dawson’s voluminous writings—including archived correspondence and field notebooks as well as his published articles and reports—to create an autobiographical ‘skeleton’ of the man’s life in his own words. As Jenkins freely acknowledges in his preface, however, these bones have been given flesh by Jenkins himself, who concocts a charming, conversational style to fill in gaps in the narrative in Dawson’s ‘own’ voice. The book, then, is a pastiche of Dawson’s writings and Jenkins’s embellishments, with no clear indication where the threshold between the two lies. While this might make little difference to the casual reader, it is a source of frustration to researchers interested in Dawson because it makes it impossible to determine which words are originally Dawson’s and which belong to Jenkins—particularly given the absence of citations. Moreover, while Jenkins claims that “close to ninety-five percent” (p.2) of the book is comprised of Dawson’s own words, my own extensive research into Dawson’s extant papers suggests that the percentage is a good deal lower than that. In short, this book must be considered at least partially a work of historical fiction—entertaining and enlightening to be sure but also unreliable and slightly deceptive.


Dawson’s father commonly went by William. Eventually he was knighted for his contributions to science, becoming “Sir William Dawson.”
Dawson’s youth was one of struggle. At the age of twelve he was stricken with Pott’s Disease—a form of tuberculosis—that weakened his vertebrae, twisted his spine and impeded his growth. The disease caused Dawson a great deal of pain and confined him to his bed for much of his adolescence. Although various treatment regimens were instituted, nothing could prevent a marked deterioration of the spinal column over time. The affliction had run its course by the time Dawson matured to adulthood but it left him noticeably slight of build, short in stature and stooped in posture.

While Dawson’s illness had a significant impact on his education, it did not prevent him from excelling at scientific study. Since he was unable to attend school regularly during much of his youth, he pursued his studies with private tutors and also received extensive scientific training from his father. Fortunately, by the age of nineteen, Dawson’s health had improved enough to permit him to enrol part time at McGill University. A year later, Dawson determined that he was physically and intellectually strong enough to continue his scientific education abroad. In 1869 he applied and was accepted to the prestigious Royal School of Mines in London, a venerable scientific academy affiliated with the British Geological Survey. During his three years in London, Dawson was trained in geology, mineralogy, mining, metallurgy, applied math, physics, chemistry, paleontology and natural history—his studies in the latter presided over by the eminent Darwinist Thomas Huxley. Dawson excelled in London: in his second year he won the Duke of Cornwall Scholarship, the Director’s Medal and Prize for geology & mineralogy, and the Edward Forbes Medal and Prize for palaeontology and natural
history. The following year, he graduated at the head of his class, won the Forbes Medal a second time and was made an Associate of the Royal School of Mines.⁴⁶

Dawson was intent on returning to Canada and becoming a field geologist following his graduation in 1872. He had received a number of tempting employment offers in England, including a position with the British Geological Survey, then the world’s pre-eminent geological research body. But, as he explained to his sister Anna, he felt a more fulfilling career awaited him in his homeland: “Firstly, on the whole I would rather be in Canada. Secondly, the geology now left here is of so minute a character, & of such local interest.”⁴⁷ Compared to the United Kingdom, the geological field in Canada was vast, interesting and largely untrammeled—particularly in the newly-acquired regions of the Canadian West. An ambitious and talented young geologist could certainly make a name for himself in the Dominion. A return to Canada would also permit Dawson to be close to his family; yet, long summers in the field and longer winters spent writing reports and making maps would excuse Dawson from the social engagements that he abhorred—a situation that suited him a great deal.⁴⁸

For a promising young geologist intent on field work in Canada, securing a position with the Geological Survey of Canada was the logical course of action. Not surprisingly, Dawson was quick to contact Survey Director Alfred Selwyn upon graduating. Dawson was precisely the type of trained geologist that the Survey was looking for and Selwyn decided to hire Dawson and give him the plum task of working out the complex geology

⁴⁷ Quoted in Ibid, I: 7.
⁴⁸ Social events in Montreal were a life-long burden for Dawson. His family moved with the circle of the city’s wealthy and predominantly Scottish merchant elite, meaning that Dawson had to endure his fair share of soirees and luncheons. See Cole and Lockner, The Journals of George M. Dawson, I: 24-26.
of British Columbia. A complication soon arose. Dawson, at his father’s urging, had also applied for, and been awarded, the position of geologist and naturalist with the British North American Boundary Commission. This Commission was a joint British and Canadian venture that—in conjunction with a counterpart American survey party—was created to survey and mark out the international boundary along the 49th parallel, between Lake of the Woods and the crest of the Rocky Mountains. The Commission was to conduct its field work over the summers of 1873 and 1874, while the subsequent winters would be taken up with report writing and map making. Dawson was confronted with a difficult choice. While Selwyn was prepared to postpone his appointment to the GSC until after the work of the Boundary Commission had been concluded, Dawson was worried that the BC assignment would be offered to someone else in his absence. As he wrote his sister, “when I think of anybody else getting the appointment to go to survey that splendid country with splendid scenery, it puts me in the blues.” Nonetheless, Dawson’s father strongly encouraged him to take the Boundary Commission position, reasoning that it carried a higher salary and that, as a direct government appointment, it would help Dawson establish a level of seniority that would benefit him over the course of his subsequent career with the GSC. Ultimately, Dawson acquiesced to his father’s considerable pressure and took the Boundary Commission appointment. Over the course of two summers, Dawson explored the ribbon of land just north of the 49th Parallel, analyzing its topographic features, geological structure, flora and fauna and other key

---

49 Cole and Lockner, I:7. At the time his GSC appointment was approved, Dawson was lecturing in chemistry at Morrin College in Quebec City.
50 Ibid.
51 Quoted in ibid, I:8.
52 See the letters from John William Dawson to George Dawson, dated January 22, 27, and 28, 1873, in George Mercer Dawson Papers – Correspondence, 1856-1901, McGill University Archives, Manuscript Group 1022, Box C.54, File 12: Letters, 1873.
characteristics. As it turned out, postponing his appointment and taking the Boundary Commission position was a good move; his resulting official report and related articles on the geology and natural history of the region were very well received by administrators and scientists alike. The work built nicely on Dawson’s widely-noted academic achievements in London and cemented his reputation, both domestically and internationally, as a very promising young scientist.53

Following his success with the Boundary Commission, Dawson finally took up his appointment with the Geological Survey of Canada on July 1, 1875.54 As he had hoped, Selwyn had reserved for him the task of working out the complex geology, topography and natural history of the new province of British Columbia. His first, abbreviated field season in the province came later that summer and Dawson spent the better part of the next two decades at work in various districts of the province—initially, in conjunction with the Canadian Pacific Railway Surveys but, eventually, in pursuit of the Survey’s own scientific agenda.55 Dawson also carried out extensive field work in both Alberta and the Yukon District over the course of his career, correlating knowledge gleaned in these regions to the growing corpus of knowledge that he was amassing on the geology and natural history of British Columbia.56 In addition, Dawson played a key role in the

55 Dawson worked closely with C.P.R. survey parties in 1875, 1876 and 1879. His task was to assess the topography and geology along various proposed rail routes through the wild and rugged landscapes of British Columbia in order to determine if natural resources existed in sufficient quantity to recommend certain proposed routes over others. Dawson’s 1877 survey of the Nicola Valley/Okanagan Valley region of southern BC, then, constituted his first independently designed and conducted field survey. See Morris Zaslow, Reading the Rocks: The Story of the Geological Survey of Canada, 1842-1972 (Ottawa: The MacMillan Company of Canada in conjunction with the Department of Energy, Mines and Resources and Information Canada, 1975), 112-114.
56 Dawson surveyed large portions of what is now southern Alberta in 1881 and 1883. In 1884 he focused on the complex geology of the Rocky Mountains on both sides of the now-provincial border between B.C.
administration of the GSC, rising through its ranks to become one of Selwyn’s four Assistant Directors in 1877 before succeeding him as Survey Director in 1895—a promotion that put an end to Dawson’s illustrious two-decade career as a field scientist.

In addition to his Survey responsibilities, Dawson served his government and the scientific community in other important capacities down the years. In 1884 Dawson became an inaugural member of the Committee on the North-Western Tribes of Canada—a body that was created at the Montreal Meeting of the British Association for the Advancement of Science (BAAS) with the purpose of overseeing ethnographic field research conducted amongst Western Canada’s Native peoples. In that capacity, Dawson helped organize and oversee some of the most important anthropological work conducted in North America in the nineteenth century. In 1892, he was appointed a Dominion representative on the Bering Sea Commission—a joint British/Canadian and American commission struck to establish the limits to seal hunting in the Bering Sea. For his service on the Commission, Dawson was made a Companion of the Order of St. Michael by British officials. In addition, Dawson was elected president of the Royal Society of Canada for the 1893-1894 term—an organization to which he had belonged since its inception in 1882.

Ultimately, Dawson’s time as Survey Director and scientific elder statesman were short lived. In March of 1901 he succumbed suddenly to pneumonia, passing away at the age of 51. Despite a relatively brief 25-year career, Dawson had made an significant impression on Canadian science and statecraft. As one of the Survey’s leading field

---

57 Winslow-Spragge, *No Ordinary Man*, 175.
58 Zaslow, *Reading the Rocks*, 199.
scientists, he spearheaded the GSC’s efforts to survey Canada’s vast and poorly-known West in the final third of the 19th century. In addition, Dawson played an important role in the administration of the Survey from a very early stage in his career and was thus involved in developing the objectives and strategies that shaped the Survey’s work in the West during the course of his career. As such, George Dawson made a crucial contribution to the making of settler space in the Canadian West and this makes his work well worth exploring in some detail.
Chapter 2
Reconnaissance Surveying and the Debate Over ‘Practical’ Science

Introduction

Following Canada’s acquisition of the North-West Territories and British Columbia in 1870 and 1871, the Geological Survey of Canada embarked on a series of reconnaissance surveys in order to take stock of the lands, resources and peoples distributed throughout the West. To the surprise of Survey officials, these extensive Western surveys eventually became the source of considerable controversy—primarily because such efforts appeared to come at the expense of other, seemingly more immediate, national ambitions. Murmurs of discontent with Survey operations intensified throughout the early 1880s, as various politicians, several high-profile scientists and at least one Survey staff member—anonymously agitating in the press—began to speculate publicly whether the GSC had lost its way as a government-funded scientific institution.

This growing agitation culminated in an 1884 motion in the House of Commons, arguing that the Survey was “not keeping pace with the geological progress of the country” and calling for a parliamentary committee to inquire into its operations.¹ This motion was unanimously carried and the resulting Select Committee on Geological Surveys met for the first time on Parliament Hill on March 6, 1884. Over the course of the next month, twenty-one witnesses shared their views with the Committee, while additional written testimony was solicited from parties with an understanding of Survey

¹ The motion was put forth on February 25, 1884 by Robert N. Hall, a barrister representing Sherbrooke, Quebec in Sir John A. Macdonald’s Conservative government. The motion’s concern with the pace of the Survey’s geological work is quoted in Zaslow, Reading the Rocks, 135.
operations. The stated objective of the hearings was to “obtain information as to the methods adopted by the Geological Surveys of this and other countries in the prosecution of their work, with a view of ascertaining if additional technical and statistical records of mining and metallurgical development in the Dominion should not be procured and preserved.” While the issue of mining statistics did feature heavily in the Committee’s deliberations, it was by no means the only topic of discussion. More broadly, the Committee set out to investigate the Survey’s various modes of operation, its allocation of personnel and resources, and, most significantly, its practical contributions to the economic progress of the Nation. The outcome of these inquiries was a parliamentary report that detailed a series of concerns with existing GSC operations and offered a list of recommendations for the improved efficiency and practical relevance of the Survey.

Given its scope and focus, the work of the 1884 Select Committee on Geological Surveys is worth examining in some detail because the results of these hearings—the testimony given, the recommendations produced and the subsequent reforms enacted—offer three important insights concerning the Geological Survey of Canada’s contribution to the making of settler space in the Canadian West. Most obviously, these hearings revealed that some members of Canada’s parliament, as well as key figures in the Dominion’s mining industry and scientific community, were concerned that the Survey did not offer the Canadian public sufficient practical results in return for their tax dollars. Many commentators felt that surveyors should devote their energies primarily to the

---

2 In order to gather as much information on the Survey as possible, the Committee had distributed a series of questions about GSC operations to various mining inspectors and engineers, mine owners and directors of land companies, investment bankers, earth scientists working both in Canada and abroad, several museum curators, and numerous GSC employees, past and present. See Report of the Select Committee Appointed by the House of Commons to Obtain Information as to Geological Surveys, etc. etc. (Ottawa: Maclean, Roger and Co., 1884).

3 Ibid, 4.
exhaustive examination of promising mineral localities, providing comprehensive
analyses for investors to draw upon in developing their mining operations. As far as the
Survey’s critics were concerned, mining districts close to home should not be neglected
in favour of exploration in the remote landscapes of the Canadian West. Moreover, there
was concern that Survey officials seemed too intent on contributing to abstract theoretical
debates in the earth sciences at the expense of producing detailed analyses of the
Dominion’s numerous economic mineral deposits. In short, many felt that the Survey’s
efforts should be redirected toward the kind of practical, economic geology in which it
had excelled under its first Director, Sir William Logan.

The Committee hearings also demonstrated that the GSC leadership was committed
to pursuing reconnaissance surveying in the Canadian West despite such criticism. In
their testimony before the Committee, a number of Survey personnel repudiated the
suggestion that their work was purely theoretical in nature and launched a spirited
defence of the practical dimensions of their explorations. Extensive reconnaissance
surveying of the vast, remote and poorly-known regions of the West would yield essential
knowledge about the natural resource wealth of the Nation and would help guide future
settlement and resource extraction in Western Canada. As far as these men were
concerned, the definition of practical science voiced by certain critics in the course of the
hearings was too limited. Localized, in-depth surveys of existing mining districts and
careful analyses of working mines was not the only work that could be deemed practical;
nor, was such work the appropriate focus of a geological survey, according to both
George Dawson and Survey Director Alfred Selwyn. This was a discussion to which
Dawson returned on a number of occasions in subsequent years—repeatedly emphasizing
that scientific explorations in the remote regions of the Dominion had tremendous practical value for the Nation. Such explorations laid the foundation for establishing epistemological dominion over these regions, making their lands, resources and peoples legible—and thus governable—for the first time. These efforts to secure epistemological dominion were a vital step towards making settler space in the Canadian West and, by calling on Survey officials to defend their work, the 1884 Committee hearings provide a clear indication of the Survey’s sense of purpose with respect to this colonial project.

Finally, the 1884 hearings reveal that the GSC had the power to persist with its objectives despite Parliamentary pressure to reform. In the wake of the Committee’s report appropriate lip service was paid and modest reforms were initiated by the GSC leadership, yet very little of substance changed with respect to the Survey’s work in the Canadian West. The GSC was not merely a scientific instrument wielded by the Canadian State but was a facet of the State itself with very different notions about its role and determined to carry out its objectives with minimal interference. The tensions between GSC officials and the Select Committee members reveals that the Canadian State in the late nineteenth century was not a coherent, univocal and centralized institution that undertook the colonization of the West in any systematic way. Rather, the Canadian State was comprised of competing agents and agencies, each with particular agendas that were often incongruent and difficult to reconcile. In this context, studying the colonial contributions of a particular agency, the GSC, is revealing because the Survey’s position as the Dominion’s longest-serving and pre-eminent scientific institution afforded it considerable autonomy to make settler space in the West. But, how did such a powerful branch of the Canadian State emerge?
Introducing the Geological Survey of Canada

At the time it was called before the Committee to justify its operations, the Geological Survey of Canada had been in existence for over forty years. The Survey came into being in 1842, at the behest of the Legislative Assembly of the United Province of Canada. With the unification of Upper and Lower Canada in 1841, Britain created a colony with a territory larger than any existing European nation or American state.\(^4\) Little was yet known about the natural resource wealth of this extensive colony and legislators were eager to establish a scientific survey to assess the mineral wealth of the province. Of particular importance was determining the extent and quality of any coal, iron and copper deposits. These minerals served as the basis for most manufacturing operations and modes of transportation in the emerging industrial age and economic development was increasingly predicated on their discovery and exploitation.\(^5\) By publicly funding an extensive geological survey, Canadian legislators hoped to set the burgeoning colony on the path to industrial growth and economic development.

William Logan was selected to lead the newly-created survey and his appointment proved inspired. Logan was born in Montreal to a wealthy Scots merchant family in 1798 but had spent little time in his native land.\(^6\) In 1814 he was sent to Edinburgh for schooling and spent most of the next three decades in Scotland, England and, finally, Wales, where he established his geological reputation. Logan’s interest in geological stratigraphy emerged after he took a job with a Welsh copper mine. This work led him to


\(^5\) Ibid, 7-9.

\(^6\) Ibid, 18.
produce a series of maps of the Welsh coalfields during the 1830s that won the praise of Henry De la Beche, first director of the Geological Survey of Great Britain. Logan’s geological reputation was further enhanced when he published a widely-regarded paper discussing the origins of the coal seams of South Wales in 1840. When word of the Canadian legislature’s plans for a geological survey reached Logan in 1841 he used his contacts in Montreal—particularly his brother James—to express interest in the position. The letters of support from leading earth scientists in Great Britain were glowing and Canadian officials needed little convincing that they had found their man. Logan was appointed inaugural Director of the Geological Survey of Canada in April of 1842 and arrived in Montreal to take up the position the following September.

For the next twenty-five years Logan oversaw the operations of the Survey, conducting his own extensive field studies in addition to orchestrating the work of a small corps of scientists who joined the Survey as it grew. The field of study was a daunting one, extending from the Gaspé Peninsula in the east to the head of Lake Superior in the west. Under Logan, the Survey set about conducting a systematic reconnaissance of the colony’s geological foundations, producing both a detailed picture of the land’s underlying rock structure as well as a reasonably complete inventory of its mineral wealth. Unfortunately, an extensive and quite rigorous two-year search revealed that none of the coal-bearing strata so prominent to Canada’s east (in Nova Scotia and New Brunswick) and south (in New York and Pennsylvania) could be traced within the

---

7 Ibid, 37.
8 Ibid, 38. Logan identified a sandy-clay bed that underlay the region’s coal strata and that was readily recognizable due to the fossilized remains of ancient plant roots. He argued that the overlying coal was actually the compressed organic remains of these ancient plants—a theory that was subsequently borne out by further research.
10 Ibid, 41.
Province. For Logan and the Survey, the lack of coal was not good news because the Canadian legislature expected worthwhile information on the Province’s mineral resources as a return on the public’s investment. The news that the Province contained no workable coal deposits of any note might have spelled the end of the Survey just as it was getting started. Fortunately, Logan was a shrewd and persuasive politician as well as an accomplished scientist. He laboured hard to present his overseers with detailed geological reports that emphasized the actual or anticipated discovery of copper, zinc, iron and other minerals of economic value. In addition, he transformed a portion of the Survey’s modest Montreal office into a museum, displaying the best specimens of Canada’s economic minerals to the public. These efforts were well received by Canadian officials, who opted to grant the Survey a more secure five-year appropriation in 1844. In effect, the Survey would operate as a Crown corporation thereafter—dependent on public monies for its operation but largely free from direct political influence. Such a situation provided a measure of stability but the GSC was not a permanent institution and Logan knew that he would need to demonstrate the Survey’s value to the colony every five years to win the legislature’s support.

Logan also recognized that the Survey’s longevity rested on its ability to offer positive contributions to the international geological community. Whenever possible, Logan urged his staff to prepare reports and papers for publication in leading scientific journals.

---

11 Ibid, 45.
12 Ibid, 41.
13 Zeller notes that Logan’s first report to the Canadian legislature in 1845 contained a number of rather sanguine predictions concerning the mineral wealth of certain districts of the colony backed by very little hard evidence. This was especially true of his estimations of probable copper deposits—an understandable emphasis given that, after coal and iron, copper was the most coveted mineral in the early industrial age due to its electrical conductivity. See Zeller, *Inventing Canada*, 61 and 66.
In addition, he put a great deal of effort into preparing mineralogical exhibits to be included as part of Canada’s displays at international industrial exhibitions. The first of these took place in London in 1851 and Logan’s efforts there were widely praised, even earning him a medal from Prince Albert. The 1855 exhibition in Paris brought him even greater acclaim: his mineral arrangement won first prize from exhibition judges, he was awarded the Wollaston Palladium Medal—geology’s greatest distinction—by the Geological Society of London and he was knighted by Queen Victoria in recognition of his contributions to geology. Such accolades brought a great deal of international notoriety—to Logan, to the Survey he directed, and to the small British colony it represented at these events. This sterling international reputation helped protect the Survey during the financial upheavals and political deadlocks that engulfed the Canadian legislature in the late 1850s and 1860s. Had Logan not achieved such recognition it is doubtful that the Survey would have survived this difficult period, particularly given its limited success in discovering mineral deposits of economic value within the Province.

As Suzanne Zeller notes, there was another important factor that contributed to the Survey’s survival in this period. The 1860s had been dominated by proposals urging the unification of British North America and, in 1867, a Confederation of the colonies of Canada, New Brunswick and Nova Scotia was achieved. While acknowledging that the

---

15 Ibid, 77. According to Zaslow, Logan was a well respected mentor to a number of his staff and there was considerable esprit de corps enjoyed at the Survey during his tenure as Director.
16 Ibid, 55.
17 Ibid, 59.
18 Zeller, *Inventing Canada*, 94. The GSC reinforced its scientific reputation in 1863 when *The Geology of Canada* was published. The 983-page document was particularly notable for Logan’s pioneering classificatory work on the metamorphic Precambrian rocks of the Canadian Shield. The report was enthusiastically received by politicians, scholars and industrialists in Canada and was heralded abroad as an important contribution to geological science. The follow up to the report came in 1866, when the Survey published a geological atlas, containing fifteen cross-section diagrams and six coloured map plates, including a complete geological map of the Province of Canada. See Zaslow, *Reading the Rocks*, 80, 88-89.
numerous political, economic and social forces that gave rise to Confederation are undoubtedly complex, Zeller argues that the Survey did have an important part to play in this process.\(^{19}\) By producing authoritative evidence that coal deposits were largely non-existent in Canada, she suggests, the Survey provided Canadian officials with an important impetus for seeking closer ties with the coal-rich provinces to the east. In addition, the Survey’s work in assessing the iron and copper deposits in the shield country north of the northern Great Lakes had sparked the Canadian public’s imagination about the mineral wealth to be found in the great Northwest. Talk of bringing the Hudson Bay Company lands under Canadian control had arisen years before negotiations with the eastern colonies had commenced and Confederation did nothing to dampen the thirst for westward expansion among some circles of Canadian society.\(^{20}\) For Zeller, Logan’s penchant for ignoring colonial boundaries when carrying out the Survey’s work sent an important message to Canadian officials about the need to look beyond the colony’s borders in the interests of the public good—a message that played a role in bringing about Confederation.\(^{21}\)

With eastward links established in 1867 and future westward expansion a possibility, the Survey faced a new set of challenges just as it was winding down its initial mandate in Canada. These were to be challenges that Logan would leave to his successor. At the time of Confederation Logan was nearly seventy and in deteriorating health. In 1869 he was replaced by Alfred Selwyn, an Englishman then in charge of the

---

\(^{19}\) Suzanne Zeller, *Inventing Canada*, 110-112.

\(^{20}\) Ibid, 65-73, 96-100.

\(^{21}\) Zeller notes that Logan routinely ignored colonial boundaries when setting out the work of the Survey. His own examinations of the coal measures in Nova Scotia and New Brunswick are indicative. In addition, Logan sent his assistant, Alexander Murray, to Newfoundland to survey its some of its formations in 1864 and included some of Murray’s collections in Canada’s mineralogical display at the 1867 Paris Exhibition. See Ibid, 107-110, esp. 108.
geological survey in the Australian state of Victoria. Like Logan, Selwyn was a skilled stratigrapher who had honed his craft over the course of seventeen successful years in Australia. He was also a scrupulous and exacting administrator but one who lacked Logan’s natural tact and diplomacy in dealing with stubborn politicians and obstinate employees. Selwyn was aware of the GSC’s formidable scientific reputation and was encouraged by the organization’s longevity and government support at a time when the Victoria survey was struggling to maintain adequate backing from its political overseers. Yet, the new director was doubtless aware that the Canadian Survey would present him with its own vexing administrative challenges, as the fledgling Dominion took the final steps towards becoming a transcontinental Nation within months of his arrival.

A Transcontinental Canada

In the summer of 1870 Canada became a colonial power when it acquired Rupert’s Land—the vast territory drained by rivers flowing into Hudson Bay—from the British Crown, acting on behalf of the Hudson Bay Company. The sale had been agreed in 1869 and stipulated that Canada would pay the Hudson Bay Company £300,000 and would grant it 1/20th of all territory in the “fertile half” of Rupert’s Land. In addition, the British government agreed to grant Canada control over the North-Western Territory—another enormous expanse of land east of Alaska, defined as the watershed for rivers flowing to the Arctic Ocean. Despite the best efforts of the Red River settlement’s Métis population to prevent the land transfer, the British possessions of Rupert’s Land and the North-Western Territory were consolidated as the Northwest Territories and placed under

---

22 Zaslow, Reading the Rocks, 101.
Canadian jurisdiction on July 15, 1870. At the same time, Canadian officials were negotiating a union with the crown colony of British Columbia, which ultimately led to its entry into Confederation as Canada’s sixth province on July 20, 1871. Canada assumed British Columbia’s debt, established a program of public works and, most significantly, agreed to connect this remote outpost to the rest of Canada by building an inter-continental railroad—an ambitious undertaking that Canadian officials initially promised would commence within two years and be completed within ten years. Taken together, the acquisition of Rupert’s Land, the North-Western Territory and British Columbia increased Canada’s geographic area seven-fold, giving the fledgling nation three million square miles of new territory to administer.

The acquisition of the great Northwest fulfilled an ambition that had been shared by Canadian expansionists for over a decade. Incorporating this extensive region into the Dominion would open new frontiers for trade, resource exploitation and agricultural settlement, thereby bolstering the Canadian economy, providing room for future population growth and matching American westward expansion with an ambitious and enterprising colonial project of Canada’s own. Indeed, expansionist agitation had grown so vociferous in the 1850s that both the Canadian and British governments sponsored scientific reconnaissance surveys of the southern Prairies in 1857 to assess the

---

24 Concerned by the threats to their community that they anticipated would accompany Canadian rule, the Métis living in the Hudson Bay Company settlement of Red River (now Winnipeg) refused to permit the newly-appointed Canadian governor to enter the territory in October 1869. The “Red River Rebellion” dragged on for months and ultimately forced the Canadian government to create the Province of Manitoba to safeguard the interests of the Métis population in the region. For a detailed account of the Red River Rebellion see, Doug Owram, *Promise of Eden: The Canadian Expansionist Movement and the Idea of the West, 1865-1900* (Toronto: University of Toronto Press, 1980), 79-100, and Morton, *The Critical Years*, 238-244.


26 Ibid, 263.

27 The most thorough treatment of westward expansion boosterism in Canada is Doug Owram’s, *Promise of Eden*. 

39
agricultural potential of these Hudson Bay Company lands. Both surveys proclaimed the aridity of the south-western portion of the region an obstacle to agricultural settlement, yet were acclaimed by the expansionists for their assurances that a vast “fertile belt” of land, eminently suitable to agriculture, arced across the Prairies, from the Red River Settlement to the Rocky Mountains northwest of Fort Edmonton. While it would be several decades before settlers arrived on the Prairies to work the land in meaningful numbers, by 1871 many Canadians felt that their Nation stood on the cusp of greatness, as it oriented itself toward the West.

The only shadow marring that gleaming vista was the persistent threat of American annexation. The American ethos of Manifest Destiny had underwritten the westward expansion of the United States throughout the first decades of the 19th century. It was soon clear that the United States had designs on British territory to the north as well. The Oregon Boundary Dispute sparked to life in the early 1840s when American traders and missionaries challenged the Hudson Bay Company’s claims to the lands north of the Columbia River in the Pacific Northwest. The situation deteriorated further in 1844 when James Polk was elected as American President, in part based on his rousing campaign slogan “Fifty-Four Forty or Fight”—a warning to Britain to recognize American

---

28 The Canadian scientific party was led by Henry Youle Hind, a chemist and geologist at the University of Toronto, who had been recommended for the position by William Logan. The British expedition was led by the Irishman Captain John Palliser, with scientific research undertaken by Scottish physician James Hector. See Ibid, 61-63.

29 Ibid, 68-69.

30 The expression “Manifest Destiny” can be traced to John L. O’Sullivan’s 1845 rallying cry in support of the American annexation of Texas: “other nations have undertaken to intrude themselves in [the annexation question]…in a spirit of hostile interference against us, for the avowed object of thwarting our policy and hampering our power, limiting our greatness and checking the fulfillment of our manifest destiny to overspread the continent allotted by Providence for the free development of our yearly multiplying millions.” O’Sullivan would repeat the phrase “Manifest Destiny” later that same year in relation to the Oregon Boundary Dispute (see footnote 31 below) and it is this second usage of the expression that is usually credited as being the one that cemented the idea in the minds of American leaders and the American public. See John L. O’Sullivan, “Annexation,” The United States Magazine and Democratic Review 17, 1 (July-August 1845): 5-10.
sovereignty on the Pacific Coast as extending to the southern edge of the Russian-controlled Alaskan panhandle (54° 40’ N latitude) or face war with the United States. Britain refused to back down and busied itself with preparations for war. Faced with this show of British resolve, Polk acquiesced and the Oregon Treaty of 1846 affirmed the 49th parallel as the northern limit of the United States. New concerns emerged in 1867, when the United States acquired Alaska from Russia—a move that established American dominance on the Pacific coast and posed a threat to British sovereignty in Rupert’s Land and the North-Western Territory. Concerns over American expansion were further inflamed in 1868, when the Minnesota legislature passed a resolution favouring the annexation of the British Northwest just as it was set to pass into Canadian hands. Fortunately for Canadian officials, the mood in Washington at the time was one of conciliation rather than confrontation and the Minnesota annexationist movement failed to gain momentum. The threat of American annexation did not vanish entirely with the territorial transactions of 1870-71. A number of American observers were prepared to bide their time and wait for the Canadian Confederation to dissolve. Indeed, with Britain’s formal withdrawal from North America in 1871, it may have appeared to American annexationists that the Dominion was vulnerable; it remained to be seen whether officials in Ottawa were capable of mustering the political capital necessary to

32 Morton, *The Critical Years*, 228-229. See also Thompson and Randall, *Canada and the United States*, 44-45. Further West, California legislators had designs on British Columbia after several gold rushes in the colony had resulted in a massive influx of American prospectors and strong north-south trade linkages. Very few British Columbians signed an 1869 petition in favour of American annexation, however, and the Californians were forced to concede defeat once the colony entered negotiations with Canada in 1870. See Thompson and Randall, *Canada and the United States*, 46-47.
keep the various provinces in line and the new federation intact.\textsuperscript{33} Had the still-tenuous bonds of Confederation started to unravel, the Americans would have been on hand to absorb the pieces, as Ohio Representative William Munger made perfectly clear in an 1870 address to Congress: “England’s star has passed its zenith…Canada will fall into our lap like a ripe apple.”\textsuperscript{34} While the acquisition of the Western territories was a significant boost for the young Dominion, then, the threat of American annexation still lingered in the air.

While various deeds of sale and acts of Parliament had brought first the Northwest Territories and then British Columbia under the Dominion’s judicial authority by 1871, such ‘paper sovereignty’ was hardly sufficient to establish effective authority over the West. This new transcontinental nation was a “conception rather than a reality,” argued historian Peter B. Waite:

\begin{quote}
The only force that existed to link together these vast areas was a paper constitution, some real interests in common and a decaying fear of the United States….It was a long, lonely way from Halifax to the coast of British Columbia. Where was the law, the moral force, the sense of nationality, to keep such centrifugal forces as these from flying apart?...To keep the country going was to take enormous drafts of energy and persistence.\textsuperscript{35}
\end{quote}

Much of this energy and persistence would need to be concentrated on the West for, in the shape of British Columbia and the Northwest Territories, Canada had acquired an almost inconceivably vast new region to administer—a region presumably rich in

\textsuperscript{33} Morton suggests that many Americans were incapable of taking Canadian self-determination seriously in the early 1870s because the Canadian nation had not been forged through revolution. From such a perspective, Canada could not long survive on its own as a viable nation. Ultimately, the confederation would disintegrate, allowing the United States to annex the northern portion of the continent piece by piece. Thus, while active policies of annexation were rarely mooted by American officials, it was clear that the spectre of American expansion still haunted many Canadian officials in the 1870s. See Morton, \textit{The Critical Years}, 256-257.

\textsuperscript{34} Thompson and Randall, \textit{Canada and the United States}, 42.

resource wealth, but little known and little populated (by Euro-Canadians) beyond a handful of isolated river valleys and coastal harbours.\textsuperscript{36} It was imperative that the Canadian government establish its epistemological and administrative ‘dominion’ over these remote territories. The land would have to be extensively explored, effectively linked with the rest of Canada and aggressively settled for Canada’s dominion over its West to be secure.

The task of drawing this vast region into the administrative orbit of the young Dominion fell to several government agencies. In anticipation of Canada’s acquisition of Rupert’s Land, the Department of the Interior created the Dominion Land Survey (DLS) in 1869. Survey parties immediately set out for the Red River settlement and began making preparations for carrying out their assigned task: the parceling of the Canadian prairies into 160-acre quarter-sections that could be distributed to the settlers soon expected to arrive in the region.\textsuperscript{37} This land was to be granted to settlers at no cost, provided that they occupied it for three consecutive years and that they improved the land through their labour in some material way.\textsuperscript{38} It is important to note that Dominion Land Surveyors did little to evaluate and report on the land they surveyed—whether traversing fertile river bottoms or arid table lands, their sole job was to divide the land into uniform parcels that could be offered to homesteaders. Equipped with astrolabes and gunter

\textsuperscript{36} Morton, \textit{The Critical Years}, 264.

\textsuperscript{37} For the most detailed history of the Dominion Land Survey, see James G. MacGregor, \textit{Vision of an Ordered Land: The Story of the Dominion Land Survey} (Saskatoon: Western Producer Prairie Books, 1981). As Macgregor documents (page 5), that the DLS began its work in the Red River district ahead of the formal land transfer between the Hudson Bay Company and Canada was a source of considerable concern for the local Métis. Surveyor A. C. Webb had his work halted on October 11, 1869 by a party of 17 Métis men led by Louis Riel. One of the men—perhaps even Riel himself—stood on Webb’s surveying chain, physically preventing him from carrying out his work. This incident was a proximate cause of the Red River Rebellion, which, among other things, delayed the formal land transfer for another nine months.

\textsuperscript{38} These provisions were set out in the Dominion Lands Act of 1872. See Gerald Friesen, \textit{The Canadian Prairies: A History} (Toronto: University of Toronto Press, 1984), 183.
chains, DLS survey teams set to work arranging the land into ranges of townships throughout the 1870s and 1880s—progressing westward in an orderly fashion from astronomically-determined principal meridians and northward from the international boundary with the United States.\(^{39}\)

To serve as a meaningful baseline for the DLS survey, the international boundary had to be surveyed. This task was taken up by a joint Canadian and American boundary survey. The North American Boundary Commission spent the summers of 1873 and 1874 creating regular boundary markers along the 49\textsuperscript{th} Parallel, from the Lake of the Woods in the east to the height of the Rocky Mountains in the west. This line had long been established as the boundary in treaties but had not been surveyed on the ground.\(^{40}\) As the borderlands began to attract the interests of farmers and ranchers on both sides of the line, both countries recognized that the boundary had to be demarcated to clarify jurisdiction and facilitate administration of the region. As with the Dominion Land Survey, the

\(^{39}\) The township and range system was similar to the one used in the American west. Six Principal Meridians, lying 4 degrees of longitude apart, were ultimately surveyed between the Red River settlement and the Rocky Mountains over the course of the next two decades. The grid system was then laid out in an orderly fashion, beginning from the intersection of each Principal Meridian with the International Boundary. Townships were square blocks of land, six miles by six miles. Each were subdivided into 36 square-mile sections that, in turn, were subdivided into quarter-sections—the basic unit of land on the Prairies. The row of townships immediately to the north of the 49\textsuperscript{th} Parallel were labeled “Township 1” and township numbers rose as one moved north, reaching “Township 126” north of the 60\textsuperscript{th} Parallel. Each column of townships was known as a Range. Ranges increased in number as one moved west from the Principal Meridian, with Range I abutting, for example, the 1\textsuperscript{st} Principal Meridian on its eastern margin and Range XXX abutting the 2\textsuperscript{nd} Principal Meridian on its western margin. The system allowed every parcel of land created by the DLS to be given a unique identifier, which aided in the rational distribution of land to settlers (for instance: SW¼-28-49-22 W4th = Southwest quarter-section of Section 28, Township 49, Range 22, West of the 4th Meridian). Moving northward from the international boundary, correction lines were used every 24 miles to compensate for the curvature of the earth, ensuring that each parcel of land was more or less equivalent, regardless of its position in the grid. For more details on the system, see Robert B. McRcher and Bertram Wolfe, *Understanding Western Canada’s Dominion Land Survey System* (Saskatoon: Division of Extension and Community Relations, University of Saskatchewan, 1986).

\(^{40}\) The best treatment of the North American Boundary Commission can be found in Don W. Thomson, *Men and Meridians: The History of Surveying and Mapping in Canada, Volume II: 1867 to 1917* (Ottawa: Queen’s Printer, 1967), 164-176. As Thomson notes (pages 163-164), the international boundary had already been surveyed from the height of the Rocky Mountains to the Pacific Coast in the years 1857 to 1862, following the resolution of the Oregon Boundary Dispute.
Boundary Commission’s focus on demarcating the international border left limited time to assess the lands and resources of the border region. Unlike the DLS, the Boundary Commission did not ignore reconnaissance surveying entirely and appointed George Dawson—fresh from his studies in London and with a GSC appointment waiting for him at the conclusion of the Boundary Commission’s work—to examine and report on the topography, geology, flora and fauna and natural resources in the ribbon of land north of the line. Dawson’s field work was confined to localities within half a day’s ride of the Boundary Commission’s daily camp site but his subsequent report was well received and he felt that he had done enough to establish a geological baseline for the Canadian Prairies over the course of those two years.41

The international boundary was not the only east-west line to be determined in the West. By promising British Columbia a rail link as a term of Confederation, the Dominion government had given itself a daunting project. Building a railroad across such an expanse would take considerable time and money and, before construction could begin, an appropriate route for the line had to be surveyed.42 This was no trifling task. The engineers comprising the Canadian Pacific Railway Survey had to compensate for many miles of torturous terrain: the intractable muskeg country of northern Ontario, the steep, wooded slopes and high passes of the western mountains and, had Victoria, BC been selected as the rail terminus, the treacherous waters of the Strait of Georgia. The work commenced in 1871 under the leadership of Chief Engineer Sandford Fleming but it would take many years and immense toil and hardship endured by scores of survey

41 Zaslow, Reading the Rocks, 112.
parties—while several pitched political battles over the railway’s funding raged and receded in Ottawa—before a route was agreed upon and construction could begin.\textsuperscript{43}

While the main concern of the CPRS was undoubtedly to determine the rail line’s most viable route through the wilderness, it also focused on the resource wealth and settlement potential of Canada’s Western districts. After all, a workable railroad, from an engineering point of view, would still be of little value without a population to generate commodities or other cargo. Such evaluations were beyond the men of the survey parties; these teams were overworked as it was and very few of them had the scientific training necessary to assess the settlement potential of the lands they were surveying.

Consequently, the Department of the Interior turned to the Geological Survey of Canada to provide meaningful support to the CPRS. Geologists, including Dawson and even Selwyn, were requested to conduct field reconnaissances in the vicinity of railway survey parties throughout much of the 1870s.\textsuperscript{44} Their mission was to evaluate important aspects of the landscapes under consideration, including the mineral composition of the district, the nature of the soil, the variety and quality of local timber, the distribution and characteristics of flora and fauna, the character of the climate and any other elements that might indicate the land’s suitability for settlement or resource exploitation. This relationship benefited the Survey scientists as well—they could draw on the better-

\textsuperscript{43} The difficulties the CPR surveyors faced in the various inhospitable terrains of the Canadian West are briefly outlined by Lamb, \textit{History of the Canadian Pacific Railway}, 36-53. Berton provides a more thorough discussion throughout \textit{The National Dream}. Both note that one particularly vexing engineering challenge was the bridging of the deep and turbulent waters of the Strait of Georgia near the Bute Inlet. With the citizens of Victoria agitating for the rail line to terminate in the provincial capital such a bridge was the only feasible way to bring trains from the mainland to Vancouver Island. Ultimately, this challenge was side-stepped by selecting the mainland’s Burrard Inlet as the terminus in 1885—creating the town of Vancouver in the process.

\textsuperscript{44} Zaslow, \textit{Reading the Rocks}, 107-108. Dawson worked in conjunction with the CPRS during the 1875, 1876 and 1879 field seasons in British Columbia—all of which were focused on surveying the central interior of the Province at various latitudes.
equipped CPRS parties for food supplies, pack animals and equipment at various times throughout a summer field season, eliminating the need to carry an entire season’s worth of supplies into the field at the start of the summer.\textsuperscript{45} Thus, it was by working in conjunction with the railway survey, that the GSC made its first forays into the Canadian West.

The Survey soon branched out to conduct western reconnaissance surveys of its own but, in so doing, it faced a number of challenges. Despite having millions of square miles of new territory to explore and despite initiating the first proper scientific explorations of the region since the Hind and Palliser expeditions in 1857-58, the ranks of the Survey staff increased only modestly over the course of the 1870s. By this period, the complexities and subtleties of geological science required its practitioners to undergo some degree of university-level training. This was an intellectual evolution that Selwyn applauded and, under his directorship, the Survey hiring policy shifted towards men—such as Dawson—who had secured the necessary scientific credentials to call themselves professional geologists. Unfortunately for Selwyn, the supply of university-educated earth scientists seeking work in Canada was well below his increased level of demand and the Survey’s modest and antiquated pay structure hindered his recruitment capacity even further.\textsuperscript{46} Given these circumstances, Selwyn had little choice but to retain a small cadre of amateur geologists who had made up the core of the Survey rank and file for

\textsuperscript{45} Ibid, 108.
\textsuperscript{46} Ibid, 131-132. Zaslow notes that the Survey’s budget improved when it was transferred to the government’s Civil List in 1883, allowing Selwyn to hire more field and office personnel. The pay and promotion structure of the Civil Service was still well short of ideal and Selwyn still struggled to hire or retain the country’s most ambitious university-trained scientists.
some time—most of whom lacked the training and youthful vigour necessary to fully execute the task.\textsuperscript{47}

The Survey’s challenge grew more daunting in 1877, when the Canadian Parliament passed a new Survey Act. For the first time, the Survey was made a permanent branch of the Dominion Government, to be overseen by the Department of the Interior. As such, it was instructed to move from Montreal to Ottawa as soon as was practicable—a directive fought tooth and nail by the Montreal scientific community and, indeed, by many Survey personnel.\textsuperscript{48} Most significantly, the Survey would henceforth be named the Geological and Natural History Survey of Canada and its field scientists were now expected to “study and report upon the fauna and flora of the Dominion” and to collect natural history specimens for display in the Survey museum.\textsuperscript{49} This was a radical initiative. Since the inception of the Survey in 1846, personnel had always been instructed to focus primarily on topographic and geological surveying in the field. Observations on the local flora and fauna were tolerated as useful additions to field work as long as they were carried out infrequently, were of brief duration and did not interfere with the central task of geological analysis.\textsuperscript{50} Significantly, the 1877 Act failed to issue a

\textsuperscript{47} James Richardson was a good example. Originally a farmer and school master in Quebec, Richardson joined the Survey in 1846 and remained in its employ until his death in 1883. Between Confederation in 1871 and 1875, when George Dawson joined the Survey, Richardson was the principal surveyor in British Columbia. Then in his early sixties, Richardson would make the long journey from Montreal each May to spend 5-6 months in the rugged environs of Canada’s Pacific province. Upon taking over investigations in BC, Dawson found Richardson’s work to be creditable but lacking nuance and precision in several regions. See Ibid, 50 and 110.

\textsuperscript{48} Ibid, 126-127. Selwyn was not in support of the move, worrying that it would bring the Survey under closer government scrutiny. Dawson, too, opposed the move—not least because it might attenuate the strong relationship between the Survey and the scientific community centred on his father at McGill University.


\textsuperscript{50} Indeed, as Selwyn made clear in an 1882 memo to his staff, the observing, documenting and collecting of plant and animal specimens was to be pursued by field personnel only “when the doing so will not interfere with the main objects of the exploration.” See Selwyn’s entry for April 24, 1882 in Library and Archives
similar directive for the study of Native societies—another subject of increasing scientific and government interest in this period. Nonetheless, Selwyn followed the lead of the United States Geological Survey (USGS) in 1885 and instructed his field officers to supplement their work with ethnological research when circumstances permitted.\textsuperscript{51} The Survey Act of 1877 was a significant moment in the history of the GSC because it broadened the scope and utility of the Survey while simultaneously burdening it with additional obligations that, in many ways, it was ill-equipped to take on.

The expansion of Canada into a transcontinental nation in 1870-1871 presented the Survey with a number of opportunities and challenges. On the one hand, the acquisition of the West provided a vast and largely unexplored new field of study when its work in the eastern portions of the Dominion was beginning to wind down. Conducting systematic reconnaissance surveys of these new territories would help foster epistemological dominion over these virtual terrae incognita, thereby laying the foundations for their effective transformation into productive settler spaces. On the other hand, surveying these vast, remote regions would stretch this modest scientific agency to its limit, possibly to the detriment of its work elsewhere in the Dominion—which was a concern that lay at the heart of the 1884 Committee hearings.

\footnotesize{Canada, Record Group 45, Geological Survey of Canada Fonds, Director’s Letterbooks, microfilm reel C-14441, vol. 78, pp. 586-587.}
\footnotesize{\textsuperscript{51} See Selwyn’s entry for February 25, 1885 in Library and Archives Canada (formerly the National Archives of Canada), Record Group 45, Geological Survey of Canada Fonds, Director’s Letterbooks, microfilm reel C-14442, vol. 80, pp. 234-235. Ethnology was not formally included in the Survey’s mandate until 1907. For the 1907 legislation, see Collins, “The National Museum of Canada,” 68.}
The Committee’s Findings and Recommendations

Over the course of a month, the Committee heard from dozens of witnesses—some in defence of the Survey, many others finding fault in greater or lesser measure. The most significant criticism was the perception that the work of the GSC, while contributing much to scientific knowledge, offered little of practical value to the Canadian public. These sentiments were clearly expressed by Dr. Edward J. Chapman, a professor of geology at the University of Toronto, who argued that the Survey provided results that were “purely scientific” and that were directed at “the Geological Society of London or the geological section of the Canadian Royal Society, instead of to the people at large.”

While the Survey had been “clearly instituted to convey to the Canadian people practical information respecting the mineral resources of the country,” he suggested, its current output was largely unintelligible to “ordinary people.” This view was shared by former Survey chemist Thomas Sterry Hunt, who felt that much of the work conducted by the GSC constituted “the elegancies of science that [should] come after the necessities.”

Thomas Macfarlane, a mining engineer formerly with the Survey, was another who felt that the chief purpose of the GSC was to assist in the discovery and development of the mineral resources of the country using all available scientific means. That purpose, he suggested, remained unfulfilled because the Survey had largely invested its energies in “discussing matters of theoretical geology rather than in collecting reliable facts, and in quite neglecting those to be obtained by a close inspection of our mines and a recording

---

52 Report of the Select Committee, 145. Interestingly, as an academic geologist, Chapman would have had a similar commitment to advancing geological science yet his primary concern was that the Survey’s work was so “purely scientific” that it was inaccessible and largely irrelevant to a Canadian public hungry for ‘practical’ information regarding the country’s mineral resources.

53 Ibid, 144.

54 Ibid, 98.
of the work done in them.”

Similar opinions were voiced by other respected scientists, mining engineers and industrialists during the proceedings, clearly indicating that the Survey’s perceived lack of commitment to practical science was of considerable concern for critics.

The fixation with practical science during the 1884 hearings was hardly surprising. As Carl Berger notes, the Canadian public—or at least the politicians who represented that public—had a growing appreciation for the economic value of science in the 19th century. This view had been carried by settlers across the Atlantic from Great Britain, where science had transitioned from a leisure pursuit of the landed classes to the central ideology of the industrial age, controlled by a growing professional class of scientists and bureaucrats. In industrial Britain, “strong utilitarian values underpinned Victorian science, reflecting deeply practical roots in British culture.” Utilitarianism was largely indebted to Jeremy Bentham’s essays on jurisprudence, which contained a wider critique of arbitrariness and amateurism within the British professional class. For Bentham, expertise and efficiency were the ideal and social problems were resolvable through the careful accumulation and analysis of statistics and other facts. In the realm of science, this utilitarian approach was closely allied with long-established Baconian methods of inductive reasoning, which insisted that credible scientific theories emerged from the careful collecting of facts through observation and experiment. Such views were further associated with Newtonian notions of an ordered, mechanical universe and both

---

55 Ibid, 45.
58 Suzanne Zeller, Land of Promise, Promised Land: The Culture of Victorian Science in Canada, Canadian Historical Association Historical Booklet No. 56 (Ottawa, 1996), 3.
approaches made the study of nature a rational undertaking that could be harnessed for utilitarian ends.\textsuperscript{60} Utilitarianism was so ingrained within the British bureaucracy by the mid-nineteenth century that science came to be conceptualized as vital to the rationalization and improvement of society.\textsuperscript{61} As Zeller puts it, “science in the utilitarian sense was a tool, not merely to locate sources of material wealth but also to construct an ordered society.”\textsuperscript{62}

Not surprisingly, British utilitarianism found significant resonance in British North America throughout the 19th century. Many of the leading scientists working on this side of the Atlantic had been trained in the British Isles. In addition, utilitarian science promised practical solutions to the basic problems of settling the land and advancing the prosperity of the colonies, and later, the Canadian Nation. As Zeller argues, this approach to science “held out the promise of a means to locate good soils for agriculture and valuable mineral deposits for mining and industry, to cope with climate, and to make commercial use of plants and other natural products. Science offered a chance for real prosperity, more than mere survival.”\textsuperscript{63} Drawing heavily on the Baconian tradition, scientific investigation in British North America initially sought to increase and diffuse knowledge, often through focused efforts undertaken in numerous localities. Amateurs played an important role in these early efforts and contributed a great deal to the store of

\textsuperscript{60} Sir Francis Bacon championed his inductive approach in the 17th century. His was a more laborious, bottom-up approach to science, which insisted that theories be based on the patient and diligent accumulation of facts rather than on deductions from seemingly universal principles. Under Bacon’s influence, experimentation and field observation came to be considered essential to scientific knowledge construction. For the strong Baconian bent to British science in the 19th century, see Berger, \textit{Science, God and Nature}, 14; Berman, \textit{Social Change and Scientific Organization}, 100; Zeller, \textit{Land of Promise}, 2; and Zeller, \textit{Inventing Canada}, 4.

\textsuperscript{61} Berman, \textit{Social Change and Scientific Organization}, 155.

\textsuperscript{62} Zeller, \textit{Inventing Canada}, 5-6.

\textsuperscript{63} Ibid, 3.
scientific knowledge. Over time the need to explore and exploit the new territory and its resources required greater coordination of effort and funding. The age of ‘inventory science’ had arrived, with publicly-funded scientific surveys—principally organized around geology, the inventory science par excellence—created to systematically map and catalogue natural resources and other phenomena on a grand scale. While backing such mapping and cataloguing, legislators expected practical returns on their investment. Inventory science was imbued with the logic of utility, where results were judged in terms of their practical value to the public, relative to the time and money expended to produce them. When government-backed scientific bodies such as the GSC failed to produce the anticipated level of practical results, a public inquiry was often the predictable outcome.

Yet, what, specifically, did it mean when critics suggested that the Survey’s work was excessively ‘scientific’ and thus largely devoid of ‘practical’ results? First and foremost, it meant that the Survey was not doing enough to investigate the operations of the working mines to be found in the populated regions of the country. Many witnesses felt that it was the Survey’s duty to collect and publish statistics detailing the operations of the country’s various mines in its yearly progress reports, thereby providing interested Canadian and foreign readers with an easily accessible overview of the nation’s progress in exploiting its vast mineral reserves. Alexander Simpson, Manager of the Ontario Bank, chided the Survey for giving insufficient coverage of mining operations in its annual progress reports.

---

64 Ibid, 4.
65 Ibid. Zeller uses the term ‘inventory science’ extensively in her work and it appears, as well, in Carl Berger’s assessment of the GSC in Science, God and Nature, 15-16. Although they do not refer to ‘inventory science,’ per se, Trevor Levere and Richard Jarrell make a similar point, arguing that surveys were the key method of scientific analysis in the 19th century because they were particularly adept at working out the distributions and variations of natural phenomena over space. See Trevor H. Levere and Richard A. Jarrell, ed. A Curious Field-Book: Science and Society in Canadian History (Toronto: Oxford University Press, 1974), 42.
reports. As far as he was concerned, the Survey’s general lack of interest in mining—in addition to its occasional negative assessments when it did analyze working mines—was a deterrent to foreign investment.66 John Wesley Powell, Director of the United States Geological Survey, felt that it was a geological survey’s duty to report on a nation’s mining operations and to include relevant statistics for the public to scrutinize.67 Such work would be time consuming and exacting, critics recognized, and this led L.W. Bailey and Edward Gilpin to recommend that the Survey appoint a special officer—preferably a mining engineer—whose sole purpose would be to visit working mines in order to investigate operations and collect statistics documenting the mine’s output.68 Until such activities were undertaken, many witnesses felt that the Survey’s utility to the nation would continue to be inadequate.

For some critics, the geographic scope of the Survey was another cause for concern because the GSC seemed to cover too much territory for an organization with such a limited corps of field scientists. Thomas Macfarlane insisted that one of the chief shortcomings of the Survey was that it “spreads its energies over too much ground, and fail[s] to work out any district thoroughly.”69 Thomas Sterry Hunt was concerned that recent explorations in the North-West Territories and British Columbia, while yielding interesting results, wasted the talents of some of the organization’s leading field scientists (George Dawson and Robert Bell, in particular) and could have been delayed in favour of

---

66 Report of the Select Committee, 137.
67 Ibid, 206. Powell’s views came in the form of a brief written response to the circular that the Committee had sent to interested and knowledgeable parties on March 13, 1884. The circular specifically asked correspondents to assess the value of generating statistics concerning the extraction and refinement of “minerals of economic interest” and whether such work should be carried out by a geological survey. See, Ibid, 189-190.
68 Ibid, 191 and 193. Bailey was a part-time member of the Survey and a professor of geology at the University of New Brunswick while Gilpin was the Chief Inspector of Mines for Nova Scotia.
69 Ibid, 45.
more “immediately profitable work” elsewhere in the Dominion.⁷⁰ According to a number of commentators based in Quebec and the Maritime Provinces, the Survey had significantly reduced work in their districts after the western territories had been added in 1870-71, despite the fact that some of the most promising, not to mention accessible, mining localities in the country were situated east of the Great Lakes.⁷¹ For many critics, the Survey’s work was both geographically unbalanced and geographically over-extended and its dedication to extensive rather than intensive surveying meant that very few regions of the country were geologically examined with any degree of thoroughness.

A number of concerns were also raised about the kinds of activities to which the Survey devoted its limited resources. Among these was the feeling that GSC undertook too much topographic surveying in the field. While most critics acknowledged the necessity of having good topographic base maps to accurately plot geological formations, the surveying and mapping of surface features was time consuming and left little opportunity for substantive geological surveying over the course of a short summer field season.⁷² Critics argued that surveyors could save considerable time and labour by working with base maps produced by other government agencies; county maps were widely available in the Eastern provinces, while the efforts of the Dominion Land Survey

⁷⁰ Ibid, 102-103.
⁷¹ Chief Mine Inspector Edward Gilpin felt that the Survey was too focused on “colonization surveys” in the Northwest rather than on the Eastern districts—including his own province of Nova Scotia—that were known to have mineral deposits of potential economic value. J.A.K. LaFlamme, professor of geology at the Université Laval, urged the Survey to focus more attention on the “older provinces” in order to better analyze their mineral wealth. Finally, Survey draughtsman Scott Barlow admitted that, since Confederation, more work had been done in the newly-acquired western regions than had been carried out in the eastern provinces of the Dominion. See Ibid, 193, 196 and 169, respectively.
⁷² As Thomas Sterry Hunt put it, “I think the construction of the detailed geological maps of these [Western] regions is subordinate to the great economic question, and should grow up slowly with the advancement of economics.” Ibid, 103.
were starting to yield serviceable maps of the Western Prairies. This issue was related to the concerns raised over the GSC’s geographic breadth because many critics recognized that even a reasonably expeditious attempt to survey and map the topography and geology of the vast Western territories would take years to complete. In addition, Parliament’s 1877 decision to add natural history collection and analysis to the Survey’s scientific mandate received mixed reviews from critics. Some, such as Thomas Sterry Hunt, argued that field scientists could fulfill their natural history mandate by addressing practical topics: which insects aided or inhibited productive agriculture, for example. Others, however, were sceptical that a geological survey already struggling to produce practical results could add botanical, zoological, paleontological and meteorological research to its duties and still be relevant to an audience primarily concerned with uncovering minerals of economic value. Taken together, concerns over the GSC’s topographic surveying and natural history collecting suggested that the Survey was spreading itself too thin, both intellectually and geographically, to the great detriment of the Canadian public.

73 The Director of the Nova Scotia Provincial Museum, David Honeyman, felt that the province’s existing county maps would provide a suitable base for plotting geological formations (Ibid, 192). Both Thomas Macfarlane (Ibid, 49) and Wallace Broad (Ibid, 201-203) argued that other Canadian government agencies working in the West—such as the DLS—could be relied upon to supply the GSC with workable base maps. Indeed, Broad went so far as to suggest that Survey geologists were inadequate cartographers because they lacked the manual dexterity and fine motor skills to accurately plot their formations. This lack of skill led to significant delays in the publication of maps and glaring inaccuracies in the final product. The solution, he felt, was to leave both the topographic surveying and the bulk of the cartographic drafting to others. Note that Broad had been chastised and dismissed by Selwyn for his shoddy field reports (1883) and was clearly using the occasion of the Committee hearings to exact some revenge on the Director. See Zaslow, Reading the Rocks, 136.

74 Hunt, however, cautioned that taking on natural history collecting without a practical focus would hinder the work of the Survey. Preparing a herbarium of dried plants, for instance, offered little practical value to the Canadian public and interfered with the Survey’s ability to aid the nation’s mining industry. Report of the Select Committee, 98.

75 As Edward Gilpin put it, too much of the Survey’s work was now focused on “colonization surveys, natural history, etc., to the prejudice of legitimate geological work.” Ibid, 193.
More generally, critics noted that there were signs that the GSC had sharply declined as an institution since Alfred Selwyn had replaced Sir William Logan as Director in 1869. Some felt that the Survey had experienced a decline in prestige during Selwyn’s tenure as Director.\(^7^6\) Moreover, former GSC employees J. Fraser Torrance, L. R. Ord and Hugh Fletcher, suggested that Selwyn’s administrative style lacked system and consistency, leading to capricious and often contradictory orders for field geologists. The result, they argued, was that the Survey had become less efficient in its operations since Logan’s retirement.\(^7^7\) Many critics complained that Survey reports were no longer published in a timely fashion and had declined in quality since Logan’s day.\(^7^8\) For some, the reports had degenerated into anecdotes of travel, descriptions of surface features and ethnographical studies of Indigenous societies. Such ephemera had not been included in the Survey’s mandate under the 1877 act and critics felt that these subjects had no place in its official geological reports. Some of the most spirited criticism on this issue came from within the ranks of the Survey itself, particularly from Robert Bell, a twenty-eight year veteran of the Survey, who suggested that many GSC reports were little more than “journals of camp occurrences, and would not be read or sold at all if published as private books.”\(^7^9\) As an example, Bell drew the Committee’s attention to George Dawson’s 239-

\(^7^6\) Thomas Sterry Hunt plainly stated that the international reputation of the Survey had lessened since Logan’s day while Robert Bell, the Survey’s longest serving geologist, claimed that Selwyn had diminished the status of the GSC within the international scientific community. See Ibid, 98 and 86.

\(^7^7\) Ibid, 111, 120-121, 127-128.

\(^7^8\) University of Missouri geologist J. W. Spencer felt that the reports came to print too slowly and argued that the Survey would better serve its readership by publishing annual summary reports of the work accomplished in each province, with more detailed reports published as they were completed. Wallace Broad also criticized the Survey for the persistent delays in getting reports into print and for the high costs associated with publishing them. Draughtsman Scott Barlow admitted that the Survey could do more to expedite the publishing of the maps—many of which appeared in print well after their associated report had already been published. The general consensus was that the Survey habitually took an undue amount of time to bring its reports and maps to print and that the cost of publication was unnecessarily high. See Ibid, 207, 203 and 168, respectively.

\(^7^9\) Ibid, 73.
page report on the Queen Charlotte Islands, which he felt focused “mostly on Indians, and illustrated by fourteen plates and thirty-six figures, principally Indian gim-cracks, and the report itself was a disquisition on Indian dolls, potlatches, Indian dances, etc. which were not necessary. I admit that this may be valuable information, but it is inappropriate for publication in the report of a Geological Survey.”80 For some critics, the Survey’s reports in recent years revealed a marked deviation from the ‘core’ geological work that would most benefit the Nation and represented another sign of the Survey’s decline under Selwyn. An agency that had been of tremendous value to Canada’s nascent mining industry was seemingly fading into obscurity just when its practical contributions were most needed.

Finally, the Committee was troubled by evidence detailing the acrimonious relations between Selwyn and some of his current and former staff.81 Selwyn had a notoriously prickly temperament and an exacting fussiness that offended many of his staff, leading to numerous resignations, including those of Thomas Sterry Hunt (1872) and Wallace Broad (1883).82 Among his current staff, Selwyn’s harshest critic was Robert Bell, who had clashed with the Director on numerous occasions over matters arising from his field work and in relation to Selwyn’s administration of the Survey. Once called before the Committee, Bell took evident pleasure in detailing his Director’s shortcomings and lobbied hard to be installed in Selwyn’s place—a power play that did not succeed.83 In particular, Bell accused Selwyn of reducing and suppressing several of

---

80 Ibid, 75.
81 Ibid, 10.
82 Ibid, 97, 112 and 203.
83 Ibid, 86-88. Morris Zaslow even suggests that Bell had had an important role to play in getting the Parliamentary Committee on Geological Surveys created in the first place, as he had been using his contacts within the House of Commons to agitate for Selwyn’s removal for several years prior to the formation of the Committee. Whilst Selwyn was furious with Bell’s public betrayal, he was unable to
his reports. Bell was particularly aggrieved by what he regarded as favouritism toward Dawson—a man with significantly less field experience. Bell testified that while he was generally forced to keep his reports to 12-20 pages, Dawson was given full scope to express himself in print. The testimony provided by these disgruntled current and former employees portrayed Selwyn as an aloof autocrat who undermined the best interests of the Survey by driving out some of its most capable scientists.

Based on the numerous concerns expressed by the Survey’s critics during the course of the hearings, the Committee produced a parliamentary report at the end of the proceedings that called for substantial reforms to the focus and structure of the GSC. Significantly, the Committee concluded that, in recent years, the Survey had focused attention primarily on the “descriptive representation of the surface of the country” and on the “scientific dissertation upon the existing geological theories, with the object principally of controverting them,” while spending very little time on “the practical study of the useful mineral deposits, with no reference whatever to actual mining operations.” These concerns formed the basis for a series of recommendations that were designed to streamline the Survey and to refocus it on the practical task of aiding Canada’s burgeoning mining industry. Most significantly, the Committee recommended that the Survey’s field operations be confined “to subjects more closely allied, practically and scientifically, to a Geological Survey.”

remove such a long-standing and well-connected civil servant from his post. As it happened, Bell was able to bide his time and survive to see Selwyn’s superannuation in 1895, eventually fulfilling his ambition to become GSC Director after George Dawson’s sudden death in 1901. See Zaslow, Reading the Rocks, 136-138 and 199.

84 Report of the Select Committee, 73-74.
85 Ibid, 8.
86 Ibid, 11.
reflected the “general mood” of the Canadian public. To enhance the practical relevance of the Survey, the Committee recommended that Selwyn appoint a Mining Engineer to inspect and report on the state of mining operations throughout the Dominion. The Committee was also dissatisfied with the Survey’s reports, deeming them “extremely dilatory in publication, meagre in amount and unsatisfactory in practical usefulness.”

Picking up on Bell’s comments, the Committee was especially dismayed by the focus of many recent Survey publications: “the frequent sketches and photographic views of the scenery, the long descriptions of the trivial incidents of the journey, anecdotes of the Indians, dissertations even as to their habits and dialects, while all entertaining, should, in the opinion of the Committee, absorb no prominent part of the attention of a field party sent out to study the geology of the country, and certainly should occupy no portion of the published Reports.” Noting that the published reports were the chief conduit by which the Survey communicated its findings to a domestic and international audience, the Committee recommended a significant overhaul of the GSC’s publication process in order to enhance the timeliness and relevance of its reports. Finally, the Committee

---

87 Ibid, 22. Selwyn, not surprisingly, rejected any notion that a “general mood” existed amongst the Canadian public regarding the impractical nature of the Survey’s work and published results. Indeed, Selwyn felt that such “general complaints” were the result of dubious ‘facts’ manufactured by dissatisfied current and former employees of the Survey, whom he dismissed as being motivated by personal ambition or by petty attempts to avenge perceived slights on his part.

88 Given that the Committee had set out to investigate the Survey’s efforts to ‘procure and preserve’ mining statistics from the outset of the hearings, this recommendation was not surprising. Noting that only a portion of the Survey’s annual appropriation was currently allocated to field work, the Committee argued that there were sufficient remaining funds available to support the salary of the new appointment and to underwrite the extensive work involved in inspecting and reporting on Canada’s working mines. See Ibid, 9 and 11.

89 Ibid, 5. As Morris Zaslow notes, the Survey’s Report of Progress for 1880-81-82 was a popular target for the Committee, given that three years’ worth of work had been discussed in only 211 pages of text. As far as the Committee was concerned this was a grossly insufficient return on the government’s investment and hounded Director Selwyn repeatedly to justify the brevity of this particular report. See Zaslow, Reading the Rocks, 137-138.

90 Report of the Select Committee, 8.

91 Ibid, 11.
revealed its lack of confidence in Selwyn by recommending that a “more systematized plan” of operations be established for the Survey, either by means of a legislative fiat or by departmental regulations imposed from above—most likely from the Minister of the Interior. With these recommendations, the Committee urged the Survey to overhaul what many critics saw as an inefficient and largely trifling set of pursuits in favour of work that directly addressed the practical needs of the Canadian public.

Survey Officials Respond to Their Critics

In responding to the criticisms and proposed reforms that emerged from the Committee hearings, Survey officials revealed a great deal about how they viewed their contributions to the Canadian Nation and, in so doing, initiated a significant debate about the nature of ‘practical’ science. Over the course of the month-long Committee hearings, several senior members of the Survey gave testimony, including Director Alfred Selwyn and his four Assistant Directors: George Dawson, Robert Bell, Joseph Whiteaves and George Christian Hoffmann. While Bell did his utmost to undermine Selwyn and provide the Survey’s critics with all the ammunition they needed to agitate for reform, the others joined Selwyn in justifying the operations of the GSC. Dawson, Selwyn’s right hand man, offered a particularly robust defence of the Survey’s work and of Selwyn’s

---

92 These recommendations called into question Selwyn’s ability to administer the Survey efficiently and cost effectively and suggested that GSC operations could be significantly streamlined if the autonomy of the Survey—and particularly that of Selwyn—were significantly curtailed. Efficiency would be enhanced by providing clear annual directives for GSC personnel, while external supervision would discourage profligacy. See Ibid, 6, 9 and 11.

93 The Assistant Directorships had been established in 1877 to streamline the administration of the Survey by organizing its personnel into more specialized divisions. Field geology was overseen by both Dawson and Bell. Whiteaves was in charge of all work related to Natural History, Paleontology and the Survey museum. Hoffmann—who had been promoted to Assistant Director in 1879 following the departure of Bernard Harrington—was in charge of all activities associated with laboratory-based mineralogical analysis and chemistry. Both Whiteaves and Hoffmann appeared only briefly before the Committee, as the month-long hearings were primarily focused on the geological field work and resulting reports. See the Report of the Select Committee, 13 and Zaslow, Reading the Rocks, 125.
leadership. Dawson’s commitment was not surprising as it was his labours in the remote regions of Western Canada that had been deemed an impractical waste of time, money and energy. As a result, Dawson had a personal stake in these discussions and was eager to set the record straight. As such, Dawson’s testimony before the Committee not only affirmed his position near the top of the Survey’s administrative hierarchy but also revealed his perspectives on the GSC’s service to the Dominion.

On several issues, GSC officials acknowledged that the Committee had valid concerns that needed to be addressed. One such issue was the Survey’s analyses of working mines. Selwyn insisted that his geologists were expected to visit any mines operating in their assigned survey district and to report on these mining activities in the economic minerals section of their reports. He also suggested that the Survey had been instrumental in attracting foreign capital to mining operations in Canada and had offered a considerable amount of advice to those working in the mining industry. But, he did acknowledge that a more concerted effort to gather information on all working mines in Canada would be useful to the nation. When asked why the Survey had not undertaken such an effort, Selwyn replied: “because we had neither means, nor appliances, nor money, and moreover, it interfered with Provincial action.” This point was elaborated by Dawson, who noted that mines fell under provincial jurisdiction according to the British North America Act of 1867. Since the provinces of Nova Scotia and British

94 While all four Assistant Directors were nominally equal in terms of remuneration and administrative authority, Selwyn made no secret of the fact that Dawson was his second in command. See the Report of the Select Committee, 28.
95 Ibid, 29.
96 Ibid, 154.
97 Ibid, 29.
98 Ibid, 53. Section 109 of the Constitution Act, 1867 (30 & 31 Victoria, c. 3 [UK]; commonly referred to as the British North America Act) reads: “All Lands, Mines, Minerals, and Royalties…shall belong to the several Provinces of Ontario, Quebec, Nova Scotia, and New Brunswick in which the same are situate or
Columbia already had inspectors of mines collecting statistics, the Survey had no authority to intrude on their territory. In other provinces the Survey could not compel mine owners to grant access to their mines and would be forced to rely on mines to volunteer what was likely to be inaccurate information.\(^{99}\) Even if the Survey could amass reliable information from provincial inspectors or the mines, at least one full time staff position would be needed to coordinate the statistics for a national picture of the Dominion’s mining activity.\(^{100}\) Thus, while agreeing with the many critics who felt this work would be of great utility to the Canadian public, both Selwyn and Dawson emphasised the additional time, money and considerable cooperation it would require.

Selwyn and Dawson also agreed with the suggestion that the geologists were spending too much time on topographic surveying. Selwyn noted that geology depended on good topographic surveys because they provided the base maps upon which geological formations and key mineral localities could be plotted.\(^{101}\) In Europe such topographic surveys had often been independently produced by military surveyors, freeing geologists

---


\(^{100}\) Ibid. Bell, not surprisingly, downplayed these obstacles, arguing that mine owners tended to be very open to visits from Survey officers and that the additional expenses associated with collecting and publishing mining statistics would be small. See Ibid, 72, 85.

\(^{101}\) Ibid, 14.
to focus on the underlying rock formations.\textsuperscript{102} In Canada no other agencies were producing maps of sufficient detail and precision for geological cartography.\textsuperscript{103} The Survey could not rely on existing county maps or similar sources for its base maps because the proper cartographic plotting of geological formations required topographic base maps constructed from elaborate (usually) traverse surveys, anchored by numerous points whose latitudes and longitudes had been astronomically measured in the field. Not even maps prepared by the Dominion Land Survey met the standard required for the Survey’s topographic base maps. Since this meant that Survey personnel could not forego topographic surveying in the field, Selwyn urged Parliament to commit sufficient funds to permit the hiring and training of topographic surveyors who could accompany his geologists into the field and produce the base maps on which geological details could be plotted.\textsuperscript{104} The United States Geological Survey, he noted, had recently adopted such an approach with good effect.\textsuperscript{105} Dawson endorsed his Director’s proposal but admitted that there were no qualified surveyors available in Canada.\textsuperscript{106} Until an appropriate number of men could be trained, equipped and deployed in the field alongside the geologists, topographic surveying must necessarily continue to occupy much of the geologist’s time in the field.\textsuperscript{107} In contrast, Robert Bell felt that it would be both expensive and impractical for field geologists to relinquish the function of topographic surveying, as

\textsuperscript{102} For instance, as we shall see, the Geological Survey of Great Britain got its start as an adjunct of the British Ordnance Survey, which had been carrying out topographic surveys of the British Isles for military purposes since 1791. See Zaslow, \textit{Reading the Rocks}, 11.
\textsuperscript{103} \textit{Report of the Select Committee}, 14.
\textsuperscript{104} Ibid, 18 and 21.
\textsuperscript{105} Ibid, 18. The USGS Director J. W. Powell made independent topographic surveys a priority of his agency after Congress endorsed an expanded mandate for the USGS in 1882. The goal was to produce a national topographic map of the United States over the course of 20 to 30 years. See, Thomas G. Manning, \textit{Government in Science: The U.S. Geological Survey, 1867-1894} (Lexington: University of Kentucky Press, 1967), 93-104, esp. 93.
\textsuperscript{106} \textit{Report of the Select Committee}, 61.
\textsuperscript{107} Ibid.
they needed to conduct at least a cursory topographic survey upon arriving in the field, regardless of the quality of topographic maps already in existence.\textsuperscript{108} Thus, while Selwyn, Dawson and Bell all agreed with the critics’ view that topographic surveying occupied a large amount of the GSC personnel’s time in the field, they disagreed on the feasibility of relieving geologists of that work.

On the subject of the published reports, Survey officials addressed the critics’ concerns with sympathy but noted that meaningful reports took time to prepare. One field season in a district was often not enough to provide the basis for a meaningful report. In such cases Selwyn urged the publication of a preliminary overview of the work in a scientific journal, followed by the submission of an official report after several seasons in the field.\textsuperscript{109} Dawson agreed and, echoing the suggestion of several witnesses, recommended that the \textit{Annual Report} include brief summary reports from all field geologists outlining the work of the previous summer, with detailed reports on particular districts to be published separately, as they were completed.\textsuperscript{110}

In addressing concerns over the perceived decline in efficiency and prestige at the Survey, both Selwyn and Dawson urged the Committee not to be deceived by appearances. Selwyn maintained that recent additions to the Dominion’s territory required the Survey to adopt a number of different systems of operation in order to carry out its work, giving the appearance that the Survey was less efficient than it had been in the past.\textsuperscript{111} Dawson concurred, stating that the Survey was every bit as efficient as it was in Logan’s day, despite the greater demands placed on the GSC following the territorial

\begin{itemize}
\item \textsuperscript{108} Ibid, 89.
\item \textsuperscript{109} Report of the Select Committee, 152.
\item \textsuperscript{110} Ibid, 51 and 62.
\item \textsuperscript{111} Ibid, 14.
\end{itemize}
acquisitions in the West. The scientific and geographic field that the still small cadre of Survey personnel was expected to cover had increased far more rapidly than their annual budget allocations and more survey parties were needed if the Survey was to deliver its analysis of such a large territory in a timely fashion. Selwyn urged Parliament to increase the annual expenditures so that more personnel could be hired and he argued that higher pay would attract more qualified geologists who would be more inclined to stay.

In response to the notion that the GSC’s international reputation had declined during his tenure, Selwyn referred the Committee to several letters he had received from foreign scientists affiliated with geological surveys, commending the Survey’s maps and reports and thanking him for his contributions to earth science. Dawson insisted that the Survey had maintained its international reputation since Logan’s retirement, as Selwyn had followed Logan’s lead and played a central role at the international exhibitions in Philadelphia (1876) and Paris (1878). He acknowledged that Canada’s geological contributions to these international events generated less excitement than in Logan’s day but attributed this to the fact that Canadian geology’s status as a well-respected contributor to the discipline had long since been cemented. For Selwyn and Dawson the sterling international reputation that Logan had built for the Survey remained

---

112 Ibid, 51-52. Later in the proceedings, both Assistant Director Joseph Whiteaves and John Marshall, the Survey’s book-keeper, concurred with Dawson and testified that the Survey was as efficient under Selwyn as it ever had been under Logan. Ibid, 174-175.

113 Ibid, 63.

114 Ibid, 15-18. Even Robert Bell conceded that a lack of qualified field staff inhibited the Survey’s ability to operate at peak efficiency, although—true to form—he insisted that he could get more out of the existing corps of Survey personnel than Selwyn could manage. Ibid, 87.

115 Ibid, 14. Unfortunately, neither the contents of these letters nor the names of the authors who wrote them were recorded in the Committee’s published report.

116 Ibid, 52.

117 Ibid.
untarnished even if some of the initial excitement had diminished as a result of over forty years of quality work.

Selwyn also urged the Committee not to read too much into the reports of internal disharmony at the Survey. Yes, a number of men unprepared to accept criticism had resigned during his time as Director, several of whom had performed badly during their brief tenure as field geologists. These malcontents had resorted to manufacturing dubious ‘facts’ to suggest that a general mood of dissatisfaction with the Survey existed amongst the public. Dawson agreed but felt that inadequate pay left some of the men disgruntled, making them more troublesome in other matters. An overhaul of the Survey’s pay structure, he felt, would increase both the efficiency and morale of GSC personnel.

What Counts As Practical Science?

Where Survey officials fundamentally differed from their critics, however, was in discussing the nature of practical science. For the GSC’s critics, ‘practical’ work was work that focused on the discovery and careful analysis of deposits of economically-significant minerals and detailed studies of the mines already extracting such minerals in various parts of the Dominion. According to Selwyn, the Survey had not ignored the
economic minerals deposited throughout the country: “they are studied, and described, and located, and they are collected and placed on exhibition in the Museum.” Yet, he felt that the intensive focus on mining activities advocated by critics was far too narrow. The function of a geological survey was to comprehensively trace out the rock formations hidden beneath the country’s variegated landscapes. Such work required extensive surveying and would permit Survey officials to predict with accuracy the location of economic minerals. All geologists, no matter how educated in theory, had this practical focus. The notion of guiding others to likely sites was pivotal to Selwyn, who felt it was the Survey’s duty to show miners where desired minerals could be found rather than to determine the quality and recoverable quantity of the ore deposited at any particular location. Such work, he felt, was the responsibility of those who would carry out the actual mining operations. Robert Bell—usually so negative in his assessments of the Survey’s work under Selwyn—shared his Director’s conviction that there was considerable practical value in extensive reconnaissance surveys, which “have revealed the character of distant lands that will aid those in charge of the country in planning our destinies and will also aid those settlers that inhabit the distant lands.” Bell argued that the Survey was obligated to conduct preliminary investigations of Western Canada’s “great unknown territories” at the expense of “more exact work in limited areas” to generate useful knowledge about the land’s topography, soils, timber, vegetation and other attributes relevant to potential settlers.

---

Dawson fell with respect to the perceived ‘scientific/practical’ divide: Mr. Hall (chair): “Is he [Dawson] not theoretical?”; Selwyn: “No; he is practical.” Report of the Select Committee, 28.

122 Ibid, 41.
123 Ibid, 41-42.
124 Ibid, 14.
125 Ibid, 86.
126 Ibid, 68 and 87.
The most definitive testimony on the subject came from George Dawson, who insisted that the GSC’s extensive reconnaissance surveys in remote regions of the Dominion provided an essential inventory of the coal and other mineral resources on which new settlers to these regions would rely. Like Selwyn, Dawson argued that extensive surveys of lesser-known regions must take precedence over the detailed analyses of economic mineral deposits that Survey critics called for:

It should be generally understood that the work of a Geological Survey is not to discover minerals….Such work is for those who hope to make a profit out of the mine….The duties of a Geological Survey, I think, are often as useful in showing where not to explore as where to explore for mines….There are certain belts of country in which minerals occur, and the belts in which they do not occur in sufficient quantity to justify mining operations, and in preparing maps of these, a beginning has been made.

The location of workable mineral deposits was a by-product of the field geologist’s work, not its aim. Promising mineral deposits would be examined and reported on, but the time-consuming work of analyzing such deposits in detail and determining their viability for mining would be left to others—for GSC geologists, the bigger picture came first.

The 1884 hearings did not yield Dawson’s final word on the practical importance of the Survey’s reconnaissance work in the Canadian West. Dawson returned to the subject in his 1890 presentation to the Ottawa Field Naturalists’ Society, in which he emphasized the practical utility of laying Canada’s remote western regions “bare to inspection and open to exploitation.”

127 Ibid, 52.
128 Ibid, 56-57. Not all outsiders who gave their perspective on the GSC before the Committee were blind to the points raised by Dawson. R. W. Heneker, the Commissioner of the British American Land Company, acknowledged that both commercial enterprise and a new country such as Canada would benefit a great deal from the mapping of its general geographical characteristics. Ibid, 135.
Accurate maps...and the explorations upon which they are based, are absolutely essential to civilized society, to show in the first place what the natural resources of these regions are and how they may be utilized, in the second by what highways such regions may be most easily reached....On the grounds alone...of geographical knowledge, and of the discovery and definition of the reserves of the country in timber and minerals, the exploration of all these unknown or little-known regions may be amply justified.130

Dawson reinforced his views during his presidential address to the Royal Society of Canada in 1894: “it is unsatisfactory to read…the statement that Canada is possessed of ‘unlimited natural resources,’ for such a statement means little more than that we have been unable to make even a reasonably complete inventory of these resources. In order intelligently to guide the work of those endeavouring to utilize the benefits given to us by nature in the rough…it is necessary to be much more specific.”131 With pride, Dawson noted that most of the Dominion’s significant explorations to date had been conducted by the GSC and this work had already aided settlement and rail construction in the West.132 Despite such practical contributions, the Survey still had to deal with people who “call aloud for ‘practical results’ without appreciating the necessary concurrent or antecedent stages of scientific investigation by means of which such results may be attained, or the way of attaining which is thus evidenced and made plain.”133 In fact, Dawson considered the often-invoked dichotomy between ‘pure’ and ‘practical’ science both antiquated and irksome:

Science is but another and a convenient name for organized knowledge, and as such it has entered so largely into every branch of

130 Ibid, 31-32.
133 Ibid, LIV.
human effort, that when, at the present time, any one attempts to pose as a ‘practical’ in contradistinction to a scientific worker, he may be known to be a relic of the past age, in which much was done by rule of thumb and without any real knowledge of the principles involved. Neither can we safely make any division between what is sometimes called ‘practical’ or ‘applied’ science and science in general, for the knowledge must be gained before it can be applied, and it is scarcely yet possible to bar any avenue of research with a placard of “no thoroughfare,” as an assurance that it cannot lead to any material useful end.  

The practical virtues of scientific exploration had to be extolled because there were still critics who could not see the practical utility of a geological survey devoted to extensively exploring and broadly investigating the remote regions of a vast nation.

It is clear, then, that Dawson and his fellow GSC officials had a different sense of what constituted appropriate, practical work for the Survey than did many of the critics who offered testimony to the Committee in 1884. As far as the Survey men were concerned, all scientific work had potential utility. It was not a question of whether the work of the Survey was practical or scientific—from their perspective it was always both. Rather, the task was to decide what kind of practical work should be the focus. For Survey officials the goal was to develop a comprehensive picture of the geological structure and geographical character of all regions of the Dominion, no matter how remote. Such effort would afford a general picture of the Nation’s resource wealth and would help put the development of future mining, logging, fishing and agricultural operations on a more rational footing by clearly distinguishing between promising regions and regions to avoid. For Dawson and his colleagues, this was the essence of practical science.

134 Ibid, LIII.
The Wider Debate Over Geology as a Practical Science

Such divergent notions of ‘practical science’ were not unique to the 1884 hearings. Similar debates had unfolded between geological surveyors and legislators in numerous colonies and countries over the course of the nineteenth century. Three examples, in particular, are worth examining for the insights they offer to the situation in Canada in 1884: William Logan’s encounters with Canada’s provincial Legislative Assembly in the 1840s and 1850s; the Geological Survey of Great Britain’s relationship with the British Parliament in the mid-nineteenth century; and the United States Geological Survey’s evaluation by Congress in the 1880s. Each of these surveys had very close connections to the GSC under Selwyn and the similar experiences each had with the lawmakers who funded the work serves to illustrate that the GSC under Selwyn was not as out of step with the work of a ‘proper’ geological survey as the Committee had suggested in its report.

As testimony heard before the 1884 Parliamentary Committee revealed, William Logan was widely praised for his commitment to economic geology during his tenure with the Survey, while one of the persistent criticisms of Selwyn was that he had moved the GSC away from Logan’s brand of practical science. Anyone reading the Committee’s report, then, might assume that Logan had enjoyed total support from Canadian legislators for his unwavering focus on economic geology. This was not Logan’s experience. Over the twenty-seven years of his Directorship, Logan had to periodically justify and defend his administration of the Survey to his political overseers.

From the outset, in 1842, Logan had to appease lawmakers who privileged immediate, practical results above all else—lawmakers who were yet to be entirely

---

convinced of the wisdom of funding an ongoing scientific survey of the colony and who would not hesitate to terminate the Survey as soon as they deemed it had exhausted its utility to the Canadian people. In an 1844 letter to his assistant, Alexander Murray, Logan revealed the precarious position of the Survey: “I have spoken to [William Henry] Draper on the subject, and think he feels the propriety of putting the Survey on a firmer footing….He has said, however, that unless it can in some way be indicated that value will be returned to the country for the expenditure, it is in vain to expect that the Legislature will support the Survey for the sake of science…”136 Faced with such threats to the Survey’s existence, Logan became adept at promoting the value of the GSC to its political backers. In the same letter to Murray, Logan outlined his plan for emphasizing the Survey’s contributions to economic geology:

The object will be to produce an effect on the members [of the Legislative Assembly]. With the same view, I must get a house or a set of rooms for our [mineral] collection. Managing this, we must put our economic specimens conspicuously forward; and it appears to me that in the exhibition of these, large masses will make a greater impression on the mind than small specimens. A sort of rule of three process seems to go on in the minds of the unlearned when they examine minerals in which they are interested. They are much addicted to judging the value of the deposit by the bulk of the specimen shown. This induces me to say that I should like you to send to Montreal, as soon as it can be done by water communication in the spring, a thundering piece of gypsum.137

Logan’s manoeuvring proved effective in convincing members that the Survey was making important mineral discoveries. Indeed, the Canadian Legislative Assembly

---

136 William Logan to Alexander Murray, March 7, 1844, quoted in Levere and Jarrell, A Curious Field-Book, 55-56. Draper was a leading figure in the Canadian Executive Council in this period.
137 Ibid.
approved five-year terms for the Survey in both 1845 and 1850 despite Logan’s reluctant admission that the Province lacked coal reserves in any appreciable quantity.\(^{138}\)

Yet, Canadian lawmakers continued to express periodic misgivings about the utility of the Survey. This culminated in 1854 when Logan faced Canada’s first Select Committee struck to evaluate the work of the GSC. Not surprisingly, the Committee was most interested in discussing the practical contributions that the Survey had made to the colony during the preceding dozen years and Logan was asked a number of pointed questions over the course of the hearing: “can you mention some cases of practical advantages resulting from the Survey?”; “can you give any illustration of the manner, in which a sound scientific basis leads to practical economic results?”; “have you in your survey had as your principal object the establishment of new scientific facts, or has your attention been more directed to discovering and pointing out economic advantages?”; “what do you think should be the object of a Provincial Survey in the economic point of view? And what kind of information should be expected from it?”\(^{139}\)

By this time Logan was well practiced at telling his political overseers what they wanted to hear. “The practical advantages arising from the survey are only beginning to be felt,” but “the object of the survey is to ascertain the mineral resources of the Country, and this is kept steadily in view. Whatever new scientific facts have resulted from it, have come out in the course of what I conceive to be economic researches carried on in a scientific way….Thus, economics lead to science and science to economics.”\(^{140}\) Logan then pointed out the substantial obstacles to be overcome in carrying out a geological survey of the Province. Foreshadowing the argument Selwyn, Dawson and Bell would

\(^{138}\) Zaslow, Reading the Rocks, 48-50.  
\(^{139}\) Levere and Jarrell, A Curious Field-Book, 68-73.  
\(^{140}\) Ibid, 69-72.
make three decades later, Logan explained: “the principal difficulties I have encountered are those arising from the want of a good topographical map of the country. Accurate topography is the foundation of accurate geology. Unless you know the geographic position of every rock exposure…you cannot tell the general relations of the whole, and you cannot make the physical structure of the district intelligible to yourself or to others.” This lack of accurate topographic maps had significant ramifications for economic geology: “without geographical position…the occurrence of a valuable mineral in two localities distant from one another are just two isolated unrelated facts; while their topographical place being known, their dip and strike may immediately point to the probability, and guide to the search and discovery, of the same substance in a hundred places between.” Logan went on to explain that most districts in the Province had not been mapped and the few counties that had been mapped had employed different systems with different degrees of accuracy, rendering the maps useless to GSC field geologists. Topographic surveying, he concluded, was a necessary first step if the mineral resources of the Province were to be systematically inventoried.

Again foreshadowing the arguments of Selwyn and Dawson in 1884, Logan concluded his testimony by offering his views on the purpose of a government-funded geological survey:

The economic object of a Provincial Geological Survey in my opinion, should be to indicate in a comprehensive way, and in as short a time as possible, the natural resources of the Country, and the character and composition of its rocks, as leading to a knowledge of the origin and constitution of its soils…. All that can therefore safely be done in regard to mineral veins is to state their existence and describe their character where they are visible, leaving it to private enterprise to ascertain the expensive facts necessary to lead the way to a sound opinion in respect to quantitative returns. Even a moderately effective

---

141 Quoted in Ibid, 65.
examination with this regard in any one locality would sweep away more than the whole funds at the disposal of the Survey for a season’s exploration. It is not to be expected that the Geological survey of a country is to discover every economic mineral that exists in it…but one great duty of those who conduct such a survey, and perhaps it is the most essential, is to ascertain physical structure to the fullest extent the means placed at their disposal will allow, and to represent it. This is a work, the benefit of which will be felt for all future time, for as stated already, by this you arrive at a classification of the surface into parts, which, each in respect to a certain set of materials, limit the distribution both of what is known and what is to be known, facilitate discoveries, and make available to a multitude of his co-inhabitants, whatever mineral product the intelligence or good fortune of any and every individual may enable him to bring before the world.142

According to Logan, the Survey had a responsibility to survey and map the various rock formations constituting the “physical structure” of a region. The practical value of this work lay in the geological maps that demarcated the geographic range and distribution of valuable minerals, building materials and other subterranean natural resources. Such maps were vital, Logan explained, because they “will point out the limits to be observed in searching in new localities for materials that are known, and make every man’s discovery of any useful material, not previously known, available to his neighbours in a hundred new places.”143 Through extensive surveying and mapping, the GSC could provide the Canadian public with the basic information to exploit the mineral wealth of the Province. This extensive approach was more effective than conducting a series of intensive investigations in known mining districts: “the area of Canada is so large and the explorers so few, that we could not satisfy public expectation if we dwelt a very long time on one district.”144 This statement is all the more significant given that Logan was speaking about the Province of Canada before Confederation and various land transfers

---

142 Ibid, 73-74.
143 Ibid, 70-71.
144 Ibid, 72.
had increased the Canadian territory sevenfold. What Logan spelled out for legislators in 1854 was a survey strategy that remained every bit as relevant for Selwyn and his staff in 1884. In order to optimize limited resources and maximize practical utility to the Canadian public, the GSC had to focus on conducting extensive reconnaissance surveys in all regions of the country to provide the basic overview of the land’s geological structure and resource wealth necessary for further scientific study and economic exploitation by private industry.

This testimony did convince the sceptics in the Canadian legislature. The Committee reported that “in no part of the world has there been a more valuable contribution to geological science for such a small outlay” and recommended that the Survey be given the financial backing required to expand its work.\footnote{Zaslow, \textit{Reading the Rocks}, 57.} Despite the fact that the views expressed by Selwyn, Dawson and Bell in 1884 repeated arguments made by Logan thirty years earlier and despite the fact that these arguments were more germane in post-Confederation Canada, Logan was ultimately more successful than Selwyn at convincing a parliamentary committee of the efficacy of the Survey’s work. Logan’s political triumphs, however, should not obscure the fact that, like his successor Selwyn, his work was perpetually scrutinized by parliamentarians who were thoroughly imbued with a utilitarian view of government-funded science and who expected timely and substantial practical results as a return on the public’s investment.

Like the GSC, the Geological Survey of Great Britain also endured the dissatisfaction of British Parliament in the 1860s. This is significant because the British survey was the world’s most prestigious state-funded geological survey in this period and had always had a strong influence on the GSC. It had given both Logan and Selwyn their
first positions as government-funded geologists in the 1840s and it served as a vital intellectual and institutional reference point for the Canadian survey throughout the nineteenth century. The fact that the British survey was also drawn into a political debate over the nature of practical science suggests that this debate resonated far beyond the borders of the new Dominion.

The British Survey was created as an independent scientific organization in 1845, three years after the GSC, but it had been ten years in the making. In 1835 the amateur geologist Henry De la Beche was hired by the British Ordnance Survey to apply colour washes, representing the principal geological formations, to the topographic map sheets that had already been produced for southern England. De la Beche’s good work on the maps of Devonshire, Cornwall and Somerset led Parliament to create the Geological Survey of Great Britain and Ireland in 1845, with De la Beche installed as Director-General. The Survey would henceforth operate independently of the Ordnance Survey but would continue to use its one-inch-to-the-mile topographic maps as the basis for geological maps, with the primary goal to produce a complete geological map of the British Isles.

Like most state-sponsored geological surveys, the British survey was created with utilitarian aims in mind. As James Secord notes: “for the public at large, geology was pre-eminently an economically useful activity, and those with agricultural or mining concerns (who after all held most parliamentary seats) thought that a census of the British

---


strata would more than pay for itself." The practical contribution of the Survey in the early years was demonstrated through its initial focus on surveying the rich coal districts of Southwest England and South Wales. Thereafter it focused on the geological mapping of the realm: “the making of a map satisfied a variety of diverse needs both inside and outside the scientific community, mediating between different definitions of utility and a variety of competing interests.” It would seem, then, that the Survey’s measurable success in building up the geological map of Great Britain went some way to ensuring Parliamentary support for its various endeavours.

In 1855 De la Beche was forced to step down as survey Director due to ill health. His successor, Roderick Impey Murchison, was an understandable choice, having amassed an enviable degree of celebrity as a leading and quite outspoken gentleman geologist. According to his biographer, Robert Stafford, Murchison brought an avowedly imperialist outlook to British geology. By seeking to entrench British methods and British nomenclature internationally, Murchison sought to erect an elaborate geological network to funnel knowledge, prestige and, ultimately, resource wealth back to London. Murchison’s imperial focus was in distinct contrast to that of his predecessor: “[Murchison] had little interest in the economic applications of geology which for De la Beche had been of prime importance. Furthermore, Murchison does not

---

149 234.
150 Murchison had risen to prominence as a stratigrapher who had made important contributions to the accepted geological timescale by classifying the Silurian system of rocks during fieldwork in Wales in the 1830s. More controversially, Murchison had clashed with De la Beche over the classification of the formations in Devonshire in the 1840s, sparking the heated debates that historians of science have come to dub the “Great Devonian Controversy.” For a detailed account of this debate see Martin J. Rudwick, *The Great Devonian Controversy: The Shaping of Scientific Knowledge Among Gentlemanly Specialists* (Chicago: The University of Chicago Press, 1985).
151 ) See Stafford’s *Scientist of Empire* for a detailed look at Murchison’s imperial approach to geology and geography.
seem to have been much concerned with the education of students of Mining and Metallurgy. For De la Beche the School of Mines was one of the principal projects of his life.\textsuperscript{152} This insouciance caused Murchison some minor difficulties in 1862, when a Parliamentary Commission examined the Survey and determined that, while the Survey itself was functioning effectively, its School of Mines needed significant reform to make it more useful to the country’s mining interests.\textsuperscript{153} Additional concerns were raised by a Royal Commission on the country’s coal reserves (1866-1871), which criticized the Survey for not adequately surveying and mapping the known coal districts of the British Isles. By 1866 only the Lancashire and Yorkshire coal beds had been mapped at the optimal scale of six inches to the mile, whereas the extensive coal districts of Southwest England, South Wales and the English Midlands had only been mapped at the cruder scale of one inch to the mile and vast portions of the coal deposits in Durham, Northumberland, Cumberland and Scotland had not been mapped at all.\textsuperscript{154} For a country with such considerable coal reserves essential to its continued industrial development and colonial expansion, such negligence of geological mapping of known coal districts was unacceptable. As such, the British Parliament voted to give Murchison additional funds to expand his geological staff and expedite the mapping of the country’s coal measures in 1867 and again in 1868.\textsuperscript{155}

Like the GSC under Logan and Selwyn, then, Murchison’s geological survey was scrutinized by its parliamentary overseers and found wanting. Yet, like Logan, Murchison was adept at playing the political game. According to Stafford, Murchison was

\textsuperscript{152} Flett, \textit{The First Hundred Years}, 58.
\textsuperscript{153} Ibid, 71.
\textsuperscript{154} Bailey, \textit{Geological Survey of Great Britain}, 75.
\textsuperscript{155} Flett, \textit{The First Hundred Years}, 75.
consistently able to deflect Parliamentary criticism from the Survey’s work by clothing his scientific and imperial goals “in the trappings of utility.”¹⁵⁶ Even when this tactic failed—as it did with the Royal Commission on Coal Reserves in the 1860s—he was still able to convince those who controlled the public purse that the Survey would offer a more suitable return for the people’s investment were additional funding made available to expand his staff. Yet, Murchison also benefited from a very different scientific and socio-economic context than the GSC. The British survey could count on a strong cadre of academic and amateur geologists to supplement its geological research in various localities and Britain’s long-established mining industry had the wherewithal to investigate and exploit the country’s many promising mineral localities without waiting impatiently for the Survey to report its findings. Thus, the British survey operated within an already industry-oriented and geologically-savvy society, which perhaps relieved it of much of the burden of expectation regarding immediate practical results.

While connections between the Canadian and British surveys remained strong throughout the nineteenth century, the emergence of the United States Geological Survey in the last quarter of the century provided the GSC with another important institutional comparator. The GSC and the USGS had much in common: both confronted vast territories still awaiting systematic exploration and that contained huge reserves of natural resources to be assessed; both operated within a federal state structure whose division of powers complicated geological work; and both were monitored by lawmakers fixated on the practical utility of government-funded science. Less than ten months after the Select Committee opened its 1884 hearings in Ottawa, USGS Director John Wesley Powell appeared before a Congressional Commission tasked with scrutinizing the work

¹⁵⁶ Stafford, Scientist of Empire, 32.
of his survey, as well as three other federal agencies involved in the surveying and mapping of American territory.\textsuperscript{157} Unlike the brief Canadian hearings, the Allison Commission—as it came to be known—carried out its work over eighteen months and Powell appeared before the Commissioners several times to justify the work of the USGS. In particular, he had to demonstrate that government-funded science was a benefit to the American people and that the work of his survey was of practical value to the nation commensurate with its substantial annual Congressional appropriation.

The USGS was commissioned in 1879 to eliminate wasteful duplication and destructive in-fighting between several well-established surveys then working in the American West. Ferdinand Hayden’s geological surveys of the Great Plains (Department of the Interior) and Clarence King’s geological surveys of the Great Basin (Department of War) were established in 1867; John Wesley Powell’s geographical/geological/ethnographical survey of the Colorado Plateau was launched by the Department of the Interior in 1870; and George M. Wheeler’s expeditions with the Army Corps of Topographical Engineers commenced west of the One Hundredth Meridian in 1871.\textsuperscript{158} Before long these surveys were jostling for position, both in the landscapes of the West, as well as in the queue for Congressional funding that formed in Washington each year. With the help of the National Academy of Sciences, Congress determined that a single civilian survey, headed by Clarence King, was the way forward and, in 1879, the four Western surveys were consolidated into the USGS.\textsuperscript{159}

\textsuperscript{157} In addition to the USGS, this Commission investigated the Coast and Geodetic Survey, the Army’s Signal Office and the Navy’s Hydrographic Office to determine whether there was significant overlap of effort. See Manning, \textit{Government in Science}, 123.


\textsuperscript{159} Manning, \textit{Government in Science}, 30.
In selecting King, the U.S. Congress made a clear statement of intent. King was trained as a mining engineer and he had devoted the majority of his professional career to economic geology.\textsuperscript{160} Under his Directorship, the USGS would have a strong orientation toward practical science. This was reinforced by Congress, which circumscribed the work of the USGS significantly: natural history was excluded, paleontology was downgraded from the level it had enjoyed in earlier surveys and all anthropological research was moved to the Smithsonian Institution. Even responsibilities for land classification and topographic mapping were withheld from the new survey, which was to focus virtually all of its resources on economic geology.\textsuperscript{161} To that end, King hired some of the country’s leading mining engineers and dispatched them to key mining centres in the Western states. King also established an important USGS field office in Denver as a base of operations in the West to forge closer ties with local miners.\textsuperscript{162}

It was not long before King began to chafe under Congressional strictures and yearn for the freedom of the private sector, where he could cultivate some of the lucrative mining schemes that had come to his attention during his service to the American government.\textsuperscript{163} In 1881 he tendered his resignation and handed the reigns of the USGS over to John Wesley Powell. Powell had spent the previous two years as Director of the Smithsonian Institution’s Bureau of Ethnology. In that time he had cultivated a warm relationship with U.S. President James A. Garfield, who championed Powell as King’s successor at the USGS.\textsuperscript{164} Since Powell was not asked to relinquish his Bureau of

\begin{footnotes}
\item[160] Ibid, 58.
\item[161] Ibid, 30-31.
\item[162] Ibid, 60.
\item[163] Ibid, 69. In particular, King was keen to rehabilitate several flooded silver mines in Mexico—a project that never yielded the degree of profit he dreamed of while USGS Director.
\item[164] Worster, \textit{A River Running West}, 384 and 394.
\end{footnotes}
Ethnology post, he simply added this work to his USGS duties and increasingly blurred
the distinctions between the two organizations as time went on. As Donald Worster puts
it: “like the Green and the Grand mixing their waters, the two agencies flowed as one
under Powell.”¹⁶⁵ In addition to anthropology, Powell gradually brought a number of
other scientific pursuits back within the ambit of the USGS. Economic geology was
initially supplemented and eventually replaced by ‘general’ physical geology under
Powell.¹⁶⁶ Paleontological research was revived and expanded in 1882 when the vaunted
Yale University professor O.C. Marsh was added to the USGS payroll.¹⁶⁷ Most
significantly, Powell restored topographic surveying as a central project of the USGS by
creating a fifty-man corps of surveyors and by making a complete topographic map of the
United States a principal objective of the USGS over the next three decades.¹⁶⁸ “In
throwing so much support behind basic research, Powell took a calculated risk, given the
traditional bias toward the utilitarian and profitable in American attitudes toward
science.”¹⁶⁹ In a few short years Powell had completely restructured the USGS in ways
that neither Clarence King nor his Congressional backers could have imagined or
endorsed.

Not surprisingly, criticism of Powell’s restructuring was not long in materializing.
Congress had been monitoring developments within the USGS closely since its
inauguration. In a few short years, this modest survey had grown in size, expense and
power but without an apparent increase in practical utility to the American public. In
response, a special Commission was created in 1884 to evaluate the USGS and some of

¹⁶⁵ Ibid, 419. See also 394-395.
¹⁶⁶ Ibid, 416.
¹⁶⁷ Manning, Government in Science, 82.
¹⁶⁸ Ibid, 93-94.
¹⁶⁹ Worster, A River Running West, 417.
its companion surveys. Powell was the first to testify and he offered a spirited defence of
the Survey’s work. One of the principal criticisms he faced was that Congress had never
granted the USGS permission to carry out a national topographic survey. Powell
downplayed this concern by reminding Congress that they had approved his plan to
produce a geological map of the United States in 1882. Since topographic surveying was
the very cornerstone of geological mapping, he argued, the 1882 endorsement had
implied support for a topographic survey as well. Besides, he insisted, “a Government
cannot do any scientific work of more value to the people at large.” So convincing was
Powell’s argument that his appearance before the Commission strengthened support for
the USGS.

Powell’s victory was short-lived. The presidential inauguration of Grover Cleveland
in January of 1885 ushered a renewed spirit of fiscal restraint and ‘small government’
into Washington. This emboldened a number of the USGS’s critics, including Hillary
Herbert, a prominent member of the Allison Commission who argued that science was
best pursued by private individuals and academic professionals rather than by
government employees. This view was shared by Alexander Agassiz, a Harvard
University professor and the son of acclaimed glaciologist Louis Agassiz. In 1885 the
younger Agassiz wrote an explosive letter denouncing government science as wasteful
and potentially corrupt; if it must exist, he said, its scope should be strictly limited to
practical research, leaving more general scientific work to university-based scientists.

171 Ibid, 94.
172 Ibid, 126.
173 Cleveland had campaigned on a platform of downsizing the bureaucracy in Washington and reducing
federal spending. As Governor of New York, he had also earned a reputation for reducing government
funding for science. See Ibid, 126-127.
174 This Democratic Congressman from Alabama was strongly in favour of laissez-faire capitalism with
minimal government interference. Ibid, 127.
Armed with Agassiz’s letter, Herbert made his case for significant downsizing of the USGS during the December 1885 session of the Allison Commission hearings. Not content to wait for the Commission’s report, Herbert prepared a bill that would prevent the “discussion of geological theories” in all USGS publications and would significantly curtail both the scientific scope of the survey and the authority of its director.

Powell was given an opportunity to respond to the criticisms raised by Herbert and Agassiz in February and again in May of 1886. The topography, paleontology and lab work, he argued, all made practical geology possible. In making this point he rejected Agassiz’s division of labour between practical government science and theoretical academic science. Powell considered this division completely artificial: “there is no scientific research which is not for the general welfare.” Moreover, private research could not be exclusively relied upon because there were certain lines of scientific inquiry that only government-funded science could effectively pursue. Powell recognized that the scale of certain scientific projects—such as producing topographic/geological maps—was beyond the means of isolated individuals. Powell concluded his testimony by reaffirming his commitment to economic geology while reinforcing its dependence on basic scientific research: the broad scope of the USGS had made significant practical contributions to the American nation and would continue to do so if backed by Congress.

---

177 Ibid, 425.
178 Ibid. This was, in part, a thinly-veiled attack on Agassiz’s elitism, for very few scientists could amass the kind of personal wealth that the Harvard man used to support his research.
Much to Hillary Herbert’s chagrin, the majority of Commissioners were convinced by Powell’s protestations and the final report, released in June of 1886, deemed the survey “well conducted, and with economy and care, and discloses excellent administrative and business ability on the part of its chief.”181 Unmoved, when the reports were circulated that summer Herbert penned a damning minority report and attempted to win the majority of Congress to his cause. Congress was comfortable with the Allison Commission’s majority findings, however, and endorsed the official report. Powell, then, was able to achieve what Selwyn could not; despite Herbert’s tenacious efforts to pare down the USGS, the Director had defended his work doggedly and was rewarded with the approbation of both the Allison Commission and Congress as a whole. After eighteen months of debate the USGS was safe, Powell was vindicated and government science was further entrenched within the bureaucratic structure of the United States.182

Clearly, then, the Canadian Parliament’s 1884 Select Committee on Geological Surveys was not the only circumstance in which lawmakers exerted pressure on government-funded geological surveys to enhance their practical contributions to the nations they served. As we have seen, Logan, Murchison and Powell faced much the same public scrutiny endured by Selwyn in 1884, though it is possible to argue that they all acquitted themselves with greater élan than Selwyn, who was significantly less gifted when it came to the art of political manoeuvring. Indeed, as we have seen, Logan, Murchison and Powell each emerged from these political contests concerning practical science with their reputations intact and support for their surveys reconfirmed. Selwyn, on the other hand, was confronted by a Select Committee report that recommended a

181 Ibid, 432.
significant shift in focus for the GSC—away from extensive and multi-faceted reconnaissance surveys and toward a ‘proper’ emphasis on more intensive surveys of existing and soon-to-be developed mining districts. What impact did these recommendations have on Survey operations?

Survey Reforms in the Wake of the Committee’s Report

As the Committee’s published recommendations reveal, the Survey’s senior staff had not been able to alter the critics’ collective views on what constituted legitimate ‘practical’ work for the GSC over the course of the 1884 hearings. Conversely, the Committee’s recommendations failed to initiate sweeping changes at the Survey. Curiously, the accusations and recriminations read into the public record on Parliament Hill that winter resulted in no dismissals or resignations amongst the senior staff of the Survey. Selwyn soldiered on as Director, Dawson, Whiteaves and Hoffmann all returned to their positions as Assistant Directors and even Robert Bell, who had stuck his neck out a considerable distance in his quest to supplant Selwyn, retained his post near the apex of the Survey’s administrative hierarchy. There were a few impassioned calls for further investigations of the GSC—including requests from both Selwyn and Bell, who, for different reasons, wished to have the opportunity to cleanse their besmirched reputations. The Canadian government, however, was not interested in revisiting this matter and the GSC retreated from public view after a brief turn in the political spotlight.183

Selwyn responded to the affair by devoting a portion of his 1885 Summary Report to rebutting several of the Committee’s criticisms. He referred readers to an 1883 article written by USGS Director John Wesley Powell in defence of the GSC, in which Powell

183 Zaslow, Reading the Rocks, 140.
justified the Survey’s publication delays as understandable for an organization responsible for determining the geology of such a vast and complicated landmass. Powell also applauded the Survey’s ethnographic and natural history contributions and argued that they did not interfere with its geological contributions.\(^{184}\) Selwyn also insisted that the Committee had unfairly overlooked the disruptions caused by the Survey’s 1881 relocation to Ottawa in its assessment of the organization’s recent work.\(^{185}\) He also emphasized that the reports and the museum were not the only public contributions made by the Survey; the GSC scientists distributed mineral collections to educational institutions, offered professional advice and information to miners, carried out valuable geographical work in filling in the map of the Dominion, read numerous papers before the Royal Society Canada, and produced separate publications on botany, paleontology and anthropology for public edification.\(^{186}\) Selwyn, then, remained defiant in the face of the Committee’s report and used the platform of the *Report of Progress* to hit back at the Survey’s critics.

This is not to say that nothing changed at the Survey. Publication delays for Survey reports were a source of concern for the Committee and Selwyn took immediate steps to address this shortcoming. In 1886 the Survey began to produce an *Annual Report* for the first time. The GSC had been publishing a regular *Report of Progress* for years but disruptions had delayed some reports for several calendar years. Often, late progress reports encapsulated the work of two or three seasons in one volume, resulting in highly


\(^{186}\) Ibid, 27-28.
condensed overviews of the many field surveys, lab analyses and other activities that had transpired during the period in question. With the change in name in 1886 came a change in commitment—henceforth the Survey would produce a report every calendar year.

Each *Annual Report* would commence with a Director’s report, providing a comprehensive overview of the Survey’s work over the preceding year. This would be followed by the reports prepared by Survey staff members. These reports were also published separately at the time of their completion in order to ensure their timeliness.\(^\text{187}\)

These were minor adjustments to an already fairly regular publishing schedule but they did address one of the Committee’s key concerns and gave Selwyn a fairly straightforward opportunity to appease some of the Survey’s critics.

The Committee had also strongly recommended that the Survey appoint an Inspector of Mines, with the task of carefully scrutinizing the Dominion’s mining operations and reporting his findings—preferably supplemented by an abundance of mining statistics. Again, this proved an easy criticism to address. In 1883, prior to the Committee hearings in Ottawa, Selwyn had hired two geologists with extensive expertise in mining practices. Eugene Coste was trained at the École des Mines in Paris, while Elfric D. Ingall had completed a degree at the Royal School of Mines in London.\(^\text{188}\)

Selwyn had hired these men with a view to expanding the Survey’s work in the country’s existing mining districts. In the wake of the Committee hearings, Selwyn formally created a Section of Mines within the GSC and appointed Coste and Ingall as its co-directors. Both men immediately commenced field work in different mining districts of Ontario and their published reports contained a conspicuous amount of statistical data.

---

\(^{187}\) Zaslow, *Reading the Rocks*, 141.

\(^{188}\) Ibid, 132.
concerning the Dominion’s various mining operations. Selwyn also instructed his other field geologists to pay closer attention to mining operations encountered in the course of their work, which led to a more overt focus on mining operations in subsequent Survey reports. Once again, then, Selwyn was able to appease the GSC’s critics by responding quickly to one of their principal complaints.

While Selwyn was content to modify the Survey’s publication schedule and approach to working mines in response to the Committee’s report, he refused to budge on the remaining two recommendations. The Committee had suggested that the Survey adopt a more “systematized plan” and that its field operations be restricted “to subjects more closely allied, practically and scientifically, to a geological survey.”\(^{190}\) Taken in tandem, satisfying such demands would result in a fundamental restructuring of the Survey’s scope: the GSC would have to abandon its focus on extensive reconnaissance surveys—with their broad-ranging investigations into physical geography, paleontology, natural history and ethnography—in favour of more intensive geological surveys of districts rich in economically-useful minerals. Selwyn refused to comply. Between 1884 and 1886, George Dawson, J. B. Tyrrell and R. G. McConnell explored significant portions of the prairies, foothills and mountains of Saskatchewan and Alberta, covering vast expanses of terrain according to the well established methods of rapid reconnaissance surveying. West of the Rockies, Dawson explored the remote forest landscapes of northern Vancouver Island (1885) and spent a harrowing summer surveying the hitherto uncharted wilderness of northern British Columbia and southern Yukon Territory (see Chapter 3). The Survey’s field work in the early 1890s was

\(^{189}\) Ibid, 142.
\(^{190}\) Report of the Select Committee, 11.
dominated by Tyrrell’s peregrinations through the barren lands west of Hudson Bay, while Robert Bell, Albert P. Low and several others spent their time negotiating the rugged terrain and raging rivers to the east of Hudson Bay. Clearly, the Committee’s recommendations had no appreciable effect on the Survey’s geographic scope.

A glance at the *Annual Reports* from this period also reveals that the scientific breadth of the Survey did not diminish after 1884. In his Director’s Report for 1885, Selwyn noted that Survey botanist John Macoun had catalogued over 1,100 plant specimens for the GSC herbarium and had prepared a catalogue of 115 Canadian tree species. In the same year another GSC staff member, H. M. Ami, had stuffed and mounted 27 mammals and 53 birds for display in the Survey museum, while numerous fossil collections were assembled and shipped to various educational institutions throughout eastern Canada. Ethnographic materials concerning Canada’s Native peoples also continued to appear in Survey publications. George Dawson was the primary transgressor, co-authoring a comparative vocabulary of Native languages in British Columbia, published under the imprimatur of the Survey in 1884, and preparing an appendix on the Native groups of northern BC and the southern Yukon Territory as part of his 1887 geological report on this district. Thus, the Committee’s suggestion that the Survey restrict itself to geological research with a narrowly practical focus went largely unheeded. Under Selwyn’s direction, the Survey continued to invest considerable time,

191 For the most concise yet effective depiction of the extent of these reconnaissance surveys, see the maps presented in Zaslow, *Reading the Rocks*, 153, 158, 161 and 167.
money and manpower in exploring the Dominion’s most far-flung regions using a broad scientific lens. These Survey officials were convinced that this was practical work that would benefit the Nation, whatever the Select Committee on Geological Surveys might argue, and they would not be diverted from the expansive scientific program that they had laid out in the wake of Confederation.

The Survey’s ability to persist with its established program after the 1884 hearings suggests several things. First, Selwyn, for all his aloofness, still had the support of important decision makers within the Canadian government, who seemed content to maintain him as Survey Director and to preserve his relative autonomy over GSC operations. Second, the Select Committee on Geological Surveys did not speak on behalf of the Canadian Government. While the Committee could prepare a series of recommendations for the reform of the GSC, it could not compel Survey officials to comply. Tellingly, none of the Committee’s recommendations were immediately given the force of law. It would be another six years before a new Survey Act was prepared by Parliament and, while the 1890 act included the collection of mineral statistics amongst the Survey’s formal duties, it still preserved the Survey’s scientific obligations to natural history, paleontology and topographic surveying.\footnote{For the details of the 1890 act, see Collins, “The National Museum of Canada,” 64-65.} Finally, the continuity of the Survey’s program before and after the 1884 hearings suggests that the Survey’s broader objective of making Canada’s vast territory legible and exploitable enjoyed support within the Canadian Government. This indicates that the two notions of ‘practical’ science juxtaposed during the 1884 Committee hearings were not necessarily considered as mutually exclusive as some critics of the GSC had suggested. Perhaps there was an expectation that a more concerted focus on supporting Canada’s mining industry could
co-exist with the Survey’s commitment to inventory science—a rapprochement that Selwyn had both endorsed and legitimized in the wake of the hearings by establishing a distinct Section of Mines within the GSC.

What is most significant about the Survey’s capacity to resist some of the Committee’s most fundamental recommendations is the light it sheds on the relationship of the GSC to the Canadian State. The Survey’s continued commitment to extensive reconnaissance surveying in the wake of considerable criticism supports Bruce Braun’s argument that the GSC was not merely a scientific instrument wielded by an external and coherent Canadian State to advance its political and economic interests.195 In fact, the very notion of a bounded, coherent state that somehow stands apart from agencies such as the GSC is problematic. According to sociologist Michael Mann, the modern states that began to develop in the eighteenth century and that persist today are sprawling, multifaceted entities largely lacking internal unity and consistency.196 Bob Jessop also argues that “effectively functioning states are emergent, tendential phenomena.” It is unsatisfactory to consider the state a “unified, unitary, coherent ensemble or agency. Instead, the boundaries of the state and its relative unity as an ensemble or agency would be contingent.”197 Similarly, Michel Foucault felt that “the state is no more than a composite reality and a mythicized abstraction, whose importance is a lot more limited than many of us think.”198 Foucault’s theory of ‘governmentality’ posits the ‘state’ as “a contingent social construct, an ‘effect’ lacking internal unity, clear boundaries separating

it from its context, or autonomous causal powers.” Understanding this lack of internal coherence is fundamental to understanding the nature of state power, Jessop suggests:

> There is never a point when the state is finally built within a given territory and thereafter operates, so to speak, on automatic pilot according to its own definite, fixed, inevitable laws….Whether, how and to what extent one can talk in definite terms about the state actually depends on the contingent and provisional outcome of struggles to realize more or less specific ‘state projects.’ For, whatever constitutions might declare about the unity and sovereignty of the modern state as a juridical subject, there are often several rival ‘states’ competing for temporary and local hegemony within a given national territory….These reflections suggest that state actions should not be attributed to the state as an originating subject but should be understood as the emergent, unintended and complex resultant of what rival ‘states within a state’ have done or are doing on a complex strategic terrain.

The ‘state’ is characterized by internal struggles amongst competing agencies, each looking to secure the material means and political authority to advance particular projects on behalf of the state as a whole. Jessop continues his argument by claiming that “as an institutional ensemble the state does not (and cannot) exercise power: it is not a real subject.” Instead, he continues, “its powers (in the plural) are activated through the agency of definite political forces in specific conjunctures. It is not the state which acts: it is always specific sets of politicians and state officials located in specific parts of the state system. It is they who activate specific powers and state capacities inscribed in particular institutions and agencies.”

When viewed in this way, the role that the GSC played in relation to the Canadian State in the late nineteenth century becomes clearer: rather than serving as an instrument, external to and wielded by, a clearly-bounded and internally-cohesive Canadian State, the

---

199 Ibid.
200 Jessop, State Theory, 9.
Survey was instead one of Jessop’s ‘competing agencies’ that jostled for power within the loose ‘institutional ensemble’ that might be labelled the Canadian State. In this context, it is apparent that the 1884 Committee hearings constituted a moment of significant political struggle between different factions of the state. Those critical of the Survey recognized that the Dominion’s pre-eminent scientific institution could act as a powerful vehicle for undertaking the particular ‘state project’ of advancing the country’s mining industry. For this to happen, the Survey’s ongoing ‘state project’ of exploring the country’s vast territory and inventorying the full spectrum of its natural resources would have to be shelved. Through these hearings a particular set of state officials (certain politicians, acting on behalf of the country’s mining interests) attempted to wrest administrative control of an important government agency from the state officials (Selwyn and his subordinates) who managed it. Their failure to do so indicates that Survey officials had established a considerable degree of political power within the nebulous entity that was the nineteenth-century Canadian State.

What this meant in practice was that the Survey had considerable autonomy to pursue its scientific programs—both before and after the 1884 Committee hearings. The Survey’s work in making the lands, resources and peoples of the Canadian West legible was not the inevitable outcome of any coherent and coordinated colonizing strategy devised by the Canadian State and systematically executed by the various subordinate agencies at its command. Rather, the Survey pursued its reconnaissance survey program largely of its own accord, while perpetually defending and justifying its actions to the parliamentarians who meted out vital funding from the public purse but who struggled to evaluate the myriad competing claims for support generated within the ever-shifting
amalgam that was the state. Hampered by considerable material constraints in undertaking the work and beset by vocal opposition concerning the practical value of the work, it would have been easy for Survey officials to heed the advice of critics and suspend the western reconnaissance surveys in this period. The fact that this work continued speaks volumes about the motivations of those who ventured west. The Survey’s work in the Canadian West is worthy of careful study precisely because there was nothing inevitable about the ways in which it contributed to the making of settler space in these vast regions.

Conclusion

I have devoted considerable space in this chapter to the 1884 hearings of the Select Committee on Geological Surveys because I think they reveal something very important about the Geological Survey of Canada and its contributions to making settler space in the Canadian West in the late nineteenth century. The hearings demonstrated that the Survey’s work in the years following Confederation was not universally endorsed by parliamentarians, the Canadian mining industry or indeed by a number of fellow scientists. These critics expressed considerable concern that the Survey was not focusing enough attention on ‘practical’ work more in keeping with their understanding of a government-funded geological survey. This meant that the Survey was not doing enough to aid the country’s emerging mining industry because it was not concentrating on locating and assessing new deposits of economically-viable minerals or conducting thorough analyses of known mining districts, nor was it preparing detailed reports on the operations of existing mines. Instead, these critics felt that the Survey was focusing too
much time, energy and too many resources on extensive reconnaissance surveying—both topographic and geological—as well as on ‘purely’ scientific pursuits of little practical value, including research into natural history and ethnography. Many of these grievances had been aired on other occasions and in other fora down the years but their vociferous and concerted expression at the 1884 hearings provide the clearest indication that all was not well between the Survey and those to whom they had to report.

The hearings also illustrated that Survey officials had a very different understanding than their critics of what constituted ‘practical’ science in service to the Canadian public. For Director Alfred Selwyn and many of his senior employees, the GSC’s extensive reconnaissance surveying, its efforts to map the topography and geological structure of all regions of the Dominion, and its commitment to amassing a detailed inventory of the Nation’s storehouse of natural resources was practical science in its most fundamental form. What could be more important to the progress of the Dominion—to the ongoing efforts to settle its most salubrious regions and extract the resource wealth contained therein—than a systematic survey of its vast territory? The debate between government scientists and legislators over what counted as ‘practical’ science worthy of public funding was enacted throughout Western Europe and North America in the nineteenth century. The 1884 hearings offer an important glimpse into the Canadian iteration of this discussion and allow us a much clearer understanding of the Survey’s commitment to making settler space in the Canadian West.

Finally, the 1884 hearings revealed important dimensions of the Survey’s relationship with the Canadian State in the late nineteenth century. With so much testimony focused on the perceived shortcomings of the Survey and with a final report
that made several recommendations for significant reform of its structure and purpose, one might expect a radical restructuring of the Survey’s operations and administration in 1884. Instead, Survey business continued much as it had for the preceding decade and a half: Selwyn and his senior staff remained in their posts, reconnaissance surveys of Western territories continued unabated and research into areas deemed too ‘purely scientific’ by many critics remained an integral part of the Survey’s work after 1884. Apart from creating a new Section of Mines and promising to publish Survey reports in a more timely fashion, Selwyn did little to bring the GSC more in line with the vision set out by the Committee’s report. This demonstrates the significant power Selwyn and his subordinates had to shape the scope and direction of the Survey—even in the face of overt pressure to reform from a Canadian Parliamentary Committee. This reveals that the Survey was internal to the Canadian State—one of the ‘competing agencies’ that struggled to realize its own ‘state project’ amid the myriad other agencies, institutions and individuals that comprised the fragmented and often factious ‘institutional ensemble’ that was the nineteenth-century Canadian State. That the Survey had the power to protect and persist with its project of extensive reconnaissance surveying was essential to the making of settler space in the Canadian West. Without such power, surveying the Western territories would have been significantly delayed and the colonization of this vast proportion of the Dominion would have had a very different complexion.

Armed with a greater understanding of what motivated Survey officials to pursue a program of extensive reconnaissance surveying in the Canadian West in the late nineteenth century, we can better appreciate the manner in which such surveys were carried out, as well as the practical and symbolic contributions they made to Canadian
nation-building. My focus for the next chapter and those that follow will be on the work of George Dawson—perhaps the most eloquent champion of the Survey’s practical contributions to the Dominion during the 1884 hearings and certainly the Survey official who did the most to publicize and justify the practical significance of GSC reconnaissance surveys in subsequent years. More importantly, Dawson’s own field work in the Canadian West exemplified the Survey’s efforts to secure epistemological dominion over these remote lands and, thus, provide a vital first step toward transforming these lands into settler space. In the next chapter I will examine the ways in which Dawson carried out his reconnaissance surveys in the remote and threatening landscapes of the West in order to better understand how the lands, resources and peoples in the distant margins of the Dominion were made legible—and thus governable—for the first time.
Chapter 3

The Challenges of Reconnaissance Surveying

Introduction

“This Northern Coast is so much further off in reality, when one comes to travel to it by the slow means which exist, than it appears on the Map.”¹ With this casual remark—penned to his mother from the coastal outpost of Bella Bella, British Columbia in early June of 1878—George Dawson encapsulated the enormity of his appointed task in the Canadian West.² In order for others to vicariously traverse these vast and remote territories on the maps he would ultimately produce, Dawson would first need to endure the hardships of exploration on the ground. As we saw in the last chapter, Dawson considered reconnaissance surveying in such regions as vital work in the service of the Nation because it allowed him to “lay bare to inspection and open to exploitation” the resource riches that he and many others presumed existed in Canada’s new territories. Yet, carrying out these important surveys was never easy. These lands were inaccessible in ways that took all of Dawson’s guile and determination to render even partially legible. Each season, he had to endure long and tiresome journeys, myriad delays, changeable weather, meager rations and substantial hazards on behalf of his fellow citizens. He did so to determine whether it was worthwhile for others to follow in his footsteps and he

² In this instance Dawson was en route to the Queen Charlotte Islands to carry out one of the most important reconnaissance surveys of his brief but celebrated field career but his remarks would apply equally well to most of the remote and poorly-known regions of Western Canada he explored in the course of his career with the GSC. For more on Dawson’s work on the Queen Charlotte Islands, see Chapters 4 and 6.
used his hard-won knowledge to plot new and significantly more detailed maps of these far-flung territories, drawing them further into the administrative orbit of the Dominion and revealing their potential as settler space.

Recent studies have demonstrated how important it is to examine the various obstacles, struggles and torments that plagued colonial field work in this period—not as an apology for the explorers who brought distant lands and peoples within the often destructive reach of the colonial metropole but to demonstrate that the process of establishing colonial power was never as inevitable, as systematic, or as totalizing as the resulting maps and texts might lead us to believe. In other words, by examining the quotidian struggles associated with colonial field work, we are better equipped to understand just how imaginative the maps and reports that constituted Clayton’s ‘imaginative geographies’ of colonialism could truly be. Dawson was well aware of how his scientifically-disciplined ‘imagination’ would come to transform varied fragments of knowledge into seemingly complete, precise and coherent representations of vast and complex territories. In the course of his western field work he was forced to trace

---

3 As I noted in the dissertation’s introduction, the best examples of such work are Paul Carter, The Road to Botany Bay: An Exploration of Landscape and History (Chicago: The University of Chicago Press, 1987); Simon Ryan, The Cartographic Eye: How Explorers Saw Australia (Cambridge: Cambridge University Press, 1996); D. Graham Burnett, Masters of All They Surveyed: Exploration, Geography, and a British El Dorado (Chicago: The University of Chicago Press, 2000); and Raymond Craib, Cartographic Mexico: A History of State Fixations and Fugitive Landscapes (Durham: Duke University Press, 2004). It should be noted, however, that while such literature places a significant emphasis on the embodied nature of colonial fieldwork, I will not focus on Dawson’s physical limitations in the course of this discussion. This is not because I think that such limitations were irrelevant to Dawson’s field work but because Dawson makes no reference to them in any of his field journals or published work. In addition, I have found no reference to them in the notebooks of any of his assistants nor in the writings of any of his colleagues. On occasion, Dawson’s parents expressed a passing concern for their son’s health in their correspondence but such comments were hardly remarkable. In short, the historical record does not permit me to do more than speculate on how Dawson coped with strenuous field work.

4 Clayton’s assertion about the role ‘imaginative geographies’ played in anticipating and facilitating colonialism on the ground is also discussed more fully in the dissertation’s introduction. See Daniel Clayton, Islands of Truth: The Imperial Fashioning of Vancouver Island, (Vancouver: The University of British Columbia Press, 2000), 166.
circumscribed circuits through vast territories, to employ imprecise and subjective survey techniques and to supplement his own observations with idiosyncratic and potentially incompatible information provided by a network of assistants and informants. Such circumstances ensured that Dawson’s imaginative geographies of the West were cruder than he would have wished—an important fact to bear in mind as we examine the aura of scientific authority exuded by his reports and maps in subsequent chapters.

The Obstacles Hindering Dawson’s Reconnaissance Surveying

(i) Covering the Ground

In organizing his reconnaissance survey each season there is considerable evidence to suggest that Dawson conceptualized his ‘field’ as a vast block of *terra incognita* to be inscribed with topographical, geological, natural historical and ethnographical detail. During one of his early reconnaissances of central British Columbia, for instance, he spent the night at Fort St. James on Stuart Lake. From the Hudson Bay Company traders posted there, he “got many interesting & important items, & with their help sketched out a route by which in future year may Cover an immense block of country to the north, easily & cheaply, using for most part regular lines of travel, & H. B. conveyances.”⁵ This focus on blocks of territory was part of the cartographic imagination that animated the geological thinking of the day.⁶ The work of the field geologist, Dawson intimated on many occasions, was to fill in the blank spaces on the map of Canada—proceeding block by block until the various lacunae had been replaced by reasonably robust delineations of

---

both the surface topography and the underlying rock structure.\textsuperscript{7} In practice, this meant that he was very careful to connect his blocks to those that had already been filled in by his colleagues, as an 1877 comment suggests: “[my plan is to] cover as well as possible the yet unexamined Portion of the block of Country to the South [of Kamloops, BC], finishing about Clinton & Marble Cañon by tying in on Mr. Richardson’s work of 1871.”\textsuperscript{8} Reconnaissance surveying, then, was designed to offer an efficient yet reasonably comprehensive exploration of a pre-defined block of territory, resulting in a report and, especially, a geological map that would help fill in the larger map of Canada.

Standing between Dawson and a comprehensive survey of his chosen field each season were three significant obstacles: time, terrain and top soil. Time was a significant limiting factor for Dawson because each summer he had to survey an extensive district over the course of a relatively short field season. In 1877, for instance, Dawson targeted a region in southern BC that encompassed 29,000 square kilometres of mountains, plateaus and valleys.\textsuperscript{9} In 1881 Dawson’s work in the Alberta and Assiniboia Districts of the North-West Territories encompassed a field covering just short of 43,500 square

\textsuperscript{7} This was the main theme of Dawson’s 1890 address to the Ottawa Field Naturalist’s Society (see Introduction) and the text of his address even included reference to a map of Canada that he evidently displayed for his audience and referred to over the course of his talk, highlighting regions of the Dominion where scientific exploration had not yet been undertaken in any significant degree. See George Dawson, “On Some of the Larger Unexplored Regions of Canada,” \textit{Ottawa Naturalist} 4 (1890): 29-40, esp. 29.

\textsuperscript{8} George Dawson to John William Dawson, August 23, 1877, quoted in Cole and Lockner, \textit{The Journals of George M. Dawson}, I: 379. James Richardson had done some preliminary reconnaissance surveying for the GSC in British Columbia during the early part of the 1870s. His lack of formal geological training meant that Dawson occasionally had to refine his work but, as this comment suggests, Dawson generally respected what Richardson had accomplished and looked to reconcile his own surveys with Richardson’s wherever possible.

kilometres.\textsuperscript{10} Both of these regions were dwarfed by Dawson’s selected field in 1887, where an ambitious effort to work up a preliminary picture of the wilds of northern BC and the southern Yukon District led Dawson to trace a route that, by his own estimation, circumscribed a territory of more than 100,000 square kilometres.\textsuperscript{11} Even relatively small areas could impose significant time constraints on Dawson if the landscapes were sufficiently complex. Indeed, while the areal extent of the Queen Charlotte Islands is less than 6,500 square kilometres, Dawson still had difficulty completing his exploration of the archipelago in 1878 because surveying the complex coastlines of the eastern shore occupied a great deal of time.\textsuperscript{12} Such time pressures were aggravated by the time it took to get into the field at the start of each season. Before the completion of the Canadian Pacific Railway in 1885, Dawson faced a long and frequently challenging spring journey from Montreal (and later Ottawa) to the areas to be surveyed in the Canadian West. This often meant a lengthy rail journey to San Francisco before boarding ship for Victoria—the principal base for his BC surveys.\textsuperscript{13} Likewise, to reach his intended field of southern Alberta in 1881, Dawson had to travel by steamship up the Missouri River to Benton,

\begin{flushleft}
\textsuperscript{13} The notable exception to this pattern occurred when Dawson spent the winter of 1875-76 in Victoria in order to commence his 1876 field work in east-central BC in a timely fashion. This practice was not repeated, however, as, in subsequent years, professional obligations and personal preference led him to spend his winters at work on his reports and maps in the GSC offices in Montreal. After the Survey was relocated to Ottawa in 1880 Dawson spent his winters in the capital.
\end{flushleft}
Montana before taking the overland trail to Fort Macleod.\textsuperscript{14} As a result, it was unusual for Dawson to arrive at his initial staging area before early May. Once there, Dawson had to hire assistants, get the party provisioned and secure transport to his intended field. These arrangements were rarely made swiftly enough for Dawson’s liking: in 1877 it took him eight days to ready the party for the journey to Kamloops, while the following year he spent two weeks searching for an appropriate sailing vessel to carry the party to the Queen Charlotte Islands.\textsuperscript{15} Once provisioned, the party had to make the journey to the field—an often arduous endeavour that, because of the season, might involve poor weather, indifferent sailing winds, swollen rivers or impassible trails. As a result, Dawson rarely got into the field proper until early June. Once there, he would often carry out his work until the middle of September or, occasionally, early October, depending on weather and other factors, including official obligations elsewhere. Nonetheless, even four full months was hardly sufficient to cover such large swaths of territory. Time restrictions constantly prevented him from carrying out truly comprehensive surveys of these vast western districts.

The challenging terrain Dawson frequently encountered in the course of his field work also made comprehensive surveying very difficult. The heavily forested and quite rugged interiors of Vancouver Island, the Queen Charlotte Islands, central and northern British Columbia and the Yukon District constrained the geographical scope of Dawson’s travel a great deal. In these environs he was often obliged to confine his perambulations to established paths of least resistance: rivers and streams, Native trails, fur trader/miner’s routes and the corridors blazed by CPR surveyors in search of the most viable route to the

\textsuperscript{14} Fortunately for Dawson, the section of the CPR that traversed the Canadian Prairies had been completed and made operational by the time he conducted further surveys in the region in 1883 and 1884.

coast. Dawson noted this challenge in an 1875 letter to his sister, to whom he described the country west of the Fraser River, in the vicinity of Blackwater Depot: “Through & over & among all these varieties of country, the little paths they Call trails here, wind & twist seeking for lines of least resistance, or following the track by which the first indian originally scrambled across the country.”¹⁶ These restrictions to travel were undoubtedly a frustration to Dawson. Nonetheless, he made light of hardships by likening the dense tangle of fallen timber that blanketed much of central BC to a “gigantic game of spillicans,” where “if one was to go to Ft George & begin shaking the pile, sticks would be Seen moving down at New Westminster on the Frazer [sic]!”¹⁷

Such rugged terrain often proved a double hindrance for Dawson because dense forest cover obscured rock outcroppings and prevented him from finding features of geological interest near the trail. Instead, to his torment, the only exposed rock seemed to exist high in the surrounding mountains, where precipitous heights and the intervening barrier of tangled forest rendered them inaccessible. As Dawson explained in an 1875 letter to his father at the end of a particularly vexing day: “So far I have not met with anything of great geological interest by the way, the country being where one would most wish to see something of the rocks, thickly timbered….There is a magnificent Section in the Mountains on this side of the lake of Several thousand feet of Conformable strata, to which the fossil-bearing beds belong, but a measurement of it would require at least a weeks mountain climbing which I cannot afford.”¹⁸ Such difficult terrain imposed significant limits on Dawson’s ability to intensively survey the topography and geology

¹⁶ George Dawson to Anna Dawson, October 3, 1875, quoted in Cole and Lockner, The Journals of George M. Dawson, I: 93.
¹⁷ Ibid.
¹⁸ George Dawson to John William Dawson, September 5, 1875, quoted in Ibid, I: 82. The lake in question is Lake Tatlayoco, situated high in the Coast Mountains northeast of Bute Inlet.
of several of his chosen districts, particularly in British Columbia. With his travel
confined to narrow corridors through the wilderness and scientific investigation limited to
the natural features found in the immediate vicinity of the trail or river course, Dawson’s
surveys were undoubtedly far more rudimentary than he wished them to be.

Yet, even in prairie regions free of dense timber stands and rugged topography,
Dawson was still compelled to follow a few select trails and, especially, the sinuous
courses of the region’s major rivers. In these landscapes the obstacle was not impassible
terrain but the obfuscating character of top soil—or, more accurately, glacial drift. This
challenge was greatest in the grasslands of southern Alberta, which Dawson surveyed in
1881 and again in 1883. In this undulating country, the bedrock that most interested
Dawson had been overlain by many feet of sand, gravel and coarse stones deposited as
part of the cyclical advance and retreat of the glaciers during the Quaternary Period. As a
geologist, Dawson needed to locate and analyze as many sites of exposed bedrock as
possible in the course of a season. Such analyses were necessary, not only to assess the
composition and structural relations of the bedrock at particular localities, but also to
make inferences about the thickness and geographic extent of the rock formations
underlying the entire region. Without this larger picture the broader geological structure
of the region could not be established and, perhaps more importantly, the economic
minerals—coal in particular—associated with certain rock formations could not be
efficiently located and exploited.\(^9\) With so much soil sitting atop the bedrock on the
Prairies, rock exposures were scarce and Dawson’s challenges were multiplied.

\(^9\) As Martin Rudwick illustrates, mineralogy’s transformation into the spatial science of geology, which
dated at least to the late 18\(^{th}\) century, was fueled by the understanding that economically-valuable minerals
could be correlated to particular rock formations, which Rudwick defines as “an assemblage of broadly
similar rocks, separated more or less sharply from the adjacent formations” (p. 274) By using a series of
Rivers offered Dawson his best hope of examining rock formations hidden beneath the rolling prairie landscape. Over the course of several millennia, the region’s rivers had transported vast volumes of water from the slopes of the Rockies to the distant basin of Hudson Bay.\(^20\) Especially when swollen by spring melt-water from high in the mountains, the erosive power of these rivers was significant and they had carved through the overlying glacial deposits and into the bedrock below over time. Dawson found in the banks of these rivers the exposed rocks that his work required. Indeed, a number of the larger rivers had created substantial escarpments of rock, in places dozens of feet high, offering him an invaluable glimpse at the vertical arrangement of the various rock strata underlying the southern prairies. At each of these localities, Dawson would carefully diagram the ‘rock column’ in his field notes to correlate these strata to those exposed in the banks of other rivers in the region. As a result, Dawson’s Alberta field seasons were largely spent on the water, seeking out the rock exposures that would permit him to generate a picture of the subsurface stratigraphy undergirding this corner of the prairies.

While the foothills and prairies of southern Alberta were well dissected by rivers, there were still vast areas of intervening land where little in the way of exposed rock was available for analysis. To create a reasonably credible map of the region’s rock formations, Dawson recognized that he would need to find ways of discerning the exposed rock outcroppings to sort out the three-dimensional spatial relationships of a region’s rock formations, geologists could develop an impression of the subsurface structure of the entire region’s geology and thus predict where more mineral wealth might be found. The geological work of using rock outcrops to establish a region’s (or, at a broader scale, the earth’s) vertical sequence of rock formations was known as stratigraphy, a name derived from stratum (plural strata)—the individual, horizontal rock beds or layers found in sedimentary rock formations. See Martin J. S. Rudwick, “Minerals, Strata and Fossils” in *Cultures of Natural History*, ed. Nicholas Jardine, James A. Secord and Emma C. Spary (Cambridge: Cambridge University Press, 1996), 266-286, esp. 272-279.

\(^{20}\) The only exception to this drainage pattern in this region is the Milk River, which originates in Montana’s Rocky Mountains but travels through southern Alberta for several kilometers before crossing back into Montana. Water carried by the Milk River eventually discharges into the Gulf of Mexico, having helped constitute first the Missouri and then the Mississippi River in the course of its journey south.
underlying rock structure for at least a few readily-identifiable localities at some distance from the nearest river bank. When climbing out of the river valleys and up onto the rolling prairies in search of evidence, geologists had to get more creative with their methods—as Dawson’s assistant, R.G. McConnell, revealed in his 1884 field notebook: “As far as I could make out by the barometer the tops of the hills are high enough to carry Miocene [rock] but I do not think that they do from the fact of the absence of Miocene material in the earth brought up by burrowing animals.”

This is a revealing comment in two regards. First, it suggested McConnell’s desperation for geological evidence on the open prairie if he was prepared to examine prairie dog burrows for excavated traces of bedrock. More significantly, however, his work with the barometer shows how scientifically-grounded conjecture played an important role in filling in the gaps on surveyors’ maps. The hills to which McConnell referred lay south of Swift Current, Saskatchewan not far from the Cypress Hills where, the year before, he and Dawson had found exposed rocks dating to the relatively recent Miocene Epoch. Using a barometer, they had noted the altitude (height above sea level) of these Miocene beds. This was a useful measure because of the geological principle of superposition, which suggests that undisturbed sedimentary rock (like that found in the southern prairies) is deposited sequentially, with older rock overlain by newer rock. Given this principle, Dawson and McConnell expected that the youngest rock strata exposed in the sedimentary basin of the prairies would most likely be found at the highest elevations and their discovery in the Cypress Hills bore out this hypothesis. Armed with this knowledge, they could correlate

21 See Geological Field Notebooks of Richard George McConnell (and Assistants), 1883-1894, Library and Archives Canada, Record Group 45, Vol. 163, Notebook 3307 (1884), p. 57A.
the known altitude of the Cypress Hills Miocene beds with those measured for hills with no exposed bedrock—such as those McConnell was examining in 1884—to deduce whether any Miocene strata were likely to be embedded therein. In this way, the undulating prairie topography could be measured and analyzed to predict what formations lay beneath the prairie soil. Yet, while such invention could be applied to the region’s few prominent hills, the majority of the region’s lower-lying, topographically-undifferentiated prairie was resistant to Dawson’s geological gaze.

Thus, despite Dawson’s ability to move freely over the relatively flat and barren landscape of southern Alberta, this region failed to manifest the rock exposures that he needed to conduct his work effectively. As with the BC interior, where rock outcrops were often hidden within tangled and impassable tracts of dense forest, the thickly-blanketed drift landscapes of the western Prairies served to circumscribe Dawson’s routes through the region. The result, once again, was a survey that was far from comprehensive in its geographic scope.

With so much ground to cover in so limited a period of time and with both difficult terrain and the paucity of exposed bedrock constraining his movements through his designated field area, Dawson had little choice but to remain in perpetual motion during the course of each field season—tracing and, frequently, re-tracing circumscribed circuits through the region. Dawson’s aim was to produce as comprehensive a picture as possible of the targeted block of territory and this required that he sacrifice the detailed

---

23 This tactic required that the field geologist first work out the stratigraphical column for the region—the vertical arrangement by which the region’s rock formations were stacked one on top of another—and identify the index beds that marked the transition from one rock formation to another. Such knowledge was often worked out by examining the rock exposures in the region’s river banks and using the fossils embedded within to identify and date the exposed formations. See Rudwick, “Emergence of a Visual Language,” 164-171.
examination of particular localities—including places of significant geological or economic interest—to keep moving. As his field notes indicate, Dawson’s circuits were, in large part, determined before he commenced the season’s work and were frequently based on knowledge of the region gleaned from existing maps, as well as from informants who had first-hand experience exploring these landscapes. Yet, these routes were also provisional and Dawson was prepared to modify them if it was possible to “cover the ground better.” Despite Dawson’s careful preparations, however, he only ever managed to pass through narrow ribbons of territory each season (see Figure 3.1). As a result, Dawson was obliged to employ a significant amount of speculation and conjecture in describing and mapping the topography and especially the geology of the lands well off the beaten path. While Dawson’s resulting reports and maps may have given the impression of a comprehensive survey of an entire ‘block’ of territory, Dawson’s circuits only permitted him to develop reliable knowledge of the routes traveled.

(ii) The Benefits and Drawbacks of the Traverse Survey

Dawson’s need to cover extensive ground quickly and efficiently each season determined the survey method he employed to explore the Canadian West. The ‘track’ or ‘traverse’ survey was ideal for reconnaissance surveying because, as Graham Burnett asserts, “traverses [were] the only possible surveying style for explorers expected to

---

24 As I have already mentioned above, for instance, Dawson’s conversations with the Hudson Bay Company traders at Fort St. James in 1876 had helped him develop a circuit for exploring the rugged lands of central BC in the vicinity of Lake Babine (an exploration that he never carried out). As we will see below, Dawson relied on a Hudson Bay Company map to guide him to the portage route linking Lake Frances and the Pelly River during his 1887 exploration of northern BC and the southern Yukon District.

Figure 3.1
George Dawson’s routes in Southern British Columbia (1877) and Southern Alberta (1881). Note the relationship between Dawson’s routes and the territory encompassed by his published maps of each region (outlined in grey). Prepared by Jennifer Grek Martin.
cover large areas with a minimum of institutional support.”26 Traverse surveys were built for rapid reconnaissance because they relied on only a few basic, durable and easily transportable instruments, rather than the heavy chains, cumbersome plane tables and sensitive theodolites required by other, more exacting, survey methods.27 Moreover, with minimal equipment and straightforward measurement techniques, traverse surveying required very little in the way of personnel; indeed, even a solitary surveyor could produce a reasonably credible depiction of the land explored by using traverse survey techniques. Not surprisingly, this approach had its roots in eighteenth-century military tradition because it permitted an army’s scouts to make “a brisk incursion into alien territory to grasp the essential features of unfamiliar terrain” in preparation for battle.28 This military connection persisted into the nineteenth century, but with a broader application to colonial administration and national statecraft. Napoleon’s armies, for instance, employed traverse surveys to scout the Egyptian desert at the turn of the nineteenth century and, in 1877, the Mexican military’s Comisión Geográfico-Exploradora commenced a series of traverse surveys with the aim of creating a master map of the Mexican territory on a scale of 1:100,000.29 As such, traverse surveying had an established reputation and a host of attributes that made it the most suitable method for Dawson’s western reconnaissance.

26 Burnett, Masters of All They Surveyed, 86.
27 Ibid, 87. For a similar point and for a comparison of the traverse survey to the much more elaborate process of triangulation (trigonometrical surveying), see Matthew H. Edney, Mapping An Empire: The Geographical Construction of British India, 1765-1843 (Chicago: The University of Chicago Press, 1997), 92.
28 Burnett, Masters of All They Surveyed, 87.
Traverse surveying allowed for the rapid reconnaissance of a territory because it only required the surveyor to establish the precise location of a relatively few fixed points over the course of the journey. To fix the geographic position of a particular location, a reliable watch was used to measure local time and a sextant, telescope or other lightweight optical device was used to measure the angle of the noon-day sun above the horizon as well as the angle of Polaris or other navigation stars at recorded times in the evening. Based on these measurements, surveyors could determine the latitude and longitude of their stopping points for the noon meal and for camp in the evening. Yet, as Burnett points out, making the effort to calculate the latitude and longitude of particular locations was worthless unless such points could be identified on both the map and the ground.\textsuperscript{30} As such, explorers who wished to avoid spending a good deal of time constructing durable location markers at survey sites were obliged to stop at recognizable landmarks each day. This was not always an easy task for surveyors, like Dawson, who spent much of their time traversing dense forests or rolling prairies. Over the course of the exploration, the surveyor would build up a network of astronomically-determined locations that would become the control points for an eventual topographic map of the region. In order to tie other portions of the territory into this network, the explorer employed ‘dead’ (deduced) reckoning to measure a series of straight line segments that collectively comprised his route through the territory, from control point to control point.\textsuperscript{31} The direction or bearing of each line segment was measured by compass, while the distance covered was determined by estimating the time of travel along a particular bearing, based on an assumed speed. Alternatively, distances were measured using an

\textsuperscript{30} Burnett, \textit{Masters of All They Surveyed}, 111.

\textsuperscript{31} Ibid, 86.
odometer/perambulator, which was simply a wheel of known circumference with a counter that measured the number of revolutions made in the course of a journey. These distance and direction measurements were carefully recorded in parallel columns in the explorer’s field notebook, providing a running record of each line segment traveled in the course of the journey. Prominent landmarks that lay at a distance from the route of travel could also be incorporated into the measured space of the traverse survey. Usually, the surveyor took two compass bearings on the landmark from different positions along the route, allowing him to mathematically derive both the object’s distance from, and its position relative to, the trail or river that was being followed. These landmarks were then carefully rendered—in profile or plan view—in the explorer’s notebook, placed in their correct position to either side of the data columns. In this way, the surveyor’s field notebooks took on a hybrid form that combined tables of distance and direction data with preliminary topographic sketches of the landscape. At the end of the season, these notebooks would be worked up into long, linear maps of the traveled routes that, in turn, would be combined to form the basis of a topographical—and, in Dawson’s case, geological—map of the district surveyed.

As ideal as the traverse survey was for Dawson’s reconnaissance objectives, however, there were a whole host of shortcomings that made this technique far from reliable. One of the most fundamental problems facing the traverse surveyor was to

---

32 Edney, *Mapping an Empire*, 92. The perambulator was often attached to a horse-drawn cart but could also be attached to a handle for surveying on foot. Perambulators were obviously not applicable for journeys by water, so Dawson relied on estimates of distance when traversing rivers, lakes and coastlines.

33 Ibid.

34 Sketches of the landmarks were placed in either the right or left margins of the notebook to indicate where they lay relative to the trail or river followed. In effect, then, the parallel data columns in the centre of the notebook pages became the cartographic signifier of the trail or river itself in these notebooks. Many of Dawson’s official field notebooks housed in Record Group 45 at Library and Archives Canada employ this format and appear as linear, proto-topographic maps of the route he followed.
correctly determine the geographical position of their location using astronomical measurements. As Burnett reminds us, “the value of traverse surveys hung on the precision, accuracy, and number of their fixed points” but such precision was difficult to achieve.\(^{35}\) For one, they relied on the proper functioning of both the watch and the optical device if accurate celestial measurements were to be obtained. Yet, the hardships of the journey occasionally took their toll on these instruments, reducing their reliability. Indeed, numerous entries in Dawson’s field notebooks describe his attempts to keep these vital aids in working order.\(^{36}\) Yet, even when these instruments were working properly, surveyors often encountered another persistent obstacle to accurate astronomical measurements: poor weather. One particular notebook entry in September of 1877 reveals how exasperating this problem could be for Dawson: “Got instrument out after dark, much against my will, as it was cold & disagreeable. Found myself a little too late for meridian of Altair. Turned the horizon to Polaris, & it immediately clouded over, same thing occurring afterwards with two other stars. Finally took Mars for time, & hope to be able to work out lat. by some process from obsns.”\(^{37}\) With equipment malfunctions and poor weather to constantly contend with, traverse surveyors like Dawson found it challenging to carry out the basic celestial measurements required to establish the survey’s control points. This was no small matter, of course—a lack of confidence in these control points could cast doubt over the reliability of the entire survey.

The accurate dead reckoning of bearing and distance over the course of a journey also proved to be a significant challenge for explorers such as Dawson. As with the

---

\(^{35}\) Burnett, *Masters of All They Surveyed*, 91.

\(^{36}\) See, for example, Dawson’s field notebook entries for June 7, 1877 and July 8, 1877 in Cole and Lockner, *The Journals of George M. Dawson*, II: 319 and 346.

\(^{37}\) Entry for September 20, 1877 in Ibid, II: 403.
sextant for celestial measurements, the surveyor’s determinations of bearing depended upon a reliable compass. These instruments, however, did not always stand up well to the vicissitudes of travel and they were susceptible to local deviations in the magnetic field. Moreover, compass measurements were relative to magnetic north and these readings had to be converted to bearings relative to true north for the purposes of the survey—a calculation that introduced a potential for human error. An additional source of potential error came when surveyors tried to determine their bearing. As we have seen, the surveyor attempted to break down his route each day into a series of straight line segments, for which bearings and distances were measured. Yet, trails and rivers rarely made sharp, angular turns, leaving it very much up to the discretion of the surveyor to decide where one segment ended and the next began. As Matthew Edney notes: “…each segment will come to an end, and the next segment will start, only when the surveyor’s sense of direction and his experiential sense of place tell him that the road has changed….no matter how accurately and precisely the world’s structure is measured, that structure is created through the surveyor’s and geographer’s experiential perception.” These somewhat arbitrary determinations for the traversed line segments introduced further subjectivity into the surveying process and enhanced the possibility for error when it came time to construct maps based on the recorded bearings. This was an issue of which Dawson was well aware and one which he addressed numerous times in his

---

38 Edney, *Mapping an Empire*, 94.
39 Ibid, 95-96.
Measuring the distances traveled along each of the route’s line segments proved as problematic for surveyors as determining bearings. The method of estimating distance traveled based on elapsed travel time was another inherently subjective calculation. If the surveyor’s pocket watch was in good working order, time could be measured with reasonable accuracy. The challenge was to determine the rate of travel, the crucial measurement that allowed elapsed time to be converted into distance covered. Much depended on the mode of travel, the means of conveyance, the load carried and the character of the route traversed. Moreover, the rate of travel would be far from constant, even along particular line segments, as obstacles arose, conditions changed or points of interest beckoned. How did the explorer account for all of these variables in assessing his speed of travel over the course of the day? Nor did perambulators solve the problem of determining distance covered. Such devices measured every subtle bump or twist taken on the trail, as well as the rise and fall of hills rather than the horizontal, straight-line distances that surveyors needed for their maps. As a result, perambulators significantly inflated the figures for distances traveled, requiring the surveyor to compensate in some capacity. According to Edney, most corrections were arbitrary rather than systematic, with some surveyors reducing the recorded distance of the line segment by some standard amount—such as 1/10th or 1/7th—depending on personal preference and the nature of the

40 See Dawson’s entry for June 24, 1876 in G. M. Dawson, Geological Field Notebooks, 1875-1900, Library and Archives Canada, Record Group 45, (Microfilm Reel C-4842) Vol. 134, Notebook 2793 (1876), p. 50.
41 Edney, Mapping an Empire, 94.
terrain passed over.\footnote{Ibid.} Developing quantifiable error corrections was part of the empiricism of the traverse survey and had been since the end of the 18\textsuperscript{th} century, when elaborate systems were first devised to address the errors inherent to this survey technique. Dawson’s field notes reflect this, with repeated allusions to the “index errors” he had calculated for his various instruments and with comments that revealed his method for reducing his odometer’s inflated readings: “Waggon wheel previously measured (396 rev.=1 mile). Note: This odom. Traverse over level prairie is very correct and straight….May take off $\frac{1}{4}$ m for minor bends, certainly not more than $\frac{1}{2}$ m.”\footnote{See Dawson’s entry for September 16, 1881 in G. M. Dawson, Geological Field Notebooks, 1875-1900, Library and Archives Canada, Record Group 45, (Microfilm Reel C-4844) Vol. 134, Notebook 2749 (1881), p. 20.} Yet, such standardized corrections could not possibly address the unique circumstances that gave rise to error in the course of particular surveys and, thus, these ‘solutions’ were as likely to compound problems as to correct them.\footnote{See Edney, \textit{Mapping an Empire}, 95 and Burnett, \textit{Masters of All They Surveyed}, 88.}

It was also difficult for surveyors using traverse surveying to check their work and establish consistency.\footnote{Craib, \textit{Cartographic Mexico}, 143.} Traverse surveyors were often charged with covering vast regions quickly, with minimal assistance and were compelled to keep moving, with few opportunities to linger at one location to verify their measurements and double check their calculations. In order to mitigate the errors associated with hasty surveys, explorers preferred to carry out “many interlocking route surveys controlled by a few astronomical observations.”\footnote{Edney, \textit{Mapping an Empire}, 96.} By tracing routes that crossed paths at various points in the course of a field season, the surveyor could return to particular sites from different orientations in
order to verify the geographic positions of these points of intersection.\textsuperscript{47} Dawson’s circuits, then, were not simply an effort to cover as much territory as possible in the course of a single field season. They were carefully choreographed to allow him to revisit several of his key geographic control points over the course of the summer—giving him additional opportunities to fix their position astronomically and anchor his distance and direction estimations more firmly to the known locations. It is important to note that this strategy was not available to Dawson every field season. His surveys of the Queen Charlotte Islands (1878), the Peace River transect of central British Columbia and Alberta (1879) and his ambitious reconnaissance of northern BC and the southern Yukon district (1887) each followed a linear path that could not fold back upon itself, which might raise questions about the reliability of his surveys in those seasons.\textsuperscript{48}

The reliability of traverse surveys was further compromised because they frequently embodied a number of different survey techniques. Distances might be based on perambulator measurements for one portion of the journey and derived from estimated travel speed for another. Likewise, the latitude of one control point might be based on the sun’s altitude at noon, whereas a second might be derived from the angle of Polaris thrice-measured and a third based on the angle of Arcturus observed once through a break in the clouds. The danger with adopting different techniques during different parts of the

\textsuperscript{47} Burnett, Masters of All They Surveyed, 113.

\textsuperscript{48} As we will see in the next chapter, Dawson spent most of his time surveying the complex eastern coastlines of the Queen Charlotte Islands in 1878, leaving him no opportunity to retrace his footsteps by the time he had reached the archipelago’s northern cape that August. In the following year Dawson re-teamed with the surveyors of the Canadian Pacific Railroad to investigate the viability of running a rail line from Edmonton northwest to the Peace River district, through the Rocky Mountains and across central British Columbia to Prince Rupert. Dawson’s journey that summer began on the Pacific coast and proceeded eastward to the Peace River district in linear fashion. Dawson’s 1887 exploration of northern BC and the Yukon district will be examined in greater detail below. Suffice to say here that the ambitious scale of the exploration combined with the need to complete the survey before winter arrived in these northern environs prevented Dawson from devising a route that would double back upon itself at any point.
journey was that it ensured that maps generated from these traverse surveys were often
derived from different kinds of observations, produced under different conditions and
embodying different degrees of certitude. This could lead to inconsistency, incongruity
or, indeed, incompatibility when it came to reconciling different portions of the surveyed
routes within the framework of the map. A glance at Dawson’s field notebooks, not
surprisingly, reveals this kind of methodological variability in abundance. In one instance
he recorded that he had “made paced survey for some distance, in continuation of
yesterday’s section, then continued on time reckoning.” In another entry, Dawson noted
that he had employed a micrometer telescope to more accurately determine the width of a
lake in central BC: “Set up base for micrometer, run across lake and measure tack; thus
securing a good line transverse to general direction of lake, and fixing several points for
subsequent rough triangulation, for correction of track surveys.” Yet, Dawson had
carried out very little ‘rough triangulation’ during the course of that field season, meaning
that only a small portion of his track survey had been corrected in this manner. As with
most traverse surveyors, Dawson had derived his geographical data using a number of
quite different and potentially incompatible survey methods and this provided another
source of error in his cartographic depictions of the West.

Given all of these factors, it is hard to escape the conclusion that while the traverse
survey offered the explorer a great deal in terms of efficiency, it also cost him a great deal
in terms of reliability. Errors could and did creep into the surveyor’s work at every turn—

49 Burnett, Masters of All They Surveyed, 88.
50 See Dawson’s entry for June 30, 1877 in G. M. Dawson, Geological Field Notebooks, 1875-1900,
Library and Archives Canada, Record Group 45, (Microfilm Reel C-4838) Vol. 134, Notebook 2796
(1877), p. 94.
51 Entry for September 13, 1876 in G. M. Dawson, Geological Field Notebooks, 1875-1900, Library and
errors that could easily compound over the course of a season, as the surveyor found only limited opportunities to double back and verify his work. In this context, the quality of the survey had a great deal to do with the discipline of the surveyor who carried it out. As Burnett argues, the best traverse surveyors approached their task with all the discipline of a career military officer, repeatedly recalibrating their instruments for optimal performance and perpetually sacrificing their personal comfort to conduct the observations, perform the calculations and make the preparations that would ensure that errors were minimized and meaningful results were produced in even the most difficult of conditions.\textsuperscript{52} Dawson embodied this sense of responsibility and his notebooks are replete with entries that evince his discipline and dedication to the work—what amounts to pages and pages of material on recalibrating instruments, performing calculations, braving the elements in order to carry out measurements and determining standard corrections to offset at least the most egregious errors inherent to the traverse. Despite these efforts, the traverse survey was still an inherently subjective undertaking that relied on the inescapably idiosyncratic judgment of the explorer. No matter how much discipline Dawson exercised in the course of his western reconnaissances, the results were never as precise as he would have wished.

\textit{(iii) Relying on Others}

Of course Dawson did not work in isolation. Because he could only cover so much ground in a short season, he relied on one or more assistants to supplement his work and fill in gaps in his knowledge. These assistants were different from the handful of labourers Dawson hired at the start of each summer in places like Victoria. Paddlers, pack

\textsuperscript{52} Burnett, \textit{Masters of All They Surveyed}, 105.
men and cooks were undoubtedly essential components of Dawson’s survey party but they took no part in the scientific work being conducted. In contrast, Dawson’s scientific assistants were intimately involved in the quotidian collecting, measuring, observing and recording practices that collectively constituted the reconnaissance survey. Whether simply aiding Dawson in his measurements and analyses or striking out on their own to explore areas that Dawson could not cover, these men played an important role in making the West legible.

In all but a few seasons, Dawson relied on the services of a single assistant and he had the opportunity to groom several different assistants down the years. Some, like Amos Bowman, had no formal training in the sciences but had gravitated to geology through innate curiosity. Bowman had approached Dawson in Victoria with an offer of assistance at the outset of the 1876 season, having heard that the Survey man was having difficulty assembling a party for the upcoming field season in the interior west of the Fraser River. Dawson took him on and soon came to the conclusion that “[he] is really a very good and enthusiastic geologist, and will be to Some extent a companion.”

Bowman assisted Dawson ably throughout that summer, helping him arrange provisions, blaze trails, collect rock specimens and trace maps from the track survey notebook. Dawson even trusted Bowman to conduct preliminary reconnaissance surveys ahead of the main party in order to provide a sense of the country they were about to encounter.

In later years, as necessity dictated, Dawson occasionally employed other untrained

---

54 Ibid, I: 232 and 270.
assistants—including his teenaged brother, Rankine, in 1878—but none showed the same aptitude for the work that Bowman displayed in 1876.\footnote{Rankine was just 15 years of age when he assisted his brother with his survey of the Queen Charlotte Islands in 1878. In an editorial aside, Cole and Lockner suggest that “the reason for Rankine’s presence is unclear, though the Dawson family probably hoped that a summer season with George would benefit the youth, whose unsteady character was already a problem.” See Cole and Lockner, \textit{The Journals of George M. Dawson}, II: 431. While Rankine’s scientific contribution to the exploration was undoubtedly modest, Dawson did trust his brother enough to send him and a Native guide to investigate a coal seam reported to exist near Masset Inlet, while he focused on conducting the traverse survey of its shores. Rankine was able to determine that the ‘coal’ was, in fact, a form of low-grade lignite. See Ibid, II: 498.}

More frequently, Dawson’s assistants were recent graduates of science programs at the country’s leading universities who had been paired with Dawson to gain experience before taking charge of their own reconnaissance surveys on behalf of the GSC. Some of the Survey’s most talented and celebrated field geologists in the late nineteenth century got their start assisting Dawson. Richard George McConnell, for instance, first went to the field as Dawson’s assistant in 1879, as part of the joint GSC-CPR survey of the Peace River transect. A graduate of McGill University, McConnell assisted Dawson again in 1881 in southern Alberta before taking charge of his own surveys of the southern prairies in the three seasons that followed.\footnote{Morris Zaslow, \textit{Reading the Rocks: The Story of the Geological Survey of Canada, 1842-1972} (Ottawa: The MacMillan Company of Canada in conjunction with the Department of Energy, Mines and Resources and Information Canada, 1975), 114.} McConnell worked with Dawson again in 1887, helping him explore the remote and largely unexplored regions of northern BC before leading his own survey party to the Mackenzie River valley and into the northern portion of the Yukon district. When the Klondike gold rush hit the Yukon District in 1897, McConnell was the Survey geologist dispatched to examine the newly-discovered gold fields. Eventually, McConnell moved through the ranks of the Survey hierarchy and began a six-year stint as the Deputy Minister of the Department of Mines in 1914.\footnote{Ibid, 307.} Some of Dawson’s other assistants also went on to accomplish a great deal on behalf of the
Survey. University of Toronto graduate Joseph B. Tyrrell was first trained in geological fieldwork by Dawson in 1883 and went on to achieve great notoriety for his much publicized reconnaissance surveys of the barren lands west of Hudson Bay between 1892 and 1894. Donaldson B. Dowling, a McGill graduate in civil engineering, assisted Dawson in his survey of Vancouver Island in 1885. Initially hired as a topographer to aid geologists in the field, Dowling eventually became a reconnaissance geologist in his own right and, ultimately, a leading authority on the coal beds of southern Alberta. In return for giving some of the Survey’s leading young scientists their introduction to field work, Dawson received important help in carrying out his substantial program of scientific work each field season.

While most of these men were well-trained in science and all were enthusiastic assistants for Dawson, their inexperience in the field meant that Dawson could not expect them to survey the portions of the region he could not reach. Dawson first had to train them in the minutiae of fieldwork: the principles of collecting specimens, the ways of using and safeguarding the various instruments, the manner of recording notes, the various techniques of traverse surveying and when to use them, and much more. Eventually, if the assistant had proven reliable and if Dawson had had enough time to impart his most vital lessons, he might ask his assistant to carry out some independent surveying in another part of the district. In 1881, for instance, Dawson had enough confidence in McConnell to ask him to carry out several independent surveys in portions of southern Alberta he could not visit. McConnell was able to execute his task well and Dawson was pleased with the results. But, had McConnell established control points,

58 Ibid, 161-163.
determined bearings and estimated distances in ways that complemented Dawson’s
techniques? If not, the precision of the resulting topographic map might be cast into
further doubt. Thus, while Dawson’s scientific assistants undoubtedly helped him
prosecute his reconnaissance surveys more effectively, their inexperience limited the
work Dawson could ask of them and raised questions about the reliability of any
independent investigations Dawson did ask them to make.

If Dawson could not completely rely on his own assistants to fill in the survey’s
gaps each summer, he could often turn to the local inhabitants for information and
assistance. Native guides, in particular, offered invaluable aid to Dawson in virtually all
of his Western reconnaissance surveys. Such guides were vital because they helped
Dawson trace his pre-determined circuits through what was often difficult and seemingly
undifferentiated terrain. In June of 1876, for instance, during his first full season in the
field, Dawson had significant difficulty navigating the swamps and forests west of the
Fraser River, in British Columbia’s central interior. After repeatedly losing his bearings,
Dawson was thankful to run across a Native man on a trapping expedition, “who
explained the country to us.” Dawson tried to hire his informant as a guide but the man
was reluctant to abandon his traps and demanded more pay than Dawson was prepared to
provide. After another month of further toil, Dawson had developed a new perspective on
the matter: “Arranged yesterday for an Indian to go with us At the exhorbitant rate of
$2.00 a day. Wanted him however even if at high price to show trail to the South, &
indicate locality of the lignite region.” By mid-summer, Dawson had learned that the
success of his reconnaissance hinged on hiring Native guides, even if it required paying

61 Entry for July 11, 1876 in Ibid, I: 227.
more than what he considered reasonable compensation for their services. By the end of the season, however, Dawson had grown quite vexed with Native bargaining tactics. After agreeing to pay what he felt was an outrageous fee for Natives to guide him down the Nechako River, from Fort Fraser to Fort George, Dawson included a rare and vitriolic outburst in his notebook: “Seems pretty hard however that these lazy & dirty savages should stickle for Such high Pay, when so many white men, in other Parts of the world would be glad to do the work for so much less.” As objectionable as these remarks were, they make clear just how valuable such guides were to Dawson and just how dependent he was on them in order to carry out his survey effectively.

Beyond helping Dawson find his way, Native guides also shaped his findings by revealing interesting localities of which he had been previously unaware. In July of 1878, for example, a Haida guide showed Dawson an abandoned copper mine on the shores of Cumshewa Inlet, on the Queen Charlotte Islands. Dawson knew that several prospectors had briefly tried their hand at mining copper at a site a few miles to the south during the 1860s but had not seen any mention of the Cumshewa Inlet operation in any of their records and may not have discovered this site without the help of his guide. Later in the same season, Dawson’s guide informed him of a coal outcropping on the south shore of Skidegate Inlet, on the opposite shore from the defunct Cowgitz coal mine. This was a locality that had been missed by earlier coal prospectors to the region and, thus, one that Dawson had been unaware of until revealed by his Native guide.

---

63 Entry for July 22, 1878 in G. M. Dawson, Geological Field Notebooks, 1875-1900, Library and Archives Canada, Record Group 45, Vol. 292, Notebook 2803 (1878), p. 50A.
64 Entry for August 2, 1878 in Cole and Lockner, The Journals of George M. Dawson, II: 485.
In addition to acting as guides, Native inhabitants occasionally played the role of informants, providing Dawson with important information about areas that he would be unable to visit and document first-hand before the end of the field season. In August of 1877, Dawson was exploring in the Shuswap Lake region, east of Kamloops, BC. His plan had been to proceed north, along a trail that followed the shore of Adams Lake to reach the North Thompson River. But, when he discussed the idea with the Natives of Little Shuswap Lake, he learned that much of the trail would be “more or less under water” at that time of year. Moreover, he learned that nothing of particular interest would justify his making that difficult trek. Instead of securing first-hand knowledge of the lake and its environs, Dawson relied on the knowledge provided by the local inhabitants: “No land suited to agriculture is reported to exist, & the Indians say high mountain follows along the E. shore of the lake, the W shore being lower, but still rough and rocky.” Dawson also recorded that the lake did not freeze over and the valley of the Adams River was reported to hold some “very fine timber.” Dawson presented the same information in his published report for the 1877 field season and credited his Native informants with allowing him to improve upon the scant and presumably erroneous geographical knowledge of the region offered by an early map of southern BC.

While Dawson could, at times, laud Native inhabitants for the valuable assistance they offered his survey, frequently he treated the information they provided with barely concealed contempt. A telling incident occurred early in the 1877 season near the mouth of the Coldwater River, southwest of Kamloops. In passing through the region the season before, Dawson had heard rumours that a significant deposit of iron ore lay exposed near

65 Ibid, II: 372.
66 Ibid.
the summit of a mountain above the Coldwater’s confluence with the Nicola River. To find the deposit, Dawson traveled to a nearby Native encampment and hired a local boy to guide him to the iron outcropping. The excursion left Dawson disappointed: “owing to the Ignorance [sic] of our guide see only some smaller seams of the ore, & not the main lead.”\textsuperscript{68} While Dawson elected not to explain why a trained field geologist failed to locate the main outcropping himself, his remarks revealed misgivings about the reliability of Native informants that were echoed in other notebook entries. In his recorded conversations with Native guides, Dawson’s language frequently betrayed an underlying skepticism of Native knowledge. In July of 1876, for instance, Dawson hired a guide to lead him to Anahim Lake, near the eastern foot of the Coast Range in central BC. In his notebook, Dawson remarked that he had hired this guide because the man “professes to Know the ['upper'] trail.”\textsuperscript{69} Dawson doubted the guide’s claim but decided to press on anyway and was pleased to find that the shortcut led to an open plateau that enabled them to make good time to the lake.\textsuperscript{70} Such incidents did little to bolster Dawson’s faith in his informants. It is clear from his notebooks that he regarded all Native assertions about routes, travel times and features of the landscape with skepticism. Consequently Dawson rarely called upon Native informants to fill in the gaps in his knowledge.

Instead, he relied on information gleaned from the small but growing number of White ranchers, miners, traders and missionaries encountered in the course of surveying the West’s more accessible resource districts. This reveals that the imaginative geographies that Dawson constructed to encourage the making of settler space in the West were at least partially built on information provided by the few settlers already in

\textsuperscript{68} Cole and Lockner, \textit{The Journals of George M. Dawson}, II: 316.
\textsuperscript{69} Entry for July 12, 1876 in Ibid, I: 228. The emphasis is mine rather than Dawson’s.
\textsuperscript{70} Entry for July 15, 1876 in Ibid, I: 230.
place. These settlers frequently offered Dawson important information about the trails and rivers that lay ahead on his journey. In June of 1877 Dawson arrived at Lake Osoyoos, on the border between British Columbia and the Washington Territory. There he conferred with the region’s custom official, John C. Haynes, and learned that the trail eastward toward the Kootenay Mountains was still passable but that there was poor feed for the pack horses and there were many large rivers to ford.\footnote{Entry for June 27, 1877 in Ibid, II: 337.} Beyond navigation tips, White informants provided Dawson with a wide array of information about the character, resource wealth and settlement potential of their region. In 1878 Dawson was able to consult with a Mr. Smith, who operated a small dogfish oil processing plant on Skidegate Inlet (Queen Charlotte Islands). Smith provided Dawson information about the local climate and showed the geologist some promising timber stands just inland from the north shore of the inlet. Smith’s associate, Mr. Woodcock, also provided geological information about the rocks of nearby Gold Harbour, where the Hudson Bay Company had extracted gold ore in the 1850s.\footnote{Entries for July 25, July 26 and August 4, 1878 in Ibid, II: 482 & 486.} Later that same season, Dawson spent time with the Anglican missionary to Masset, William Henry Collinson, who provided him with a wealth of information about the social customs of the Haida population.\footnote{Entries for August 11 and August 20, 1878, in Ibid, II: 495-496 & 508-409.} Collinson thus provided an important foundation for the extensive ethnographic appendices on the Haida included with Dawson’s published report on the Queen Charlotte Islands.\footnote{George Dawson, “Report on the Queen Charlotte Islands, 1878,” 103B-189B. I will focus particular attention on Dawson’s Haida ethnography in Chapter 6.} Throughout his career, then, Dawson relied on information provided by White informants to supplement his own field observations and fill gaps in his knowledge.
Significantly, none of the cynicism that characteristically marked Dawson’s comments on Native informants is evident in his comments on White informants. Dawson generally trusted the validity of such information and drew upon it unreservedly in his own assessments of the lands surveyed. His reliance on an extensive network of informants meant that his official account was cobbled together from his own observations and the testimony of others. As with Dawson’s own field assistants, some of Dawson’s informants were certainly more reliable than others and all of the information collected from local inhabitants was unavoidably filtered through the selective ‘imaginations’ of the individuals providing the information. Moreover, the exigencies of reconnaissance surveying meant that Dawson had very little opportunity to verify most of the information he received. Thus, while he seemed willing to trust the reliability of most of his White (and a few of his Native) informants, there was no means of assuring the veracity of their input or its compatibility with Dawson’s own observations.

In summary, then, Dawson’s reconnaissance surveys were designed to generate an important preliminary picture of Canada’s western territories that might serve as a starting point for transforming these remote and hitherto poorly-known regions into settler space. Yet, due to the difficulty of covering a vast territory in a relatively short time each field season, these surveys were inevitably cruder than Dawson (and many others) would have liked. In particular, time pressures and the troubles associated with traversing difficult terrain meant that such surveys were not a comprehensive picture of the territory targeted each field season. Moreover, the techniques of traverse surveying—while ideally suited for a small party attempting to travel light and work quickly—were not able to provide the kind of precision that characterized more systematic survey
methods. In order to mitigate these shortcomings and supplement his own reconnaissance, Dawson turned to others for assistance and information. As a result, a host of idiosyncratic and potentially incompatible traces of knowledge were sutured to Dawson’s own field observations, ensuring that no truly uniform vision of the field would be developed. No matter how carefully Dawson planned and how meticulously he worked, there was always too much territory to cover in too little time, too many errors inherent to his chosen survey technique and too many disparate sources of information to reconcile to permit more than a rudimentary depiction of the territory surveyed.

Aggregating the Aggravation: The Case of the Yukon Survey (1887)

To appreciate the challenges Dawson faced in carrying out his reconnaissance surveys, it is useful to examine a single field season in some detail in order to illuminate how the various issues addressed above could combine to jeopardize Dawson’s field work. Most revealing is Dawson’s extensive reconnaissance of northern British Columbia and the southern portion of the Yukon District in 1887 (see Figure 3.2). In this exploration, initiated by the Department of the Interior, Dawson and the GSC were part of a major three-pronged scientific survey of this remote corner of Canada’s Northwest. As Dawson noted in the introduction to the resulting published report, the Canadian government’s interest in this region was well founded. By 1887 an already sizeable gold mining community had arisen in the Yukon basin and Canadian officials anticipated that a major influx of miners would soon follow, drawn by the well-publicized successes of
Figure 3.2
George Dawson’s route in 1887. Prepared by Jennifer Grek Martin.
some of the early prospectors. Unfortunately, the location of the boundary with Alaska had never been accurately determined and, thus, jurisdiction over the emerging gold fields had not been clearly established. To address this problem, the Department of the Interior instructed Dominion Land Surveyor William Ogilvie to descend the Yukon River from its headwaters in the Coast Range and spend the winter astronomically determining the precise position of the 141st meridian in relation to the Yukon River and its tributaries. With the boundary fixed, Canadian officials could take measures to administer the region should the anticipated gold discoveries take place east of the boundary line.

While Ogilvie’s work was designed to stabilize Canada’s jurisdictional dominion over much of the upper basin of the Yukon River, Dawson’s survey was designed to make a much broader terra incognita more legible: “The Yukon expedition…was undertaken for the purpose of gaining information on the vast and hitherto almost unknown tract of country which forms the extreme north-westerly portion of the North-west Territory.” A successful season of surveying on Dawson’s part would generate a great deal of information about this region’s climate, topography, flora and fauna, Indigenous peoples and, of course, geology—all of which could be used to direct and facilitate the activities of the miners, fur traders and settlers that many predicted would soon arrive in the Yukon basin. The plan was for the journey to start in the coastal

---

75 Dawson, “Report on an Exploration in the Yukon District,” 6B. This influx did indeed take place over the ensuing decade, culminating in the celebrated Klondike gold rush of 1897-98.
76 Establishing the boundary’s intersection with the Yukon River and with nearby tributaries, such as Forty Mile Creek, was vital because placer gold was primarily discovered by ‘panning’ the course gravels of stream and river beds in search of nuggets of alluvial gold. Blazing a boundary line that intersected the region’s streams and rivers, would make very clear which nation had jurisdiction over the ‘paying’ sites and thus over the impromptu boom towns that would inevitably materialize anywhere gold in sufficient quantities was discovered.
77 Dawson “Report on an Exploration in the Yukon District,” 5B.
community of Wrangell Alaska, from whence a party comprised of Dawson, R.G. McConnell and several assistants would travel up the Stikine River and through the Cassiar mining district to Lower Post, a remote trading outpost situated at the confluence of the Dease and Liard Rivers, just south of British Columbia’s northern border. There, the party would divide in two and R. G. McConnell would proceed down the Liard River to the Mackenzie River, connecting the season’s work to earlier surveys of the upper Mackenzie Valley. Meanwhile, Dawson and his men would proceed upstream on the Liard and Frances Rivers, eventually crossing the height of land to the Pelly River and making their way west into the heart of the Yukon District. Upon reaching the Yukon River, Dawson would rendezvous with Ogilvie, who would still be making his way down the Yukon toward his winter field site. While Ogilvie proceeded downstream, Dawson would retrace Ogilvie’s steps upstream before crossing the Chilkoot Pass and returning to the Pacific Coast. With an extensive circuit covering over 2,000 kilometres of rugged terrain, this ambitious survey would leave little margin for error.78 Unfortunately for Dawson, a series of delays, obstacles and uncertainties—unprecedented in their magnitude when compared to his other field work—plagued his survey from the outset and substantially restricted the published depiction he was able to produce of this vast, remote and quite complex landscape.

(i) The Field Survey

Dawson’s first setback came on June 5th, when he arrived at Dease Lake, in the heart of the Cassiar gold mining district. With a lot of territory to cover in a short field season, Dawson’s aim was to make a quick examination of the rocks around the lake

78 Dawson estimated the total distance of his travels to be 1,322 miles. See Ibid, 10B.
before following the Dease River north toward the Yukon Territory. Upon arrival, Dawson saw that the lake was still covered in ice and was likely to remain so for at least another five days. Since the rugged topography of the region restricted travel around the lake, Dawson was obliged to wait for the ice to break up before he could begin his descent of the Dease River. Moreover, Dawson found that no communications had reached the miners based at the lake over the previous winter. As a result, Dawson’s request of assistance had not been received and, thus, no preparations had been made in advance for the season’s expedition. In particular, the wooden boats that Dawson and his party would require to navigate the various rivers and lakes along their route had not been constructed and the resident miners had largely exhausted the available stores at the local trading post. This vexed Dawson a great deal: “…weary waiting in such fine weather with season so far advanced, & boats still not yet built.” Ultimately, it took the party ten days to construct the boats and assemble the provisions, by which time the lake ice had started to break up. On June 16th, the party finally broke camp but, by Dawson’s estimation, the late thaw and the boat building delays had set his plans back a full month. To compensate for the late start, Dawson began to entertain the idea of wintering over in the Yukon Territory at season’s end—an idea he ultimately abandoned after considerable contemplation.

A slow start was not the only obstacle to be overcome in 1887. Finding and retaining Native labourers—principally men engaged to paddle the boats and transport their contents over the portage routes—proved a much greater challenge than even

---

79 Ibid, 74B.
81 Entry for June 7, 1887, in Ibid.
Dawson, with his considerable field experience, had anticipated. Such assistants were absolutely instrumental to the success of the season’s work because, without their strength, resilience and know-how, Dawson and McConnell could not hope to cover the ground they planned to survey in a single field season. Dawson was thus relieved when McConnell arrived at Dease Lake accompanied by a party of five Tsimshian and Tlingit paddlers from the Alaskan Coast. McConnell, however, had been obliged to promise his charges $2.00 a day instead of the standard $1.50, given the great distance the party would ultimately travel from Wrangell and given that the men could just as easily secure work in the local cannery if McConnell refused to raise his price. Moreover, in order to secure the services of the highly-regarded boatman “Indian Jim,” McConnell had had no choice but to allow Jim’s new bride to join the party—a costly compromise in the eyes of many members of the party, who saw her as merely an extra mouth to feed.82 The fact that McConnell had made these concessions in the end reveals that reliable Native boatmen—ones who would travel great distances from their homes and families and who would carry out the most arduous tasks of the expedition—were hard to find and expensive to retain.

This was not to say, however, that, once engaged, this crew was content to follow Dawson wherever he might lead them. Indeed, as the party moved farther and farther from the coast and as the paddling and portaging grew increasingly onerous, Dawson had a good deal of difficulty preserving the morale of his party. On July 5th, for instance, Dawson’s party struggled all day to cover a very short distance through a narrow canyon on the Frances River. At the end of the day’s ordeal, Dawson noted that the spirits of his Native paddlers were flagging, as they realized just how very far from the coast they were.

82 Entry for June 14, 1887, in Ibid.
and how slim was their hope of returning soon. A few days later, the party reached Frances Lake and began to search for an old Hudson Bay Company portage trail into the Yukon River watershed. At camp on the evening of July 10th, Dawson noted that his Native assistants had become rather distressed at the thought of making the portage and losing their tenuous, but reassuring, water connection with their home country. The portage proved to be incredibly taxing and, in his notebook, Dawson confessed that the work had taken a psychological as well as physical toll on his Native companions:

“Packing very hard without beaten road, & much harder than I had hoped on the men….Would never in the world have got the Coast Indians to come so far but for the fact that two months of high wages now owing them & have given them to understand that they must finish the trip. Also endeavoured to put some heart into them by offering each a $10 bonus when we reach the Pelly R.” After two additional days of trailblazing and hauling, the party at last arrived on the Pelly River on July 29th—many weeks behind schedule. But, the great distances traveled, the exasperating rigours of the journey and the party’s slow progress had so damaged the boatmen’s morale that Dawson was left with little choice but to dispense the promised wages and allow the coast Natives to retrace the portage route and return to their homes near Wrangell. This left Dawson to complete the rest of the still considerable journey with just three assistants, ensuring that his

83 Entry for July 5, 1887 in Ibid.
84 Entry for July 10, 1887 in Ibid.
85 Entry for July 27, 1887 in Ibid.
86 See Private Correspondence, George Dawson to Mr. White, Minister of the Interior, July 29, 1887, George Mercer Dawson Papers – Correspondence, 1856-1901, McGill University Archives, Manuscript Group 1022, box C. 55, File 8: Letters, 1887. Upon returning to Wrangell in October, Dawson made certain to inquire after his assistants and was pleased to learn that they had all made the return journey without incident. See the entry for October 14, 1887 in “George Dawson’s Personal Notebooks, 1887,” George Mercer Dawson Papers, McGill University Archives, Manuscript Group 1022: Dawson Family Fonds, Location 117, Accession Number 88-009, Microfilm Reel # 2803.
remaining work would be hurried and bereft of significant scientific results, as the
depleted party struggled to complete its mission before the onset of winter.

The party’s progress through this remote region might not have been so sluggish
had Dawson been able to secure the assistance of local Native guides. But, luck was not
with Dawson in 1887: few Natives crossed paths with the survey party over the course of
the field season and those who did were unwilling to render assistance. Dawson’s first
frustration in this matter came at the “Lower Post”—a modest trading site situated at the
confluence of the Dease and Liard Rivers. Here Dawson attempted to hire two sets of
Native guides from amongst the numerous families that had arrived at the post to trade.
One was to accompany Dawson’s party up the Liard River while the other would
accompany McConnell downstream. To his great frustration, Dawson found the men “so
lazy” and expected “so much for so little.” Dawson identified the resident chief, In-a-e-ta,
as the principal impediment to negotiations so he enticed the man with a bribe of five
dollars to stimulate the negotiating process. Ultimately, his tactics bore fruit, as two men
agreed to accompany Dawson’s party up-river to Frances Lake with In-a-e-ta’s
blessing.87 Dawson’s victory was short-lived. Ten days into the journey his guides
informed him that they would go no further, leaving the party some distance up the
Frances River but well short of Frances Lake.88 The remaining ascent to Frances Lake
was a significant struggle through rugged canyons—a struggle that might have been
circumvented by the navigational skills of two knowledgeable guides or, at the very least,
diminished by the assistance of two extra pairs of experienced hands.

---

87 Entry for June 24, 1887 in “George Dawson’s Personal Notebooks, 1887,” George Mercer Dawson
Papers, McGill University Archives, Manuscript Group 1022: Dawson Family Fonds, Location 117,
Accession Number 88-009, Microfilm Reel # 2803.
88 Entry for July 3, 1887 in Ibid.
The real difficulties occurred when the party reached Frances Lake. By Dawson’s own admission, the existing Hudson Bay Company map of the region was “very unsatisfactory” and of little use in locating the Company’s old portage route to the Pelly River. Without a reliable map, Dawson was compelled to seek out the help of local Natives to reveal a trail long since reclaimed by the forest. Unfortunately, Dawson could find no trace of Native encampments anywhere on this significant lake. When a hurried reconnaissance turned up no signs of life, Dawson instructed his assistants to build a large bonfire in the hope that the smoke would attract Natives in the vicinity. Nothing came of this effort, leading Dawson to vent his frustrations in his notebook: “Loss of time, consumption of provisions & bother provoking beyond expression.” Eventually, Dawson and his party managed to improvise their own crudely-blazed portage trail to the Pelly River but, as we have seen, a great deal of time, energy and morale was expended in the process. It is in instances such as this that Dawson’s reliance on others becomes clear. Dawson’s reports and maps may give the impression of a solitary explorer doggedly traversing terrae incognita in the service of science but the reality reveals a man who was largely powerless to render such remote regions legible without a sizeable, competent and committed network of guides, labourers, informants and scientific assistants.

Unsurprisingly, this season also proved one of Dawson’s most challenging in terms of maintaining a reasonably accurate traverse survey. The sinuous courses of the rivers

---

89 Entry for July 9, 1887 in Ibid. Dawson refers to the map as “Campbell’s Map” and notes in his published report that a Mr. R. Campbell of the Hudson Bay Company had explored the Pelly River region in 1840 and again in 1850. See Dawson, “Report on an Exploration in the Yukon District,” 14B.

90 See Dawson’s entry for July 9, 1887 but also his entry for July 8, 1887 in “George Dawson’s Personal Notebooks, 1887,” George Mercer Dawson Papers, McGill University Archives, Manuscript Group 1022: Dawson Family Fonds, Location 117, Accession Number 88-009, Microfilm Reel # 2803.
traveled, in particular, made it difficult for Dawson to estimate his bearings with any degree of precision. Early in the season the Dease River frustrated Dawson, as he noted on June 19th: “river very crooked, giving all I can do to keep a decent track survey.”91 Two days later, he recorded that he was still kept busy with the track survey of the twisting river all day.92 The Liard and Frances Rivers proved no less torturous for the party, with narrow canyons and rapids adding to the challenge of determining distances and directions traveled each day. Nor did conditions improve markedly following the portage to the Pelly River. On August 5th, Dawson remarked that keeping a track survey of this river’s course was arduous.93 In part, these difficulties were a result of the party’s need to cover the ground swiftly but Dawson’s notebooks also suggest that the character of these northern rivers posed more problems than he was accustomed to in carrying out traverse surveys.

Taken together, the late start to the season, the lack of proper maps and Native guides to rely upon, the difficult terrain to traverse and the ultimate loss of the party’s boatmen at the geographical halfway point of the journey would seem more than enough adversity for one field season. Yet, there was one additional and significant cause for concern as the 1887 field season progressed: would the party encounter hostile Natives on the Pelly River? The seeds of doubt had been planted as far back as June 6th, when the party was still coming to terms with icy conditions and lack of provisions at Dease Lake. On that day, a group of miners arriving in the Cassiar District brought reports of a skirmish between miners and Natives on the Yukon River, near the mouth of the Stewart River. The cause of the trouble was said to be food, which Mr. Harper—a White miner—

91 Entry for June 19, 1887 in Ibid.
92 Entry for June 21, 1887 in Ibid.
93 Entry for August 5, 1887 in Ibid.
had refused to share with local inhabitants in need. The situation had turned violent and it was reported that two miners and four Natives had been killed. Following the incident, the Natives were thought to have retreated up the Pelly River to gather reinforcements.

Not surprisingly, this information worried Dawson:

The matter has very serious bearings on plans, as if authentic as stated we shall be running straight into a hornet’s nest on the Pelly, with no chance of escape, & even if it has gone no further than the first row, according to Indian usage here the lives of some two white men are required to balance the account. At the same time, the character of the news is not so reliable as to warrant me, as far as I can see, in changing previously arranged plans. The matter is not likely it seems to me to be so serious as to prevent Ogilvie going in by travelled route down Lewis R, but may render it inadvisable for him to attempt wintering in the country. It makes our chance of getting supplies from him also precarious & if we do not get this supply should we reach position of Old Ft. Selkirk, we shall be in a bad plight, even as regards returning by Lewis. There is now no way of communicating with Ogilvie or anyone else outside this country, & we must do the best we can, & arrange our own responsibility.

Dawson was presented with a difficult choice at the outset of his season’s work: proceed as planned and face a potentially hostile Native party in the midst of the season’s explorations or alter the route to avoid the danger and jeopardize the party’s ability to rendezvous with Ogilvie’s party and resupply in preparation for the difficult upriver journey leading out of the Yukon District. Despite obvious misgivings, Dawson decided to proceed as planned—the report was too vague to be trusted, much could change by the time Dawson’s party reached the Pelly River and, in any event, it was too late to send word to Ogilvie to alter their pre-determined arrangements. The most Dawson could do was to write

---

94 Dawson does not indicate which Native group was involved but, given the location, it was likely a group of Northern Tutchone. See Julie Cruikshank, *Early Yukon Cultures*, revised ed. (Whitehorse: Yukon Territorial Government, 1982).

95 Entry for June 6, 1887 in *Ibid.* It should be noted that, in Dawson’s day, the upper Yukon River (the portion south of the confluence with the Pelly River) was known as the Lewis or Lewes River—a designation found in both Dawson’s and Ogilvie’s reports. I have adopted the modern name for the river to avoid confusion.
letters to Ogilvie, informing him of his decision, and to the Deputy Minister of the Interior, advising him of the reported troubles and recommending routes by which a quickly-assembled police force might be dispatched to the district.\textsuperscript{96} There was little hope of such a force being assembled and dispatched in time so Dawson’s party embarked on their journey knowing there would be no rescue should they be beset by a hostile group deep in the wilderness of the Yukon District.

Despite expressing determination to push ahead with the season’s work, the situation weighed on Dawson’s mind as the party drew closer to the Pelly River. On July 3\textsuperscript{rd}, after In-a-e-ta’s two Native guides abandoned the party on the Frances River, Dawson wondered if there was a link to the reported trouble to the northwest: “The conduct of these Indians & their refusal to work even when well paid makes me think that they know more about reported troubles between whites & Indians on Yukon than they say.”\textsuperscript{97} Dawson was clearly still anxious when the party reached the Pelly River on July 29\textsuperscript{th}, admitting, in a letter to the Minister of the Interior, that he had heard nothing further about hostile Natives in the region but also noting that he had not been in contact with

\textsuperscript{96} Ibid. The next day Dawson also wrote to his father on the matter, aiming to reassure him that no undue risks would be taken: “Should I hear as we go in that there is likely to be any serious difficulty of this kind, it may prevent me from carrying out original scheme, as we are not fitted out for warfare, & do not propose engaging in it.” Private Correspondence, \textit{George M. Dawson to John William Dawson, June 7, 1887}, John William Dawson Correspondence, McGill University Archives, M.G. 1022, vol. C. 49 [1371 E], File 1: Family Papers, 1887.

\textsuperscript{97} Entry for July 3, 1887 in “George Dawson’s Personal Notebooks, 1887,” George Mercer Dawson Papers, McGill University Archives, Manuscript Group 1022: Dawson Family Fonds, Location 117, Accession Number 88-009, Microfilm Reel # 2803.
anyone since leaving the “Lower Post” almost a month before.98 Once the letters had been written and the Alaskan Natives paid off, Dawson and his three assistants wasted no time in beginning their descent of the Pelly River. There were no signs of life along the river but the party was taking no chances—very little time was spent examining the rocks or performing careful track surveys of the river’s course; success was largely measured by the distance covered each day. Uncertainty had truly taken its toll on the party, with Dawson admitting: “Constant anxiety as to attitude of Indians when we may meet them more wearing than the actual physical difficulties, all of which can be overcome with time.”99

The day the men dreaded came on August 8th, when a Native man and his young son were encountered fishing on the Pelly River. To Dawson’s great relief, they showed no hostility and told the party that most of their people were currently camped at the headwaters of the river, well removed from their present location.100 Two days later, the party encountered a pair of miners at the mouth of the Macmillan River who offered reassurance: “Miners tell me that no trouble existing between whites & Indians, that story spread by man who had...
been sent out of the country for misconduct.”¹⁰¹ This banished for good the dark cloud that had hovered over the party since Dease Lake. For more than two months Dawson and his companions had lived in fear of a hostile Native encounter along the Pelly River. The constant anxiety was, at best, an unwanted distraction and, at worst, a significant impediment to the season’s work, given its undoubted contributions to the party’s low morale and haste, particularly once the Pelly River had been reached. Dawson’s palpable sense of relief at the miners’ news was probably counterbalanced by a significant degree of frustration: one baseless rumour had impinged upon an entire season’s worth of work and put an already difficult reconnaissance under additional pressure.

There was to be one final frustration capping the season. The good news offered by the miners was tempered by the news that the trading post of the Alaska Commercial Company had moved from the mouth of the Stewart River to the mouth of Forty Mile Creek.¹⁰² This was a new source of worry for Dawson because, despite the lateness of the season, he had intended to make the 160 kilometre journey down to the Stewart River post to resupply before ascending the Yukon River and crossing the Chilkoot Pass to the Pacific Coast. Forty Mile Creek was an additional 190 kilometres below the mouth of the Stewart River and the party had no hope of making the long journey down for supplies with enough time to ascend the river before the onset of winter. Disheartened by the news, Dawson and his assistants resolved to stretch their

¹⁰² Ibid.
rations and set about building a new wooden boat to better negotiate the ascent of the swift-moving Yukon River—a time-consuming operation when very little time could be spared. So, it was indeed a considerable stroke of good fortune that, two days later, in the midst of their frantic boat-building labours, Dawson and his men were surprised to see Ogilvie’s party floating downstream toward them.\footnote{103 Entry for August 13, 1887 in Ibid.} Dawson had no doubt assumed that Ogilvie was already well down river, given his own considerable delays in reaching the proposed rendezvous point. Ogilvie’s time, however, had been occupied with his own traverse survey of the upper Yukon River. Dawson was able to resupply from Ogilvie’s freight boat and the two were able to exchange information on their season’s work.

Thanks to Ogilvie’s timely intervention, Dawson and his party had the supplies they needed to ascend the river, navigate the various alpine lakes of the Coast Range and cross the Chilcoot Pass to the Lynn Canal. Dawson’s ability to exchange information with Ogilvie was crucial. The lateness of the season left Dawson’s party little time to survey the upper courses of the Yukon River and the routes through the Coast Range. Ogilvie’s traverse data, proved an invaluable supplement to the very cursory examination of the region Dawson was able to make on his way back to the Pacific Coast. In addition to Ogilvie’s topographic work, Dawson was also able to collect a significant amount of geological information from the several miners the party encountered during their ascent of the Yukon. From a miner named Steele, for instance, Dawson learned a great deal about the nature of the country around Forty Mile Creek and the recent success in gold prospecting there, as well as some useful
impressions of the Natives to be found in that region.¹⁰⁴ Further on, Dawson spoke to the Boswell brothers, miners who had been working the headwaters of the Hootalinkwa River and who gave Dawson their views on the mining operations in that area.¹⁰⁵ Such encounters were vital to Dawson’s work that season because he had little time to examine the country he passed through in any detail. Without question, Dawson’s haste ensured that his impression of the region was composed from a number of different sources, with varying degrees of reliability and commensurability.

Almost five months after he had embarked from Wrangell on his preliminary voyage up the Stikine River, Dawson finally arrived back in this Alaskan coastal outpost on October 14, 1887.¹⁰⁶ The season had seen Dawson cover an unprecedented amount of ground and amass significant knowledge about one of Canada’s most remote and poorly known regions. Yet, it had also been a season of frustration, anxiety, hardship and bad luck. What impact would these impediments have on the resulting report and map?

(ii) The Report

At first glance, Dawson’s trials and tribulations in the field do not seem to have hampered his ability to produce a robust report. Published in 1889, it ran to 277 pages, included seven appendices and was accompanied by a topographical and geological map that covered three separate sheets—the largest ever produced by Dawson in conjunction

¹⁰⁴ Entries for August 13, 14 and 17, 1887 in “George Dawson’s Personal Notebooks, 1887,” George Mercer Dawson Papers, McGill University Archives, Manuscript Group 1022: Dawson Family Fonds, Location 117, Accession Number 88-009, Microfilm Reel # 2803.
¹⁰⁵ Entry for August 28, 1887 in Ibid. The Hootalinkwa River is now known as the Teslin River.
¹⁰⁶ Entry for October 14, 1887 in Ibid.
with a geological report. The sheer heft of the work was impressive. Yet, a closer look reveals that the content of both the report and map was limited as a result of the problems faced in the field—a circumstance that prompted Dawson to insert an important caveat into his introductory remarks: “It is unnecessary to add that the present report must be considered merely as a first contribution to our knowledge of this wide country.”

The survey’s geographical results were disappointing. According to Dawson, the season’s work “circumscribes an area of about 63,200 square miles, the interior of which is still, but for the accounts of a few prospectors and reports of Indians, a terra incognita. The same description, with little qualification, applies to the whole surrounding region outside the surveyed circuit, but much general information concerning the country has been obtained, which will facilitate further explorations.” For Dawson, the season’s work had not yielded a great deal of geographical information beyond the narrow route traveled and only future exploration on a significant scale would make this vast district legible. Elsewhere in the report, Dawson made clear that the season’s various delays had interfered with his ability to investigate the country more closely. While the report did offer a great deal of geographical information pertaining to narrow ribbons of land, very little information was offered regarding the surrounding landscapes. Nor could much be said about the vegetation, soils and specific climatic characteristics of the vast portions of the district well removed from Dawson’s line of travel. When compared with Dawson’s other reports, the report on Yukon District provided readers with scant geographical information.

107 Dawson, “Report on an Exploration in the Yukon District,” 5B.
108 Ibid, 10B-11B.
109 For example, in speaking of the rivers north of Frances Lake, Dawson commented: “It was with great regret that we were obliged to abandon the idea of exploring these rivers further, but the summer was already so far advanced, that this was impracticable, in view of the journey still before us.” Ibid, 111B.
Even greater parsimony was apparent in the geological sections of the report, where few substantial details were offered to readers. Dawson noted that three factors conspired to prevent him from fulfilling his primary obligation as a field geologist, the working out of the region’s underlying rock structure. The first factor was a lack of time for thorough geological investigation: “No unconformity has been proved to occur throughout the whole of the above Palaeozoic series, but the examinations made were scarcely of a sufficiently detailed nature for the detection of any stratigraphical break unless of a very obvious character.”110 With more time at his disposal, a greater understanding of formation boundaries might have been possible. Yet, even when Dawson did spend time in one location he was so preoccupied with other tasks that he was forced to neglect his geological work. At Dease Lake, the demands of boat building and organizing provisions left him little time for geological work despite the delays caused by ice on the lake: “It will easily be understood that we had but little time or opportunity for the examination of the surrounding country, which is nevertheless of considerable interest on account of the rich gold-producing character of some of the streams.”111 Without the time to properly search out and carefully examine rock exposures, Dawson was simply unable to produce a report that met his own standards for geological analysis.

Complicating matters was a second factor over which Dawson had even less control—a lack of rock exposures along the chosen route. This problem became apparent very early in the field season: “Respecting the older rocks which characterize the greater part of the country between Telegraph Creek and Dease Lake, few details were noted, and no approach to a general section was obtained, as they are not usually exposed except

110 Ibid, 33B.
111 Ibid, 75B.
along the bases of the mountains, which are, as a rule, at some distance from the route of travel.”112 He encountered similar difficulties further into the region’s interior: “It would be impossible, without the expenditure of much time, to make anything like a complete geological section on the line of the Dease [River], in consequence of the infrequency of rock-exposures on the river itself and the distance and rough character of the bordering mountain-slopes. The main geological features are, however, sufficiently apparent.”113 This was a problem that haunted Dawson all season: “On this part of the Lewes, rock-exposures are unfrequent [sic] and it is consequently impossible to give any connected account of the geology.”114

Not surprisingly, the quantity and quality of geological observations varied greatly between the various sub-sections of the report, mirroring the different opportunities Dawson was given to conduct geological investigations in the field. The report’s most robust geological analyses appeared early on and corresponded to regions where Dawson spent the most time, had access to the greatest number of informants, or both. He was able to set down a fairly detailed picture of the geology observed at the beginning of the season, along the Stikine River, on the overland Cassiar Trail north of Telegraph Creek, and in the vicinity of Dease Lake. But, as delays mounted, as the journey became more arduous, and thus as the need to press on grew more acute, Dawson had fewer opportunities to make geological observations. Not surprisingly, the sub-sections of the report on the difficult terrain encountered along the Liard, Frances, and Pelly Rivers were dominated by descriptions of the landscape rather than the underlying geology. Thus,

---

112 Ibid, 69B.
113 Ibid, 92B.
114 Ibid, 145B.
while comments pertaining to geology were included in every section of the report, the coverage was by no means uniform.

On the occasions when rock exposures were encountered and the schedule permitted more than a cursory examination, Dawson was still confronted with a third challenge—the complexity of the region’s geology:

In a reconnaissance carried out along a single line, in which the greater part of one’s time is necessarily occupied in overcoming the difficulties of the route and in securing the necessary geographical data, it is difficult to obtain any very complete knowledge of a region geologically complicated. In the present case this difficulty is increased by the circumstance that the geology of the corresponding portion of the Cordillera belt in the southern part of British Columbia, is as yet very imperfectly understood, though considerable attention has been devoted to it; while with respect to the older rocks of the analogous region in the western part of the United States very little published information of a systematic kind is available.115

As Dawson points out, gaps in the geological knowledge of the mountain systems to the south made sorting out the structural relations of rock formations in the Yukon a formidable challenge. As a result, Dawson’s geological analysis of this region was exceedingly preliminary and provisional.

In addition to disappointment over the geographical and geological results of the season’s work, Dawson was also sorry to miss the opportunity to gather more ethnographical information on the Native peoples living in the interior of northern British Columbia and the Yukon District. These communities had had only limited contact with Euro-Canadians and Dawson was hoping to learn and collect a good deal of information about their languages and customs to fill a significant gap in anthropological knowledge:

Between the northern edge of the ethnological map of British Columbia prepared by Dr. Tolmie and myself in 1884 and the known portion of the area of Mr. W. H. Dall’s similar map of Alaska and adjacent regions, a great gap has existed, which I had proposed to endeavor to fill in

115 Ibid, 31B.
connection with the work of the Yukon Expedition. While this intention has been very imperfectly executed, owing to various causes not necessary here to particularize, but especially to the fact that during a great part of our journey we met with neither Indians nor whites from whom information might have been obtained, it is felt that any facts on the Indians of the district possess some value, not alone from a scientific point of view, but also in their bearing on the Indian question from an executive standpoint.  

This statement reveals that Dawson’s interest in ethnography went beyond mere scientific curiosity and attempted to address the needs of the Canadian State in determining the fate of its Native populations—a theme I will explore in greater depth in subsequent chapters.

Initially, Dawson had some hope of success, as the Lower Post at the confluence of the Dease and Liard Rivers was an established meeting and trading site for a number of the interior’s Native groups. Here Dawson encountered several families and gathered what information he could. He also did his best to collect information and vocabulary data from the guides whom he hired at the Lower Post to lead his party up the Liard and Frances Rivers: “Pumping Indians for vocabulary & information about distribution of tribes. Rather difficult as they speak Chinook but poorly.”  

Unfortunately, after these guides deserted the party, Dawson encountered few Natives, with the result that: “For the northern district, drained by the Pelly, Stewart and other rivers, I am unfortunately unable to give much detailed information respecting the Indians, a circumstance due to the fact that we scarcely met any of these Indians, nor did we proceed far enough down the main river to meet the traders, from whom something might doubtless have been obtained.”

---

116 Ibid, 191B.
118 Dawson, “Report on an Exploration in the Yukon District,” 201B.
As with other aspects of his work, then, Dawson returned from the Yukon District frustrated by how little substantial data had been collected on the peoples of the interior. The maps that accompanied Dawson’s report were just as revealing of the difficulties faced in the field (see Figure 3.3). As with his previous geological maps, Dawson’s cartographic depiction of northern British Columbia and the Yukon District was rendered at a scale of eight miles to the inch and was printed on three separate sheets due to the vast area covered over the course of the 1887 field season. The majority of the information on the map was based on Dawson’s running track surveys, supplemented in places by the work of McConnell, Ogilvie and McEvoy (Dawson’s assistant). In form, the map was typical of Dawson’s earlier cartographic work. Yet, in content, Dawson’s depiction of northern BC and the Yukon was unlike anything he had ever produced. Indeed, while the map offered a wealth of topographic information along the party’s route—including mountain peaks, escarpments, swamps, canyons and other geographical features—in areas far removed from the traveled route, Dawson opted to include only the courses of major rivers, depicted as a series of broken dashes to indicate his lack of certainty as to their true geographic positioning. Occasionally, descriptive remarks such as “very rough country” or “level country” were included in some of the areas not investigated first hand but most of the map was left blank. Geological information was also conspicuous by its absence. While a series of geological notes were inserted in red ink throughout the map, no geological colouring indicated the geographical extent of particular rock formations. Only a few red lines or shaded areas indicated the localized
Figure 3.3
A portion of George Dawson’s geological map of the Yukon District, 1889.\textsuperscript{119} Note the lack of topographic and geological detail, with only minimal notes and shading in red to indicate key geological features.

\textsuperscript{119} This image is a digital file that appears courtesy of the 2008: MIRAGE Database, Geoscience Data Repository, Geological Survey of Canada, Earth Sciences Sector, Natural Resources Canada, Government of Canada, which can be accessed on the world-wide web at http://gdr.nrcan.gc.ca/mirage/index_e.php.
boundaries of certain rock formations. This was only the second map that Dawson had produced in the course of an illustrious field career that did not include the standard colour wash found on virtually all geological maps.\textsuperscript{120} Dawson commented on this unusual omission in his report: “For the purpose of assisting future more complete enquiry, and in view of the tentative character of the classification here offered, the more important [geological] details observed are noted on the face of the map accompanying this report, for which it would be premature to attempt a geological colouring.”\textsuperscript{121} In terms of both topography and geology, then, Dawson’s map—for all its great size—added little to the existing cartographic archive for this region.

More than even the report, Dawson’s accompanying map—by virtue of its vast blank spaces, tentative river courses and paucity of geological information—made absolutely clear that epistemological dominion had not yet been established over this vast, remote and complex corner of Canada’s Northwest. Dawson’s party had set out to determine the limits of Canada’s jurisdiction in the Yukon River watershed and to make this burgeoning mining district legible to a wide array of government officials, prospectors and traders on both sides of the border. But, while Ogilvie had succeeded in fixing the location of the Alaskan boundary in the vicinity of its intersection with the Yukon River—and thereby demonstrating that the most promising prospecting lay within Canadian territory—Dawson had failed to produce a robust picture of this little-known region’s lands, resources and Native inhabitants. A season of considerable struggle in the

\textsuperscript{120} Dawson produced a similar map—with limited topographic information away from the line of travel and no geological colouring—in conjunction with his report on the Peace River Transect. See George Dawson, “Report on an Exploration From Port Simpson, on the Pacific Coast, to Edmonton on the Saskatchewan, Embracing a Portion of the Northern Part of British Columbia and the Peace River Country, 1879,” in Geological Survey of Canada, \textit{Report of Progress for 1879-80} (Montreal: Dawson Brothers, 1881), 1B-177B.

\textsuperscript{121} Dawson, “Report on an Exploration in the Yukon District,” 34B.
field had limited Dawson’s ability to produce a report and map that could lay this important region bare to inspection and open to exploitation.

**Conclusion**

It is tempting to see the Yukon survey as the lone failure in a career of success. In 1887 Dawson encountered a formidable array of obstacles that undermined the season’s results, primarily because the vast distances Dawson set out to cover over the course of the summer left very little margin for error. With so much ground to cover, even minor delays early in the season jeopardized the party’s ability to get out of the region before the onset of winter and thus hampered Dawson’s ability to carry out basic scientific investigations. Yet, while this particular field season constituted an extreme case, it is important to recognize that the obstacles Dawson faced in 1887 were still in keeping with those that he confronted each and every field season. Indeed, there were inherent limitations to Dawson’s standard field practices that meant that a truly comprehensive, precise and systematic scientific survey of a pre-determined block of territory could never be fully achieved. There was always too much territory to cover, too little time to devote to carefully measured surveys and too few trained assistants to carry out the work. When considered from this perspective, the singularity of Dawson’s work on the Yukon was a product, not of any cataclysmic event that forced a radical departure from established field practices, but rather the disappointing result of an accumulating series of common and quite mundane challenges that seemed to beset Dawson’s field work to a greater or lesser degree every season.
Thus, what the Yukon report and maps reveal was the fine line between success and failure in field science. In 1887 just enough had gone wrong to convince Dawson that a much more circumspect report needed to be written. Similar obstacles had arisen in other seasons but, on those occasions, Dawson felt that they had been adequately overcome, allowing him to produce substantive reports that rendered the surveyed territories significantly more legible. In the next chapter I will turn from the anomalous Yukon study to illuminate how Dawson’s more orthodox reports and maps exuded an aura of scientific authority that transcended their limitations and allowed them to construct vibrant imaginative geographies of the Canadian West. In particular, I will focus on how Dawson’s published depictions of the Queen Charlotte Islands symbolized Canada’s epistemological dominion over this remote insular outpost and portrayed its anticipated transformation into settler space as both inevitable and imminent.
Chapter 4

Evoking Epistemological Dominion and Anticipating Settler Space

Introduction

Dawson faced many obstacles in his field work that inhibited his ability to ‘lay bare’ the lands, natural resources and Native peoples he encountered in his Western reconnaissance surveys. Nonetheless, with the notable exception of the Yukon report, his published work presented vivid and quite powerful imaginative colonial geographies of the western territories. Over the course of his career, Dawson produced reports and accompanying maps that conveyed two important messages about the territories surveyed. First, that the Canadian State was establishing epistemological dominion over the lands, natural resources and Indigenous peoples of these remote and hitherto poorly-known regions. Through the modern tool of the scientific survey the Dominion government had brought the power of science to bear on its newly-acquired territories in the West, amassing a wealth of practical knowledge that allowed effective “action at a distance.”¹ While complete epistemological dominion was a fantasy that Dawson’s hasty and necessarily circumscribed reconnaissance surveys fell short of delivering, his reports and maps symbolized Canada’s authority over the West and reinforced the State’s ability to exert administrative control over even its most far-flung territories. Second, Dawson’s reports and maps anticipated that these Western territories would soon undergo an orderly transformation from under-utilized wilderness to productive settler spaces. While the reports and maps were designed to facilitate this transformation by providing practical

information for settling the land, extracting its resources and governing its inhabitants rationally and efficiently, they also justified these colonial acts by depicting the creation of settler space in the West as inevitable and imminent. Indeed, Dawson’s reports and maps presented the rational exploitation of resources in these remote hinterlands as a destiny that Canadians had an imperative to fulfill. These claims are best illustrated by analyzing Dawson’s official report and maps for the Queen Charlotte Islands—which exemplified the form, character and scientific authority of many of Dawson’s published depictions of western territories.  

**Dawson’s Candid Assessment of the 1878 Survey**

As would later be the case in the Yukon, Dawson’s 1878 exploration of the Queen Charlotte Islands was hampered by a series of frustrating obstacles and delays that limited the scope of his field reconnaissance. Simply getting to the Charlottes proved challenging: “we have had a most provoking series of head winds & Calms ever since embarking, & the delay occasioned has been most annoying….We have been drifting about in the passages becalmed, carried by the tides now one way now another.”  

Nor did Dawson’s difficulties end once he had arrived on the islands. The typical weather of the Charlottes caused Dawson considerable bother, as he noted in successive entries in late June: “afternoon terribly wet & showers still frequent & very heavy….The continuance of this wet weather now begins to become very irksome, interfering as it does so much

---

2 George Dawson, “Report on the Queen Charlotte Islands, 1878,” in Geological Survey of Canada, *Report of Progress for 1878-1879* (Montreal: Dawson Brothers, 1880), 1B-239B. While my focus in this chapter will be this report on the Charlottes, I will reference relevant material in Dawson’s other reports periodically to illustrate important parallels with the majority of his published work.

with our work….Scarcely possible to see one point from another in taking bearings, &
almost impossible to form any correct estimate of distance, or to examine the rocks
properly—note book sopping all day.” At times during the 1878 survey Dawson had
trouble finding informants and guides to help him navigate the complex coastlines of the
archipelago and, with only his teenage brother Rankine as an assistant, every aspect of
the onerous scientific work fell to him. These difficulties also made it challenging for
Dawson to explore the inland forests and mountains of the archipelago’s major islands,
further reducing the amount of territory he examined first-hand. Finally, as in 1887,
Dawson could not be sure of the reception he would receive from the Haida. These
Native inhabitants of the Charlottes had achieved a reputation for bellicosity toward
Native rivals and White interlopers alike over the course of the previous century—a
reputation Dawson had become well aware of during his time in British Columbia. Thus,
while the more manageable scale of the Charlottes provided Dawson with a greater
margin for error than he would later experience in northern British Columbia and the
Yukon District, his 1878 field season—like most of his field seasons—was plagued by
many of the same difficulties.

As a result of these difficulties, Dawson was unable to carry out a systematic
reconnaissance survey of the entire archipelago over the course of the 1878 field season
and he made sure to say as much in his published report on the Charlottes (see Figure

---

5 Dawson met very few Natives in the southern portion of the archipelago, leaving him to navigate these
complicated coastlines mostly without assistance or advice. See Ibid, II: 450-466. Frequent periods of
heavy rain made his efforts to fix latitude and longitude very difficult. See Ibid, II: 453 and 457.
6 According to Dawson: “The Haidas have always borne a bad character, and have plundered coasters on
one or more occasions, detaining a portion of the crew as slaves. Fear of the possible behaviour of the
Indians has frequently deterred private individuals from visiting the islands.” See Dawson, “Report on the
Queen Charlotte Islands,” 13B.
4.1). In particular, time and weather constraints had not permitted Dawson “to extend the systematic exploration to the west coast,” barring a single brief excursion to the portion

Figure 4.1
of that coast immediately west of Skidegate Inlet. Time constraints, impassable trails and a lack of guides also meant that Dawson was unable to undertake excursions into the interior regions of the islands. His only opportunity came in conjunction with his survey of Masset Inlet—an arm of the sea that extended deep into the heart of Graham Island. Here, Dawson expressed an interest in navigating the Yakoun River and in exploring some of the established trails connecting Masset Inlet to Skidegate Inlet to the south, “but owing to heavy windfall caused by fire, both this [journey along one of the trails] and the navigation of the river had to be given up.” Instead of providing a comprehensive and systematic overview of the entire archipelago, then, Dawson’s report was only able to offer readers a detailed analysis of the fjords, channels, islands and inlets of the Charlottes’ eastern and northern littoral—a limitation that Dawson periodically referenced over the course of his analysis.

Because he had been unable to carry out a systematic survey of the entire archipelago, Dawson took measures to ensure that his geological map of the Charlottes (Figure 4.2) was appropriately judicious in representing the portions of the islands that he had been unable to survey first-hand. He noted in the map’s legend that his delineation of the western coastline was based on an 1862 chart prepared by the British Admiralty, supplemented by bearings of known landmarks recorded by captains George Dixon and George Vancouver during their 18th-century voyages to the Pacific Northwest. To

---

7 Ibid 2B and 42B.
8 Ibid, 37B.
9 Dawson noted in the report’s introduction that the 1862 Admiralty chart for the Charlottes was the most useful extant map of the archipelago, despite its numerous omissions and errors in the representation of the southeast coast. He went on to say that the chart’s depiction of the west coast was based on a corrected version of an 1849 Russian map of the region that, in turn, had been based on the bearings provided by George Vancouver in his account of his journey down the West Coast in 1793. See Ibid, 11B. The roles that George Dixon (1787) and Vancouver played in the discovery of the Queen Charlotte Islands is discussed in more detail below.
reinforce this point he employed a series of representational techniques to communicate uncertainty about the precise position of the archipelago’s western shorelines. Along much of that coast, a thin, understated solid line was used to designate the shoreline. The symbol is unremarkable until it is compared with the rendering of many of the coastlines.

Figure 4.2
George Dawson’s geological map of the Queen Charlotte Islands, 1880.10

10 This image, as well as those that appear in Figures 4.3, 4.4, 4.5, 4.6, 4.7 and 4.11 below, are digital files that appear courtesy of the 2008: MIRAGE Database, Geoscience Data Repository, Geological Survey of Canada, Earth Sciences Sector, Natural Resources Canada, Government of Canada, which can be accessed on the world-wide web at http://gdr.nrcan.gc.ca/mirage/index_e.php.
along the eastern margins of the archipelago, which are set down in a thicker, bolder line (Figure 4.3). In addition, Dawson chose to omit portions of the coastline at the heads of several west coast inlets, leaving gaps of blank space instead. Presumably, this was to indicate that the heads of these inlets had neither been surveyed in 1878 nor set down on the Admiralty chart of 1862. Dawson also elected to use dashed lines in various localities throughout the map to indicate segments of coastline that had not been thoroughly surveyed—even in parts of the archipelago he had otherwise extensively explored. The eastern coastlines of both Burnaby and Lyell Islands were rendered as dashed lines, indicating that, while Dawson’s careful running survey of the south-eastern coast had included the western margins of these substantial islands, the survey had not been extended to their seaward shores (Figure 4.4). In the interior of Graham Island the lakes and major rivers surrounding Masset Inlet were once again indicated by a series of
**Figure 4.4**
This detail from Dawson’s map of the Charlottes shows a dashed line for portions of Lyell Island’s eastern and southern shores, as well as for portions of the Ramsay Island and Hutton Inlet shorelines to the south. Note the blank space at the head of Sedgwick Bay on Lyell Island. Through these techniques, Dawson gives a clear indication of the various gaps in his reconnaissance survey.

dashes, providing graphic confirmation that Dawson had spent little time exploring the inland waterways feeding this inlet. Dashed lines also indicated the geological boundaries separating the archipelago’s principal rock formations. For Dawson, this tentative depiction was appropriate because he had not spent time exploring the frontiers of the various geological divisions in the interior of the islands. He warned readers that: “while the divisions [on the map] are drawn with sufficient accuracy on those parts of the coast which have been surveyed and examined, the continuation of the lines [geological boundaries] inland is based on the attitudes of the rocks and the physical character of the
country alone.”\textsuperscript{11} Finally, Dawson included topographic depictions of landscape relief only near the bays and inlets that he had spent time surveying. In contrast, the lands along the west coast and throughout much of the interior of Graham Island were presented without topographic symbols, a graphic distinction that served to further reinforce which parts of the archipelago had been surveyed and which parts had not. This discrepancy is well illustrated in Figure 4.5, which depicts a portion of Moresby Island, west of Burnaby Island. In reality, almost this entire island—including its western edge—is quite mountainous, yet Dawson’s map only depicts topographic relief along the island’s eastern margin.

\textbf{Figure 4.5}
This detail from Dawson’s map of the Charlottes depicts topographic relief for only the eastern margin of Moresby Island, which is, in reality, an extensively mountainous landscape.

\textsuperscript{11} Dawson, “Report on the Queen Charlotte Islands,” 47B.
Through a cartographic palette of dashed lines, subtle omissions and selective topographic symbolism, Dawson made clear that the entire archipelago had not been systematically surveyed during the summer of 1878. This approach was not unique to the map of the Queen Charlotte Islands but was a representational strategy that Dawson deployed in virtually all of the geological maps he made over the course of his field career in the Canadian West (see Figures 4.6 and 4.7). When viewed in this light, the circumspect cartography that accompanied the Yukon report (discussed last chapter) is less of an anomaly than it appears at first glance. As with most of his other maps,

![Figure 4.6](image)

Figure 4.6
This detail from Dawson’s 1877 map of southern British Columbia depicts well-defined shorelines for Great Shuswap Lake and considerable topographic relief for the surrounding landscape. Dawson did not have a chance to explore nearby Adams Lake, however, as evidenced by its indeterminate shoreline and the lack of topographic detail in its vicinity.12

---

Dawson’s maps of the Yukon endeavoured to show readers exactly which landscapes had been surveyed and which had not. The main difference was that the immense size of the Yukon map and its lack of geological colouring made Dawson’s circumspect approach more conspicuous.

Figure 4.7
This detail from Dawson’s 1879 map of central British Columbia reveals a distinct contrast between Dawson’s knowledge of the topography and shorelines of Tacla Lake to the west and the various rivers and lakes to its south and east.13

This degree of candour was not always to be found on maps produced in the course of scientific surveying. According to Raymond Craib, many published survey maps tended to obfuscate the challenges and contingencies inherent to field work: "In presenting a smooth facade of clearly marked lines, established plots, and definitive borders, the map obscures the social process of its own production. There are no erasure

13 George Dawson, “Map of Part of British Columbia and the Northwest Territory from the Pacific Ocean to Fort Edmonton,” printed in conjunction with his “Report on an Exploration from Port Simpson on the Pacific Coast to Edmonton on the Saskatchewan, Embracing a Portion of the Northern Part of British Columbia and the Peace River, 1879,” in Geological Survey of Canada, Report of Progress for 1879-1880 (Montreal: Dawson Brothers, 1881), 1B-177B.
marks, no smudges, no alterations. All lines are equally inscribed. This lends the map a finality that is then transposed to the very process itself, such that the [survey] assumes a retrospective coherence, an inevitability, it did not have in practice.”¹⁴ Likewise, Matthew Edney argues that scientific surveys tend to produce maps where “all data are represented in a uniform manner, regardless of the various sources and thus variable quality of the information. It [is] the map’s graticule which promote[s] all data to one level of quality, allowing otherwise different data to be equated.”¹⁵ Yet, as we have seen, Dawson’s cartographic representation of the Charlottes made no attempt to create a smooth façade of uniformly presented data and equally inscribed lines. Instead, Dawson made a conscious effort to highlight rather than to obscure the social processes shaping his survey in ways that emphasized its limitations. He did so because he recognized that maps were beguiling documents that were often not as reliable as they appeared. This attitude was clearly communicated in 1890, when he asked his audience at the Ottawa Field Naturalists Club to imagine themselves in conversation with the cartographer responsible for the latest small-scale map of Canada: “asking such awkward questions as may occur to us on the sources of information for this region or that, we may probably by

¹⁵ Matthew H. Edney, *Mapping An Empire: The Geographical Construction of British India, 1765-1843* (Chicago: The University of Chicago Press, 1997), 97. In discussing the Napoleonic surveys of Egypt undertaken at the very beginning of the 19th century, Anne Godlew ska argues that “this cartography—and indeed most cartography—allowed little in the way of qualified statements and few are to be found on the maps.” See Anne Godlew ska, “Map, Text and Image – The Mentality of Enlightened Conquerors: A New Look at the Description de l’Egypte,” *Transactions of the Institute of British Geographers*, New Series 20, 1 (1995): 5-28, esp. 18. Graham Burnett corroborates Godlew ska’s assertion that many 19th-century explorers had little scope for qualifying their cartographic claims in his analysis of British exploration in British Guyana. He notes that while explorer Robert Schomburgk used dashed lines to indicate rivers he had not surveyed first-hand in his 1841 map of the colony, his patrons at the Royal Geographical Society in London were not best pleased with this approach. As a result, these tentative traces had been transformed into solid lines by the time a map of the colony, based directly on Schomburgk’s map, was published a decade later. See D. Graham Burnett, *Masters of All They Surveyed: Exploration, Geography, and a British El Dorado* (Chicago: The University of Chicago Press, 2000), 169.
him be referred to another and older map, and so on till we find in the end that the whole
topographical fabric of large parts of all these maps rests upon information of the vaguest
kind.”16 Dawson knew that equally awkward questions could be asked of the cartographic
products he generated from his own surveys and so deployed dashed lines and blank
spaces on his geological maps of the Canadian West to alert readers to the gaps in his
field reconnaissance—gaps he had also made sure to highlight and explain in his
accompanying report.

Evoking Epistemological Dominion

While Dawson made every effort to remind readers of the preliminary and partial
nature of his reconnaissance surveys, his published work declared unequivocally that the
Canadian State was establishing its epistemological dominion over its newly acquired
western territories. When the political realignment that was Confederation took shape in
1867 it gave rise to a new ‘Dominion of Canada’—a title that indicated that Canadian
territory remained under the sovereign authority of the British Crown but that also
declared the Canadian State’s authority to govern the lands and peoples of the
Dominion.17 This second connotation of “dominion” acquired greater resonance in
subsequent years, as more and more British territory in North America was placed under

---

16 These comments were part of the same 1890 speech to the Ottawa Field Naturalists’ Club quoted in the
Introduction, in which Dawson portrayed his role as “laying bare to inspection and open to exploitation”
the unexplored parts of the Dominion. See George Dawson, “On Some of the Larger Unexplored Regions
of Canada,” Ottawa Naturalist 4 (1890): 29-40, esp. 29-30. See also Chapter 2 for the intellectual context
of Dawson’s ‘laying bare’ comments.

17 The Oxford English Dictionary offers two important definitions of the term ‘dominion.’ In one sense, it
can refer to the lands, domains or territories of a feudal lord, monarch or government. By calling the new
territorial entity established in 1867 the ‘Dominion of Canada’ the British government was reinforcing
British sovereignty over these lands, notwithstanding the greater measure of independent self-governance
set out in the British North America Act. In a related sense, the term dominion refers to the power, right or
authority to govern or rule, particularly a monarch or government’s sovereign authority to rule over its
citizens and territory. It is this second sense of the word that is emphasized here. See The Oxford English
the administrative authority of the Canadian State—including the vast western territories of Rupert’s Land, the North-Western Territory and British Columbia in 1870-71. By what right could Canada declare such sovereignty over the West? Without question, the various terms of sale, legislative acts and orders in council that had transferred direct administrative responsibility over these lands from the British Crown to the Parliament of Canada served to establish Canada’s legal authority—its juridical dominion—over the West. But, in the competitive environment of post-Revolutionary North America, such juridical dominion might not carry the day. Canada would need to establish its authority over its acquired territories in tangible ways to buttress any claims founded on British law. One important step would be to establish intellectual authority—epistemological dominion—over the West. This would require the kind of scientific exploration that the GSC was inaugurating with its western reconnaissance surveys in the 1870s. While juridical dominion relied on a bulwark of legal documents to preclude foreign territorial claims, epistemological dominion relied on the power of science to draw remote, poorly known regions more fully into the administrative orbit of the Canadian State.

While complete epistemological dominion was an ideal that could never be achieved in practice, the Survey’s ongoing efforts to amass thorough knowledge of the lands, resources and peoples of the West symbolized the power of the nascent Canadian Dominion in important ways. As we saw in Chapter 2, the GSC was part of the ‘institutional ensemble’ that comprised the post-Confederation Canadian State. As such, its reconnaissance surveys, to borrow a phrase from Patricia Seed, were important ‘ceremonies of possession’ that signified the Canadian State’s authority over the West.
and its power to assess and administer its new territory. Indeed, as Raymond Craib has argued, one of the most fundamental tasks of the modern state was to assume control over the space of the state. This was primarily done, not through force, but through the amassing of knowledge about the lands, resources and peoples distributed throughout the national territory. For Craib, scientific surveying was fundamental to statecraft because the power to survey implied the power to rule. At a practical level this is obvious, as scientifically-derived maps and reports would provide government officials “with both structured and situated knowledge of the regions they were assigned to administer.” At a symbolic level such maps signified a good deal more: "a precise national map had become, by the late nineteenth century, both the image and measure of a nation-state's modernity. And a precise general map was a product of scientific practice: a map grounded in the objective authority of sophisticated instruments, careful calculations, and a combination of field- and office work. Science itself was a cultural litmus test, a language of legitimacy, a means by which to distinguish modern, civilized nation-states

---

18 Patricia Seed, *Ceremonies of Possession in Europe’s Conquest of the New World, 1492-1640* (Cambridge: Cambridge University Press, 1995). While Seed’s subjects of study and timeframe are far removed from my study of the GSC’s western surveys in the late 19th century, her emphasis on the cultural importance of the ceremonies that colonial powers used to signify and justify their authority over new lands resonates with my own interest in the ways that emerging nation-states like Canada used scientific surveys, not simply to amass practical knowledge about the natural resources distributed throughout the land, but also to symbolize their administrative power and authority over the national territory.

19 Craib, *Cartographic Mexico*, 2.

20 Ibid, 127. Many emergent states occasionally used force to establish control over people and territory, just as the Canadian Government did in response to the Métis uprisings on the Prairies in 1869 and 1885. Moreover, many states relied on military or police forces to provide an overt threat of force and maintain control over territory. In Canada, the formation of the Northwest Mounted Police in 1873 played an important role in solidifying the Canadian State’s dominion over its western territories. Yet, the effective deployment of troops or police was predicated on an intimate knowledge of the territory and its inhabitants, indicating just how essential the state’s efforts to establish epistemological dominion over the West truly were.

21 Ibid, 9.

from their supposedly retrograde inferiors.”  

Science, then, was a symbol of a state’s modernity and sophistication but, as Craib notes, there was more:

Iconographic subtlety, combined with the certitude of scientific methodology, conveyed an impression not only of the land but of the regime that mapped and managed it....Their [maps’] ordered surface suggested a corresponding political, economic, and moral order, and integration in the state itself. Their exterior implied concordant degrees of stability and predictability in the worlds of politics, commerce, real estate, and society, even if such stability and integration proved more myth than reality on the ground. What better visual complement to scientific politics...than the scientific map? What better instrument for, and image of, administered, rational rule? In effect, scientific practices melded with political theory in a teleology of order and progress, the endpoint of which was the modern, capitalist state.

Scientific surveys also imbued the state with an aura of solidity, stability and rationality that, as I discussed in Chapter 2, it did not really possess. The act of surveying helped to produce, not only a national territory, but also the state itself, by making legible a material entity over which the state could be seen to have epistemological and administrative control. In this formulation the Dominion of Canada—a new, abstract and rather heterogeneous amalgam of agencies and institutions—could begin to cohere in the minds of the public as the territory it presided over became ever more systematically known and interconnected through the efforts of a national scientific survey. The overtly scientific nature of Dawson’s surveys, then, was vital to making settler space because it “propagated the idea, increased the presence, and buttressed the weight of the

---

23 Ibid, 185.
24 Ibid, 189.
25 Bruce Braun makes a similar argument when he states that the sovereign power of the state over its territory did not precede the work of surveyors but emerged from “the very ways that the state’s territory came to be represented and known.” Bruce Braun, *The Intemperate Rainforest: Nature, Culture and Power on Canada’s West Coast* (Minneapolis: University of Minnesota Press, 2002), 47. See also Bruce Braun, “Producing Vertical Territory: Geology and Governmentality in Late Victorian Canada,” *Ecumene*, 7, 1 (2000): 7-46, esp. 41.
state.”26 Dawson’s extensive and detailed scientific surveys of poorly-known western territories symbolized the fledgling state’s coherence, modernity and its commitment to establishing epistemological as well as legal dominion over its lands—a commitment that can be illuminated in more detail by examining Dawson’s report and accompanying geological map of the Queen Charlotte Islands.

(i) Dawson’s Report on the Charlottes

It is apparent that, despite his candid acknowledgement of the gaps in the survey’s coverage, Dawson’s published account of the Charlottes offered readers an assured and quite robust depiction of these islands. As Dawson suggested in his introduction, the incomplete nature of his reconnaissance had not prevented him from preparing a report that gave a reasonably detailed picture of the topographic and geological character of the islands.27 In addition, Dawson had been able to gather copious meteorological data, plant and marine specimens, and over sixty photographs, illustrating “points of geological and picturesque interest, and also the peculiar carvings and architectural devices of the Haida.”28 The result was a report of considerable organization, breadth and detail, prepared by a well-educated and widely-respected scientist working on behalf of the emerging nation’s longest-serving and most preeminent scientific institution. As such, the scientific and institutional authority undergirding the report seemed to downplay the lacunae in coverage and overshadow the partial and hurried nature of the field reconnaissance, despite Dawson’s best efforts to keep those realities firmly in view.

26 Craib, Cartographic Mexico, 14-15.
27 Dawson, “Report on the Queen Charlotte Islands,” 2B.
28 Ibid.
As Raymond Craib asserts, one of the most basic ways of signifying epistemological dominion over a hitherto poorly-known territory was to “fix…the land as a stable, visible, and readable stage.” In the first instance, this involved firmly situating the territory in question in its geographical context. As such, and in keeping with typical geological reports of the time, Dawson began his discussion of the Charlottes by establishing the position of the archipelago and outlining some of its basic geographical character. He provided readers with a series of latitude and longitude coordinates for various landmarks on the islands, which could be used to fix their position relative to known points in the Alaskan archipelago to the north, the BC mainland to the east and Vancouver Island to the south. Next, he estimated the aerial extent of the main islands and oriented the archipelago with respect to its surrounding water bodies. In these passages, a litany of measurements—degrees of latitude and longitude, lengths and widths of islands in nautical miles, compass bearings for the archipelago’s mountain axis and the elevations of its highest peaks—spoke of accuracy and scientific precision. Because Dawson had not had the opportunity to systematically survey the west coast, he chose to rely on the measurements made by predecessors—primarily George Vancouver—for this portion of the archipelago. Rather than merely incorporate Vancouver’s measurements into his account, Dawson elected to quote Vancouver’s 1793 description of that coast at length, providing readers with a narrative of coastal exploration that could partially offset the lack of focus on this coast during the remainder of the report. Like Dawson, Vancouver filled his description of the west coast with distance measurements, compass bearings and latitude and longitude readings for key

29 Craib, Cartographic Mexico, 8.
30 Dawson, “Report on the Queen Charlotte Islands,” 3B.

176
landmarks, providing a geographical framework for his observations that conveyed
precision and that both paralleled and complemented Dawson’s geographical account of
the islands.31

By quoting Vancouver at length, Dawson introduced an important historical
dimension to his introductory remarks on the Charlottes. His was not the first voyage to
the Charlottes and including an account of those who had gone before him would help
Dawson position his survey within the nearly three hundred year history of European
exploration in the region. Beginning with the voyage of Juan de Fuca in 1592, Dawson
provided a brief overview of the various Spanish, French and British explorers who had
periodically probed this portion of the North Pacific during the 16th, 17th and 18th
centuries. Much of this information came from an 1872 overview prepared by W. H.
Dall, an American naturalist well versed in the history of discovery along the Pacific
Coast. Dawson used Dall’s work as the basis for his own account of the explorations
made prior to Vancouver’s 1793 voyage, “amplifying it considerably, and making a few
corrections.”32 Not surprisingly, Dawson’s account paid particular attention to the series
of historic ‘firsts’ that defined European exploration of the Charlottes: the first sighting of
land (Juan Perez in 1774), the first determination that these were islands (Jean-Françoise
de Galaup, Comte de La Pérouse in 1786), the first definitive naming of the archipelago

31 Ibid, 4B-6B.
32 Ibid, 7B. Ironically, Dall’s original account had already been published by the GSC in conjunction with a
report on the Queen Charlotte Islands. In 1872, Survey geologist James Richardson had made a cursory
examination of the Cowgit coal mine at Skidegate Inlet, in the heart of the Charlottes. In conducting his
geological work Richardson had collected some fossils, which he supplied to Survey paleontologist, J. F.
Whiteaves for analysis. Whiteaves used the specimens as a basis for a paper on the Mesozoic fossils of the
Charlottes and called on Dall to provide him with an overview of European exploration in the region for
use in the introduction of that paper. Incidentally, Whiteaves also included Richardson’s geological map of
Skidegate Inlet in his paper, another resource that Dawson drew upon in working up his 1880 report on the
Charlottes. Despite focusing on Mesozoic fossils, then, Whiteaves’ paper laid the foundations for Dawson’s
more catholic overview of the islands. See J. F. Whiteaves, Mesozoic Fossils. Volume 1, Part I: On Some
Vertebrates From the Coal-Bearing Rocks of the Queen Charlotte Islands Collected By Mr. James
Richardson in 1872 (Montreal: Government Printer, 1876).
(George Dixon in 1787), and the first recorded landfall (William Douglas in 1788).\footnote{Dawson, “Report on the Queen Charlotte Islands,” 8B-12B.} Vancouver’s 1793 exploration along the west coast of the archipelago was also significant in this regard because it marked the first extensive coastal survey made of the islands, while also providing a robust argument in support of British—and by extension, Canadian—sovereignty over the Charlottes. Following his reformulation of Dall’s account, Dawson discussed the short-lived but intensely-prosecuted trade in sea otter pelts that had brought numerous British, American and Russian vessels to the Pacific Northwest in the latter half of the 18th century.\footnote{Ibid, 12B-13B. As Dawson noted, these traders left little in the way of records documenting their activities in the Pacific Northwest or their lengthy voyages to the various European, American and Cantonese market ports. They no doubt developed a fairly intimate knowledge of the Charlottes’ coastal geography and Native society during this period but such knowledge was not passed on, Dawson lamented.} Completing his historic overview, Dawson discussed some of the short-lived mineral prospecting expeditions that had taken place on the Charlottes in the 1850s before outlining the British Royal Navy’s efforts to survey several of the archipelago’s harbours in that same period.\footnote{Ibid, 13B-14B.} By drawing together a number of disparate historical accounts into a single report, Dawson provided readers with an up-to-date and seemingly comprehensive synopsis of European discovery and exploration on the Queen Charlotte Islands. This was not unusual, as such summative historical overviews were common elements in several of Dawson’s reports.\footnote{Dawson briefly addressed early explorations of the Yukon District in “Report on an Exploration in the Yukon District, N.W.T., and Adjacent Northern Portion of British Columbia, 1887,” in Geological and Natural History Survey of Canada, ed. Annual Report (New Series), Vol. III, Part I (Montreal: William Foster Brown and Co., 1889), 1B-277B, esp. 14B. For reports relating to less remote and, thus, already well-traveled regions of the west, Dawson confined his historical remarks to brief observations on the geological explorations undertaken to date. This was evident in both his report on southern British Columbia and his report on the Bow and Belly River region of southern Alberta. See Dawson, “Preliminary Report on...the Interior of British Columbia,” 4B and also his “Report on the Region in the Vicinity of the Bow and Belly Rivers, North-West Territory,” in Geological Survey of Canada, Report of Progress for 1882-83-84 (Montreal: Dawson Brothers, 1885), 1C-169C, esp. 6C.} Some might occupy less than a paragraph while others might take up several pages but, in each
case, Dawson seemed intent on positioning his own reconnaissance in its appropriate historical context. In doing so, he also provided readers with a concise synopsis of the fragmented historical record concerning the region and helped integrated these remote and poorly known lands into a powerful and familiar European narrative of imperial exploration.

Dawson’s concise history of discovery and exploration did more than offer readers an historical preface to his own reconnaissance. By linking his own survey to the explorations of his often illustrious forebears, Dawson established himself as the latest in a long line of great trail-blazers. In this construction, the accumulation of geographical knowledge of the Queen Charlotte Islands was a collective project, spanning centuries, which bound all who had contributed into a heroic fraternity of explorers. As Graham Burnett notes, this was a common theme in colonial writing and map-making. Later explorers frequently drew connections between their own work and the pioneering efforts of earlier explorers and surveyors in ways that bolstered their own stature and authority.37 But, as Burnett points out, such invocations consisted of more than reverence to illustrious predecessors. Just as significantly, overviews of previous explorations provided the opportunity to highlight the shortcomings and oversights of these journeys and emphasize the significance of the author’s own contribution to the geographical understanding of the territory in question.38 Dawson executed this strategy deftly with respect to his exploration of the Charlottes. In summarizing the various Spanish voyages to the region in the eighteenth century he concluded that “these expeditions of the

---

38 Ibid.
Spaniards in the North Pacific were singularly barren of geographical results.”39 Dawson attributed the limited nature of the results to the Spanish monarchy’s penchant for secrecy, but time constraints and other obstacles had ensured that other celebrated explorers also left little trace of their encounters with the Charlottes. James Cook had missed the islands completely in 1778 due to bad weather, while La Pérouse could only do enough exploring of the Hecate Strait in 1786 to suggest—rather than confirm—that these were islands.40 Even Vancouver, who spent the better part of three years in the North Pacific in the early 1790s, had only enough time to outline the west coast of the archipelago.41 Dawson continued by noting that the intensive trade in sea otter pelts that came on the heels of these voyages of discovery added little to a broader knowledge of the islands and insisted that it was not until the hydrographical mapping of the Royal Navy in the 1850s that new depictions of portions of the archipelago were produced.42 Yet, while the resulting charts of Skidegate Inlet and several other major harbours offered important advances in the cartographic depiction of the archipelago, Dawson lamented that the Admiralty’s representation of the Charlottes’ as a whole was “nothing more than a very rough sketch of the main outlines of the islands.”43 By highlighting just how halting and piecemeal earlier European explorations of the Charlottes had been, Dawson was able to emphasize the significance of his own contribution to geographical knowledge—positioning himself, not only as the latest in a long line of imperial explorers, but also as the one who had done the most to capture the ‘true’ picture of the Charlottes.

39 Dawson, “Report on the Queen Charlotte Islands,” 8B.
40 Ibid, 9B.
41 Ibid, 12B.
42 Ibid, 13B.
43 Ibid, 14B.
This, of course, had significance for the evocation of Canada’s epistemological dominion over the coastal outposts of the Pacific Northwest. As I suggested in Chapter 2, Dawson was an agent of the Canadian State and he embodied the Dominion government during each of his reconnaissance surveys. By significantly advancing the geographical knowledge of the Charlottes, Dawson’s work signified that the Canadian State was beginning to assert its epistemological dominion over the Charlottes. Just as importantly, his narrative served to position the Canadian Dominion at the pinnacle of an exploration history that could be traced as far back as Juan de Fuca’s voyage of 1592. Under the aegis of the Canadian State, the most thorough exploration of the Charlottes to date had been carried out, which had resulted in a substantial advancement in geographical knowledge. Through Dawson, the Dominion government had brought the power of science to bear on these remote and mysterious islands, finishing the complicated survey work that some of the Pacific’s great explorers—not to mention the world’s greatest navy—had been unable or unwilling to carry out and had cemented the Dominion’s authority over an archipelago that lay at the far-flung margin of its newly-acquired territories.

In the remainder of the report, Dawson led readers on a series of vicarious journeys through the archipelago, traveling from south to north along a narrative route that mirrored the one that Dawson had traversed during his season in the field (see Figure 4.1 above). In successive sections of the report, the archipelago’s topography, geology and

---

44 Dawson was careful to note that De Fuca likely only ventured as far north as the strait that now bears his name. Nonetheless, he mentions the Spaniard in connection with his exploration history because he considers De Fuca to be “the first to discover any part of the territory now forming the Province of British Columbia.” Dawson, “Report on the Queen Charlotte Islands,” 6B.

45 Similar orderly progressions were incorporated in many of Dawson’s reports on the Canadian West, even if it meant that the report’s structure bore little resemblance to the peripatetic ramblings that Dawson undertook in the field that summer. See, for example, his “Report on the Region in the Vicinity of the Bow
glacial features were discussed according to this linear arrangement, providing readers
the opportunity to encounter different dimensions of the landscape as each narrative
unfolded from south to north. These linear narratives could also be easily traced on the
surface of the accompanying geological map. Dawson first focused on a “general
description” of the archipelago’s surface features: its landforms and waterways,
frequently accompanied by brief descriptions of the vegetation, wildlife and weather
patterns observed or inferred at particular localities.46 This mode of dense description
carried on for some thirty pages, providing the first truly detailed image of these
mysterious landscapes ever recorded in print. Dawson’s initial description of Lyell Island
was a typical passage:

Lyell Island is about ten miles in extreme diameter in both east and
west and north and south bearings. It is separated from Darwin
Sound from the main coast by Moresby Island to the south-west, and
is composed of high hilly land, generally rising at once from the
shores to heights of from 600 to 900 feet, and attaining in a few
instances toward the centre of the island a height probably exceeding
1000 feet. It is densely wooded, and where patches of low land exist
bears some fine timber.47

Once surface features had been described, Dawson turned to the Charlottes’ underlying
geology. This section of the report opened with some brief “general remarks” that
discussed the character and positioning of the archipelago’s various rock formations, the
relative thicknesses of the major beds, the degree of disturbance associated with the beds
in particular districts, and the classificatory ambiguities that would need to be resolved in

---
46 Ibid, 14B.
47 Ibid, 23B
the future. Next, Dawson turned to a detailed description of the rock exposures he encountered at particular localities visited over the course of the field season. This section of the report was organized geologically, with each of the archipelago’s three principal rock formations addressed in sequence, from oldest (Triassic) to youngest (Miocene).48 Interestingly, however, the geology of the Charlottes was such that the oldest Triassic rocks were exposed in the southern parts of the archipelago, the intermediate Cretaceous rocks were predominantly exposed in the geographic centre of the islands and the younger Miocene rocks were exposed further north. Thus, much like his initial geographical commentary, Dawson’s geological descriptions were presented in a south-to-north sequence—offering readers a second virtual tour through the region, this time focusing on its underlying rock structure. The image of Lyell Island, therefore, looked considerably different in this second pass-through: “felspathic and dioritic rocks, though not so distinctly schistose, form the west side of Lyell Island, with the exception of False Bay, where flaggy, blackish argillites appear, and run south-eastward in a low country toward Sedgwick Bay.”49

In the final section of the report Dawson analyzed the ways glaciers had shaped the Charlottes during the Pleistocene epoch—an important focus at a time when he was in the midst of working out a theory of glaciation that would explain the Pleistocene deposits encountered on both sides of the Rockies.50 In particular, he focused on the arrangement

48 Dawson, “Report on the Queen Charlotte Islands, 49B-89B.
49 Ibid, 58B.
50 Interestingly, while Dawson subscribed to the dominant theory that massive ice sheets had been the cause of most glacial deposits west of the Rocky Mountains, he continued to support an older and largely obsolete theory of glaciation east of the Rockies. In this older formulation, glacial deposits were thought to be the result of seawater inundating the Prairies and carrying icebergs containing rock debris from the Canadian Shield. According to Dawson, the melting of these icebergs released the rock fragments, which were deposited on the sea floor before the land rose and sea water receded, exposing the Prairies. See Morris Zaslow, Reading the Rocks: The Story of the Geological Survey of Canada, 1842-1972 (Ottawa:
and composition of the islands’ deposits of sand, clay and gravel, as well as on the various scour patterns that the ice sheets had etched into the rocks themselves. Based on his observations, Dawson was able to conclude that glaciation on the Charlottes was a localized phenomenon unrelated to the processes that had occurred on the mainland: “We find everywhere in the Queen Charlotte Islands evidence of the descent of glacier ice from the axial range of mountains toward the sea, and little or none of the passage across the group of any ponderous ice mass.”51 As ever, Dawson supplemented these general remarks by describing the glacial deposits observed at various places around the islands. In presenting this information, Dawson again adopted a south-to-north organization for his account, leading the reader once more on a virtual journey through the surveyed region. Returning the reader to the vicinity of Lyell Island, for instance, Dawson reported that “while the marks of very heavy glaciation were found in their [the local inlets’] upper reaches, the rocks near their seaward terminations had been lightly shaped only, in most places still retaining the irregular forms due to old sub-aerial weathering or to the sea, though rounded off at the corners, the tops and sides by the passage of ice.”52 Clearly, then, Dawson regarded the surface topography, bedrock geology and intervening glacial deposits to be distinct elements of the landscape that needed to be addressed in discrete sections of the report. With each successive section, Dawson developed an increasingly robust depiction of many of the Charlottes’ key locations, taking readers on a journey, not only across the surface of the land, but also down into its geological depths.

The MacMillan Company of Canada in conjunction with the Department of Energy, Mines and Resources and Information Canada, 1975), 164-165.
51 Dawson, “Report on the Queen Charlotte Islands,” 89B.
52 Ibid, 90B.
As Bruno Latour notes, scientific reports frequently deploy figures and tables that purport to bring the very object being discussed directly into the text itself, so that it may be examined and evaluated independently by readers. While such devices undoubtedly help the author make his or her point, Latour argues, they can also serve to bolster the presumed authority of a text simply by virtue of their inclusion. Not surprisingly, Dawson inserted a number of diagrams, maps and tables throughout the text, illustrating the geological relationships observed at particularly significant sites and enhancing the report’s aura of scientific authority by appearing to ‘show’ rather than merely describe the Charlottes’ geological structure. Two particularly striking examples can be seen in Figure 4.8, which shows both a traditional geological section diagram (bottom) for the rocks of Section Cove and a more artistically rendered depiction of the headland near the Limestone Islands, with its geological composition emphasized and a small sailing vessel included for scale. Such devices, Latour reminds us, are never ‘the object itself’ but, rather, the author’s interpretation of reality, presented in different form. Nonetheless, their aura of scientific objectivity helped bolster the authority of Dawson’s report and enhance the impression that epistemological dominion was being established over these remote islands.

If the organizational structure of the main report gave the impression that the Charlottes had been thoroughly described several times over, the report’s 138 pages of appendices gave a degree of breadth and detail that further enhanced its scientific authority. Appendices A and B focused on the Charlottes’ Haida population. The first gave a detailed ethnographic account of the physical features, cultural customs, social

relations and geographical distribution of the Haida—supplemented by nine plates illustrating Haida carvings and architecture, inserted at the very end of the report. Appendix B focused on the Haida language, providing a vocabulary of some five hundred English words in one or both of the islands’ main dialects: Skidegate or Masset. As Dawson explained in the preamble to this appendix, the selected English words were derived from John Wesley Powell’s Introduction to the Study of Indian Languages and included words naming various parts of the body, family relations (husband, wife, ‘wife’s father said by husband’ etc.), material goods made or used by Natives, material goods introduced by Europeans, common animals and plants, meteorological and topographical

---

54 Dawson, “Report on the Queen Charlotte Islands,” 103B-175B. This lengthy ethnographic appendix will be the focus of Chapter 6.
phenomena, colours, numbers, units of time, and metaphysical entities, such as ‘God’, ‘Soul’ and ‘Devil.’ Appendices C and D provided notes on the various marine invertebrates and crustaceans that Dawson had dredged from the bottom of several of the archipelago’s bays and inlets. The former appendix, prepared by Survey naturalist J.F. Whiteaves, provided descriptions, taxonomic classifications and, occasionally, diagrams of the various sponges, starfish and molluscs that Dawson had collected, along with notes on the manner of collection and the exact locality where each specimen was obtained. The latter appendix, prepared by Yale University Professor S. I. Smith, did much the same for the specimens of crab, shrimp and barnacles Dawson had gathered, while also giving precise measurements of each. Appendix E, prepared by Survey botanist John Macoun, consisted of a list of the plants that Dawson had brought back from the Charlottes, arranged according to taxonomic family. Appendix F, meanwhile, took the form of an extensive table of meteorological data recorded at particular locations at particular times, accompanied by Dawson’s descriptions of the general weather patterns that had been observed since the previous entry. The final appendix presented seven pages of notes concerning the calculation of latitude and longitude at various locations throughout the archipelago. In the case of latitude, Dawson provided the measurements used to calculate his position in each instance whereas, for longitude, he noted where he had supplemented his own measurements with those established by earlier explorers—

55 Ibid, 178B-189B. See also John Wesley Powell, *Introduction to the Study of Indian Languages* (Washington: Government Printing Office, 1877). Such guides were crucial for collecting Native vocabularies because they provided a standard template of English words to be translated, which allowed for effective comparisons across Native languages. They also offered methodological advice for the effective interviewing of Native informants and especially for the challenging task of orthographically converting Native words into the Latin alphabet in ways that preserved their proper pronunciation.
56 Dawson, “Report on the Queen Charlotte Islands,” 190B-205B.
57 Ibid, 206B-218B.
58 Ibid, 219B-222B.
59 Ibid, 224B-232B.
most notably Vancouver and Dixon for the west coast and the British Admiralty for some of the archipelago’s major harbours. By showing his calculations and stating his sources, Dawson was emphasizing the care that had gone into the construction of the geological map while still emphasizing that his systematic survey had not been carried out in every part of the archipelago.

(ii) Dawson’s Map of the Charlottes

Dawson’s report did a great deal to suggest that epistemological dominion over the Charlottes was well on the way to being established—an assertion that his accompanying geological map reinforced and extended. Perhaps ironically, it was partly because Dawson used dashed lines and blank spaces to clearly map where supposition replaced surveying that his map of the Charlottes exuded an aura of reliability. Yet, the map also communicated its scientific authority in other ways. Attending to the discursive power of Dawson’s scientific mapping is important because, as J.B. Harley reminds us, “as much as guns and warships, maps have been the weapons of imperialism.” This, Harley notes, was especially so with overtly scientific maps, where a veneer of precise measurement and “symbolic realism” implied that the cartographer had achieved an accurate mimesis

---

60 Ibid, 233B-239B.
61 J. B. Harley, The New Nature of Maps: Essays in the History of Cartography, ed. Paul Laxton (Baltimore: The Johns Hopkins University Press, 2001), 57. This book, produced a decade after Harley’s death, compiles a number of his most influential papers on the relationship between cartography and power. Most of these articles were published in the late 1980s and early 1990s and were at the heart of an intellectual sea change within the history of cartography, shifting the field’s focus from rather antiquarian pursuits to fruitful engagements with many of the most significant intellectual debates of the day. This particular quotation originally appeared in Harley’s, “Maps, Knowledge and Power”—a chapter in Denis Cosgrove and Stephen Daniels’ edited collection, The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments (Cambridge: Cambridge University Press, 1988), 277-312.
of the territory, reinforcing his patron’s political authority over the lands depicted. Anne Godlewska concurs, noting that scientific surveyors in the nineteenth century frequently produced robust, confident and richly-detailed maps whose perceived authority “derived from their association with measurement, mathematics and observational instrumentation which lent them apparent objectivity.” Not surprisingly, signifiers of precision abound on Dawson’s map. A pair of scale bars beneath the map’s title permit measurements in nautical and statute miles, while a generous array of depth soundings are recorded along the eastern and northern shores of the archipelago, as well as along the shores of the British Columbian mainland to the east. Directly to the east of Laskeek Bay and again to the north of Masset Sound, Dawson also included two circular diagrams indicating the angle of variance determined between true north and magnetic north in those portions of the archipelago. The map’s legend added to the aura of scientific authority by providing geological nomenclature and widely recognized scientific shorthand—Fe, Cu and Pb denoted localities where iron, copper and lead could be found. Finally, the map’s framing matrix of latitude of longitude lines was also significant because, as Matthew Edney argues, a “map’s graticule of meridians and parallels signifies the map’s scientific, rational, ordered, and systematic foundations. It signifies the map’s naturalness: the map is the world.” Raymond Craib makes a similar assertion, noting that because the maps produced by state-organized topographic surveying in the 19th century overtly proclaimed their scientifically-derived coordinate geometries, they “acquired a disembodied purity, functioning as transparent windows onto a pre-existing space.” In short, Dawson’s

---

65 Craib, *Cartographic Mexico*, 7.
geological map of the Charlottes was imbued with a scientific symbolism that signified an emerging epistemological dominion over these remote islands.

Beyond the scientific form of the map, the specific content of Dawson’s cartography also served to evoke Canada’s emerging epistemological dominion in several different ways. First, while time and weather constraints prevented Dawson from improving upon the cartographic depiction of the archipelago’s western shores, his careful survey of the complicated south-eastern coastline allowed him to substantially reconfigure the cartographic outline of the Charlottes. Prior to Dawson’s reconnaissance survey, a number of maps of the Charlottes depicted Moresby Island as a broad, inverted triangle with smooth, uncomplicated coastlines (see Figures 4.9 and 4.10). When Dawson began his reconnaissance of the island’s south-eastern shore, he found that this seemingly substantial landmass was incised by many deep inlets and that a number of channels divided Moresby Island proper from an extensive array of islands—some large, many quite small—lying to the east. The result of his survey, Dawson noted, was a map that dramatically hollowed out the substantial landmass previously used to depict this portion of the Charlottes: “Moresby Island is seventy-two miles long, but the explorations now reported on have resulted, by the tracing out of the channels on its east coast, in leaving it a mere skeleton.”66 As such, Dawson was able to produce a map that improved considerably upon the maps produced by his predecessors. By both highlighting and correcting the shortcomings of earlier maps and descriptions of the islands, Dawson’s map reinforced the implication embedded in the report’s historical overview of exploration and discovery on the Charlottes: Dawson and, by implication, the GSC and

---

66 Dawson, “Report on the Queen Charlotte Islands,” 3B.
Figure 4.9
This detail from George Vancouver’s 1798 map of the Pacific Northwest depicts the Queen Charlotte Islands as a single, substantial island with an eastern coastline only modestly incised by bays and inlets.67

the Dominion of Canada, were worthy successors to some of the Pacific Northwest’s greatest explorers because they had largely completed the surveying and mapping work that these explorers had cursorily initiated decades earlier.

67 The map appeared in George Vancouver’s travel account, The Coast of N.W. America (London: G. G. & J. Robinson, 1798). The digital copyright for this version of Vancouver’s map is held by Cartography Associates (2000) and has been reproduced by permission of the David Rumsey Map Collection in accordance with the Creative Commons License.
Second, by imposing new place names, Dawson sought to express Canada’s emerging epistemological dominion over the Charlottes, initially on paper, but ultimately on the ground. (Re)naming was profoundly symbolic because, as Maoz Azaryahu notes, “naming is a taxonomic strategy that is also a manifestation of authority….At the same time, it is an act of appropriation.” To assign names to places, was to impose order and

---

68 The British Admiralty chart appears courtesy of the British Columbia Archives. This particular map can be accessed through the archive’s webpage:
http://www.bcarchives.gov.bc.ca/cartogr/img_html/dir_1/cm_c2379.htm

to signify authority over landscape. This link between establishing order and asserting authority was particularly important for Europe’s colonial powers in the eighteenth and nineteenth centuries. As R. D. K. Herman argues in his analysis of colonial representations of Hawai’i, Pacific explorers, such as Cook and La Pérouse, became “the dispenser of logos, spreading order everywhere…through naming, classifying, mapping, organizing new places into the discursive constructions of European thought, bringing these new places into the European discursive realm…”70 This task of imposing order and signifying authority through place naming took on a new inflection in long-standing settler colonies, such as Canada, as they secured greater political independence and fostered greater national cohesion in the nineteenth century. According to Saul Cohen and Nurit Kliot, “affixing names to places is inextricably linked with nation building and state formation.”71 This is because place naming provides tangible links between citizens and territory that helps foster what Benedict Anderson calls the nation-state’s ‘imagined community’.72 Catherine Nash suggests that naming places is fundamental to cultivating nationalist sentiment because it combines two potent symbols of the national imaginary, territory and language: “linking language and geography, placenames, at once both...
material and metaphorical, substantive and symbolic…are all about questions of power, culture, location and identity.” Such discussions are important to bear in mind when examining Dawson’s place naming on the Charlottes in 1878. As a scientist engaged in the production of settler space, Dawson’s naming was designed to bring order and legibility to a hitherto poorly-known landscape. Moreover, as an agent of the Canadian State, Dawson’s place naming constituted an act of appropriation—a symbolic redefining of the landscape as Canadian territory, replete with names that would, it was expected, come to resonate with citizens as they became ingrained over time.

As it happened, the 1878 field season provided Dawson with his only opportunity to devise and apply place names to western Canadian landscapes on an extensive scale—an opportunity that allowed Dawson to contribute to a colonial project of toponymic violence that had been played out the world over during the colonial period. In other field seasons, Dawson’s surveys had been carried out in regions that had already been scouted by explorers, traversed by traders and, in some cases, populated by handfuls of settlers. Such landscapes, had been bestowed with many toponyms before Dawson’s arrival. In contrast, exploration, settlement and resource extraction on the Charlottes had been scant and brief prior to Dawson’s survey and his detailed survey of the south-eastern coastline of the Charlottes had revealed many more bays, inlets, channels and islands than had hitherto been set down and named on existing maps. This issue of cartographic precedence was important for place naming, as Dawson made clear in his report: “names printed in *italics* in this portion of the report are these given by myself, or in use by the

---

Indians, but which have not previously been published.”74 Dawson had the authority to name previously ‘unmarked’ features by the accepted convention of ‘discovery.’ Of course, most features were ‘unmarked’ only from a Euro-Canadian perspective—the indigenous Haida population had long since applied their own names to this intricate marine landscape. Yet, only a few of these were adopted by Dawson, who offered no rationale in his report, map or field notes as to why he chose to preserve certain Native names and not others. What is clear is that Dawson was following a long-established precedent in supplanting Haida toponyms with those of his own creation. As R. D. K. Herman asserts: “indigenous place names [were] ignored and place names in the language of the colonizer [were] imposed” as a way of bringing about the orderly landscapes that colonial administrators valued.75 Renaming was concerned with rendering the ineffable or merely unfamiliar into the known within the shared knowledge system of Euro-Americans and, as such, many existing Native names may have been readily discarded in part due to their exotic pronunciations and spellings. Whatever the rationale behind it, the effect of colonial place naming, Nash argues, was cultural erasure, whereby the new names “ruptured the relationships between collective indigenous history, culture, identity and location condensed in native placenames.”76 Whether Dawson intended to or not, his place naming attenuated Haida connections to the lands and waters of their ancestral homeland—a symbolic act that will be addressed in more detail in the following chapters.

In terms of the place names conferred in 1878, Dawson used the opportunity to valorize science and to symbolically inscribe it deep into the landscape of the Charlottes.

74 Dawson, “Report on the Queen Charlotte Islands,” 15B.
75 Herman, “Aloha State,” 79.
76 Nash, “Irish Placenames,” 460.
As both the map and report reveal, the vast majority of the seventy-odd place names that Dawson scattered along the archipelago’s south-eastern coast, from Houston Stewart Channel to Skidegate Inlet, fell into one of two categories—descriptive toponyms and commemorative toponyms. Descriptive toponyms often suggested the morphological character of the feature being named, such as we find with *All Alone Stone*, *Saw Reef*, *Crescent Inlet* and *Flowerpot Island*. More frequently, such names described the geological character of the feature, reminding readers that Dawson’s mission to the Charlottes was one of scientific exploration. *Dolomite Narrows, Agglomerate Island, Limestone Rock, Section Cove, Iron Point, Copper Bay*—such appellations were designed to do more than merely designate particular localities: they also offered an efficient geological précis of this portion of the coast while symbolically reinforcing the authority and precision of Dawson’s scientific gaze.

The overt valorization of science was even more pronounced with Dawson’s commemorative toponyms. As Herman indicates, explorers traditionally paid tribute to significant individuals by affixing their names to foreign lands.\(^77\) For most explorers, the ‘great men’ to be honoured were monarchs, noblemen and other powerful patrons who had played a role in financing the expedition. In Dawson’s case, the obligatory ‘great man’ to be honoured was, in fact, a woman—Princess Louise, fourth daughter of Queen Victoria, the Marchionness of Lorne and the wife of the newly appointed Governor General of Canada. To venerate the princess, Dawson applied her name to one of the larger islands found along Moresby Islands’ south-eastern shore.\(^78\) Louise Island would

---

\(^77\) Herman, “*Aloha State,*” 79.

\(^78\) Dawson did not explain why he chose to honour the princess but one can speculate that it had much to do with the fact that she was the first member of the royal family to take up residence in Canada. In this regard Dawson was not alone: further tribute was paid to her elsewhere in the Canadian West (although not by’
be Dawson’s only conventional commemorative toponym, however. Instead of honouring royalty, aristocrats or statesmen, most of Dawson’s other commemorative place names—some twenty in all—paid tribute to many of the leading figures of nineteenth-century science. Not surprisingly, much of the focus was on the founding fathers of geology, with Hutton Inlet, Werner Bay, Lyell Island, Sedgwick Bay, De la Beche Inlet, Murchison Island, Ramsay Island, Bigsby Inlet and Dana Inlet given to many of the islands and waterways found in the vicinity of Juan Perez Sound (see Figure 4.11). Prominent naturalists were also honoured in Darwin Sound, Huxley Island, Bischoff Islands, Carpenter Bay, Faraday Island and Scudder Point. Dawson paid tribute to influential Dawson) through the naming of Lake Louise and the province of Alberta (her full given name was Louise Caroline Alberta) in the 1880s. For more information on the princess and her husband, the Marquess of Lorne, see P. B. Waite, “Campbell, John George Edward Henry Douglas Sutherland, Marquess of Lorne and 9th Duke of Argyll,” in Dictionary of Canadian Biography, Volume XIV: 1911-1920 (Toronto: University of Toronto Press, 1994), 177-180.

Brief biographies of each of these scientists can be found in Charles Coulston Gillispie, ed. Dictionary of Scientific Biography, 16. Vols. (New York: Charles Scribner and Sons, 1970-1980). Here I will only offer the briefest of biographical notes, while referring to specific volumes and pages of the above work. James Hutton (1726-1797) was a Scottish geologist who presented some of the earliest geological arguments in favour of uniformitarianism and who also favoured plutonism—the geological theory suggesting that the earth’s rocks were largely the product of volcanic activity (Vol. 6, 577-586). Abraham Gottlob Werner (1749-1817) was a German geologist principally known for his support of neptunism—the geological theory suggesting that the earth’s rocks were largely sedimentary rocks formed beneath the ocean (Vol. 14, 256-264). Charles Lyell (1797-1875) was a prominent British geologist whose masterwork, The Principles of Geology (1830), offered the strongest argument to date for the uniformitarian approach to geological processes (Vol. 8, 563-578). Adam Sedgwick (1785-1873) was a British geologist most notable for developing the Devonian and Cambrian periods as part of the geological timescale (Vol. 12, 275-279). Henry De la Beche (1796-1855) was an English geologist best known as the first director of the British Geological Survey (Vol. 4, 9-11). Roderick Murchison (1792-1871) was a Scottish geologist best known for his work in classifying the Silurian system of rocks and for succeeding De la Beche as the second director of the British Geological Survey in 1855 (Vol. 9, 582-585). Andrew Crombie Ramsay (1814-1891) was a Scottish geologist who succeeded Murchison as the third director of the British Geological Survey in 1872 (Vol. 11, 276-277). James Dwight Dana (1813-1895) was an American geologist and professor at Yale University, best known for his work in the gold fields of California in the 1849 and for his publications on mineralogical taxonomy (Vol. 3, 549-554). John Jeremiah Bigsby (1792-1881) was an English geologist who had carried out some limited geological fieldwork in Upper Canada between 1818 and 1822 in association with a British boundary commission; for information, see Anthony W. Raspovich, “Bigsby, John Jeremiah,” in Dictionary of Canadian Biography, Volume XI: 1881-1890 (Toronto: University of Toronto Press, 1994), 72-73.

For more complete biographies of these naturalists see the Dictionary of Scientific Biography. Charles Darwin (1809-1882) was an English naturalist whose theory of natural selection arguably produced science’s most celebrated and far-reaching paradigm shift (Vol. 3, 565-577). Thomas Henry Huxley (1825-1895) was an English naturalist and staunch supporter of Darwin’s theory of natural selection. Notably, he
Figure 4.11
This detail from Dawson’s geological map of the Charlottes shows many of the place names commemorating leading natural scientists. Moving diagonally from the southeast to the northwest are Scudder Point, Huxley Island, Werner Bay, Hutton Inlet, De la Beche Inlet, Ramsay Island, Murchison Island, Faraday Island, Bischoff Islands, Sedgwick Bay, Lyell Island, Darwin Sound, Richardson Inlet and Logan Inlet.

forebears and colleagues at the Survey as well, assigning *Logan Inlet, Selwyn Inlet* and *Richardson Inlet* to channels flowing into Laskeek Bay.\(^{81}\) Thanks to Dawson, the updated

---

81 Sir William Logan was the first director of the GSC and his successor, Alfred Selwyn, was Dawson’s immediate superior. James Richardson was a GSC geologist who had briefly come to the Charlottes to explore the coal mining operations at Skidegate Inlet in 1874.
map of the Charlottes would read like a veritable *Who’s Who* of nineteenth-century earth science in addition to offering a fundamentally reworked depiction of the eastern littoral.

The symbolism of Dawson’s commemorative naming is hard to miss: science was the new authority in the modern world and, through his reconnaissance surveying, Dawson had brought the power of science to bear on the archipelago’s indistinct shorelines. The leading figures of science had been enshrined there, symbolically inscribing scientific authority into the very landscapes that his surveying had just begun to make legible. In addition, just as Dawson’s references to the early exploration of the Charlottes symbolically positioned him at the end of a long line of celebrated Pacific explorers, his place naming also positioned him as an heir to a venerated fraternity of scientific forebears. Thanks to his work on the Charlottes, Dawson stood at the intersection of two great intellectual traditions—exploration and natural science. As the standard-bearer for the scientific exploration of the Canadian West, Dawson’s surveying merged both traditions into an enterprise that enhanced his own reputation and that epitomized the emerging power of the Canadian State to secure epistemological dominion over even its most remote territorial outposts.

Finally, the map evoked epistemological dominion by ‘filling in’ the outlines of the Charlottes with topographical and geological information—a cartographic project that built upon, but differed significantly from, coastal surveying. As Daniel Clayton suggests with respect to George Vancouver, the explorers sent by the European imperial powers to map the Pacific Northwest in the late eighteenth and early nineteenth centuries were

---

82 One tangible manifestation of these intersecting traditions can be found in Figure 4.11 above. Dawson named one of the main inlets along the southeast coast of the archipelago *Juan Perez Sound*, in honour of the Spanish explorer who was the first European to discover the islands in 1774. Within the sound Dawson named many of the inlets and islands after significant geologists and naturalists, marking a significant cartographic convergence for the two traditions informing Dawson’s survey work.
primarily concerned with surveying and plotting the maritime margins of the region.83 Their aim was to fix, as precisely and completely as possible, the interface between land and sea on their maps so that future travelers to the region might know something of the havens and hazards awaiting them.84 As such, they focused primarily on recording recognizable landmarks, determining compass bearings, plotting depth soundings, identifying sites with good anchorage and highlighting dangerous submarine hazards. Dawson shared this maritime charting focus in 1878. Yet, as Scott Kirsch notes, “only when the outlines have been mapped can an interior appear empty, ready to be written over with lines and names.”85 This ‘writing over’ was central to Dawson’s mandate as a geologist. As Martin Rudwick emphasizes, geology primarily spoke in a “visual language” that required its practitioners to produce detailed topographic/geological maps of the terrain examined in the field.86 The central importance of mapping to geological work in post-Confederation Canada was emphasized by GSC Director Alfred Selwyn, in an 1882 letter to geology professor and occasional Survey employee L. W. Bailey of New Brunswick:

In regards your last report, I fail to see that it throws any further light on the structures or relative age of the formations than is already afforded by previously published reports and maps, nor is it at all likely that such observations as you or any one else could make

84 Bruno Latour discusses the significance of such mapping for future exploration and considers such explorer’s maps to be the examplar of what he calls “immutable and combinable mobiles”—durable, transportable and commensurable representations of distant worlds which permit advanced knowledge for subsequent voyagers and “action at a distance” for the imperial administrators operating in distant “centres of calculation.” See Latour, Science in Action, 223-228.
without the aid of a carefully constructed map of the region would ever do so and I therefore consider [that] the time has come when you should endeavour to arrive at a final and definite result and give this to the public in the shape of an accurate and reliable map or in other words we should now follow up the work of geological examination by that of geological Survey.\textsuperscript{87}

As Selwyn made clear, a carefully-compiled geological map was the defining product of a proper geological survey and the primary object of the field geologist’s work. Dawson and other geologists, then, were expected to do more than trace the cartographic outlines of the fields they traversed; they were also required to fill in the map with as much topographical and geological detail as they could obtain. Thus, while Dawson’s coastal surveying suggested an important symbolic continuity with the vaunted explorers of the past, his efforts to fill in the map of the Charlottes inaugurated cartography of a fundamentally different sort.

By the late nineteenth century, geologists like Dawson had developed ways of filling in the map of the territories they surveyed. Plotting specific topographic details and locating significant rock outcrops on the face of the map were part of this cartographic process but most important was applying geological colouring to the map’s terrestrial surfaces. As Martin Rudwick has demonstrated, the use of colour washes to denote distinct rock formations on geological maps has been part of geology’s ‘visual language’ since the early nineteenth century.\textsuperscript{88} A ‘formation,’ Rudwick notes, was one of geology’s most important 19\textsuperscript{th}-century conceptual innovations. It can be defined as an “assemblage of broadly similar rocks” distinguishable from adjacent formations.\textsuperscript{89}

Moreover, “formations, unlike most of their constituent strata, could often be traced

\textsuperscript{87} “A.R.C. Selwyn to L.W. Bailey, March 7, 1882,” GSC Director’s Letterbooks, Library and Archives Canada, Record Group 45, Vol. 78 (microfilm reel C-14441), p. 535.

\textsuperscript{88} Rudwick, “Emergence of a Visual Language,” 161-162.

\textsuperscript{89} Rudwick, “Mineral, Strata and Fossils,” 274.
across country throughout some wide region, varying perhaps in thickness and detailed composition, but retaining the same position relative to other formations.”90 The importance of tracing and analyzing the character of formations across space required geologists to devise a way of representing these assemblages on their maps. By the second decade of the nineteenth century, geological maps began to incorporate colour, correlating particular hues with particular formations and applying the appropriate colour to areas of the mapped terrain where the corresponding formation was known or expected to lay just beneath the top soil.91 The use of colour on geological maps was part of a conceptual shift away from a focus on isolated rock exposures and towards a focus on the areal extent of underlying rock formations. The widespread emergence of coloured maps also corresponded to, and was partially driven by, the 19th-century invention of chromolithography, which made the cartographic reproduction of colour efficient and affordable.92

In terms of impact, the extensive use of colour to denote underlying rock formations gave geological maps significant authority. But, applying colour to every inch of the mapped surface created an aura of order and certitude that may not have been intended by its author. What was lost in the transition from field notes and sketches to the final map was a sense of the role that conjecture played in determining each formation’s geographical extent. As Rudwick, notes “the colours are an important iconographical innovation...because they implicitly represent a distributional extrapolation from the

90 Ibid.
91 Rudwick, “Emergence of a Visual Language,” 161-162. Rudwick notes that similar traditions of using colour to denote formations seemed to develop independently on both sides of the English Channel in this period, with Georges Cuvier and William Smith both producing meaningful coloured geological maps in 1811 and 1815 respectively.
evidence of major exposures across intervening areas of the map. In other words, the
colours denote an implicit belief that the relevant rock-type would be found in
intervening areas, under the concealing cover of soil and vegetation.93 The subtlety of
extrapolation is likely to have been lost when such maps were read by non-geologists.
Instead, the bold and uniform colouring of these geological maps may have given the
false impression that the underlying rock structure had been extensively examined and
definitively determined throughout the designated area. This returns us to Matthew
Edney’s point, raised earlier, which suggests that scientific surveys tend to produce maps
where “all data are represented in a uniform manner, regardless of the various sources
and thus variable quality of the information.”94 Of course, Edney’s assertion is not
universally applicable because, as we have seen, Dawson used dashes and blank spaces
along portions of the western coastline in a concerted effort not to conflate surveyed and
unsurveyed areas. Nonetheless, Dawson broadly applied uniform tints to the spaces in
between geological boundaries despite the fact that he had had little opportunity to
examine the rock exposures and the topographic indicators of subsurface geology to be
found inland and along the archipelago’s western shores. Dawson did state in his report
that the geological boundaries drawn on the map were little more than ‘best guesses’ the
further one moved away from the eastern coastline and that the geological colouring
applied to the interior portions of the archipelago was merely hypothetical.95 Yet, because
Dawson’s notes on the map were embedded in the midst of a dense report rather than
printed on the map itself, a casual reader might overlook this disclaimer when examining

94 Edney, Mapping an Empire, 97.
95 Dawson, “Report on the Queen Charlotte Islands,” 48B.
Moreover, the map’s extensive colouring also served to negate some of the visual clues that Dawson had imbedded to remind readers of the notable gaps in his 1878 survey. Indeed, by completely extending the map’s geological colouring to the delineated shorelines of the archipelago, Dawson ensured that the gaps he had left along the western coast were subtly filled in by the edge of the colour wash. These interstices are easily overlooked because, at a glance, the eye is able to differentiate between the colour of the water to the west (in reality, merely the background colour of the paper) and the colour of the geological formation to the east, drawing a distinct boundary between the two that Dawson had intended to leave blank. Thus, the geological colouring may have served to mask the subtle sign system that Dawson deployed to denote his variegated understanding of the archipelago’s coastline, thereby giving the map an aura of comprehensive, systematic coverage that Dawson may not have intended.

Nonetheless, the map’s geological colouring offered an important statement about Canada’s emerging epistemological dominion on the Pacific Coast. While early explorers had been exclusively focused on tracing outlines and fostering safe passage, Dawson—and, by extension, the Canadian Dominion—was also concerned with filling in the map of the Charlottes with topographical and geological detail. By providing a cartographic

---

96 Note that this impression stands in stark contrast to the impression given by the maps of Northern BC and the Yukon District, discussed in the last chapter. In those maps, Dawson decided that it would be “premature to attempt a geological colouring” given the tentative nature of his geological classifications for those regions. The absence of geological colour on those maps—in combination with their sparse topographical detail—gave the impression that very little territory had been surveyed and very little knowledge of this vast region had been gained in 1887. See Dawson, “Report on an Exploration in the Yukon District,” 34B.

97 It should be noted that Dawson was not the sole author of the map. As the legend indicates, the map was drawn by “Messrs. Bovey and Dawson.” It is unclear precisely who Mr. Bovey was but he was most likely a member of the drafting department at the GSC. In any case, Dawson demonstrated a high degree of involvement in the designing and drafting of his geological maps over the course of his career and there is no reason to suspect that he was not heavily involved in making the design decisions for this map—including the decisions to leave gaps in certain areas of the coast and to extend the colour wash across the entire length and breadth of the Charlottes.
depiction of the archipelago’s geology in conjunction with depictions of its coastal outlines and inland topography, Dawson was delving beneath the surface of these islands to lay bare their sub-surface structures. Indeed, a clearer symbol of Canada’s emerging knowledge of its newly-acquired territories could hardly be devised, as superficial tracings quite literally gave way to seemingly comprehensive, “in-depth” depictions.98 Dawson’s use of standard geological symbols, colouring schemes and nomenclature also served to signify both his own scientific acumen and that of the Canadian State he served. Through the subtle use of lines, colour and labels, then, Dawson created a map that symbolically drew the Charlottes more firmly into the orbit of the Canadian State.

Just as significantly, Dawson’s map of these remote islands helped to concretize and naturalize the Canadian State. This is because maps do not simply record a pre-existing territory but call a particular understanding of that territory into being. As David Turnbull asserts, our inability to have an unmediated experience with our environment means that maps (among other forms of representation) play an important role in framing our understandings of the world around us: “hence, there is an important sense in which the map is the territory, even though paradoxically the territory is not the map.”99 Drawing on this constructivist perspective on cartographic knowledge, Raymond Craib suggests that national maps "provide a textual tangibility to an otherwise metaphysical

---

98 The juxtaposition between ‘classical’ science’s concern with superficial phenomena and ‘modern’ science’s concern with underlying, and often invisible, functional relationships (as exemplified by geology) is explored by Michel Foucault in _The Order of Things: An Archaeology of the Human Sciences_ (New York: Vintage Books, 1994). For an insightful development of Foucault’s notion of an epistemic shift from ‘classical’ to ‘modern’ science—and the intellectual crisis it precipitated in French Geography at the end of the 18th Century—see Anne Marie Claire Godlewska, _Geography Unbound: French Geographic Science From Cassini to Humboldt_ (Chicago: The University of Chicago Press, 1999), esp. 1-17.

entity, effectively helping to create that which they purported only to represent. National maps did not simply imagine the nation-state into existence, but they did function as a means through which such an object could be more effectively imagined, propagated, and circulated.”

By rendering a national territory legible, then, Craib feels that maps provide a tangible territorial foundation to which the metaphysical entity of the state can be tethered. This is relevant to Dawson’s geological map of the Charlottes because this map, while possible to read in isolation, was also comprehensible as a part of a larger whole. As Survey personnel carried out geological investigations throughout the Dominion, the cartographic fruits of their labours were slowly being amassed at GSC headquarters in Ottawa. This was significant because, as Latour reminds us, the ability of the imperial power or modern state to act at a distance depends in significant part on its ability to accumulate maps in an accessible, central repository (which he dubs a “centre of calculation”) where their conventional character allows them to be combined and manipulated to produce new knowledge of distant territories.

Crucially, each GSC map employed the same conventional system of symbols, colours and geological nomenclature, which allowed them to be compared, correlated and combined in order to produce a detailed picture of the Dominion’s geology. Craib argues that these cartographic conventions had significant symbolic value because the cumulative effect of

100 Craib, Cartographic Mexico, 9.


102 In practice it is doubtful whether a massive composite map of Canada, comprised of all the individual maps produced by the Survey’s field geologists was ever physically laid out. Indeed, the GSC’s field work proceeded unevenly across the Dominion such that no single map showing consistent detail at a consistent scale was able to be produced prior to the advent of aerial photography and computer mapping. Nevertheless, individual map sheets could be placed side by side for comparison and were occasionally combined to produce smaller-scale regional maps of the Dominion’s geology. A good example was the geological map of Canada’s northern territories produced in 1886.
these maps was to give "an otherwise fragmented polity an aesthetic and visual unity."\(^{103}\)

In the case of post-Confederation Canada this meant that, through the geological maps of the Survey, the fledgling Dominion could be conceptualized as a vast yet coherent geological territory—an integrated natural unit of the earth’s surface rather than the unlikely product of capricious political will.

Bruno Latour could easily have been describing Dawson’s report on the Queen Charlotte Islands when he suggested that most scientific publications were highly ‘stratified’ documents that carefully arranged text, tables, figures, and—in Dawson’s case—photographs and maps in ways that subtly suggested their veracity and authority.\(^{104}\) This is not to suggest that Dawson wilfully embellished his report to make it seem more authoritative than it truly was. He was very clear and candid about the shortcomings of his 1878 reconnaissance. Nonetheless, by leading readers on a series of tours through the archipelago’s surface topography and underlying geology, by providing seven robust and broad-ranging appendices in support of the report’s main geographical and geological observations, and by supplementing the report with a geological map that virtually completed the coastal outline of the Charlottes while simultaneously filling in the outline with toponymic, topographic and geological detail, Dawson produced a report and map that seemed to offer the world its first definitive look at these remote islands while strongly conveying the impression that Canada’s efforts to establish epistemological dominion over even its most remote territories was proceeding apace.\(^{105}\)

\(^{103}\) Craib, *Cartographic Mexico*, 8.

\(^{104}\) Latour, *Science in Action*, 45-48. Latour argues that scientific writing is a highly technical, ‘stratified’ form of writing that amasses and carefully connects (interbeds) multiple forms (strata) of evidence in defense of its truth claims.

Anticipating Settler Space

In addition to evoking Canada’s emerging epistemological dominion over the western territories, Dawson’s reports and geological maps also anticipated that these territories would soon undergo an orderly transformation from under-utilized wilderness to productive regions of settlement and resource extraction. In fact, these publications were very much designed to facilitate this transformation by providing a wealth of information concerning navigable routes into and through the country, the abundance, quality and distribution of its natural resources, the character of its climate, soils and other variables pertinent to future settlement, as well as the condition, distribution and disposition of the region’s existing Native inhabitants. Beyond merely facilitating settlement and resource extraction, Dawson’s published reports also served to justify and naturalize the extensive colonization of Canada’s West. They did so by employing an anticipatory gaze that frequently framed evaluations of a region’s natural resource wealth and settlement potential in ways that suggested that Euro-Canadian resource extraction and permanent settlement were both inevitable and imminent. Indeed, in many instances, Dawson’s reports presented settlement and resource extraction in even the most remote hinterlands of the West as a Canadian destiny. Such claims can once again be best explored by analyzing Dawson’s report on the Queen Charlotte Islands, although virtually every reconnaissance survey Dawson made in the Canadian West yielded a report that, in some capacity, served to facilitate and justify settlement and resource extraction in the region.
(i) Facilitating Settlement and Resource Extraction

One of the most important practical contributions that Dawson made in his various reports was to provide readers with information designed to assist travel into, and throughout, the regions he surveyed in the Canadian West. On the mainland, Dawson focused on the viability of particular rivers, lakes, trails and passes as routes for colonization. During his 1881 survey of Southern Alberta, for instance, Dawson came to the conclusion that: “the Bow is the most important river of the entire district, and might I believe be navigated by light stern-wheel steamers to the Blackfoot Crossing, though the vicinity of the Canadian Pacific Railway to its north bank will prevent its extensive use as a chanel [sic] of communication.”106 Similarly, en route to the Cassiar mining district of northern BC in 1887, Dawson noted that the Stikine River “is navigable for stern-wheel steamers of light draft and good power, to Glenora, 126 miles from Rothsay Point, at its mouth, and under favourable circumstances to Telegraph Creek, twelve miles farther.”107

In assessing the height of land between the Stikine River and the heart of the mining district at Dease Lake, Dawson insisted that: “the construction of a wagon-road, with moderately favourable grades, between Telegraph Creek and Dease Lake, would not be very difficult or expensive….Should the construction of a railway be contemplated, the difficulties to be surmounted would be greater in proportion….because] the line would have to follow the side of a cañon, which is very rough and rocky. Beyond this point, so far as the valley could be seen from the trail, it presents no serious impediments.”108

Wherever he conducted surveys on the mainland, then, Dawson was constantly assessing

---

107 Dawson, “Report on an Exploration in the Yukon District,” 46B.
108 Ibid, 74B-75B.
the suitability of the routes he traversed to support large-scale migrations of people and supplies into the hitherto remote regions of the Canadian West.

In assessing the Queen Charlotte Islands, Dawson’s remarks on accessibility took on a different form. Given that the Charlottes had only been crudely charted prior to his survey, Dawson was determined to assess and discuss the navigability of the complex and frequently hazardous system of fjords, channels, bays and inlets that dissected the archipelago’s south-eastern shorelines. Dawson’s remarks on the entrance to Harriet Harbour were typical of the report: “[the harbour] should be entered by the channel on the west side of Harriet Island, which lies at its mouth. A vessel should be kept nearer the west side of the channel, (as several little rocks covered at high water lie along Harriet Island) and run some distance beyond the inner end of the island before bringing too, to avoid the shoal bank which lies off its point.”109 Beyond describing the safest routes through hazardous waters, Dawson also evaluated the potential of particular bays and harbours for sheltering vessels of various sizes and draughts. Small boats, he noted, could find many favourable places to drop anchor: “between Hot Spring and House Islands is a good anchorage for small schooners, sheltered on all sides but the north.”110 Conversely, Dawson felt that nearby Skaat Harbour was “the best [anchorage] for large vessels in this vicinity” due to its deep water, large and protected harbour and muddy bottoms.111 As with other reports, Dawson also discussed the navigability of the islands’ handful of substantial rivers but, given that most of his survey work was conducted along the coasts, he commented very little on the archipelago’s overland trails and mountain passes. One of the report’s greatest contributions to the making of settler space on the Charlottes was

109 Dawson, “Report on the Queen Charlotte Islands,” 18B.
110 Ibid, 22B.
111 Ibid, 20B.
in carefully mapping and describing its complex coastlines for readers. By providing depth soundings, describing shoal waters and assessing anchorage potential, Dawson provided readers with the most comprehensive blueprint to date for navigating the hazardous waters of the Charlottes safely and effectively.

Yet, Dawson knew that few people would trouble themselves with navigating the treacherous waters of these islands if their natural resources proved insubstantial. As such, he largely focused on evaluating the various mineral deposits, timber stands, salmon streams, fishing banks and potential grazing lands found on the Charlottes in order to provide a detailed inventory of the resource wealth that would await those prepared to endure the arduous journey to this remote archipelago. For a geologist like Dawson, determining the islands’ exploitable mineral deposits was a matter of considerable importance and his report made careful note of the several promising mineral localities he encountered that summer. At Harriet Harbour, Dawson examined an irregular mass of rock, sixty-seven feet wide, containing iron ore. Of the mass, he noted: “in some places large blocks of nearly pure magnetite may be obtained, while in others it is much mixed with quartz, and contains also a considerable proportion of iron pyrites in irregular bunches and strings.”112 After indicating that loose masses of similar composition were found elsewhere on Harriet Island, Dawson discussed the promising results of the chemical analysis that Survey chemist G. C. Hoffmann had conducted on samples brought back from the field: “the ore is a remarkably pure coarsely crystalline magnetite. Specimens of an average character…were found to contain 58.06 per cent. of metallic iron, while a fragment exceptionally rich yielded 69.88 per cent.”113

112 Ibid, 54B.
113 Ibid, 55B.
to iron ore, Dawson found and reported on irregular masses of copper pyrite in the
dioritic rock of the Copper Islands, as well as small veins of galena (lead) in the
agglomerate rocks exposed on Cumshewa Inlet.\textsuperscript{114} While Dawson felt that these
particular deposits were too small to be profitably worked, their presence on these islands
suggested that more significant deposits might eventually be unearthed and exploited.

The significance of these isolated deposits was undoubtedly overshadowed by the
anthracite seams known to exist at the west end of Skidegate Inlet. Anthracite was the
most highly prized grade of coal in the world due to a high carbon content that made it
burn more efficiently.\textsuperscript{115} The Skidegate outcrop had been discovered by gold prospector
William Downie in 1859 and, by 1865, the newly-formed Queen Charlotte Coal
Company had opened its short-lived Cowgitz Mine at the site.\textsuperscript{116} The mine was a
commercial failure but Dawson knew that the anthracite deposits there were still worth
careful examination.\textsuperscript{117} As he explained in his report, “the occurrence of a bed of true
anthracite in rocks of Cretaceous age is a matter of considerable geological interest, while
the proved existence of a really workable bed of this material on the Pacific coast would
be of very great economic value. The study of the Cretaceous rocks of this district is in
consequence invested with a peculiar importance.”\textsuperscript{118} As Dawson suggested, the

\textsuperscript{114} Ibid, 52B-53B (copper) and 77B-78B (lead).
29.
\textsuperscript{116} Downie’s account of his brief time on the Charlottes is given in his “Explorations in Jarvis Inlet and
(1861): 249-256, esp. 250-251.
\textsuperscript{117} Despite pouring a great deal of money into the infrastructure of the Cowgitz mine, the Queen Charlotte
Coal Company had seen a poor return on its investment. A series of delays meant that the first coal was not
shipped until 1870 and the subsequent loss of a fully-laden coal ship bound for San Francisco precipitated
the premature closure of the mine soon thereafter. See Kathleen E. Dalzell, \textit{The Queen Charlotte Islands,
\textsuperscript{118} Dawson, “Report on the Queen Charlotte Islands,” 63B. Dawson was intrigued by this geological puzzle
because anthracite was usually found in older rock formations, such as the Carboniferous rocks of
northeastern Pennsylvania, which were formed approximately 325 million years ago. This made sense to
existence of workable anthracite deposits in a coastal locality would be a major boon to commerce because the coal could easily be loaded onto ships and transported to markets along the Pacific seaboard. The question was whether there was sufficient anthracite on the islands to resume mining operations—a question that Dawson announced his intention to pursue even before he set foot on the Charlottes: “I think it will be best not to devote much time to the examination of the Crystalline rocks, except in such Cases as something of peculiar interest occurs. [But] To make the main object the definition of the area of the Coal measures, & if this proves not very great to leave some time in the Autumn for the north end of Vancouver [Island].”

Dawson’s wish to better define the spatial extent of the coal-bearing rocks seemed a logical continuation of earlier work carried out by one of his Survey colleagues, James Richardson. In late summer of 1872, Richardson spent just short of two weeks examining the rocks in the vicinity of Skidegate Inlet at the request of several influential businessmen based in Victoria, who were interested in the future viability of the defunct Cowgitz mine. During his twelve days on the Charlottes, Richardson carefully examined the existing mine works, detailing the character, quality and quantity of the exposed coal in the various shafts and tunnels that had been constructed along the coal face. In addition, he investigated the broader geological structure of Skidegate Inlet—developing...
a tripartite classification system to describe the stratigraphic relationships of the various Cretaceous formations exposed throughout the area. This he documented in an 1873 report, as well as in a supplementary geological map of the region.\textsuperscript{121} As a result of these investigations, Richardson determined that the coal-bearing strata extended through the region for at least twenty miles and seemed to contain coal of varying but promising amounts throughout, albeit with presumed irregularities and interruptions in various locations.\textsuperscript{122} Yet, in assessing the future viability of the existing mine site and other coal outcrops in the vicinity of Skidegate Inlet, Richardson remained circumspect:

\begin{quote}
It would require a much more detailed exploration than I had time to give to pronounce with any chance of accuracy upon the extent of these irregularities in the Queen Charlotte Islands, but the possibility of their occurrence should always be kept in view by those endeavouring to turn the seams to practical account, and some cheap but careful system of trials along the outcrops ought to be instituted in the first instance to ascertain the probable quantity before any great outlay is made upon works intended to be permanent. This is usual even on the very regular seams of the Carboniferous era, and it is certainly much more required in coal deposits of a more recent age, which may have had their origin from drift instead of growth \textit{in situ}.\textsuperscript{123}
\end{quote}

As far as Richardson was concerned, there remained a good deal of work to do before the economic viability of mining operations on Skidegate Inlet could be assured: the coal-bearing rocks would need to be carefully surveyed and mapped in order to determine whether the predicted irregularities and interruptions to the anthracite seams existed and what impact their presence would have on the quantity and quality of coal in the region.

\textsuperscript{121} Strangely, the map was published, not with Richardson’s report, but with a separate paleontological study of Skidegate Inlet fossils published by Survey naturalist J. F. Whiteaves. This was unusual because, as we have seen, geological maps were an essential component of the analysis being developed in the geological report. Why this particular map was included with a somewhat supplementary publication describing the fossils that Richardson collected at Skidegate Inlet is unclear. See, Whiteaves, “On Some Invertebrates.”

\textsuperscript{122} Richardson, “Report on the Coal-Fields,” 60.

\textsuperscript{123} Ibid, 60-61.
Until such an in-depth analysis was conducted any money invested to revive mining operations in the area would constitute a significant and imprudent gamble.

Despite Dawson’s interest in following up his colleague’s investigation with his own analysis of the coal seams, he did not undertake the “detailed exploration” and “careful system of trials” that Richardson had advocated in 1873. Dawson spent little more than a week investigating the geology of Skidegate Inlet and barely a day examining the coal outcrops at the abandoned Cowgitz Mine.124 Based on these investigations, Dawson was able to make modest additions to Richardson’s earlier work—identifying two underlying formations within the Cretaceous stratigraphy that Richardson had mis-classified as Triassic and modifying his map of Skidegate Inlet by adding detail where required and by replacing Richardson’s many conjectured shorelines with carefully-surveyed delineations of the islands, channels and coastlines.125 Dawson did not carry out any of the careful testing of the coal measures that Richardson had called for: he made few overland traverses in search of additional outcrops in the vicinity of the mine; he dug no test pits to better trace the subsurface coal seam over distance; and he spent little time looking for the topographic and geological clues that would suggest the kinds of irregularities and interruptions that Richardson warned might minimize the

124 In his report, Dawson suggested that the mine’s infrastructure had deteriorated significantly in the six years between Richardson’s visit and his own, inhibiting his ability to examine its facilities and the subterranean coal seams properly. This, however, does not explain why Dawson spent only the better part of one day investigating the mine site and little more than an additional half day looking for other coal outcrops in the immediate vicinity (including the so-called “No. 2 Coal Mine” across the channel) whereas Richardson had been much more thorough in investigating both localities. See Dawson, “Report on the Queen Charlotte Islands,” 72B-73B and Cole and Lockner, *Journals of George M. Dawson*, II: 483-485.
125 Dawson discusses his modifications to Richardson’s geological classifications in “Report on the Queen Charlotte Islands,” 63B-64B. Dawson’s fold-out map of Skidegate Inlet (inserted between pages 63B and 64B of his report) was partially based on Richardson’s 1872 survey of the inlet. In comparing Dawson’s map to Richardson’s earlier work, the principal changes are apparent on the southern shorelines of Maude Island and Skidegate Inlet, where Dawson replaced Richardson’s conjectural coastlines with certain delineations based on his more extensive surveys of the region. Compare “Report on the Queen Charlotte Islands,” 63B-64B and Whiteaves, “On Some Invertebrates.”
exploitability of the coal measures. Instead, like Richardson before him, Dawson was satisfied both to criticize the impetuousness of the Queen Charlotte Coal Company’s heavy investment in a poorly-surveyed coal field and to urge that future investors commission detailed surveys of the area before proceeding with renewed mining operations:

On reviewing the appearance presented by the seams, it would appear that too great dependence has been placed on their continuity and uniformity, without the necessary amount of preliminary exploration to determine these points. The indications were not such as to justify a heavy expenditure in preparing for the shipment of coal, but quite sufficiently promising to render a very careful and systematic examination of the locality desirable. This yet remains to be accomplished, not necessarily by expensive underground work, but preferably by the tracing and examination by costeening pits or otherwise the whole length of the outcrop of the coal-bearing horizon.\textsuperscript{126}

With these remarks, Dawson made clear that he would not be carrying out such exacting and systematic work himself. Dawson constructed his reports, not as a comprehensive ‘last word’ on a particular coal locality, but as a reasonably-reliable preliminary blueprint to guide interested parties on how to proceed and where to focus their attention to exploit the coal measures in question.\textsuperscript{127}

Rather than spending the majority of the field season working out the intricacies of this particular site, Dawson’s aim was to investigate as much of the Queen Charlotte Islands as possible. As I have discussed in Chapter 2, Dawson felt that his geographically-extensive approach had the practical advantage of permitting him to place

\textsuperscript{126} Dawson, “Report on the Queen Charlotte Islands,” 77B.

\textsuperscript{127} This was in keeping with Dawson’s work in other key coal localities in the Canadian West. Dawson, for example, dug no test pits on the prairies above Coal Banks (now Lethbridge, Alberta) in 1881 to trace the meandering coal face once it left the Oldman (Belly) River valley. Similarly, on Vancouver Island in 1885, Dawson surveyed largely by boat, preferring to trace coal-bearing strata in the more accessible outcrops along the rocky coastline rather than extensively exploring the densely-wooded hinterlands in search of further traces of coal that would help define the inland margin of the coal-bearing rocks.
known mineral localities—such as the Skidegate coal seams—in their proper geological context. Such work permitted Dawson to predict, with great accuracy, where promising mineral deposits might be located and, crucially, where a costly search for such deposits would be most futile. At the Cowgitz Mine Dawson had examined the stratigraphy of the coal-bearing rock to identify key index beds that could be used to trace the coal horizon in other rock exposures.128 Armed with this knowledge, Dawson could resume his reconnaissance along the archipelago’s eastern and northern coastline, generating a broader picture of the Charlottes’ underlying geology and determining the probable spatial extent of the coal-bearing rocks. Through his investigations, Dawson was able to determine that the valuable Cretaceous anthracite abortively mined at Cowgitz outcropped only in the vicinity of Cumshewa and Skidegate Inlets; to the south, the volcanic nature of the Triassic rocks precluded the presence of coal deposits while, to the north, only small, isolated pockets of combustible lignite were found in the Tertiary rocks of Graham Island.129 In effect, Dawson’s findings meant two things: that high-grade anthracite would never be extensively mined on these islands and that there were likely no other workable seams of lesser-grade coal on the Charlottes for mining companies to exploit. As a result, Dawson’s report confirmed that the western end of Skidegate Inlet was the only place where truly viable coal mines could operate on the Charlottes—vital

128 Index beds are identifiable strata that can be found adjacent to (or reasonably close to) the coal seam or other significant stratum of interest in the stratigraphical column. By knowing the relationship of the index bed to the desired stratum (and assuming that the stratigraphical column remains intact across space) a geologist can examine other rock exposures for evidence of the index bed. If present, it can be used to locate the desired mineral deposit. In the case of Skidegate Inlet, Dawson determined that the best coal seams lay very close to the bottom of the Lower Shale series, meaning that the distinctive volcanic rocks of the underlying Agglomerates series provided an ideal index bed for locating the anthracite. See Dawson’s entry for July 30, 1878 in G. M. Dawson, Geological Field Notebooks, 1875-1900, Library and Archives Canada, Record Group 45, Vol. 292, Notebook 2803 (1878), pp. 68-70.
129 Dawson did find extensive beds of combustible lignite near Ya-kan Point, on the north shore of Graham Island, as well as along the Ma-min River in the island’s interior. He noted that the lignite’s fuel value was low, especially given the abundant supply of good wood for fuel and given the amount of effort that would be required to mine these deposits. See, Dawson, “Report on the Queen Charlotte Islands,” 86B and 88B.
information in an age where geological naivety and fiscal profligacy frequently combined to produce nonviable mines. Thus, while Dawson refrained from providing potential investors with a detailed analysis of the known anthracite coal seams around Skidegate Inlet, he did provide the justification for focusing exclusively on this locality.

While Dawson remained circumspect about the sub-surface mineral wealth of the Charlottes, his report offered a much brighter picture of the resources to be found in the forests and waters of the archipelago. High quality timber was particularly abundant and Dawson was very careful to locate promising groves with precision for his readers. Along the northern shore of Skidegate Inlet, he indicated that “timber of magnificent growth is found.”¹³⁰ Dawson found that one especially promising grove was already being logged by Mr. Smith, one of the owners of a fledgling dog-fish oil processing operation on Skidegate Inlet: “half a mile inland a few trees have been felled for the purpose of obtaining wood for barrels, and a little opening made which enables one to form some idea of the straightness and size of the trees composing the forest. These are chiefly Menzies spruce (Abies Menziesii) and yield a clean white wood of moderately fine grain, and apparently well suited for the manufacture of lumber.”¹³¹ In addition, while the heavily-forested Queen Charlotte Islands would clearly provide more opportunities for the logger than the farmer, Dawson did point out the few locations where he felt decent grazing lands might be developed: “the north-eastern part of Graham Island is not subject to an extremely heavy rainfall, and would appear to be well suited to agriculture but for the dense forest covering, which at the present time it will not pay to remove.”¹³² Finally, Dawson also insisted that the waters surrounding the Charlottes were the source of

¹³⁰ Ibid, 31B.
¹³¹ Ibid.
¹³² Ibid, 43B.
potential resource wealth. He noted that an especially shallow bank extended for ten to
twelve miles off of the eastern shores of the islands north of Skincuttle Inlet, providing
numerous fish species with an ideal habitat for feeding. Halibut, herring, dogfish,
flounder, plaice, cod, mackerel and several varieties of shellfish all were abundant in the
channels and sounds of the eastern littoral, Dawson assured readers, while the
archipelago’s handful of freshwater streams teemed with two varieties of salmon each
autumn.133 Throughout his report, Dawson presented the Queen Charlotte Islands as a
cornucopia of natural resources and he took great care to pinpoint the most promising
resource localities for his readers.

Crucially, Dawson was also careful to indicate localities where natural resources
were poor. Such information was vital to the project of making settler space, as it would
help prospective settlers and resource entrepreneurs focus their energies and resources on
only the most promising localities. In particular, Dawson was less than sanguine about
the resource potential of the archipelago’s most southerly landscapes: “In the
neighbourhood of Houston Stewart Channel the hills or mountains everywhere rise
steeply from the shore, and there is no arable land, scarcely indeed any soil properly so
called. The trees, from the exposed position of this part of the islands are rather stunted,
and show much dead wood.”134 In nearby Carpenter Bay, Dawson noted that “the timber
being of small stature and gnarled is not of any great prospective value, and agricultural
land does not exist.”135 Much further to the north, Dawson dispelled rumours of coal
deposits in the banks of the Mamin River, deep in the interior of Graham Island: “the so-
called coal proves, however, to be merely lignite, which forms thin seams in a fine-

133 Ibid, 44B.
134 Ibid, 15B-16B.
135 Ibid, 17B.
grained argillaceous shale….The deposit of lignite is valueless in this remote place, but [is] interesting in extending the area over which deposits of this kind, of Tertiary age are known.”¹³⁶ Throughout this and other reports, then, Dawson made certain to highlight landscapes where settlement and resource extraction would be either impossible or highly impractical. By juxtaposing such comments with his descriptions of the more promising resource localities of the Canadian West, Dawson’s report provided a detailed foundation of knowledge for prospective settlers and resource capitalists to employ as they set about their work of transforming western wilderness into productive settler space.

(ii) Justifying Settlement and Resource Extraction

Dawson’s descriptions of promising resource localities did more than merely inventory the natural wealth of Canada’s West. In many passages, Dawson’s descriptions were inflected with a pronounced note of anticipation, as though he were observing particular localities, not as they appeared in the present, but rather as they would appear in the near future, when they had been transformed through the colonial processes of settlement and resource extraction. This anticipatory gaze can be found in most of Dawson’s reports on the Canadian West but a few examples from his report on the Charlottes will suffice to illustrate the point. In summarizing the timber stocks and logging potential on the archipelago, for instance, Dawson asserted: “Menzies spruce, the cedar and the cypress are the most valuable for lumber, and though the first-named is not considered equal to the Douglas fir for most purposes, it must ere long become valuable, and can be obtained of excellent quality and in almost inexhaustible quantity in these islands. Skidegate Inlet would be convenient in many respects as a site for saw-mills, but

¹³⁶ Ibid, 89B.
Naden Harbour or Masset are better situated for the purpose, affording easy access to a large area of wooded country.” Dawson held especially high hopes for Naden Harbour as a future centre for logging operation on the Charlottes: “before many years extensive saw-mills will doubtless be established on Naden Harbour. It is well situated for the export of lumber. The quality of the spruce timber is excellent, and besides the immediate shores of the harbour, logs might probably be run down the Naden River from the lake above.” Dawson was no less sanguine about the future prospects for commercial fishing and canning on the Charlottes, with the shallow banks east of Graham Island offering the most exploitable commodity: “the halibut is doubtless the most important, and though it has not yet been found marketable either salted or canned, if means were adopted whereby it might be carried in a fresh state to the southern markets, an extensive fishery might be maintained.” Dawson even suggested that forested landscapes of north-eastern Graham Island might serve as suitable pasturage until settlers arrived in sufficient numbers to clear the land for agriculture: “The Hudson Bay Company have a post at Masset, where, for some years, cattle have been kept, or rather have kept themselves, grazing on the open sand-hills in the vicinity of the coast, and requiring no attention summer or winter. Between Masset and Skidegate a considerable number of animals might live in this way, and it has been proposed to winter mules and horses from the mines of Cassiar in this country.” Finally, in summarizing the resource potential of the archipelago, Dawson gave full expression to his sense that resource extraction and settlement on the Charlottes would be a certainty in the near future: “with the exception

---

137 Ibid, 42B.
138 Ibid, 38B. Naden Harbour is situated on the north shore of Graham Island, northwest of Masset.
139 Ibid, 44B.
140 Ibid, 43B.
of minerals of economic value, more fully treated of in a subsequent part of this report, it would appear that the fisheries and forests of the Queen Charlotte Islands will constitute their chief claim to attention, till such time as the demand for arable land leads to the utilization of that portion of the surface which is fit for farming.  

Dawson’s language in these passages is instructive: settlement and resource extraction “must,” and “doubtless” would, occur “ere long” or “before many years”; initially, fishing and lumbering “will constitute” the colonial activity on the Charlottes “till such time” as the irrepressible demand for farm land “leads to” the clearing of forests. There is little sense of doubt or even contingency in Dawson’s language—settlement and resource extraction on the Charlottes is presented as a certainty.

Dawson’s report makes clear that the colonization of the Charlottes was both inevitable and imminent. The report presented settlement and resource extraction on this remote archipelago as part of the ‘natural’ order of things—namely, the systematic transformation of wilderness into productive resource landscapes. This geographic transformation symbolized the progress of human civilization and the destiny of aspiring modern nations like Canada. Moreover, Dawson’s status as a geologist meant that his anticipatory gaze carried the imprimatur of science, which lent a degree of authority to the idea that settlement and resource extraction on the Charlottes was inevitable and would soon be brought to fruition. As Dawson’s report made abundantly clear, these processes were already taking place: early, impetuous attempts to mine some of the archipelago’s most promising mineral deposits had proven short-lived but new investors were already expressing an interest in resuming operations, while the recently opened dogfish oil processing plant on Skidegate Inlet also augured well for the future. Dawson’s

141 Ibid, 44B-45B.
report, then, cloaked no small degree of boosterism in the garb of detached scientific evaluation. Not surprisingly, a similar sentiment can be found in practically all of Dawson’s other official reports, demonstrating that his anticipatory gaze was an ingrained way of seeing that substantially framed how he viewed the Canadian West. Dawson’s reports not only facilitated settlement and resource extraction in the West, but justified these colonial practices by naturalizing them as part of the inevitable and imminent transformation of western wilderness into productive settler space.

**Conclusion**

As this analysis of the report on the Queen Charlotte Islands has made clear, Dawson’s published reports presented readers with vivid and quite powerful imaginative colonial geographies of the territories he surveyed in the Canadian West. On the one hand, such reports suggested to readers that, through the scientific work of the Survey, the Canadian State was establishing epistemological dominion over the lands, natural resources and Indigenous peoples of these remote and hitherto poorly-known regions. While complete epistemological dominion was a fantasy, GSC reports and maps symbolized Canada’s authority over the West by suggesting that the power to survey implied the power to rule. On the other hand, Dawson’s reports and maps also served to both facilitate and justify the orderly transformation of the Canadian West from under-utilized wilderness to productive settler spaces. Indeed, while providing a wealth of practical information that could be used to settle the land, extract its resources and govern its inhabitants in a rational and efficient way, Dawson’s published work employed an anticipatory gaze that framed the colonization of the West as both inevitable and

---

imminent, thereby naturalizing settlement and resource extraction as a destiny that
Canadians had to fulfill.

Not surprisingly, the imagined colonial geographies of the West constructed in
Dawson’s reports and maps had major implications for the region’s Native peoples. At a
purely utilitarian level, the information that Dawson frequently included in his reports
regarding Native settlement patterns, property customs, resource use and social structures
provided government officials with a wide range of vital information that would
undoubtedly make the administration of Native communities more effective once
settlement and resource extraction had advanced enough to generate an ‘Indian problem’
in the surveyed districts. This administrative benefit was especially likely in the case of
the Queen Charlotte Islands, given the amount of information that Dawson had amassed
and presented on the indigenous Haida population. There was also a powerful symbolism
associated with Dawson’s ethnographic reports on Western Canada’s Native peoples. As
an agent of the state, Dawson could be seen as extending Canada’s epistemological
dominion over the Indigenous peoples of the West in ways that replicated the state’s
emerging epistemological dominion over the lands and natural resources of the region. In
other words, by making Native communities legible for often the first time, Dawson was
positioning them firmly within the administrative orbit of the Canadian State. What was
most tragic about Dawson’s reports and maps was the ways in which they brought Native
peoples clearly into view as ethnographic subjects while simultaneously obscuring their
status as geographic agents—discursively erasing them from the landscapes they had
inhabited since time immemorial in order to portray these lands as vacant spaces ready
for settlement. The Haida, so present in the report’s appendices, were virtually absent from Dawson’s maps of the Charlottes, as well as from the depictions of the productive resource landscapes that Dawson anticipated for the near future. Such acts of erasure were not simply cynical attempts to deny Natives ownership of lands coveted by the colonizers. Rather, as I argue in the next two chapters, they were the logical corollary to a ‘Vanishing Indian’ discourse that permeated the ways in which Euro-Canadians, such as Dawson, conceived of Native peoples, such as the Haida, in Canada’s western “contact zones.”

143 As a number of authors have asserted, the erasure of Native geographies was a principal tactic that colonial cartographers used in order to legitimize the European appropriation of Native territory. See, for instance, Harley, “Rereading the Maps of the Columbian Encounter,” 531; Kenneth Brealey, “Mapping Them ‘Out’: Euro-Canadian Cartography and the Appropriation of the Nuxalk and Ts’ilhqot’in First Nations’ Territories, 1793-1916,” The Canadian Geographer/Le Géographe Canadien 39, 2 (1995): 140-156; and Cole Harris, “How Did Colonialism Dispossess?: Comments from an Edge of Empire,” Annals of the Association of American Geographers 94, 1 (2004): 165-182.

144 The concept of the “contact zone” is central to the analysis of Mary Louise Pratt in Imperial Eyes: Travel Writing and Transculturation (London: Routledge, 1992).
Chapter 5
George Dawson’s Contributions to Salvage Anthropology

Figure 5.1
George Dawson’s photograph of the Kwakwâ’kâwakw villagers of Forward Inlet, Vancouver Island, taken September 18, 1878.¹

Introduction

A score of individuals sit huddled in the underbrush, each tightly wrapped in the dye-banded wool of a Hudson Bay Company blanket (Figure 5.1). Above the blanket hems, attentive faces—some elderly, many quite young—peer at us, unflinchingly meeting our gaze across the historical gulf that separates our time from theirs. In the

¹ Library and Archives Canada, Photograph: PA-038146.
background their dwellings rise above the twisted thicket of vegetation—large houses of unadorned cedar planks facing the open water just visible in the middle distance along the image’s right edge.

This provocative image was taken by George Dawson on September 18, 1878. The subjects were the Kwakwaka’wakw inhabitants of Forward Inlet, an arm of Quatsino Sound located on Vancouver Island’s north-western coast. Following an extensive and productive exploration of the Queen Charlotte Islands, Dawson had come to Forward Inlet in search of the rich coal seams that several tantalizing rumours and his own geological instincts told him were there. As was his practice, Dawson occupied himself with a careful reconnaissance of the inlet’s coal-bearing rocks throughout the day before visiting the Native village with his photographic equipment in the evening. Dawson’s interest in documenting these villagers was not unprecedented. In addition to his geological, cartographic and other scientific pursuits, Dawson had grown fascinated with Native peoples in the course of his field work in Western Canada. Whenever circumstances permitted, he recorded myths, collected vocabularies, observed ceremonies, and photographed the villages and peoples he encountered. Indeed, the Forward Inlet photograph was merely one of many ethnographic images that Dawson produced during the 1878 field season.

Something, however, is not right with this particular image. The figures in the foreground have the blurred features and undefined edges of ghostly apparitions. Fewer than half a dozen faces have discernable expressions and several of the individuals appear as little more than smoky voids against the crisply-rendered vegetation and dwellings in the background. Dawson’s field notes offer an explanation: “[I] had endless difficulty in
getting them to understand what was wanted, to go to the right place, & finally to sit still.
The photo if it turns out visible at all I fear will be a very poor one.”2 Dawson’s pessimism was based on his recognition that late 19th-century field photography required subjects to remain absolutely stationary during the long exposures necessary for crisp and clear images. For a community unaccustomed to posing for the camera and both uninterested in and disconnected from the final product, the inclination to sit completely still for several minutes at a stretch was understandably low.

As unintentional as the effect was, Dawson’s photograph depicted these villagers as strangely ethereal and ephemeral. It is hard to escape the perception that these people are dissipating into the air before our eyes—vanishing, quite literally, into the woodwork that will continue to stand sentinel over Forward Inlet after their passing. It is an arresting effect, creating a melancholic image richly tinged with pathos and loss.

Dawson’s photographic ‘mis-take’ at Forward Inlet provides an especially apposite visual metaphor for his ethnographic vision—a vision that can be best understood in relation to the salvage paradigm that guided the anthropology of Dawson’s day. At the heart of this paradigm was the ‘Vanishing Indian’ discourse—the widely-held notion that the world’s ‘primitive’ societies were destined to disappear in the wake of contact with a ‘superior’ European civilization. The ‘Vanishing Indian,’ as Daniel Francis reminds us, was an imaginary subject position frequently imposed upon the continent’s Indigenous populations by settlers, government officials, missionaries and anthropologists alike in the late 19th century.3 From this perspective, British Columbia’s hinterlands were

---

populated by a vanishing ‘race’ whose melting away was simply the most recent manifestation of a process taking place on the North American continent since the arrival of the first Europeans. Like many of his contemporaries, Dawson felt that the Native peoples encountered in the course of his scientific surveying were in an irreversible state of decline and that their ‘traditional’ customs and material culture should be preserved through texts, photographs and museum-bound artefacts before they completely disappeared.

Given the perceived rapid decline of traditional Native societies in post-contact Western Canada and given his unique access to, and sustained interactions with, the region’s most isolated Native communities, I suggest that Dawson felt that it was his scientific duty to undertake a series of ‘salvage’ ethnographies of the West’s least-known Native peoples in order to document what remained of their traditional cultures before they vanished. Over time, as Dawson’s role within the Survey evolved from junior field scientist to senior administrator, his anthropological contributions evolved in parallel—from authoring localized ethnographic treatises based on first-hand field observation to administering more generalized anthropological syntheses based on collaborations with a number of field agents. Despite this transition, Dawson’s substantial contributions to an evolving anthropology of Western Canada’s Native peoples always remained squarely within the salvage paradigm throughout the course of his career. In addition to an illustrious scientific career, marked by significant scholarly contributions illustrating Western Canada’s variegated topography, geological structure, mineral wealth, glacial pre-history, plant habitats and marine zoology—to name a few—George Dawson also managed to build a formidable reputation as a salvage anthropologist.
The Vanishing Indian Discourse and Anthropology’s Salvage Paradigm

In order to understand Dawson’s contributions to the field, we must first understand the ‘Vanishing Indian’ discourse—the prevailing anthropological perspective of the day. At the outset of Dawson’s field career, the discipline of anthropology was still in its infancy. The Bureau of American Ethnology, for example, was established in Washington in 1879 and in 1884 the British Association for the Advancement of Science introduced an Anthropological Section into its organizational structure—the same year that Oxford University created the world’s first academic chair in anthropology.4 By this time, widespread imperial exploration and colonial expansion had brought European civilization into sustained contact with a number of so-called ‘primitive’ societies around the globe. Significantly, this contact often took place within the context of an emerging settler colonialism that increasingly positioned Natives as obstacles to settlement rather than as military and trading allies. The perceived destructive influences of a supposedly superior European society led early anthropologists to assume that such contact would inevitably precipitate persistent demographic decline and cultural destruction amongst Aboriginal peoples. Out of this grim sense of impending destruction the ‘Vanishing Indian’ discourse emerged by the second quarter of the nineteenth century and has been a prevalent theme in the study of human societies virtually ever since. Indeed, as James Clifford asserts, from the jumbled, patchy accounts of early amateur observers in the nineteenth century to the discipline-defining treatises of Bronislaw Malinowski and Claude Lévi-Strauss in the twentieth century, “the theme of the vanishing primitive, of the end of traditional society (the very act of naming it ‘traditional’ implies a rupture), is

pervasive in ethnographic writing. It is, in Raymond Williams’s phrase, a ‘structure of
feeling’.”⁵

Anthropology’s ‘Vanishing Indian’ discourse emerged during a period of
substantial intellectual foment in the Western world. In particular, the evolutionary theory
of Charles Darwin had a profound effect on this burgeoning ‘science of humanity’ and
contributed a great deal to its prevailing sense that Indigenous peoples were under threat.
Of course, theories of social evolution had significantly pre-dated Darwin’s biological
theory of natural selection. Yet, it was in the years following the publication of The
*Origin of Species* in 1859 that evolutionary theory came to be vociferously—if crudely—
mapped onto the anthropological study of human societies. Whereas Darwin had been
very careful not to conflate his notion of ‘directionless’ evolution with the morally-loaded
concept of ‘progress,’ early social evolutionists had had no such qualms.⁶ According to
these theorists, the evolution of human societies was characterized as following a linear
path of progress. Over time, societies would pass through the various stages of
civilization, becoming ever-more advanced and sophisticated in the process.

The key to this model of social evolution was the notion that the stages of
civilization were common to all societies, implying that all societies could be compared
and evaluated according to the same benchmarks of progress. Johannes Fabian describes
the emergence of this ‘comparative method’ this way: “[19th-century anthropology]
promoted a scheme in terms of which not only past cultures, but all living societies were

---

⁵ James Clifford, “On Ethnographic Allegory,” in *Writing Cultures: The Poetics and Politics of
98-121, esp. 112. Clifford’s use of the present tense is intentional, as he is not at all convinced that
contemporary anthropology has managed to free itself from the ‘Vanishing Indian’ discourse, despite its
recognized short-comings.

irrevocably placed on a temporal slope, a stream of Time—some upstream, others
downstream.”\footnote{Johannes Fabian, *Time and the Other: How Anthropology Makes its Object* (New York: Columbia University Press, 1983), 17. See also, James Clifford, Virginia Dominguez and Trinh T. Minh-ha, “Of Other Peoples: Beyond the Salvage Paradigm,” in *Discussions of Contemporary Culture*, ed. Hal Foster (Seattle: Bay Press, 1987): 121-130, esp. 122.} In this model, the world’s so-called ‘primitive’ societies were placed further down the temporal slope than were the so-called ‘modern,’ ‘civilized’ societies epitomized by the nations of Europe. For social evolutionists, significant observed differences between contemporary human societies could be interpreted as markers of different stages of social development and, therefore, could be used to determine the temporal distance that lay between these particular societies on the evolutionary timeline. By implication, this approach allowed anthropological researchers to correlate any Indigenous society encountered in the present with a particular stage of development in Europe’s past—in effect, transforming contemporary Aboriginal peoples into proxies for long-vanished prehistoric Europeans.\footnote{As Fabian notes, even the critics of this ‘comparative method’ (especially Franz Boas) retained a sense of evolutionary time in their putatively more empirical work. See Fabian, *Time and the Other*, 20.} Embedded within this evolutionist perspective on human social development was the perception that the destruction of Aboriginal societies was the inevitable cost of civilization’s march of progress. The perceived physical and cultural superiority of European colonizers led early anthropologists to assume that contact would necessarily precipitate demographic decline and cultural destruction amongst Aboriginal peoples.

In reality, the imminent destruction of many of the world’s ‘primitive’ societies had already been a source of considerable concern for socially-conscious Europeans and North Americans even before the full implications of Social Darwinist perspectives were widely articulated. Many humanists, their thinking rooted in Enlightenment philosophy
and Christian moral precepts, deplored this dark side of colonial expansion as it started to unfold in the early 19th century. In Britain, the response was to create the Select Committee on Aborigines in 1837, which was charged by Parliament with the task of considering “what measures ought to be adopted with regard to the Native Inhabitants of Countries…where British settlements are made…in order to secure to them due observance of Justice and the protection of their Rights.” The Select Committee’s report went on to document, in depressing detail, just how poor a job British officials throughout the empire had done in protecting Aboriginal peoples and upholding standards of justice. Britain’s record of neglect and failure was often matched or surpassed by the records of its various colonial competitors. As offensive as this circumstance might have been to European and North American humanists, their criticism was tempered by the prevailing sense that the destruction of Aboriginal societies was a regrettable but nonetheless inevitable consequence of civilization’s progress.

Indeed, humanitarian concern for the plight of ‘primitive’ peoples could only extend so far in this era of unfettered optimism and faith in progress; rights, it was felt, should be upheld and the worst abuses curtailed but, beyond that, Aboriginal peoples would have to accept their fate and adapt to their new reality. Thus, for many of even the most committed 19th-century humanists, the ‘Vanishing Indian’ was a lamentable rather than a preventable reality.

It was the dispassionate notion of scientific obligation—rather than passionate humanist outrage—that most clearly motivated 19th-century anthropologists to address

---

10 Quoted in Gruber, “Ethnographic Salvage,” 1292.
11 Ibid., 1293.
the ‘Vanishing Indian’ as a problem. This perspective was articulated clearly in James Cowles Prichard’s address to the British Association for the Advancement of Science (BAAS) in 1839, where he implied that appeals to moral duty were less persuasive than appeals to scientific value in motivating others to support or undertake salvage anthropology:

[I]f Christian nations think it not their duty to interpose and save the numerous tribes of their own species from utter extermination, it is of the greatest importance, in a philosophical point of view, to obtain much more extensive information than we now possess of their physical and moral characters....this is wanting in order to complete the history of human nature, and the philosophy of the human mind. How can this be obtained when so many tribes shall have become extinct, and their thoughts shall have perished with them?12

This sense of obligation had already been firmly established in the natural sciences, where human civilization’s destructive impacts on various plant and animal species posed a fundamental threat to the mission of fully documenting the natural order of the world. The reaction to this threat was an increased effort to collect and preserve as much of the natural world as possible.13 As a result, numerous libraries, herbaria, botanical gardens, zoos, natural history museums and other repositories were built to protect and display the wonders of an increasingly-threatened natural world. Yet, just as the extinction of species in the natural world undermined the naturalist’s attempts to construct a comprehensive picture of the natural order, so the extinction of the world’s ‘primitive’ peoples undermined the anthropologist’s efforts to determine the origins, histories and interconnections obtaining to the various ‘races’ of humanity. Like their colleagues in the natural sciences, 19th-century anthropologists were intent on documenting and preserving as many aspects of traditional Indigenous societies as possible before they were

---

12 Ibid.
13 Ibid., 1291.
inevitably destroyed by the advance of European civilization. As Jacob Gruber asserts:
“in the face of an almost infinite variety of man whose details were essential to a
definition of man, the obligation of both scientist and humanist was clear: he must collect
and preserve the information and the products of human activity and genius so rapidly
being destroyed.”14

Ultimately, this emphasis on preservation gave rise to a powerful ‘salvage
paradigm’ in 19th-century anthropology. After all, preserving as much as could be
collected and recorded about Indigenous societies under threat was vital to that
fundamental anthropological project outlined by Prichard—a totalizing “history of human
nature.” Moreover, the evolutionist approaches to anthropology that emerged in the wake
of Darwin further entrenched the salvage paradigm by positioning contemporary
Indigenous communities as proxies for prehistoric Europeans. Given such a rare and
invaluable opportunity to revisit and scientifically examine Europe’s own ancestral past,
anthropologists simply could not allow contemporary Aboriginal societies to vanish
undocumented. Thus, as Gruber notes, the salvage imperative cut across the various
theoretical and methodological divisions that began to arise within this burgeoning
science of humanity: “Throughout the century and within whatever theoretical
framework, the refrain was the same: the savage is disappearing; preserve what you can;
posterity will hold you accountable.”15

To anthropologists, the lamentable figure of the ‘Vanishing Indian,’ while
epitomizing the harsher consequences of progress, represented an important piece of the
collective human puzzle as well as an approximate glimpse into a long-vanished

14 Ibid., 1293.
15 Ibid., 1295.
European past. Thus, salvaging what could be preserved of the ‘Vanishing Indian’s’ physical characteristics, mental capacities, social structures and cultural customs became the central imperative of an emerging science of humanity. As Gruber puts it: "This sense of urgency, this notion of an ethnographic--indeed a scientific--mission, not to stem the tide of civilization's advance but to preserve that which was about to be destroyed, was a constant theme throughout the century in those researches that provided the raw materials and experiences that were the foundation of a later anthropology."\(^{16}\)

**George Dawson’s Anthropological Obligations**

Throughout the 19\(^{th}\) century, there were far more Aboriginal societies perceived to be under threat than there were researchers to investigate them. This was because European colonialism approached its zenith as the century wore on, bringing more and more explorers, soldiers, traders and settlers into increased contact with even the most geographically remote Indigenous societies—contact that was expected to initiate the rapid destruction of these societies. In addition, anthropology was an emerging discipline, with few formally-trained, sufficiently-funded, full-time practitioners. Anthropology had not yet established a sufficiently strong institutional presence to enable it to keep pace with the proliferating fields of study requiring attention by the last quarter of the 19\(^{th}\) century. This lack of personnel was significant because the various Indigenous societies being investigated were always seen to be in the throes of fatal change. Indeed, an attitude of ‘après moi le déluge’ generally prevailed amongst anthropologists—

\(^{16}\) Ibid., 1294.
destruction was perpetually imminent and soon nothing would remain for future researchers to examine.\textsuperscript{17} There was no time for delay.

As a result, anthropological institutions had little choice but to solicit ethnographic data from anyone who came into sustained contact with Native peoples—particularly, government agents, military personnel, missionaries, traders, travellers and settlers. Yet, because these people generally had no experience with even the most rudimentary ethnographic documentation, the leading scientific institutions of the period, including the BAAS and the Smithsonian Institution, published and distributed a series of ethnographic field guides for amateurs.\textsuperscript{18} These guides outlined the key types of ethnographic data that researchers should gather as well as some of the possible methods for collecting them. They also powerfully enframed the ‘Vanishing Indian’ as an anthropological subject and underscored the imperative of salvaging what could be salvaged of the vanishing Aboriginal peoples occupying the margins of the colonial world.

Dawson was precisely the type of occasional ethnographer upon whom trained anthropologists relied to salvage evidence and advance the discipline: as a geological surveyor, Dawson had access to Western Canada’s least-studied Native groups during a period when the influences of Euro-Canadian settler society were spreading far in advance of the settlers themselves, threatening to undermine ‘traditional’ cultures before they could be effectively documented. In addition, Dawson was a scientifically-trained field observer and collector who had cultivated an eye for detail and a talent for

\textsuperscript{17} Clifford et al., 121.
\textsuperscript{18} Notes \& Queries on Anthropology, for the Use of Travellers and Residents in Uncivilized Lands (London: British Association for the Advancement of Science, 1874); George Gibbs, “Instructions for Research Relative to the Ethnology and Philology of America,” Smithsonian Miscellaneous Collections, 7, 11 (1863): 1-51.
systematic description in the course of his geological, geographical and botanical field work. Consequently, Dawson’s observations and representations of the West’s Indigenous peoples could be considered a credible source of ethnographic information but to contribute to the anthropological project of salvage, he must develop a sense of the project’s urgency and some notion of how to carry out such tasks.

As Dawson’s personal diaries and correspondence reveal, this sense of urgency may have been instilled within him—if it did not already exist—during his earliest field seasons in British Columbia. In order to commence field work in a timely fashion the following spring, Dawson decided to remain in Victoria for the winter of 1875-76. During this period, he maintained a detailed personal notebook documenting the various tasks, social appointments and other leisure activities that occupied his days—including commentaries on the books he was reading at the time.19 A careful examination reveals that Dawson immersed himself in a number of anthropological works during his time in Victoria.

One of the first books Dawson read that winter was Gilbert Malcolm Sproat’s *Scenes and Studies of Savage Life* (1868).20 In 1876, Sproat was appointed as the joint Provincial-Dominion representative to the three-man Indian Reserve Commission in

---

19 For the most part, we do not specifically know what Dawson had read and was influenced by in the course of his schooling and early career days up to this point—his miscellaneous papers, diaries and correspondence from this early period simply do not make reference to his reading preferences. As for subsequent years, Dawson’s diaries and letters occasionally make reference to books and articles, but such remarks were rare. As such, his personal diary entries for the winter of 1875-76 are unique in that they included a number of explicit references to the authors and works he was reading each evening. Consequently, I have only been able to focus on this short period in order to illustrate Dawson’s intellectual familiarity with the ‘Vanishing Indian’ discourse and the salvage paradigm in anthropology. In drawing on these examples, however, I do not mean to suggest that Dawson’s exposure to these themes came solely through the works he read that winter. Rather, I insert these examples to illustrate how ubiquitous this discourse was, even in the few works that we know Dawson was reading and, thus, to argue that Dawson had likely been well exposed to this perspective from a number of sources prior to commencing his own anthropological investigations in Western Canada.

British Columbia. At the time he wrote his book, Sproat was the proprietor and local magistrate of the Port Alberni settlement, which he had established on the west coast of Vancouver Island. His book focused on the neighbouring Aht people (later known as the Nootka and now the Nuu-chah-nulth) of west-central Vancouver Island and was one of the first and most extensive ethnographic treatises published on a particular Native group in British Columbia. Throughout the book, Sproat deployed the discourse of the ‘Vanishing Indian’ in myriad ways. His most focused discussion on this topic came in the concluding chapters, which addressed the impacts of White settlement on, and the future prospects for, the Aht. Sproat began: “there is, in my mind, little doubt that colonization on a large scale, by English colonists, practically means the displacing and extinction of the savage native population.” This conviction brought him to the subject of natural decay amongst Native communities. Sproat broached this subject with a rhetorical question whose affirmative answer was left in little doubt: “Perhaps the first question of all, in reference to savages of a low class, will be, whether there are not in them—as races—the elements of natural decay leading to the extinction of the race, which elements, with increased speed and intensity, work out their destructive tendencies, if the people consort habitually with a greatly superior nation?” This “natural decay,” Sproat implied, absolved Euro-Canadian settlers and traders of any moral responsibility for the rapid decline of Indigenous peoples in British Columbia. Disease, alcoholism or physical abuses at the hands of White settlers were not the causes of Native decline, according to Sproat. Rather, such decline could be primarily attributed to the Native peoples’ almost

---

21 For an extensive discussion of Sproat and the work of the Indian Reserve Commission in BC, see Harris, Making Native Space.
23 Ibid., 274.
total demoralization in the face of European superiority: “Nobody molested them; they had ample sustenance and shelter for the support of life, yet the people decayed. The steady brightness of civilized life seemed to dim and extinguish the flickering light of savageism, as the rays of the sun put out a common fire.”24 Sproat’s choice of metaphor perfectly encapsulated the moral stance taken by most anthropologists, government officials, traders and settlers who came into sustained contact with Indigenous societies in the second half of the 19th century. As far as such observers were concerned, the radiance of European civilization, like the sun, could not be dimmed in deference to ‘lesser lights’ nor be held accountable for any destruction its ‘natural’ intensity and luminosity might ignite. According to evolutionist thought, ‘primitive’ societies were destined for destruction—an ‘inevitability’ that many lamented but few questioned. From Sproat, then, Dawson received not only a localized application of the ‘Vanishing Indian’ discourse but also a firmly-articulated—albeit an exceedingly patronizing and self serving—explanation for post-contact Native decline.

Not long after finishing Sproat’s detailed study of the Aht, Dawson immersed himself in Hubert Howe Bancroft’s compendious work The Native Races of the Pacific States of North America (1874).25 Dawson’s diary entries and correspondence indicate that he borrowed this series from the “Indian Office” in Victoria and that it took him the better part of the winter to read, which is hardly surprising given that Bancroft’s sweeping anthology ran to five sturdy volumes of dense, minutely-detailed text.26 Before

24 Ibid., 278.
26 Dawson noted that he had begun reading Bancroft on January 21, 1876 and diary entries recorded in March indicate that he was still reading this work at that time. See Cole and Lockner, The Journals of George M. Dawson, I: 138, 156 and 164. The “Indian Office” is likely the administrative office of Israel Wood Powell, the Dominion Government’s sole Indian Agent in British Columbia in this period.
delving into the historical record pertaining to the various Native peoples inhabiting the Pacific Coast between the Aleutian Islands and Central America, Bancroft prefaced his work with some introductory remarks that addressed both his approach to the historical documents and to the Native figures those documents called forth. Not surprisingly, the ‘Vanishing Indian’ discourse featured prominently in this prefatory statement:

> At the touch of European civilization, whether Latin or Teutonic, these [Indigenous] nations vanished; and their unwritten history, reaching back for thousands of ages, ended. All this time they had been coming and going, nations swallowing up nations, annihilating and being annihilated, amidst human convulsions and struggling civilizations. Their strange destiny fulfilled, in an instant they disappear; and all we have of them, besides their material relics, is the glance caught in their hasty flight, which gives us a few customs and traditions, and a little mythological history.27

For Bancroft, such a ‘glance’—however fleeting—must not be squandered and he advocated collecting any information and artefacts that could be salvaged from these vanishing peoples. In making his plea, he adopted an evolutionist perspective and asserted: “there is not a feature of primitive humanity without significance; there is not a custom or characteristic of savage nations, however mean and revolting to us, from which important lessons may not be drawn. It is only from the study of barbarous and partially cultivated nations that we are able to comprehend man as a progressive being, and to recognize the successive stages through which our savage ancestors have passed on their way to civilization.”28 Through Bancroft, then, Dawson was exposed to a classic justification for salvage anthropology steeped in the discourse of the ‘Vanishing Indian.’ As Dawson’s diary reveals, he took Bancroft’s work seriously—at one point relating Bancroft to his reading of Charles Darwin; at another, corresponding with his father

---

28 Ibid., I: 3.
regarding Bancroft’s notions that ancient Indigenous North Americans might have migrated by sea from Japan and other coastal regions of Asia. Presumably, then, Bancroft’s work had a major impact on the ways in which Dawson came to view the Native peoples he encountered in British Columbia—including their imminent demise in the wake of contact with Europeans.

Dawson’s correspondence also reveals that he was significantly influenced by George Gibbs’s “Instructions for Research Relative to the Ethnology and Philology of America” (1863). Gibbs’s guide was commissioned and published by the Smithsonian Institution in order to instruct “all officers of the United States government, and travellers, or residents who may have it in their power to render any assistance” in the basic principles of conducting ethnographic field research amongst North America’s Native populations. The guide offered a concise summary of the various anatomical, cultural and linguistic observations and collections that amateur researchers might attempt in the field. Moreover, early in the guide, Gibbs urged readers to pay particular attention to collecting artefacts and information among the “yet existing nations” in the western parts of the continent because: “many articles are of a perishable nature, and the

---

29 See Cole and Lockner, *The Journals of George M. Dawson*, I: 156 and 164. For his part, Dawson’s father was pleased with George’s choice of reading: “I am glad you are reading Bancroft. It will suggest many questions as to the Indians, and I think much may be made of inquiries as to the BC Indians.” John William Dawson to George Dawson, February 10, 1876, George Mercer Dawson Papers – Correspondence, 1856-1901, McGill University Archives, Manuscript Group 1022, Box C. 54, File 15.

30 Dawson references Gibbs’s guide in a letter to his father on July 4, 1876, and notes that it was his father who had given Dawson a copy of the guide. See Cole and Lockner, *The Journals of George M. Dawson*, I: 222.

31 Gibbs, I.

32 Dawson was particularly interested in the philological principles the guide outlined and the instructions it provided for compiling standardized Native vocabularies. Indeed, starting in 1876, Dawson and his collaborator W. Fraser Tolmie used Gibbs’s model vocabulary as the template for their multi-year project of recording the various languages and dialects of British Columbia’s Native groups (discussed below). See Cole and Lockner, *The Journals of George M. Dawson*, I: 222. Dawson briefly discusses the Gibbs guide—including its shortcomings—in his introduction to W. Fraser Tolmie and George Dawson, *Comparative Vocabularies of the Indian Tribes of British Columbia*, (Montreal: Dawson Brothers, 1884), 5B.
tribes themselves are passing away or exchanging their own manufactures for those of the white race.”\textsuperscript{33} Thus, Gibbs deployed the ‘Vanishing Indian’ discourse in order to persuade potential observers, such as Dawson, to help anthropologists salvage what remained of the continent’s Aboriginal societies before it was too late. Gibbs’s ‘Instructions,’ then, reinforced the message that Dawson had received from other sources: the continent’s traditional Native societies were vanishing and steps needed to be taken now to salvage as much as possible before their way of life disappeared forever.

From these brief examples we can see that Dawson had repeatedly encountered the ‘Vanishing Indian’ discourse and the salvage paradigm in the course of his intellectual journeys. Perhaps the example set by Sproat and the appeals made by scientific colleagues such as Bancroft and Gibbs compelled Dawson to undertake ethnographic research during many of his field seasons in British Columbia. Indeed, while Dawson never provided a definitive explanation for his numerous and quite varied anthropological pursuits, it would seem that he felt some sense of obligation that compelled him to contribute to this emerging field of study.\textsuperscript{34} This sense of obligation, I believe, was borne of the view that Western Canada’s—and especially British Columbia’s—Native societies were in the process of vanishing and would do so before their ‘traditional’ customs were able to be documented by trained anthropological researchers. Indeed, the common thread running through all of Dawson’s anthropological work was the perception that the Native peoples of British Columbia were in an inexorable state of decline. Seemingly

\textsuperscript{33} Gibbs, 4. In discussing these “yet existing” Native groups in the West, Gibbs contrasts them to those that had been virtually wiped out in the East, suggesting that the disappearance of the Western tribes was an inevitable outcome that would stem from the ever-increasing interactions with White civilization as it pushed West. In this narrative of progressive westward expansion and resulting Native decline, the ‘Vanishing Indian’ discourse is again articulated.

\textsuperscript{34} Indeed, a search of his surviving private diaries, extensive correspondence and published works reveals no hint about the motivations that lay behind his anthropological pursuits.
decimated by disease, displaced from their communities by the numerous economic possibilities available in coastal boom towns, and destabilized by the rapid and far-reaching socio-cultural transformations brought about by contact with Euro-Canadian settler society, BC’s Native communities appeared to be in the throes of a violent and irreversible transformation. In this context, Dawson likely felt that if he did not make an effort to document what he could of these ‘traditional’ societies, there might be nothing left by the time trained anthropologists arrived. Given the scholarly literature of the day, with its consistently articulated concern for the scientific damage that would be done by the undocumented passing of the ‘Vanishing Indian’ how could Dawson fail to act?

**Dawson’s Contributions to Anthropology**

Dawson’s contributions to anthropology can be grouped into four categories: (1) initial, limited forays into ethnographic collecting; (2) focused ethnographic treatises based on field work among particular Native groups within the province; (3) anthropological syntheses addressing a number of Native groups in BC and in Canada; and (4) administrative roles with scientific organizations working to collect and document information pertaining to Canada’s Native peoples. In each of these cases, Dawson’s anthropology remained firmly embedded within the salvage paradigm.

35 Dawson did make a distinction between his own, rather preliminary ethnographic contributions and the work conducted by trained anthropologists specifically dedicated to studying Indigenous communities in situ. See pages 27-29 below for an articulation of this view with respect to Dawson’s ethnographic studies of the Kwakwa’kwakw and Shuswap peoples.
(i) Initial Forays into Ethnographic Collecting

Although Dawson’s interest in anthropological matters was not immediately evident in his initial published work, his personal notebooks make clear that he had started to develop an interest in Canada’s Native peoples during his earliest field seasons in the West. In 1873 and 1874, for example, while working for the British North American Boundary Commission, Dawson frequently encountered various bands of plains Natives in the course of their migratory buffalo hunts. Dawson generally recorded such encounters in his field diary with an enthusiastic curiosity, although he offered very few details and did not include any true ethnographic information per se. On one occasion in 1874 Dawson did excavate a burial mound, 50 feet long by 6 feet high, near the Souris River in Manitoba. He found 3 skeletons but did not collect any bones, marking this as a moment of scientific curiosity rather than a first attempt at true anthropological field work.36

Three years later Dawson was presented with a similar opportunity when he stopped for the night in the small community of Lytton, BC. There, at the confluence of the Fraser and Thompson Rivers, Dawson inspected a substantial and quite ancient Native burial site. In his field diary, Dawson indicated that these graves were so old that the local Native population had no direct connection to those interred there. Nonetheless, Dawson felt the need to be rather clandestine in his excavations, stating: “Find a wonderful display of bones & implements. Gather a large number of the latter, & return to Lytton. After getting packs off, go quietly over with Douglas & appropriate seven

---

36 Diaries of George Mercer Dawson, June 4, 1874, Accession # 909, Microfilm Reel # 269, Dawson Family Fonds, McGill University Archives.
skulls, the best we could find without excavation.”37 Dawson’s first attempt at grave robbery no doubt stemmed from the understanding that intact human skulls were vital anthropological specimens. Ultimately, a series of physical measurements were conducted on the remains at GSC headquarters in Montreal, which were used to help classify the various Native ‘races’ of western North America. Indeed, Franz Boas included these measurements in his first general report to the British Association for the Advancement of Science in 1889, where he credited Dawson for providing him with the appropriate figures.38

In addition to collecting the skulls and Native artifacts, Dawson also recorded a lengthy description of the burial site and its contents in his field diary. In it, he noted significant funerary customs, such as how the bodies were positioned during burial, how they were attired and painted, and what implements were placed near the bodies inside the graves. Based on his excavations, Dawson was able to draw preliminary conclusions about the social hierarchy of this community by comparing the workmanship of the items interred in different grave clusters throughout the burial site. Dawson also mused about the extensive trade networks this community had maintained after finding sea shells from the distant tidewater region carefully placed in numerous graves. He even approximated a date of last use for the site—“about the time of first advent of whites to the Coast, or before”—based on the character of the tools and the lack of European trade goods found

38 Franz Boas, “First General Report on the Indians of British Columbia,” in the Fifth Report of the Committee Appointed for the Purpose of Investigating and Publishing Reports on the Physical Characters, Languages, and Industrial and Social Condition of the North-Western Tribes of the Dominion of Canada (London: British Association for the Advancement of Science, 1889), 18. As I shall discuss later in the chapter, The Committee on the North-Western Tribes of Canada—of which Dawson was a leading member—hired Boas in 1886 to conduct anthropological research in BC, thereby giving Boas his first sustained opportunity to contribute to the anthropology of Pacific Northwest. Boas used this position as a springboard for his career, going on to become the leading figure in North American anthropology for the next 50 years.
in the newest graves.39 Such a detailed archaeological account was unprecedented for Dawson and it illustrates how anthropologically engaged he had become in just a few short field seasons.40

While such excavations were rare, Dawson’s notebook entries on ethnographic topics, such as Native food sources, territorial disputes, vocabularies and, especially, oral legends, became more and more frequent over the course of his field career. Many of the Indigenous guides that Dawson employed each season shared their legends with him over the course of their travels together and Dawson found that the majority of these legends were often associated with particular topographic features in the landscape.41 On one occasion in 1876, Dawson was able to interview a group of Native peoples encamped at Fort Fraser and, from them, he recorded several creation myths concerning Us-tas, the predominant Hero/Trickster of the Tinné people. Dawson did not ultimately include these Tinné creation myths in any of his published anthropological treatments but they provided him with crucial context for understanding the myths of other Native groups encountered later in his travels throughout the province. In fact, after documenting various accounts of the Tinné Us-tas mythology in 1876, Dawson was surprised to find

---

40 Not only was archaeology rare for Dawson but so was the type of overt theoretical speculation that he included in this passage. Dawson’s usual approach was to offer detailed descriptions on anthropological topics, with the implicit expectation that other, more specialized, anthropologists could subsequently link these observations to broader theories. In 1891 Dawson incorporated some of these observations—including a virtually unvarnished reprinting of his archaeological assessment of the Lytton burial site—in an article on the Shuswap peoples of southern British Columbia, presented to the Royal Society of Canada. See George M. Dawson, “Notes on the Shuswap People of British Columbia,” Proceedings and Transactions of the Royal Society of Canada, Vol. IX, Section II (1891): 3-44.
41 Dawson, for instance, recorded a number of Native legends concerning water monsters or magical creatures associated with particular lakes in the BC interior. See Cole and Lockner, The Journals of George M. Dawson, I: 259 for one such legend associated with François Lake, west of Fort George (now Prince George). Such legends became so familiar to Dawson that he was occasionally able to anticipate the topographical features with which the monster would be associated: “Feeling sure that the usual monsters would be credited with inhabiting this lake, & thinking likely that they would be associated with this Solitary island, I proceeded to enquire, & found that it was even so.” See Cole and Lockner, The Journals of George M. Dawson, II: 362.
how similar they were to the Raven creation myths that he documented among the Haida in 1878.\textsuperscript{42} Dawson’s early efforts at collecting such foundational myths, then, can be viewed as a first, rather ad hoc, attempt to salvage fragments of the interior Natives’ world view.

In addition to Native informants, Dawson was able to obtain a good deal of relevant information from the various Hudson Bay Company traders he encountered at Fort George, Fort Fraser and Fort St. James. These traders were able to give Dawson a sense of the delicate geopolitical balance that existed between the interior tribes of this region and the Native communities on the nearby coast.\textsuperscript{43} They were also useful for translating and corroborating the Native legends Dawson recorded, especially given the fact that he had not yet mastered the Chinook trading jargon. Through the knowledge provided by these HBC traders, Dawson was able to begin envisioning the interior of the Province as a rich and complex cultural landscape rather than as an empty wilderness. Again, however, none of this information was elaborated by Dawson into an ethnographic treatment of the Natives of the BC interior.\textsuperscript{44}

From Native vocabularies to creation myths, from skull specimens to archaeological excavations, Dawson’s nascent anthropological work during his early field seasons in British Columbia touched on all of the major facets comprising the burgeoning field of anthropology: philology, ethnography, physical anthropology and archaeology were all to be found in Dawson’s field notebooks. Yet, despite such apparent interest, Dawson’s

\begin{footnotes}

\footnotetext[42]{Cole and Lockner, \textit{The Journals of George M. Dawson}, I: 260-61, esp. note 747.}

\footnotetext[43]{See, for instance, Ibid, I: 274.}

\footnotetext[44]{Although the ethnographic information that Dawson collected over the course of this field season certainly did inform his discussion of the Natives of the province’s northern interior in his “Sketches of the Past and Present Condition of the Indians of Canada,” \textit{Canadian Naturalist} Vol. IX, No. 3 (1881): 129-159. Also published as a separate reprint. See page 22 of the reprint for reference to his 1876 field work.}
\end{footnotes}
anthropological contributions in these early years were modest. His field notebooks and initial publications were dominated by topographical descriptions and geological analyses. Anthropological remarks appeared only occasionally in the former and not at all in the latter—indeed, it would be almost a decade before any of Dawson’s anthropological observations appeared in print. During these early years, we can discern the first stirrings of Dawson’s fascination with Native peoples—a fascination that prompted him to make a series of preliminary contributions to an anthropology of the Indigenous peoples of British Columbia. Yet, there is little in these early anthropological endeavours that foreshadowed the scope and the depth of the ethnographic studies that Dawson was to produce beginning in 1878.

(ii) Focused Ethnographic Treatises

Dawson’s field work on the Queen Charlotte Islands in 1878 was a watershed moment for his contributions to anthropology. In that field season, Dawson not only collected a significant amount of ethnographic data on the Haida population but also committed such material to print for the first time, as appendices to his geological report on the archipelago. This ethnography of the Haida was both a turning point in Dawson’s commitment to salvage anthropology and a highly revealing exemplar of Dawson’s perspective on future Native-settler relations in the resource rich regions of the West. I will examine Dawson’s depiction of the Haida in much greater detail in the next chapter. Here it is sufficient to say that Dawson’s work on the Haida offered his most

---

45 The first of this material to be published in detail appeared in Tolmie and Dawson’s *Comparative Vocabularies* in 1884.
robust ethnographic contribution to the emerging field of anthropology while further entrenching the ‘Vanishing Indian’ discourse that shaped so much of the Euro-Canadian perspective on Western Canada’s Natives in the late 19th century.

Dawson’s follow-up to his ground-breaking Haida ethnography was a significant ethnographic treatise on the then little-known Kwakwaka’wakw of northern Vancouver Island. This work took place in 1885, in the wake of new instructions from Director Selwyn urging GSC personnel to collect what they could of Native cultures on behalf of the Survey museum.47 The resulting ethnography was presented to the Royal Society of Canada in May of 1887 and published the following year as an extensive article in the RSC’s *Proceedings and Transactions*.48 Like his Haida ethnography, Dawson’s examination of the Kwakwaka’wakw addressed familiar ethnographic topics and themes: the territory and boundaries of the various tribal groups, the social & political structures of these groups, their ‘mode of life’, arts & customs, the nature of their traditions, folklore & religion, and their present conditions & future prospects. As he had done with the Haida, Dawson also ended this ethnography with an extensive vocabulary documenting seven hundred words in the Kwakwaka’wakw language.49

---

47 See Selwyn to Survey field officers, February 25, 1885, Geological Survey of Canada Director’s Letterbooks, National Archives of Canada, Record Group 45, Vol. 80, pp. 234-235. Selwyn’s directive expressly mentioned the recent funding appropriation that the United States Geological Survey received for the purpose of conducting anthropological collections. Thus, his directive might be interpreted as the Survey’s attempt to keep pace with its continental colleagues/competitors. His directive also makes mention of recent encouragement regarding anthropological collecting made by “His Excellency,” suggesting that perhaps the Governor General had urged the Canadian government to undertake anthropological work. This initiative also came in the wake of the previous summer’s BAAS meeting in Montreal, where the Committee on the North-Western Tribes of Canada was established in order to advance anthropological knowledge in regard to the Dominion’s Native peoples. Thus, in contrast to the 1884 Select Committee’s insistence that the Survey focus its energies on ‘practical’ mineral prospecting, Selwyn clearly had other, more expansive objectives in mind for the Survey (see Chapter 2).


49 Ibid., 89-98.
Not surprisingly, Dawson’s account of the Kwakwaka’wakw was pervaded by the discourse of the ‘Vanishing Indian.’ In Dawson’s estimation—and echoing Sproat’s remarks on the neighbouring Nuu-chah-nulth people—the Kwakwaka’wakw had become “demoralised” since the arrival of White settlers, traders and missionaries in British Columbia: “They have lost, to a great extent, their pride and interest in the things which formerly occupied them, losing at the same time their spirit and self-respect, and replacing it by nothing.” 50 This loss of spirit meant that time was short and Dawson felt that the imperative to salvage as much as possible of Kwakwaka’wakw culture was clear:

The notes made at the time [1885], are here presented in a systematised form. As thus set down in order, they are intended to be merely a record of facts and observations, and are offered as a contribution toward our knowledge of the Indians of the west coast. No attempt is made to theorise on the observations, nor has the time at my disposal been sufficient to enable me to institute the comparisons which suggest themselves readily enough between these and other tribes of the region. These tribes, together with their ideas and their lore, such as they are, are passing away before our eyes, or where they still show evidence of continued vitality, they are losing their old beliefs and ways. This being the case, it is perhaps needless to apologise for the necessarily incomplete character of this paper in some respects. 51

As with the Haida, Dawson depicted the Kwakwaka’wakw as a vanishing people whose customs and beliefs were rapidly “passing away.” For Dawson, the urgency of the situation served to excuse the incomplete nature of his ethnographic observations. All he could hope to do in the short time available was to compile a substantial corpus of unvarnished facts and observations from the field and to publish them as fully and as quickly as possible in order to salvage for anthropologists at least a rudimentary record of a vanishing traditional society.

50 Ibid., 87.
51 Ibid., 63.
As it happened, Dawson’s study of the Kwakwaka’wakw did lay the groundwork for a more exhaustive series of ethnographic analyses, undertaken by the young German anthropologist Franz Boas—a man widely regarded as the ‘father of American anthropology.’

Boas conducted some of his most extensive and important anthropological field work among the Kwakwaka’wakw over the course of his long and accomplished career. His first visit to northern Vancouver Island came during a self-financed trip in 1886, the year after Dawson had conducted anthropological work in the region and the year before Dawson’s ethnography of the Kwakwaka’wakw was published by the Royal Society of Canada. Despite his contemporary first-hand knowledge, Boas often made reference to Dawson’s published ethnography in his reports. For instance, in his “First General Report” (1889), Boas briefly mentioned the tribal subdivisions found amongst the Kwakwaka’wakw but determined not to elaborate on them in his report, given that Dawson had already done so in his 1887 article.

In the same report, Boas outlined a specific custom related to a Kwakwaka’wakw potlatch ceremony but noted that the particulars of this custom had already been “well set forth” by Dawson.

Similarly, in his “Second General Report,” published the following year, Boas noted that a particular Kwakwaka’wakw bewitching custom had been “well described” by Dawson and that the reports that he received from his Native informants on shamanistic customs “agree in all the main points” with Dawson’s ethnography. Boas, it would seem, derived a great deal of insight from Dawson’s work and used it to help shape his

54 Ibid., 38.
extensive and unparalleled contributions to Kwakwaka’wakw ethnography over the succeeding decades, marking an important instance where Dawson’s preliminary ethnographic efforts laid the foundation for more robust anthropological analysis.

Dawson produced two subsequent ethnographies following his Kwakwaka’wakw article: an 1887 report on the various Native groups of northern British Columbia and the Yukon District, appended to his official GSC report on the geography and geology of that vast interior region, and an 1891 article in the Royal Society of Canada’s *Proceedings and Transactions*, offering various observations on the Shuswap people of the Kamloops District in south-central British Columbia. Both publications follow the same basic structure as the Haida and Kwakwaka’wakw ethnographies, documenting the usual information on tribal social structures, arts, customs, traditions and languages. Dawson’s report on the tribes of the northern interior was the much sparser of the two, despite the fact that a great deal less was known of these particular Native groups compared with the tribes of the southern interior. As we have seen in Chapter 3, Dawson met very few Natives and even fewer White informants who might have offered information on the local Native groups in the course of his 1887 journey. The resulting ethnographic report relied heavily on the published work of other travellers and settlers in the region and primarily focused on the Native groups found near the coast and within the mining districts of northern BC, with next to no information on the Natives of the Yukon District.

---

proper. In many ways, then, Dawson’s report was more of an ethnographic compendium than a field-derived, empirical account.\(^{57}\)

As with the Kwakwaka’wakw article, Dawson explicitly introduced each publication with a disclaimer indicating that what followed was a strictly empirical contribution to the anthropology of the Northwest tribes.\(^{58}\) Not surprisingly, the discourse of the ‘Vanishing Indian’ was also articulated in both of these ethnographies, albeit in more muted fashion. In his Yukon report, for example, Dawson briefly remarked that the ongoing incursion of miners into the northern interior had disrupted long-standing trade arrangements amongst Native groups, thereby disrupting certain customs.\(^{59}\) In his account of the Shuswap, Dawson noted that sweeping cultural changes had come about after the horse was introduced to these people and that a number of Native food sources had been abandoned after contact in favour of flour and the potato.\(^{60}\) These two reports, then, maintained the ethnographic pattern that Dawson had established with his treatises on the Haida and the Kwakwaka’wakw, perpetuating the ‘Vanishing Indian’ discourse and reaffirming the salvage imperative.

\(^{57}\) Dawson was frustrated by this lack of anthropological data in the field because he had hoped to fill in a gap in the anthropological map of the Northwest with this field work: to the south he and Tolmie had already produced a map depicting the geographical extent of the various linguistic groups in southern BC (see below) and, to the northwest, W. H. Dall had done the same for the linguistic groups of Alaska. This left the linguistic geography of the northern BC interior and the Yukon District to be worked out. See Dawson, “Report on an Exploration in the Yukon District,” 191B.

\(^{58}\) Dawson’s 1891 ethnography of the Shuswap people included the following in its introduction: “The information thus gathered, is here presented explicitly and for the most part without comment or attempt at explanation or correlation. The writer ventures to hope that this record of observations may be accepted as a useful contribution to the knowledge of the anthropology of the region, and as one which may be of service to future investigations, though in itself possessed of no high scientific value.” See Dawson, “Notes on the Shuswap,” 3. See also Dawson’s opening remarks to Appendix Two of his “Report on an Exploration in the Yukon District,” 191B, for a similar, albeit more muted, disclaimer regarding his ethnographic notes on the Natives of the Yukon District and northern British Columbia.

\(^{59}\) Dawson, “Exploration in the Yukon District,” 193B.

\(^{60}\) Dawson, “Notes on the Shuswap,” 14 and 19.
Over the course of two decades in the Canadian West, then, Dawson contributed four important ethnographic studies of particular Native groups. American anthropologist H. W. Henshaw commended Dawson for both his Kwakwaka’wakw ethnography—which Henshaw considered to be “a valuable addition to our knowledge of the northwest coast tribes”—and for his report on the Natives of northern BC and the Yukon District: “Twenty-three printed pages contain the result of Mr. Dawson’s investigations among the Indians of the Yukon District, but the value of the information they contain is not to be estimated by their number. The report is of great value, particularly from the light it throws upon the geographical position of the tribes, their names and relationship.” As such comments attest, Dawson’s ethnographic contributions were taken seriously and accepted graciously by the leading anthropologists of his day.

Interestingly, Dawson showed no corresponding commitment to anthropological study during his time in southern Alberta in 1881, 1883 and 1884. His extant field notebooks from these seasons contain virtually no ethnographic remarks concerning the Native peoples he encountered. A letter to the Montreal Gazette in 1881 may explain Dawson’s lack of interest. In the letter Dawson described the devastating effects that American whiskey traders, small pox and, especially, the over-hunting of buffalo had had on the Natives of the Canadian Prairies in the previous decade. He suggested that buffalo herds on the Canadian side of the border had been on the decline throughout the 1870s and had virtually disappeared by 1878, leaving these Native groups destitute and utterly reliant on government food rations and other assistance in order to survive. For Dawson, such a circumstance may have indicated that the traditional ways of these Aboriginal societies had already been lost and could not be salvaged, which might account for his lack of anthropological commitment during his field seasons in southern Alberta. Dawson’s Montreal Gazette letter is quoted on pages 101-102 of Lois Winslow-Spragge’s, Life and Letters of George Mercer Dawson, 1849-1901, which she privately published in 1962. Winslow-Spragge was Dawson’s niece and thus had access to a considerable body of his private correspondence. Her book was eventually republished as No Ordinary Man: George Dawson, 1849-1901, ed. Bradley Lockner (Toronto: Natural Heritage/Natural History, Inc., 1993), but the revised edition did not include this particular Gazette article.

(iii) Anthropological Syntheses

In addition to this series of first-hand, field-based ethnographies, Dawson also produced several important anthropological syntheses in the course of his career. As with his ethnographies, these publications repeatedly invoked the discourse of the ‘Vanishing Indian’ and underscored the need for salvage. Dawson’s first effort at anthropological synthesis was his *Sketches of the Past and Present Condition of the Indians of Canada*, published in 1881. In this work, Dawson sought to offer an overview of the geographical extent, tribal structures and modes of living of “the greater Indian families” of Canada.63 He moved from east to west in his account, first describing the various tribes of Atlantic Canada and the Great Lakes region before moving to a general description of the Natives of the Prairies and northern woods and finishing with an overview of the complex tribal divisions in British Columbia. Dawson’s article was more than simply a general synthesis of the Dominion’s dominant Native groups. As the title suggests, Dawson was also concerned to discuss the history of European contact with particular Native societies and to analyze the impacts that contact had had on the tribes in each region. Bringing his discussion into the present, Dawson also sought to assess the processes of treaty negotiation and reserve creation throughout the Dominion, evaluating what approach seemed most appropriate in the social and geographical contexts that existed in different regions of the country. This article offered Dawson’s clearest position on the thorny Indian Question facing government officials throughout the Dominion as well as his candid assertion that the assimilation of Canada’s Native peoples constituted their only hope of survival in the wake of European contact.

---

Given the nature of the article, it is not surprising that it also offered one of Dawson’s clearest articulations of the ‘Vanishing Indian’ discourse:

It is often said that the ultimate fate of the Red Man of North America is absorption and extinction: just as European animals introduced into Australia and other regions, frequently drive those native of the country from their haunts, and may even exterminate them, and as European wild plants accidentally imported, have become the most sturdy and strong in our North American pastures; so the Indian races seem to diminish and melt away in contact with the civilization of Europe…

Here, Dawson implied that the disappearance of North American Natives was a natural and largely inevitable process—an unintended yet unavoidable outcome of contact between two vastly unmatched human civilizations. This sense of natural inevitability, so frequently articulated within the ‘Vanishing Indian’ discourse, had profound implications for the making of settler space in the Canadian West because it justified so much of that colonial project. It is important to emphasize how vital published statements such as this one were to the emerging discipline. The repeated assertion that North America’s Natives were simply ‘melting away’ might have served as a rallying cry to anyone invested in the study of human societies—their origins, their development and their complex inter-relationships. Salvaging what remained of Indigenous societies—their traditional customs and beliefs, their material culture and even their physical remains — was an anthropological imperative to be reiterated at every opportunity.

Dawson’s second major anthropological synthesis was the philological collaboration he initiated with W. Fraser Tolmie in 1876. Dawson had shown an interest in Native vocabularies from the outset of his field work in British Columbia. During his first field season in the province’s central interior in 1875 Dawson took the time to record

---

64 Ibid., 29-30.
65 Dawson’s colonial vision and its relationship to the discourse of the ‘Vanishing Indian’ will be thoroughly addressed in the next chapter, through an analysis of Dawson’s ethnographic study of the Haida.
two brief Native vocabularies—one based on interviews with his Chilcotin guide Charlie and one compiled from conversations with a group of Natives congregated at Blackwater Depot, northwest of Quesnel. These compilations marked Dawson’s first attempts to collect philological information in the field and they were soon followed by an even more concerted effort to compile Native vocabularies during his off season in Victoria. Over the course of the 1875-76 winter, Dawson periodically visited with the social, political and scientific elite of the city. One of his frequent hosts was William Fraser Tolmie, a former trader for the Hudson Bay Company and a leading political figure in Victoria. Dawson and Tolmie shared similar anthropological interests for, in March of 1876, they embarked on a collaborative effort to compile the vocabularies of some of the “least known languages” spoken by the province’s various Native peoples. Their method was to interview English-speaking or Chinook-speaking Natives who had come to Victoria to trade, recording as carefully as possible the Native-language equivalents of a standardized set of words that had been designated by the Smithsonian Institution in its 1863 instructions to anthropological researchers. Their initial efforts proved successful—a month after beginning his collaboration with Tolmie, Dawson was able to inform his father that they had already compiled nearly complete vocabularies for fifteen of the province’s Native languages and dialects.

This focus on compiling vocabularies was significant because philology—the comparative and historical study of language—was at the heart of anthropology’s quest to

---

67 Ibid, I: 154. Tolmie was an ideal partner in this work as his years of experience as an HBC trader had afforded him a detailed understanding of many of the province’s Native peoples as well as fluency in the Chinook Jargon, the pidgin trade language widely used by Natives and White traders throughout the province.
68 Gibbs, “Instructions.”
understand the relationship between particular tribes and to trace the nature of human origins. As Dawson’s future colleague, Horatio Hale, would later say, “in America the linguistic stock is the universally accepted unit of ethnological classification.” This was because language differences were presumed to have arisen from long periods of geographical isolation—periods of isolation that were also presumed to have produced profound cultural and social differences between the various Native groups. In this way, linguistic differences were thought to demarcate meaningful socio-cultural divisions between North America’s Native peoples. By contrast, Hale felt that physical differences—the other measure widely used by anthropologists to differentiate between Native ‘races’—were largely the product of inconsequential climatic conditions or localized circumstances and thus could not be used as a reliable means for anthropological classification. Thus, for Hale and many anthropologists, documenting the various languages of Indigenous North Americans was the key to determining their historical relationships and common origins. This task was considered especially important in British Columbia, where numerous linguistic stocks existed in a relatively confined geographical area and the complex relations between these language groups had yet to be carefully examined. There was a sense of urgency associated with this work,

---


72 Ibid., 2.

73 Hale notes that the situation was especially curious along the coast, where many Native groups with long histories of interaction still maintained a number of quite distinct languages, whereas the Natives of the BC interior had much greater linguistic similarities despite much longer histories of geographical isolation. See
however, as there was a concern that several of these Native dialects were in danger of dying out before they could be meaningfully documented. In this intellectual context, Dawson and Tolmie’s modest vocabularies constituted a significant early contribution to salvage anthropology among the Natives of British Columbia.

While Dawson and Tolmie were able to accomplish much of their preliminary research during the winter of 1876, the project required a sustained effort over successive years. It was not until 1884 that their work was published as the Comparative Vocabularies of the Indian Tribes of British Columbia. As Tolmie’s introductory remarks made clear, the finished publication included “about 211 words of one or more dialects of every Indian language spoken on the Pacific slope from the Columbia River north to the Tshilkat River, and beyond, in Alaska; and from the outermost sea-board to the main continental divide in the Rocky Mountains.” In addition to the vocabularies, the text also included a coloured map, prepared by Dawson, depicting the geographical extent of the various linguistic groups in British Columbia (Figure 5.2). The map covered

---

Ibid, 2. Dawson also remarked on this unusual circumstance in the preface to Tolmie and Dawson, Comparative Vocabularies, 7B.
74 Committee on the North-Western Tribes of Canada, “Circular of Inquiry,” (London: British Association for the Advancement of Science, 1887), 4.
75 In the Preface, Dawson indicated that much of the information in this work came from their initial collaborative interviews in the winter of 1875-76. In subsequent years, however, Dawson and Tolmie worked separately—Dawson’s contributions having come from interviews conducted with Native informants during his geological field surveys. See Tolmie and Dawson, Comparative Vocabularies, p 5B.
76 Interestingly, the work was published by the GSC, marking the first time that the Survey undertook the publication of an exclusively anthropological material. In his acknowledgements to Director Selwyn, Dawson stated that the collaboration with Tolmie had been a private investigation but that Selwyn had granted his “kind permission,” allowing the publication to occur under the auspices of the Survey. Dawson explained this by alluding to the fact that the Survey’s functions had recently been expanded, making it appropriate to include anthropological works in its publications. It is not clear from Dawson’s remarks, however, who initiated this expanded mandate nor when. See, Tolmie and Dawson, Comparative Vocabularies, p 3B.
77 Ibid., 9B.
approximately 200,000 square miles of territory and was created to fill in the cartographic gap that existed between William H. Dall’s linguistic maps of Alaska to the north and Washington Territory to the south.79

From the outset, Dawson and Tolmie’s work was considered a significant contribution to anthropology in British Columbia. In 1887 the BAAS-sponsored Committee on the North-Western Tribes of Canada (of which Dawson was a member)

---

78 This map was published as part of Tolmie and Dawson’s, *Comparative Vocabularies*. The digital image above appears courtesy of Library and Archives Canada and can be accessed on the world-wide web at http://www.collectionscanada.gc.ca/executive-decree/023004-150-e.php?uid=023004-nlc010179&uidc=recKey.

published a *Circular of Inquiry* designed to instruct amateurs in the proper content and methods of anthropological field research. This *Circular* included a section on Native languages and it urged its readers to emulate Dawson and Tolmie’s work in regions where no languages had been recorded and to build on their work by adding new words and developing more complex dictionaries and grammars for the various Native languages of the province.\(^{80}\) In discussing the collaboration, de facto Committee chairman Horatio Hale asserted that Dawson and Tolmie’s published vocabularies, “are important contributions to philology, well worth the pains and cost of collecting and printing.”\(^{81}\) Hale also applauded Dawson’s “excellent” accompanying map of Native languages in British Columbia and encouraged other researchers to prepare similar linguistic maps wherever possible.\(^{82}\) William H. Dall shared Hale’s admiration of Dawson’s map, stating that it “fills a gap in ethnographic maps which has long reproachfully appealed to the eye of the student, and for the first time renders possible a general discussion of Northwest American tribes.”\(^{83}\) The work that Dawson and Tolmie had started as a winter project amongst the temporary Native encampments in Victoria in 1876 had grown to become one of the most important contributions to the anthropology of the Pacific Northwest in the late nineteenth century.

---

\(^{80}\) Committee on the North-Western Tribes of Canada, 4.
\(^{81}\) Ibid.
\(^{82}\) Ibid., 5.
(iv) Administrative Roles

In addition to his substantial published ethnographies and his occasional anthropological syntheses, Dawson contributed to the emerging field of anthropology in a variety of administrative capacities. He took a leading role in the GSC’s various anthropological pursuits. Following the Survey’s move from Montreal to Ottawa in 1881, Director Selwyn started to modestly pursue anthropological collections for the expanded Survey museum. On several occasions Selwyn turned to Dawson for help in securing these collections, either having Dawson purchase particular artefacts in the field or having him visit private collectors in order to inspect their artefacts before completing a transaction on the Survey’s behalf. Over time, Dawson was able to undertake independent anthropological initiatives for the Survey. For instance, in 1889, while Selwyn was away in London, Dawson authorized the purchase of an extensive 800-piece anthropological collection for the GSC museum—a purchase that Selwyn ultimately supported upon his return. In that same year, Dawson advanced $300 of Survey money to Franz Boas so that Boas could collect Native artefacts for the museum while working amongst the Indigenous communities of the BC coast. After Dawson succeeded Selwyn as GSC Director in 1895, he continued to gradually augment the museum’s collections of

84 See, for example, Selwyn to C. A. Hirschfelder, May 2, 1883, Geological Survey of Canada Director’s Letterbooks, National Archives of Canada, Record Group 45, Vol. 79, p. 134; and Selwyn to W. J. Thistleton Dyer, June 17, 1885, Geological Survey of Canada Director’s Letterbooks, National Archives of Canada, Record Group 45, Vol. 80, p. 422.
86 Dawson to Boas, May 29, 1889, Geological Survey of Canada Director’s Letterbooks, National Archives of Canada, Record Group 45, Vol. 83, p. 533. Of course, Boas was already under contract that summer to collect artefacts on behalf of the B.A.A.S.’s Committee on the North-Western Tribes of Canada—of which Dawson was a leading member. Douglas Cole notes that Dawson was displeased the year before when none of the artefacts that Boas had collected in his first field season working for the B.A.A.S. in BC had been sent to the Survey museum in Ottawa. Dawson therefore secured the $300 stipend with the idea that Boas could collect for the Survey in addition to his official collections for the B.A.A.S., which he managed to do. See, Douglas Cole, Captured Heritage: The Scramble for Northwest Coast Artifacts (Vancouver: Douglas and McIntyre, 1985), 121.
Native artefacts until his death in 1901.\textsuperscript{87} Compared to other American and European scientific institutions of the day, the Survey’s anthropological pursuits in the late 19\textsuperscript{th} century were undoubtedly modest. Nonetheless, on those occasions when the GSC did commit resources to anthropological collecting, Dawson played a central role.

More significant than his administrative contributions to Survey anthropology was Dawson’s key role on the British Association for the Advancement of Science’s Committee on the North-Western Tribes of Canada. From its inception in 1831, the BAAS had promoted specialized scientific research in a variety of disciplines to address scientific problems beyond the capacities of individual researchers or small learned societies. The BAAS undertook its extensive research program by commissioning a series of specialized committees, each comprised of leading scholars in that particular field of study. Funds were allocated to the committees to support their investigations, with the expectation that each committee would report its progress at the annual meeting of the Association.\textsuperscript{88} While the BAAS had included the ‘study of man’ within its scientific purview virtually since its inception, it was not until 1884 that a distinct Anthropology Section was established. Interestingly, this new arm of the BAAS was established in Montreal, during one of the few annual meetings not held on British soil. This was a fitting setting for the birth of the new Anthropological Branch given the recognized richness of the Canadian field for anthropological research.

The Committee on the North-Western Tribes of Canada was created in the course of this meeting in Montreal, as the new Anthropological Section looked to document as

\textsuperscript{87} In 1897, for example, Dawson hired C. F. Newcombe—a naturalist from Victoria—to collect Haida artifacts on the Charlottes on behalf of the GSC. Dawson was pleased with the results and again hired Newcombe to collect Kwakw̱a’wakw artifacts for the Survey in 1899 and 1900. See, Cole, \textit{Captured Heritage}, pp. 179-182.

\textsuperscript{88} Gruber, “Horatio Hale,” 23.
The Committee was formed with the intention of recording as much as possible of the “physical characters, languages, industrial and social conditions” of Canada’s western Natives before it was too late. The Committee was to be formally chaired by E. B. Tylor, Britain’s leading anthropologist, but de facto control of the Committee fell to three Canadians: veteran anthropologist and linguist Horatio Hale, University of Toronto naturalist/archaeologist Daniel Wilson, and GSC Assistant Director George Dawson. Of the three, Hale had the greatest experience in anthropological research and—as a retiree—the most time to devote to the work, which ensured that he had the greatest influence on the Committee’s work. Nonetheless, Dawson was intimately involved in shaping and directing the Committee’s anthropological investigations, and his opinion carried weight.

From its inception, the Committee was committed to the salvage paradigm in anthropology. Indeed, the salvage imperative was especially clear in the Committee’s Circular of Inquiry (1887), which Gruber attributes primarily to Hale. Just as with the earlier anthropological guides produced by the Smithsonian Institution and the BAAS, the Committee’s Circular was targeted at untrained but willing anthropological observers, such as government officials, doctors, travellers, settlers or anyone else who would likely come into contact with Canada’s Native peoples. And, like those earlier guides, the Circular began with a statement that plainly articulated the salvage imperative: “effort should be made to record as perfectly as possible the characteristics and condition of the Native tribes of the Dominion before their racial peculiarities become less distinguishable

89 Ibid.
90 Ibid.
91 As I have already demonstrated above, Dawson was familiar with the 1863 Smithsonian guide prior to commencing his vocabulary work in 1876. It is interesting to note that, through his work on this BAAS Committee, Dawson contributed to the creation of a Circular designed to guide the next generation of amateur anthropologists in the field.
through intermarriage and dispersion, and before contact with civilised men has further obliterated the remains of their original arts, customs and beliefs.”\textsuperscript{92} The \textit{Circular} then detailed a series of “Suggestions for Investigation,” including appropriate methods for documenting physical characteristics, mental characteristics, Native languages, cultural products, spiritual beliefs and social structures. The \textit{Circular} articulated the desired template for the Committee’s field operations and was the instrument that shaped the objectives and methods of its field agents over the course of the next decade.\textsuperscript{93}

In the first few years after its inception, the Committee did little more than synthesize previously-collected materials on Native groups east of the Rocky Mountains and publish these syntheses as part of its annual report to the Association. During this period it was making preparations for Hale to undertake extensive field work in British Columbia—a region then considered by the anthropological community the richest yet most threatened field for anthropological investigation in the world. But, Hale—nearly seventy and considerably past his physical prime—was unable to commence field operations in either 1886 or 1887.\textsuperscript{94} With Wilson occupied with various university obligations and Dawson committed to his GSC duties, the Committee was obliged to hire someone to collect on its behalf in British Columbia. Hale, Wilson and Dawson turned to Franz Boas, then an ambitious and promising young anthropologist recently relocated to the United States from Germany. Boas conducted his first field work for the Committee in 1888 and continued to collect and publish on its behalf until 1895, in the process

\textsuperscript{92} Committee on the North-Western Tribes of Canada, 1.

\textsuperscript{93} Indeed, Gruber notes several letters from Hale to Franz Boas, insisting that Boas use the \textit{Circular} as his model for field work on the Committee’s behalf (see below). In assessing Hale’s influence on Boas’s anthropological thought and method, Gruber argues that Boas adhered closely to the \textit{Circular’s} framework throughout his years working for the Committee and that Boas retained this framework in subsequent research, internalizing it as a central part of his highly influential field methodology. See Gruber, “Horatio Hale,” 26 and 32.

\textsuperscript{94} Ibid., 23.
developing the extensive knowledge of British Columbia’s Natives that would cement his reputation as the leading North American anthropologist of his day.

Boas was already known in anthropological circles—in 1883 he had undertaken an ambitious trip to study the Inuit of Baffin Island and had followed that with a self-financed trip to British Columbia in 1886, both of which yielded a modest corpus of publications. Yet, in 1888, Boas had not yet established himself as an anthropologist of particular renown. Despite the growing interest in anthropology at American universities and museums, Boas’s field experience and publication record were not enough to secure him a permanent anthropological position after immigrating in 1886.\textsuperscript{95} Nonetheless, both Hale and Dawson were admirers of the German’s work on the Natives of British Columbia—they detected in his publications an anthropological field collector and scholar of considerable potential and they moved quickly to offer Boas the Committee’s field commission in 1888.\textsuperscript{96} Boas accepted the offer and proceeded to carry out field work in BC on behalf of the Committee for many of the next nine field seasons. It was thanks to the instincts of Hale and Dawson that Boas was granted his first multi-season, salaried anthropological position in North America—a position that he would use to establish his reputation as an unparalleled expert on the anthropology of British Columbia’s Native peoples and to launch what was to become a long-standing and much-celebrated professional career as North America’s pre-eminent anthropologist.

\textsuperscript{95} Indeed, as Cole documents, Boas had suffered a series of career disappointments prior to 1888—most notably his failure to convince either the Geological Survey of Canada or the American Museum of Natural History in New York that they should invest in a full-time anthropologist in 1886, a time of significant fiscal restraint for both institutions. Boas managed to stay in North America following his 1886 field work in BC by taking an assistant editor job with the weekly publication \textit{Science}. See Cole, “Franz Boas,” pp. 98, 103-104.

\textsuperscript{96} Gruber notes that Dawson and Hale both wrote to Boas separately in March of 1887, commending the German on his published work from the 1886 BC trip. Gruber also indicates that Hale first broached the possibility of the Committee position to Boas in January of 1888 but that Hale sought Dawson’s consent before officially offering the position to Boas the following month. See Gruber, “Horatio Hale,” 24-25.
This was not the first time that Dawson had supported the young German’s anthropological field work in British Columbia. Prior to embarking on his self-directed BC explorations in the autumn of 1886, Boas had contacted Dawson to secure financial assistance for the trip from either the GSC or the Royal Society of Canada. Dawson was unable to find funds for Boas but he did draw on his own contacts and experiences in BC to render aid. Writing to Boas in mid-August of 1886, Dawson stated, “I believe I can give you details as to the best mode of proceeding should you determine on the expedition. I can also give you letters to persons in BC, who will be of use to you and shall be glad to afford any such assistance.”

Given Dawson’s long-standing and extensive connections in British Columbia, letters of introduction were an invaluable gift and the young anthropologist wisely accepted the offer. Dawson quickly responded with a more extensive letter providing Boas with detailed information about where to visit, who to contact and what to focus on when gathering information from the province’s various Native groups. A week after this second letter, Dawson wrote Boas a final time to answer a series of questions that Boas had evidently raised in response to Dawson’s earlier offer of aid. This final letter contained detailed information and advice on a range of topics: the appropriate clothing for the BC coastal climate, the necessary bedding for camp, the type of tent to carry, the going rates for goods and services demanded by Whites and Natives, the ideal types and quantities of food to take, the most effective goods for bartering with Natives, and the importance of buying supplies from

98 Cole, Captured Heritage, 105.
99 In particular, Dawson advised Boas not to rely too heavily on Native mythology as a “test of racial identity.” Dawson felt that: “the stories and the arts of the people of the West Coast seem...to be held in common, even where language is quite distinct.” See Dawson to Boas, August 20, 1886, quoted in Gruber, “Horatio Hale,” 21-22.
White traders in remote regions to establish rapport. From these letters it is clear that Dawson played an important advisory role in Boas’s first BC field expedition, demonstrating that, from the very outset, Dawson had a significant influence on Boas’s anthropological work amongst the Native groups of British Columbia.

Of course, Dawson’s influence on Boas continued after Boas was hired by the Committee. Dawson’s instructions often supplemented and occasionally clarified the numerous directives with which Horatio Hale burdened the young anthropologist. As Jacob Gruber argues, Hale seemed deeply disappointed by his own inability to conduct the fieldwork on behalf of the Committee. He came to view Boas as his proxy in the field rather than as his replacement and felt well justified in carefully orchestrating Boas’s every move. Hale seemed to view his relationship with Boas as that between a wise mentor and his young acolyte but, for Boas, Hale’s constant interventions and seemingly capricious requests were a major source of irritation. Dawson was no doubt aware of Boas’s frustrations, as Boas had secretly written to other members of the Committee to complain about Hale during the summer of 1889. While it would have been highly impolitic for Dawson to intervene directly on Boas’s behalf, he did mitigate Hale’s erratic requests by surreptitiously issuing alternative instructions to Boas in the field. Correspondence between Boas and his wife that July makes clear that Boas had considerably more faith in Dawson’s supervision than in the kind provided by Hale.

---

100 Dawson to Boas, August 27, 1886, quoted in Gruber, “Horatio Hale,” 22.
102 Ibid., 29.
103 Ibid., 30.
Primarily as a result of Boas’s work, the Committee was able to produce a series of twelve annual reports to the BAAS that offered new insights into several of the tribes of southern Alberta as well as an extensive and quite detailed overview of the cultures, languages and physical attributes of British Columbia’s Native peoples. In 1897, the Committee was officially decommissioned by the BAAS but resurfaced that same year as the Ethnological Survey of Canada, which Dawson chaired until his sudden death in 1901.105 Through its annual reports and particularly through Boas’s work in British Columbia, the Committee on the North-Western Tribes of Canada made significant contributions to the developing field of anthropology in the late nineteenth century. Given Dawson’s central administrative role on this important Committee and its successor, it is abundantly clear that Dawson’s contributions to anthropology were not limited to his own publications on the subject.

Conclusion

Clearly, anthropology was a major focus of Dawson’s attention throughout his career with the Survey. Between his earliest field work in British Columbia in 1875 and his last years as GSC Director prior to his death in 1901, Dawson either personally conducted or helped administer several of the most significant anthropological investigations conducted in Western Canada in the late nineteenth century. It is clear that Dawson’s extensive and varied corpus of anthropological work contributed significantly to the developing anthropology of British Columbia’s Native peoples. Franz Boas was quick to acknowledge the significance of Dawson’s published anthropological record in

105 Very few details about the Ethnological Survey of Canada have been unearthed, although it seems to have generally continued the work of its BAAS predecessor, the Committee on the North-Western Tribes of Canada. See Cole and Lockner, The Journals of George M. Dawson, I: 22.
his final report to the Committee on the North-Western Tribes of Canada, stating that, prior to his own anthropological field work in BC, “the only noteworthy work done in recent times was that by Dr. G. M. Dawson during his frequent geological expeditions to British Columbia.”

Another leading American anthropologist of the period, W. J. McGee, paid similar respect in his obituary of Dawson, lauding the Survey man as a true pioneer in Canadian anthropology:

While several of Dr. Dawson’s titles and the prefatory remarks in some of his papers imply that his ethnologic researches were subsidiary to his geologic work, and while his busy life never afforded opportunity for monographic treatment of Canada’s aborigines, it is nevertheless true that he made original observations and records of standard value, that much of his work is still unique, and that his contributions, both personal and indirect, materially enlarged knowledge of our native tribes. It is well within bounds to say that, in addition to his other gifts to knowledge, George M. Dawson was one of Canada’s foremost contributors to ethnology, and one of that handful of original observers whose work affords the foundation for scientific knowledge of the North American natives.

Dawson’s anthropological contributions, then, were undoubtedly numerous and profound. Moreover, by virtue of their fidelity to the prevailing ‘Vanishing Indian’ discourse, these contributions served to justify and facilitate the colonial project of making settler space—an argument that is best illustrated with reference to Dawson’s seminal ethnography of the Haida.

---


Chapter 6

‘Vanishing’ the Haida

Introduction

The significance of Dawson’s anthropological work went beyond dutifully salvaging traces of ‘traditional’ Indigenous cultures in museum cabinets and in print. Dawson’s recurring depiction of the ‘Vanishing Indian’ made a significant contribution to the colonial project of making settler space in Western Canada. Dawson’s efforts to document ‘declining Native societies’ in his various scientific reports and maps served to justify their virtual erasure from the imaginative colonial geographies of Euro-Canadian settlement and resource extraction. Dawson ‘mapped Natives out’ of his representations of Western Canada’s future resource landscapes by writing them back into a ‘primitive’ past deemed to be vanishing forever.

Such a claim is best demonstrated by analyzing one of Dawson’s most significant contributions to 19th-century anthropology: his extensive ethnography of the Haida. This study was published as a pair of appendices to his official geological report on the Queen Charlotte Islands, which was the culmination of field work conducted during the summer of 1878.¹ From the outset, Dawson downplayed the significance of this ethnographic field work: “the following account of the Haida Indians is chiefly the result of personal observations [made] during the portion of the summer of 1878 spent in the Queen Charlotte Islands, prosecuted during moments not occupied by the geological and

geographical work of the expedition, at the camp fire in the evening, or on days when it was impossible to be at work along the coast.”\(^2\) Dawson elected to present his ethnographic field work as a supplementary pursuit, quite secondary to his officially-mandated work for the Survey—a judicious use of the unproductive ‘down time’ that every field scientist bemoaned. Despite such disclaimers, the scope and detail of his ethnographic study suggests that this was an undertaking of immense personal interest for Dawson. While the main body of the report addressed various topographical and geological characteristics of the archipelago (see Chapter 4), Dawson described Haida society in great detail in the first appendix and included an extensive vocabulary of the Haida language in the report’s second appendix. These depictions were infused with the ethnographic vision of the ‘Vanishing Haida,’ which served to discursively displace this Indigenous community to a ‘primitive’ past from which it could stake few viable claims to the abundant resource landscapes of the Queen Charlotte Islands that Dawson envisioned would be exploited in the near future. As current struggles over issues such as Native land claims and Aboriginal self-government have revealed, Dawson’s ‘Vanishing Indian’ was a severely limited, colonialist perspective that failed to envision the cultural tenacity and adaptability of Western Canada’s Native communities.

‘Mapping The Haida Out’

As Chapter 4 illustrated, Dawson’s report on the Queen Charlotte Islands conceived the archipelago as a settler space from which the existing Haida inhabitants were largely excluded. While Dawson offered a thorough and accurate account of the topographic, geological and natural features he observed in the course of his travels, the main body of

\(^2\) Ibid, 103B.
the report barely mentioned the Haida or their presence in the landscape—a presence that Dawson nonetheless fully acknowledged and extensively documented in both his field notebooks and in the report’s first ethnographic appendix. While the locations of particular Haida villages were certainly conveyed to readers in the text, very few details about their built form or their inhabitants were provided in the main section of the report. The most prominent Haida village on the Charlottes received this parsimonious description: “the Skidegate Indian village is nearly half a mile in length, consisting of a row of houses, with the usual carved posts, fronting on Village Bay of the chart.” The main body of Dawson’s report also provided no indication of a Haida presence in the landscapes beyond the villages, as though the archipelago’s Indigenous cultural geographies ended at the barrier of trees that towered just behind the built dwellings of each settlement. Throughout the first section of Dawson’s report the Haida, when they were mentioned at all, were positioned within isolated communities at the margins of a vast, uninhabited land.

This geographical marginalization was even more pronounced in the report’s supplementary geological map of the islands and the two in-text maps delineating some of the archipelago’s most significant harbours (Figure 6.1). While Haida villages were named and located, they nonetheless appeared insubstantial and isolated in relation to the vast swaths of empty territory depicted around them. Moreover, the style of depiction gave no sense of whether these communities were still occupied and by how many inhabitants. In the in-text maps, Dawson employed the same cartographic symbol—a row of four small squares—to denote Native villages, regardless of their demographic size

---

3 Dawson, “Report on the Queen Charlotte Islands,” 31B.
4 As we shall see, however, this impression of the Haida as territorially-circumscribed village-dwellers does not square with Dawson’s remarks on Haida territoriality in the report’s first appendix.
and territorial extent. The overwhelming impression is that the Haida presence on the Queen Charlotte Islands was isolated, marginal and largely inconsequential.

*Figure 6.1*
George Dawson’s map of Virago Sound and Naden Harbour. Note the vast expanses of putatively empty territory beyond the villages of Kung and Yatza.5

Marginalizing the Haida in this way would suggest that Dawson’s report and accompanying maps employed a familiar tactic of colonial representation: the cartographic erasure of Native geographies. Indeed, as cartographic historian J. B. Harley asserts, in representing ‘new worlds,’ imperial map makers repeatedly attempted “to

---

5 Dawson, “Report on the Queen Charlotte Islands.” The map appears between pages 14B and 15B.
dispossess the Indians by engulfing them with blank spaces.” Building on this general assertion, Kenneth Brealey has demonstrated that ‘mapping Natives out’ of the landscapes of what is now British Columbia has been a well-established imperial/colonial strategy since Europeans first starting making scientific and commercial voyages along the North Pacific Coast in the late 18th century. This strategy has continued to be employed in contemporary, putatively ‘postcolonial,’ British Columbia, as recent works by Matthew Sparke and David Rossiter reveal.

Such acts of cartographic erasure are significant because maps constituted an important disciplinary technology of colonial power in 19th-century British Columbia. While Cole Harris has argued that it is unlikely that such cartographic erasures convinced anyone familiar with the on-the-ground realities of colonial BC that the lands depicted were actually uninhabited, the act of mapping Natives out of the landscape still exercised

---


considerable discursive power. For Harris such maps enframed the territory of British Columbia within a European culture of vision, measurement and administration, thereby introducing “a geographical imaginary that ignored Indigenous ways of knowing and recording space, ways that settlers could not imagine and did not need as soon as their maps reoriented them after their own fashion.”\(^{10}\) As a result, Brealey asserts: “in a colonial context…maps arrest and de-legitimize the territorialization of some cultural groups even as they enfranchise and legitimize that of others.”\(^{11}\) It would seem that Dawson’s representations of the Queen Charlotte Islands can be positioned squarely within this optic of cartographic erasure—by largely mapping the Haida out of these islands, Dawson de-legitimized Haida territoriality in order to enfranchise future Euro-Canadian settlement and resource exploitation.

Attributing a straightforward ‘mapping them out’ strategy to Dawson’s representations of the Charlottes is problematic given that he included a lengthy and detailed ethnographic account of the Haida in the very report in which his geographic descriptions and associated maps erased them from the landscape. The report’s ethnographic appendices might lead readers to the opposite conclusion: that the report was designed to highlight—rather than obscure—the Haida presence on these islands. Dawson devoted nearly as many pages to discussing and illustrating the physical characteristics, cultural customs, belief systems, social structures, linguistic traits and material artefacts of the Haida in his appendices as he devoted to the geographical and

---

\(^{10}\) Harris, “How Did Colonialism Dispossess?,” 175.

\(^{11}\) Brealey, “Mapping Them ‘Out’,” 140. See also, Godlewska, “Map, Text and Image.”

277
geological descriptions in the main body of the report.\textsuperscript{12} While the Haida may have been marginalized within the report’s main body and accompanying maps, they were a substantial focus of Dawson’s analysis. How can we account for this apparent disparity in Dawson’s representations of the Haida?

Bruce Braun offers one possible explanation in his analysis of Dawson’s historical contributions to epistemologies of nature in British Columbia.\textsuperscript{13} Braun argues that Dawson’s 1878 field observations and subsequent report reflected a marked colonial “double vision” that served to divide the Queen Charlotte Islands into distinct landscapes of nature and culture. According to Braun:

\begin{quote}
\textit{[W]hile indigenous peoples were described in great detail \textit{[by Dawson]}—their physical features and cultural forms documented and enumerated—they were simultaneously detached from the surrounding landscape, which, accordingly, was encountered and described as devoid of human occupation. In other words, Dawson distilled the complex social-ecological worlds through which he traveled into neat, unambiguous categories: primitive culture and pristine nature. Despite the great attention that Dawson paid to both, no relations were drawn between them. The former was contained within the village, fixing a sedentary Native presence 'in' place, while the blank spaces beyond the bounds of Native villages were filled with the colored spaces of geological and botanical maps.}\textsuperscript{14}
\end{quote}

This disproportionate division of the archipelago’s geography had lasting colonial consequences, Braun asserts. By conceptually confining Native peoples to isolated

\textsuperscript{12} While the main body of the report totals 101 pages, the ethnographic materials in the various appendices take up 94 pages of text and plates—an unusual and remarkable ratio for a geological report. See Dawson, “Report on the Queen Charlotte Islands.”


\textsuperscript{14} Braun, \textit{Intemperate Rainforest}, 54.
village sites (which would later become codified as Native reserves), scientific explorers, such as Dawson, portrayed the vast majority of BC territory as pristine wilderness—uninhabited, unclaimed and readily available for resource exploitation. These early wilderness epistemologies, Braun suggests, have been consistently reiterated over the past century, yielding a contemporary environmental discourse that continues to exclude Native voices from discussions concerning the appropriate management of forest resources in coastal British Columbia. For Braun, Dawson’s double vision of the Queen Charlotte Islands in 1878 exemplifies a 19th-century colonial vision of nature that has had a lasting impact on forest politics in the province.

Braun’s analysis of Dawson’s double vision offers a more nuanced approach to the cartographic erasure thesis—one that accounts for the paradox of including a detailed ethnographic account in a report that otherwise ignored a Haida presence in the landscapes of the Queen Charlotte Islands. According to Braun, while Dawson did map the Haida out of the vast majority of the archipelago in order to clear the land for future settlement and industry, he simultaneously mapped them into a number of isolated, ‘primitive’ village sites. By confining Haida cultural geographies to these isolated villages, Braun feels that Dawson’s colonial double vision permitted the Haida presence in the landscape to be acknowledged and extensively documented without complicating or jeopardizing future Euro-Canadian settlement and industry on the islands.

Braun’s interpretation of Dawson’s double vision is problematic, particularly his central assertion that Dawson aimed to discursively detach the Haida from the landscapes

---

15 Both Ken Brealey, in “Travels From Point Ellice,” and Cole Harris in *Making Native Space: Colonialism, Resistance and Reserves in British Columbia* (Vancouver: University of British Columbia Press, 2002) discuss how Native reserve boundaries were often tightly drawn around Native villages.
that surrounded their village sites.\textsuperscript{16} As his first ethnographic appendix made clear, Dawson considered the Haida to have quite intimate, complex and longstanding attachments to the landscapes of the Charlottes—attachments that extended far beyond the handful of permanent winter villages found on his map to the numerous and scattered summer settlements, salmon streams, timber stands, berry patches and coastal encampments that constituted Haida territory:

The Haidas trouble themselves little about the interior country, but the coast line, and especially various rivers and streams, are divided among the different families. These tracts are considered as strictly personal property, and are hereditary rights or possessions, descending from one generation to another according to the rule of succession elsewhere stated. They may be bartered or given away, and should one family desire to fish or gather berries in the domain of another, the privilege must be paid for. So strict are these ideas of proprietary right in the soil, that on some parts of the coast sticks may be seen set up to define the limits of the various properties, and woe to the dishonest Indian who appropriates anything of value—as for instance a stranded shark, or seal or sea-otter which has died from its wounds—that comes ashore on the stretch of coast belonging to another. Along the shores the principal berry-gathering grounds are found, and thus divided. The larger salmon streams are often the property jointly of a number of families; and at these autumn fishing grounds temporary houses, small and roughly constructed, are generally to be found.\textsuperscript{17}

As this passage illustrates, Dawson had a keen sense of Haida territoriality—a territoriality that extended far beyond the winter villages. Despite Braun’s assertions, Dawson’s ethnographic vision did not ‘fix’ the Haida in place as sedentary village dwellers but emphasized their extensive, intimate and often quite formalized proprietary relations with the natural landscapes of the Charlottes.

\textsuperscript{16} Ibid.
\textsuperscript{17} Dawson, “Report on the Queen Charlotte Islands,” 117B-118B.
To be fair, Braun does acknowledge that Dawson’s ethnography alludes to Haida interactions with landscapes beyond the villages, but feels that this merely reflected the inevitable contradictions that marked the colonial epistemologies of the day:

[Dawson’s] descriptions of the material culture of the Haida, moreover, contained evidence of precisely that which his spatial and epistemological divisions disavowed: a Haida artifice that suggested territorial and ecological practices that did not fit Dawson's neat epistemological divisions. Many of the same elements of Haida culture that so captivated Dawson—their large houses, totem poles, artistic abilities, and elaborate rituals—spoke of much more than an unexpected cultural sophistication among primitive peoples; they also told of intimate contact with the surrounding territory. Yet although Dawson's enframing of culture and nature is troubled by spatial practices that clearly exceeded its terms, he was unable to register this at either a practical or an epistemological level. Amid the rugged, fog-enshrouded landscapes of the Haida Gwaii, a colonial visuality held sway. Dawson divided into two domains—nature and culture—what in the everyday lives of the Haida remained as one.18

For Braun, Dawson’s failure to contain the Haida within their isolated village sites was the product of an epistemological contradiction that ‘troubled,’ but by no means subverted, the colonial project of mapping Natives out of British Columbia’s imagined resource landscapes. I would suggest that the trouble lies, not with any perceived epistemological contradiction on Dawson’s part, but with Braun’s insistence—despite evidence to the contrary—that Dawson’s colonial double vision reflected a sharp geographical bifurcation between landscapes of nature and landscapes of culture on the Queen Charlotte Islands.

In illuminating the Haida presence in the landscapes beyond their villages, Dawson’s report does seem to depict two different and quite irreconcilable imaginative geographies of the Queen Charlotte Islands. The first—articulated in the report’s main body and accompanying maps—envisioned the archipelago as an unclaimed resource

18 Braun, *Intemperate Rainforest*, 57.
landscape waiting to be settled, while the second—depicted in the report’s ethnographic appendices—envisioned these islands as a robust and long-standing Haida cultural landscape. Given that a significant Haida presence on the archipelago would seem to undermine Dawson’s larger colonial project of making settler space on the Charlottes, a fundamentally problematic contradiction seems to be at work in his report—one that cannot be resolved by adopting Braun’s theory of a ‘nature-culture double vision.’ A closer look at Dawson’s anthropological work may make sense of this apparent contradiction.

The Haida As Ethnographic Subjects

As Chapter 5 suggested, Dawson’s familiarity with the salvage imperative driving 19th-century anthropology fostered within him a sense of obligation to document the ‘vanishing’ Indigenous societies of Western Canada. This sense of obligation would have been profoundly felt with regard to the Haida for several reasons. Dawson perceived the Haida to be the “the most interesting” of the numerous Native groups inhabiting the BC coast.19 In part, this was because the Haida were widely considered to be the Pacific Northwest’s superior Native ‘specimens’—a theme presented in the early pages of Dawson’s first appendix:

> In some instances, and these more numerous than in the other coast tribes, both men and women of prepossessing appearance, and with features of considerable regularity as measured by European standards, occur. The average physiognomy of the Haida shows more evidence of

---

19 This description is found in “The Haidas,” Harper’s New Monthly Magazine, vol. LXV (June-November 1882): 401-408, esp. 402. No author is credited for this article but the first-person narrative of the visit to the Charlottes, the details of the journey and the timing of its publication leave no doubt that Dawson is the author.
intelligence and quickness than that of most of the coast tribes, an appearance not belied on more careful investigation.20

In Dawson’s day, greater intelligence and civility was attributed to the Native peoples who most resembled European physical stature, skin tone and, especially, facial structure. Dawson deemed the Haida to be the province’s most intelligent and capable Indigenous people because they seemed the most “European-looking” of British Columbia’s Natives. This perspective echoed an earlier statement by Francis Poole, a mining engineer who had lived on the Charlottes briefly in the early 1860s while operating a small copper mine on Burnaby Island. Poole commented that “the natives of ‘Queen Charlotte’….are nearly as white as Europeans” and felt that this explained why the Haida, “have been considered the finest specimen of the Indian race on the Pacific.”21

The Haida were also widely regarded as superior to their coastal neighbours in terms of their material culture—particularly in the realm of woodworking, where Haida great houses, totem poles and canoes were celebrated as the best of their kind. As Dawson stated in a popular account of his 1878 field season: “In their mode of life, and the ingenuity and skill they display in their manufacture of canoes and other articles, the Haidas do not differ essentially from the other tribes inhabiting the northern coast of British Columbia and Southern Alaska. In the Queen Charlotte Islands, however, the peculiar style of architecture and art [which] elsewhere among the Indians of the west coast [is] more or less prominently exhibited, appears to attain its greatest

---

21 Francis Poole, “A Year Amongst the Indians of Queen Charlotte Island; Or, An Open Field For Missionary Labour,” Mission Life (May 1, 1867): 27-35, esp. 28. This sentiment is also echoed by Gilbert Malcolm Sproat in Scenes and Studies of Savage Life (London: Smith, Elder & Company, 1868), 23, where he describes the Haidas as “the finest” Indigenous people on the continent.
development.” He repeated this view in his 1888 article on the Kwakwágìwakw of northern Vancouver Island, whose architectural and wood-carving skills he judged patently inferior to those of the Haida. For many commentators of the day, Dawson included, the Haida were the pre-eminent craftsmen of the BC coast, exhibiting skills and artistic vision widely imitated but rarely equaled by less adroit wood workers in other communities.

The Haida were also highly regarded as fierce and unrelenting warriors. As Dawson’s report suggests, their “warlike foreign expeditions” and their proclivity to “surprise and massacre” inspired fear amongst neighbouring coastal communities, who were no match for the superior maritime skill of Haida canoe-men. In another publication, Dawson characterized the Haida as “more dreaded than any tribe from Vancouver to Sitka.” This perception of Haida ferocity had been promulgated since the earliest explorers visited the Charlottes in the late 18th century and had given the Haida an almost mythological status along the BC coast. Nonetheless, it was a perception that Dawson felt compelled to temper after his own encounters with the Haida: “I have not been able to discern in their appearance anything of that exceptional fierceness said to be characteristic of them by the earlier voyagers, and can only suppose that these statements may have arisen from the more elaborate character of their armament and dress, and the liberal application of pigments to the skin.”

---

23 George Dawson, “Notes and Observations on the Kwakiul people of the northern part of Vancouver Island and adjacent coasts, made during the summer of 1885,” Proceedings and Transactions of the Royal Society of Canada, V (1887): 63-98, esp. 75.
24 Dawson, “Report on the Queen Charlotte Islands,” 103B.
26 Dawson, “Report on the Queen Charlotte Islands,” 105B.
their bellicose reputation—a reputation that, coupled with their perceived physical and cultural superiority, made the Haida intriguing subjects of study for anthropologists.  

Dawson was also aware that the Haida had not yet been adequately studied: “The present memoir is…I believe the first detailed account of the Haidas which has been given.” Only one scholarly study of the Haida had been published prior to his own. In 1873 an amateur American ethnographer, James G. Swan, submitted a brief paper to the Smithsonian Institution that dealt primarily with Haida design motifs in tattoos and wood carvings. Swan had based his study on several interviews conducted with Haida traders during their visit to Port Townsend, Washington Territory. Swan had hoped to follow up this initial study with a more comprehensive analysis of Haida culture, but the Smithsonian refused to finance his trip to the Queen Charlotte Islands. The meagreness of the ethnographic foundation laid by Swan’s study was accentuated by the paucity of accounts left by the handful of White traders, miners and missionaries who had

---

27 This notion of Haida physical, cultural and military superiority was promoted by a number of Dawson’s contemporaries, including Francis Poole, James Swan and Charles Harrison. In addition, Dawson made reference to these supposed attributes many times in his writing. See Poole, “A Year Amongst the Indians,” 28; James G. Swan, “The Haïdah Indians of Queen Charlotte’s Islands, British Columbia, With a Brief Description of Their Carvings, Tattoo Designs, Etc.,” *Smithsonian Contributions to Knowledge* (1876): 1-18, esp. 2; Charles Harrison, *Ancient Warriors of the North Pacific: The Haidas, Their Laws, Customs and Legends, With Some Historical Account of the Queen Charlotte Islands* (London: H. F. & G. Witherby, 1925), 44; Dawson, “Report on the Queen Charlotte Islands,” 103B-105B; Dawson, “The Haidas,” 402-403; and Dawson, “Notes and Observations on the Kwaïkool People,” 75.

28 Dawson, “Report on the Queen Charlotte Islands,” 103B. Dawson reconfirmed the ethnographic precedence of his report on the Haida in the introduction to an 1891 article by Alexander Mackenzie, describing Haida tools and weapons that Mackenzie had collected and donated to the GSC museum: “the first detailed account of the Haida people was given by the writer [Dawson]…the material for it having been obtained in the course of a summer spent in exploring the Queen Charlotte Islands for the Geological Survey.” See, Alexander Mackenzie, “Descriptive Notes on Certain Implements, Weapons, etc., From Graham Island, Queen Charlotte Islands, BC,” *Proceedings and Transactions of the Royal Society of Canada*, Vol. IX, Section 2 (1891): 45-47, esp. 45. For many years Mackenzie resided at Masset, operating the only HBC trade post on the Charlottes.

29 Swan, “The Haïdah Indians of Queen Charlotte’s Islands.”

30 Douglas Cole, *Captured Heritage: The Scramble for Northwest Coast Artifacts* (Toronto: Douglas & McIntyre, 1985), 21-33. Swan was deeply frustrated by his inability to swiftly follow up his initial study with a detailed investigation of the Haida community in situ. Indeed, he was forced to wait until 1883 to make his inaugural visit to the Charlottes—a decade after he had first conducted his Port Townsend interviews and five years after Dawson had superceded Swan’s precedent-setting article with his own landmark field work and study.
occasionally visited the Charlottes over the previous two decades. Only one miner, Francis Poole, had made any effort to document his observations. Poole had come to the Charlottes to prospect for copper but he also sought to promote these islands as a rich field for missionary endeavour in a pair of short articles to *Mission Life* in 1867 and 1868. Following the classic missionary strategy, Poole represented the Haida as a “savage”, exotic and ultimately degraded people who nonetheless possessed the intelligence and disposition for civilization. Poole’s writings made tantalizing reference to a number of the more colourful customs that would ultimately be described more fully in Dawson’s report but exaggeration and a moralistic tone rendered these accounts suspect as ethnographic documents. If Dawson consulted these brief missives, he made no mention of them, although he certainly held a dim view of Poole’s more extensive published monograph: “In 1863-64, Skincuttle Inlet was the scene of the exploits of a certain Mr. Francis Poole, calling himself a mining engineer. He subsequently published a volume called ‘Queen Charlotte Islands,’ which is chiefly remarkable for the exaggerated character of the accounts it contains.” Clearly, Dawson felt that Poole’s account could not be considered an important precedent in the ethnographic historiography of the Haida. Dawson may have considered his ethnography of the Haida important because his 1878 visit to the Charlottes marked the first time a Euro-Canadian, trained in science and interested in anthropology, had effectively observed and documented Haida society in situ.

---

31 In addition to Poole’s article “A Year Amongst the Indians,” (cited above) see Francis Poole, “Two Years Amongst the Indians of Queen Charlotte’s Island,” *Mission Life* (Feb. 1, 1868): 97-107. These articles were soon followed by a book, *Queen Charlotte Islands: A Narrative of Discovery and Adventure in the North Pacific* (London: 1872).
32 Dawson, “Report on the Queen Charlotte Islands,” 17B.
Just as significantly, Dawson felt that an ‘authentic,’ ‘traditional’ Haida culture was still discernible in 1878 despite a series of cultural modifications resulting from contact with settler society. For salvage ethnography the traditional society of the Native ‘other’ still had to be visible in order to be recovered and preserved. The deployment of the ‘Vanishing Indian’ discourse implied that some amount of decline had already occurred but, crucially, not so much that cultural authenticity could no longer be perceived and documented by the ethnographer. Geographic isolation, Dawson felt, was responsible for the survival of ‘traditional’ Haida society: “the situation of the islands, and the comparative infrequency with which they have been visited for many years, have at least tended to preserve intact many features which have already vanished from the customs and manufactures of most other tribes.” 33 Dawson felt the Haida were one of the few remaining Native groups in North America that still had a discernible ‘traditional’ culture worthy of detailed study.

Dawson must have recognized that he had a significant opportunity in 1878. Amateur though he was, he knew that any ethnographic documentation of the Haida that he produced would contribute to the growing anthropological body of knowledge on British Columbia’s Native peoples. Such a contribution would have important practical implications for the Dominion, providing knowledge that would permit federal and provincial ‘Indian agents’ and other government officials to more effectively enact various policies aimed at sequestering Native communities on reserves and accelerating

33 Dawson, “The Haidas,” p. 404. In contrast, Dawson might have pointed to the Native peoples of the interior whom he encountered in 1875-77. His field notebooks for that period include several references to the extensive influence that Catholic and Anglican missionaries had had on the interior tribes (See, for instance, Douglas Cole and Bradley Lockner, ed., The Journals of George M. Dawson: British Columbia, 1875-1878, 2 vols. (Vancouver: University of British Columbia Press, 1989), I: 74, 256, 284.) Missionaries occasionally posed problems for salvage anthropologists: despite being important sources of information, they were often quite aggressive in their attempts to abolish the traditional Native cultural practices that anthropologists were seeking to document.
their assimilation into Canadian society. In this regard, Dawson’s ethnographic account of the Haida was certainly not the superfluous “disquisition on Indian dolls, potlatches, Indian dances, etc...” that Survey colleague Robert Bell would disdainfully denounce before the Select Committee on Geological Surveys hearings in 1884. While an anthropological account of the Haida was undoubtedly far removed from the concerns of Canada’s mining industry, it nonetheless held practical utility for the Nation.

Moreover, the pervading sense that ‘traditional’ Haida culture was rapidly disappearing and would soon be lost forever made such a contribution vital to the emerging field of anthropology. Dawson was one of only a handful of Euro-Canadians who had visited the Charlottes in the past century. While others would certainly follow, it might be some time before they did and they might not have the time, resources, skills or inclination to carry out ethnographic research. As far as Dawson knew, he might be the last person who could document the ‘traditional’ culture of the Haida before it was irrevocably compromised by contact with settler society.

**Salvaging the ‘Vanishing Haida’**

In keeping with the salvage paradigm, a pervasive sense of decline emerges from Dawson’s extensive and elaborate appendix on the ‘traditional’ customs, social structure, belief systems and quotidian practices of the Haida. For Dawson, the most pronounced form of decline was demographic decline, which he attributed to regular contact with Euro-Canadians in the trading camps located in and around Victoria. In the wake of the 1858 gold rush, a steady stream of miners and traders began to pass through Victoria en

---

34 Report of the Select Committee Appointed by the House of Commons to Obtain Information as to Geological Surveys, etc. etc. (Ottawa: Maclean, Roger and Co., 1884), 75.
35 Dawson, “Report on the Queen Charlotte Islands,” 105B.
route to the gold fields of the BC interior. To take advantage of this market, Haida traders helped to establish the “Northerners’ Encampment” on Small Bay, just outside Victoria, and made annual journeys to this trading hub thereafter. In 1862, smallpox swept through the camp, killing many. Others, infected but not incapacitated, were driven from the camp by concerned town officials and were forced to transport this scourge back to their home communities, causing even greater calamity. By Robert Boyd’s estimation, the 1862 smallpox epidemic—the last major epidemic to sweep the Pacific Coast during the 19th century—killed over four thousand Haida, resulting in a 72% loss of population. Dawson also suggested that Euro-Canadian contact had led to the “complete demoralization of the Haidas,” as it had encouraged many Haida women to engage in prostitution while in Victoria, resulting in widespread venereal disease among the archipelago’s population. Haida physical superiority had become their curse, Dawson implied, because their greater resemblance to Europeans had made Haida women especially popular companions amongst the disproportionately male Euro-Canadian population inhabiting the BC capital. Despite what seemed to be strong evidence to the

37 Ibid., 229. Such figures, of course, are somewhat conjectural and are based on assumptions about the pre-epidemic population levels of Haida communities—a difficult estimate to make given the paucity of visitors to, and thus data from, the Queen Charlotte Islands prior to the first reliable census efforts of the early 1880s (For further discussion, see Ibid., 207-219). Cole Harris offers further discussion on the difficulties of estimating the impacts of disease amongst BC Natives in his study of smallpox around the Strait of Georgia in the 19th century. See, Cole Harris, *The Resettlement of British Columbia: Essays on Colonialism and Geographical Change* (Vancouver: University of British Columbia Press, 1997), 3-30.
38 Dawson, “Report on the Queen Charlotte Islands,” 105B.
39 This notion of widespread Aboriginal prostitution in Victoria was common in Dawson’s day and has been commented on by contemporary scholars. See, for instance, Boyd, *Coming of the Spirit of Pestilence*, 63-78. Recently, however, the extent of such prostitution has been convincingly challenged by Jean Barman. Barman argues that many Aboriginal women were incorrectly considered to be prostitutes because they eschewed the established gender roles and geographies that many Euro-Canadian men found familiar and comfortable. By traversing the streets, inhabiting dwellings and frequenting dance halls without the company of men, these women appeared to be sexually transgressive and thus were erroneously categorized as prostitutes by the community’s numerous moralizers. See Jean Barman, “Aboriginal Women
contrary, Dawson was not convinced that the Haida were “fated to utter extinction.” Rather, “like other tribes brought suddenly in contact with Whites, they will reach, if they have not already arrived at, a certain critical point, having passed which they will continue to maintain their own, or even to grow in numbers.” Thus, from Dawson’s perspective, the notion of the ‘Vanishing Indian’ was not to be taken literally—a number of Haida would almost certainly survive the predations of disease, but the cost to the community would be devastating.

Dawson was intent on illustrating the impact of this population decline on the landscape of the Queen Charlotte Islands. During his two-month journey along the shores of the archipelago, Dawson made careful note of the deserted village sites he encountered, concluding: “[the] permanent villages of the Haidas are now much reduced in number, in correspondence with the very rapid decrease of the people themselves. Those villages least favourably situated as fishing stations, or most remote from communication, have been abandoned, and their people absorbed in others.” Even the inhabited villages were feeling the effects, Dawson insisted:

Even those [villages] still occupied are rapidly falling to decay; the older people gradually dying off, the younger resorting more and more to Victoria and beginning to despise the old ways. Many houses have been completely deserted, while others are shut up and mouldering away under the weather, and yet others, large and fitted to accommodate several families, are occupied by two or three people only. The carved posts, though one may still occasionally be erected, are as a rule more or less advanced toward decay. A rank growth of weeds in some cases presses close up among the inhabited houses, the traffic not being sufficient to keep them down.

---

40 Dawson, “Report on the Queen Charlotte Islands,” 174B.
41 Ibid., 117B.
42 Ibid.
Dawson used images of physical decay to evoke a powerful sense of cultural decay. The Haida—declining in numbers and transformed by their sustained contact with Victoria—were allowing their dwellings and totem poles to disintegrate, neither protecting them from the elements nor replacing them with new ones. This sense of decay was reinforced by illustrations of palpably-diminished Haida villages included in Dawson’s report.

Figure 6.2 captures the state of disrepair described in the above passage: deserted houses with wall- and roof-boards missing stand beside unfinished carved posts, as a “rank growth of weeds” engulfs the remaining dwellings of the village. The symbolism of such decay was profound: the ‘traditional’ Haida great house and accompanying carved pole—that is, the apotheosis of superior Haida craft skill; the central gathering place of Haida social life; literally, the very pillars of the ‘traditional’ Haida community—were being

---

43 Ibid. The lithographic illustration is opposite page 146B.
permitted to rot away. Time and again in his explorations of the Charlottes, Dawson came upon the abandoned or under-utilized material remnants of a once-vibrant Haida community and in these vestiges he read an undeniable tale of a people in decline.

Turning to the people themselves, Dawson perceived abundant evidence of cultural transformation and decline. Drawing comparisons between his own observations and the accounts of early European explorers and traders to the Charlottes in the late 18th century, Dawson noted that many Haida had abandoned ‘traditional’ costumes in favour of the contemporary fashions commonly worn by Euro-Canadians (Figure 6.3).

Figure 6.3
George Dawson’s photograph of the Haida chiefs Edenshaw (left) and Weah in ‘modern’ dress, taken at Ya-tza village, August 23, 1878.44

44 Library and Archives Canada, Photograph: PA-038147.
Most strikingly, the ‘traditional’ sea otter robe had been replaced by the Hudson Bay Company blanket as the preferred outer garment for these and other coast Natives. In addition, while hand-crafted bracelets and bangles had generally persisted as fashion accessories, nose pendants and rings were rarely worn amongst the younger generations of Haida; all that remained of this once widespread practice was the custom of piercing the septum at a young age. In comparing the physical appearance of young Haida with their elders, Dawson concluded that ‘traditional’ body modification—particularly tattooing and the insertion of wooden or bone labrets into the bottom lips of females—was also on the wane. Dawson presented each of these examples matter-of-factly, but their cumulative and iterative character leaves little doubt that they represented significant evidence of a large-scale transformation of Haida culture in Dawson’s mind.

For Dawson, these ethnographic observations provided a clear illustration of a continent-wide phenomenon: the ‘Vanishing Haida’ of the Queen Charlotte Islands were one more example of North America’s ‘Vanishing Indian.’ Everywhere Dawson turned, he encountered abandoned villages, rotting totem poles, modern dress, modified customs—even a general antipathy toward all things ‘traditional’ on the part of the younger generation of Haida. Consequently, Dawson tried to salvage as much material as possible, amassing a considerable collection of field notes, photographs and artefacts in order to make certain that the authentically ‘primitive’ Haida would be preserved in museum cabinets and in print long after they had vanished from the modern world.

---

45 Dawson, “Report on the Queen Charlotte Islands,” 105B-109B.
The Impact of Dawson’s Haida Ethnography

Dawson’s efforts to document the Haida were widely appreciated by a number of the leading American anthropologists of the late nineteenth century. William H. Dall, an American anthropologist who had produced significant treatises on the Native peoples of Alaska and Washington Territory, described Dawson’s work on the Haida as an “admirable monograph” during his address to the Anthropology Section of the American Association for the Advancement of Science in 1885.46 Another prominent American anthropologist of the period, W. J. McGee, included the following remarks in Dawson’s obituary published in the American Anthropologist: “One of Dr. Dawson’s earliest contributions to ethnology was a memoir on the Haida Indians of Queen Charlotte islands…a contribution made noteworthy by the novelty and extent of the observations and the comprehensiveness of the record.”47 McGee was well positioned to eulogize Dawson’s career and evaluate his contributions to anthropology: like Dawson, McGee had begun his career as a geologist, switched his focus to anthropology in 1893 and, for the next decade, became J. W. Powell’s leading assistant at the Bureau of American Ethnology.48 Franz Boas, too, held Dawson’s Haida ethnography in high esteem and included a number of references to this work in several of his reports to the Committee on the North-Western Tribes of Canada.49 In a preliminary version of his earliest report to

49 See, for example, Committee on the North-Western Tribes of Canada, Eleventh Report Report on the North-Western Tribes of Canada (London: British Association for the Advancement of Science, 1896), 14
the Committee, Boas (who, astonishingly, never found the opportunity to visit the Queen Charlotte Islands personally) urged readers to consult Dawson’s study for a detailed examination of the Haida—a glowing endorsement that made clear just how foundational Dawson’s work was for anthropologists interested in this celebrated Indigenous society.50

Yet, the influence of Dawson’s Haida ethnography can be measured by more than the praise it received. Dawson’s influence was often fully and gratefully acknowledged by a number of the commentators who made subsequent ethnographic studies of the Haida. Albert P. Niblack, an ensign in the U.S. Navy who had become interested in the Natives of the Pacific Northwest while working on a coastal survey of Alaska in the late 1880s, wrote the 1890 monograph The Coast Indians of Southern Alaska and Northern British Columbia. The Haida were one of the key Native groups discussed in his book and Dawson is extensively cited as a leading authority throughout.51 Other authors, however, drew upon Dawson’s work without acknowledgement. In 1884, Newton H. Chittenden explored the Charlottes on behalf of the BC Government. His subsequent report included an extensive section on the Haida that clearly mirrored the form, content

50 The Acting Director of the Committee, Horatio Hale, was not happy with the way in which Boas had referred readers to the published works of others in this preliminary report. His preference, he told Boas in an 1888 letter, was for Boas to provide his own gloss on the Native peoples of British Columbia: “I am sure you must have learned a great deal about both of these people [the Haida and the Nuu-chah-nulth] while you were in British Columbia. With this knowledge, and what you will acquire on your present trip, and what you can gather from the works of Dawson, Sproat, Tolmie, Dall, and others, you can give a succinct but satisfactory account not only of the Haida and the Akts, but every other people or stock in British Columbia. This is what the Committee will expect in your report.” See “Hale to Boas, April 30, 1888,” quoted in Jacob W. Gruber, “Horatio Hale and the Development of American Anthropology,” Proceedings of the American Philosophical Society, 111, 1 (1967): 5-37, esp. 27. As a result of this rebuke, Boas did not make extensive reference to Dawson’s ethnography in the published version of his first report. See Franz Boas, “First General Report on the Indians of British Columbia,” in Committee on the North-Western Tribes of Canada, Fifth Report of the Committee Appointed for the Purpose of Investigating and Publishing Reports on the Physical Characters, Languages, and Industrial and Social Condition of the North-Western Tribes of Canada (London: British Association for the Advancement of Science, 1889).

51 Albert P. Niblack, The Coast Indians of Southern Alaska and Northern British Columbia (Washington: Smithsonian Institution, 1890). Niblack also included a number of direct quotations from Dawson’s Haida report.
and, occasionally, the descriptive style of Dawson’s ethnography yet made no reference to Dawson. A later commentator noted that Chittenden’s report “gives us little information not to be found in Dr. Dawson’s [report]….” Even more egregious—and certainly more galling to Dawson—was Henry W. Elliott’s plagiarism in his 1886 monograph on Alaska. As Dawson noted in a letter to the journal *Science*: “In this work the greater part of the third chapter…is quoted, or adopted with slight verbal alteration, and without the least acknowledgement from my report on the Queen Charlotte Islands of British Columbia….The specially reprehensible feature to which I must direct attention is that Mr. Elliott has availed himself of the fact that a portion of the Haida inhabit the southern part of Prince of Wales Island (Alaska) to apply my specific observations on the Queen Charlotte Islands Haidas and neighbouring Ishmisians [sic] to the Indian population of the Sitkan archipelago…. As frustrating as this intellectual plundering surely was to Dawson, it illustrates how credible and influential his Haida ethnography had become.

52 For instance, Chittenden’s description of the Haida physical ‘type’ and of the diseases that most significantly affect them (pp. 12-13) virtually paraphrases p. 105B of Dawson’s “Report on the Queen Charlotte Islands.” Not surprisingly, Chittenden’s assessment of the physical landscape and natural resources of the Charlottes also mirrors Dawson’s report without making reference to it. This is especially apparent on page 5, where Chittenden describes Moresby Island as a “skeleton land” due to the numerous and geographically-extensive inlets that incise its eastern coast; Dawson, however, had already employed the skeleton metaphor to describe Moresby Island in his report (p. 3B). See Newton H. Chittenden, *Official Report of the Exploration of the Queen Charlotte Islands for the Government of British Columbia* (Victoria: Government of British Columbia, 1884) and Dawson, “Report on the Queen Charlotte Islands.”


55 George M. Dawson, “Elliott’s Alaska and the Seal Islands,” *Science*, Vol. 8, No. 202 (Dec. 17, 1886): 565-566, esp. 565. In a letter to William H. Dall, thanking him for his support in this dispute, Dawson relayed his concern that Elliott’s preface to the book is linked to the Smithsonian Institution, perhaps giving readers the impression that this is a credible work. Dawson worried that: “we shall doubtless before long find it quoted as an authority in foreign journals.” See Dawson to Dall, December 21, 1886, in “George Mercer Dawson Papers – Correspondence, 1856-1901,” “Dawson Family Fonds,” McGill University Archives, Manuscript Group 1022, Box C.55, File 7.
Dawson’s work did not just influence his contemporaries but continues to have an impact on present-day anthropological studies of the Haida. Indeed, J. H. Van Den Brink’s *The Haida Indians: Cultural Change Mainly Between 1876-1970* (1974) draws heavily from Dawson’s GSC report on the Charlottes for its early chapters on Haida culture in the late 19th century. In addition to his written report, Dawson’s 1878 photographs of various villages were the first to visually document the Haida communities on the Charlottes. The result, as Margaret Blackman notes, is that these photographs have become highly prized by anthropologists as “the visual baseline against which the later ethnographic content of Haida villages must be assessed.” Dawson’s images have become critical source material for artists and museum curators interested in understanding traditional Haida wood-working and architecture as well as for anthropologists who have used them to reconstruct the geographical layouts—and the social hierarchies such geographies mapped—of Haida villages in the late 19th century. Clearly, then, Dawson’s first major ethnographic endeavour had both an immediate and a lasting impact on the anthropology of the Pacific Northwest—a tangible indicator that his efforts to salvage some of the ‘traditional’ Haida society before it disappeared had not been in vain.

Reconciling Dawson’s Imaginative Geographies

With a clearer grasp of Dawson’s ethnographic vision of the Haida and a sense of its lasting influence, it is now possible to address his two distinct and seemingly irreconcilable imaginative geographies of the Queen Charlotte Islands: the main body of the report and accompanying maps that depict these islands as a virtually uninhabited and bounteous resource hinterland awaiting Euro-Canadian settlement, and the ethnographic appendix that represents them as a complex Haida cultural landscape, inscribed with social meaning through perpetually-reiterated customs and conventions. The co-existence of these competing visions complicates our understanding of Dawson’s contributions to making settler space on the Queen Charlotte Islands. Clearly, he did not simply map the Haida out of his representations of these islands, nor did he discursively ‘fix’ them in their villages in order to depict the rest of the archipelago as pristine wilderness. Given this, the possibility of reconciling Dawson’s seemingly incongruent imaginative geographies of the Charlottes within an overarching colonial vision seems remote.

Yet, such a reconciliation is possible. To do so requires envisioning them as depicting different moments in the history of these islands. Indeed, Chapter 4 has already illustrated how the report’s topographical and geological descriptions of the Charlottes were imbued with an anticipatory vision that predicted future settlement and resource exploitation on the archipelago while the imperative to salvage ‘traditional’ Haida culture ensured that the tenor of Dawson’s ethnographic account would be past-oriented and decidedly nostalgic in places.

Dawson’s fascination with the Haida of the past should come as no surprise given the intellectual context in which he was working. As James Clifford argues, the salvage
anthropologists of the day perpetually believed that an authentic culture existed “just prior to the present—but not so distant or eroded as to make collection or salvage impossible.” Salvage anthropology’s mandate of preserving ‘the traditional’ hinged upon an ethnographer’s ability to detect, in present ‘degraded’ conditions, the significant traces of an ‘authentic’ and ‘traditional’ past still there for the trained and discerning eye. The key methodological imperative of salvage anthropology, then, was to adopt a past-oriented way of seeing in the field. Moreover, as Johannes Fabian argues, a pronounced evolutionist perspective had made anthropology the “science of other men in another time” since its very inception. According to Fabian, the rigid nature of the linear model of social progress widely adopted by anthropological evolutionists meant that ‘primitive’ societies could not legitimately be thought to inhabit the same temporal position as ‘modern’ societies. Consequently, anthropologists had a strong propensity to represent Indigenous societies in ways that discursively removed them from the contemporary ‘modern’ world and relegated them to a largely-vanished, ‘primitive’ past—a representational strategy that Fabian has dubbed anthropology’s ‘allochronic discourse.’ Indeed, by employing terms such as “traditional,” “tribal,” “primitive” or “savage” in their characterizations of Indigenous peoples, anthropologists were able to subtly deny the coevalness of their subjects and establish a temporal gulf between observer and observed. As a result, spatial propinquity in the field gave way to temporal distance in print: the Native peoples that ethnographers lived amongst, interacted with and depended

61 Ibid. “Allochronic” is a compound of two Greek terms: allos (“other”) and chronos (“time”).
62 Ibid., 31 and 75.
upon while in the field were nonetheless discursively banished to a distant past when described in the researcher’s reports and monographs.

Dawson’s focus on documenting the Haida as they once were is apparent throughout his various ethnographic accounts. His published ethnography, for instance, includes extensive quotations from the memoirs of early European explorers to the Charlottes. Juxtaposed to their seemingly degraded present conditions, these accounts of a putatively pure and authentic Haida past served to highlight the socio-cultural transformations that this society had since undergone. In addition, Dawson felt that his experiences amongst the contemporary Haida afforded him imaginative insights into the rapidly vanishing cultural landscapes of their past, a perspective first articulated in his field notebook. On July 24, 1878, for instance, Dawson attended a Haida feast at the prominent village of Skidegate. Before retiring that night, Dawson took a moment to describe the evening’s events in his diary, followed by a note of reflection: “I suppose the Indians may yet almost imagine the old palmy days when hundreds Crowded the villages & nothing had eclipsed the grandeur of their ceremonies & doings...”63 In this passage, Dawson evoked the nostalgic image of a past golden age to imply that demographic and cultural decline had significantly diminished this community. Dawson’s tone subtly transformed the significance of the event: no longer a colourful display of cultural vibrancy, the ceremony was rhetorically reframed as a wistful attempt to recapture the rapidly-fading glory of bygone days. In another particularly revealing passage from his published report, Dawson contrasted a solemn depiction of the degraded cultural landscapes of the present with an image of a vibrant Haida landscape in the past: “in a few years little of the original aspect of these villages will remain, though at the present

moment all their peculiarities can be easily distinguished, and a very little imagination
suffices to picture them to the mind as they must have been when swarming with
inhabitants dressed in sea-otter robes and seal skins.”64 In such passages, Dawson
inflected his ethnographic writing with a strong undercurrent of nostalgia, conjuring for
readers an imaginative vision of ‘traditional’ Haida culture—and cultural geographies—
soon to vanish.

Dawson’s report provided the Western world with its first substantial vision of the
Haida and it was a vision that positioned the ‘authentic’ Haida in a rapidly-receding past.
This depiction had significant implications for Dawson’s colonial project of making
settler space on the Queen Charlotte Islands because it constructed a temporal gulf
between the Haida cultural landscapes described in the appendix and the Euro-Canadian
resource landscapes envisioned in the main report. Dawson even attached different names
to these past and future landscapes: “the original territory of the Haidas, as far as tradition
carries us back, is the well-defined group of islands called by Captain Dixon in 1787 the
Queen Charlotte Islands, but which the people themselves call Hai-da-kwē-a.”65 Invoking
the ‘original’ name for the Haida territory while appealing to ‘tradition’ to ‘carry us back’
to an earlier time when this cultural landscape flourished, Dawson’s comments
differentiate and temporally distance Hai-da-kwē-a from the Queen Charlotte Islands. In
this formulation, the Charlottes become an emerging territory whose toponymic origins
may have dated to George Dixon’s explorations in 1787, but whose true existence would
only be fully realized by the imminent colonization of the archipelago.

64 Dawson, “Report on the Queen Charlotte Islands,” 117B.
65 Ibid., 104B. Hai-da- kwē-a is now commonly transliterated as “Haida Gwaii,” a toponym that has been
re-adopted by many inhabitants—and sympathetic parties further afield—in an effort to reposition these
islands as Haida territory, an issue I address in the chapter’s conclusion.
Thus, what Dawson’s report offered readers was not two irreconcilable contemporary geographies of these islands but a unified colonial vision that depicted different moments in the archipelago’s geo-historical transformation from *Hai-da-kwē-a* to the *Queen Charlotte Islands*. This vision traced a narrative arc of cultural succession and geographical transformation on the islands: a vibrant and relatively sophisticated ‘traditional’ Haida society had existed on *Hai-da-kwē-a* since time immemorial; in the past century, sustained contact with Euro-Canadian society had precipitated marked demographic decline, social upheaval, geographical relocation and cultural loss amongst the Haida. Soon the Haida would cease to exist as a distinct people—over the next few years individual Haida would be rapidly assimilated into Euro-Canadian society as wage labourers supporting the fishing, lumber and other resource industries destined to emerge on the Charlottes.\(^{66}\) Ultimately, over many generations, inter-marriage would ensure that Haida bloodlines would diminish and ultimately vanish.\(^{67}\) Such disruptions would serve to facilitate the archipelago’s transformation into the *Queen Charlotte Islands* for, as Haida society diminished, the lands and resources of the archipelago would accumulate in Euro-Canadian hands, ensuring that these islands would finally fulfill the economic potential that a number of explorers had predicted over the course of the past century. This was the colonial narrative embedded in Dawson’s report—a narrative that envisioned different moments in the archipelago’s evolution from ‘primitive’ Haida homeland to ‘modern’ resource hinterland.

This colonial narrative accounts for the exclusion of the Haida from the imaginative settler geography of the Queen Charlotte Islands. As far as Dawson was concerned, the

---

\(^{66}\) Ibid., 174B.  
Haida’s ‘traditional’ territoriality had no place in his anticipatory geography of the future. The degradation he illuminated in his report suggested that their elaborate land tenure system could not long survive. Presumably, demographic decline, geographical dislocation and social destabilization would force many Haida to abandon their hereditary claims to particular potato gardens, berry patches, salmon streams and sections of coastline on the Charlottes. Disease and social upheaval had greatly reduced the number of children born in Haida communities, suggesting that existing territorial divisions and proprietary land holdings would be even further undermined in the future. Given that many Euro-Canadian settlers and entrepreneurs were already predisposed to ignore Native title to what they considered under-utilized and thus unclaimed land, Dawson’s narrative of decline might well have been interpreted as evidence that the Haida’s already-tenuous proprietary claims to the land had been extinguished in the wake of sustained contact.

Dawson would not have endorsed this interpretation. Like many representatives of the Federal Government in this period, Dawson held out hope that Native title to the land would be acknowledged in British Columbia and that, over time, Haida lands would be equitably purchased by arriving settlers and resource capitalists:

…Indian title must be disposed of [on the Queen Charlotte Islands]. This, in the case of these people, will be a matter of considerable difficulty, for as we have already seen, they hold their lands not in any loose general way, but have the whole of the islands divided and apportioned off as the property of certain families, with customs fully developed as to the inheritance and transfer of lands….the process of extinguishing by purchase the rights of each family would be a very tedious and expensive one. The negotiations will need to be conducted with skill and care. At present, anyone requiring a spot of ground for

---

69 For a discussion of Euro-Canadian attitudes towards Native land uses, see Harris, Making Native Space, xxi-xxii.
any purpose, must make what bargain he can with the person to whom it belongs, and will probably pay dearly for it.\(^7\)

Dawson must have realized that such protracted negotiations were unlikely given the steadfast refusal of provincial officials to acknowledge Native title over what they considered to be ‘Crown Lands.’ In all likelihood, Dawson knew the Haida would soon be confined to a handful of tiny reserves enclosing their most prominent villages and that their lands would simply be appropriated by the province and re-distributed to Euro-Canadian settlers and resource capitalists as required—a circumstance that Dawson’s maps gestured toward with subtle prescience.\(^7\) On reserve they would undergo the slow and sometimes painful process of assimilating into settler society—a process that would be aided by their participation as labourers in the emerging resource economy on the Charlottes. With time, Dawson felt, no trace of the traditional Haida would remain on these islands—those seeking out this once vibrant culture would find its vestiges only on the shelves of local libraries or in the display cases of metropolitan museums. From such a perspective it must have seemed reasonable and legitimate to map the Haida out of lands they had occupied since time immemorial.

Given its nostalgic perspective, Dawson’s ethnography implied that the Haida could stake few viable claims to the highly-coveted resource landscapes of the future—a move that rhetorically cleared the way for Euro-Canadian settlement and resource

\(^7\) Dawson, “Report on the Queen Charlotte Islands,” 174-175.

\(^7\) As Kenneth Brealey and Cole Harris both illustrate, the Indian Reserve Commission had begun its practice of laying out a series of small reserves around existing Native villages at the same time that Dawson was conducting his surveys of the province. Indeed, Indian Reserve Commissioner Peter O’Reilly visited the Queen Charlotte Islands two years after Dawson’s report was published. Not surprisingly, O’Reilly’s 25 reserves largely encompassed existing Haida village sites and little more—a circumstance that Dawson’s maps seemed to inadvertently foreshadow by limiting the Haida presence to a handful of villages in their anticipatory vision of the Queen Charlotte Islands. See Brealey, “Travels From Point Ellice,” Harris, Making Native Space, and Peter O’Reilly, “Peter O’Reilly to the Superintendent-General of Indian Affairs, October 27 and 28, 1882,” in Annual Report of the Department of Indian Affairs for the Year Ended 31st December, 1882 (Ottawa: Government Printer, 1882), 103-109.
extraction on the Charlottes. This was the colonial power of anthropology’s pervasive allochronic discourse:

When in the course of colonial expansion a Western body politic came to occupy, literally, the space of an autochthonous body, several alternatives were conceived to deal with that violation. Most often, the preferred strategy [was] simply to manipulate the other variable—Time. With the help of various devices of sequencing and distancing one assigns to the conquered populations a different Time.72

By consigning the Haida to an earlier age, Dawson could insist that their time had passed and that their territorial dispossession and subjugation in the near future was a perhaps lamentable but nonetheless inevitable part of the ‘natural’ evolution of human social development on the Queen Charlotte Islands.

Moreover, Dawson’s representation of the ‘Vanishing Haida’ constituted a particularly significant colonial statement on a broader scale because, as we have seen, the Haida were widely regarded as the most powerful, the most physically imposing and the most culturally advanced Native group on the BC Coast. If they could not survive contact with Euro-Canadian settler society, surely no Indigenous community could. By documenting the decline of this once dominant group, Dawson’s report suggested that none of British Columbia’s Native peoples were powerful actors—representing viable, autonomous societies—who would need to be accommodated before colonial settlement and resource extraction could proceed. This argument framed the province’s Indigenous peoples as pitiable characters who would require protection and guidance while making the difficult transition from impoverished ‘primitives’ to assimilated, ‘modern’ labourers. Despite what critics of the Survey would contend in 1884, then, Dawson’s ethnographic accounts had considerable practical utility to the Dominion. Not only did they provide a

72 Fabian, *Time and the Other*, 29-30 (the emphasis is found in the original).
wealth of useful information about Western Canada’s Native peoples—information that
government officials could draw upon when establishing reserves and determining ways
to best administer the Native populations under their jurisdiction—but they also offered a
significant justification for the appropriation of Native territories in the course of making settler space in the West.

**Conclusion: A Limited Colonial Vision**

Dawson’s 1880 report on the Haida of the Queen Charlotte Islands was thoroughly
imbued with depictions of the ‘Vanishing Indian.’ This was a vision that he readily
articulated throughout his career as an amateur anthropologist and one that his 1878
photograph at Forward Inlet symbolized so effectively (Figure 6.4). This discourse, had
tremendous significance for the colonial project of making settler space on the Queen
Charlotte Islands: by depicting the Haida as relics of a vanished age, unable to cope with
the numerous ruptures that accompanied sustained contact with settler society, Dawson’s
ethnography justified their exclusion from the imaginative geography of Euro-Canadian
settlement and resource extraction that he anticipated for the archipelago in the near
future. Framing his representation of the Haida in terms of the ‘Vanishing Indian’
provided Dawson with a narrative that traced an ostensibly natural, inevitable and, above all, ‘legitimate’ transition from *Hai-da-kwē-a* to the *Queen Charlotte Islands* and that
mobilized the emerging science of anthropology in service of the Dominion project of
making settler space in the West.
Yet, while Dawson’s 1878 photograph is a particularly apposite metaphor for his vision of the ‘Vanishing Indian,’ it speaks even more eloquently of the limitations of that vision. As I have discussed, the subjects of this evocative photograph appear as ghostly apparitions against a crisply-rendered backdrop of vegetation and cedar planking. But these Kwakwaka’wakw villagers were not actually dissipating before Dawson’s camera lens. It was the technical shortcomings of his field camera that were responsible for transforming these vibrant and dynamic figures into veritable wraiths. And, just as their ethereality was an artefact of 19th-century photographic production, so too was the

---

73 Library and Archives Canada, Photograph: PA-038146. See also the discussion of this image at the beginning of Chapter 5.
‘Vanishing Indian’ an artefact of 19th-century ethnographic production and science in service of the State. Like Dawson’s field camera, the vision of the ‘Vanishing Indian’ was not configured to accurately represent dynamism and change. The Euro-Canadian mindset of the 19th century could only see Native societies as static relics of a bygone era and potential obstacles to the creation of settler space; change could only be incontrovertible evidence of the inevitable cultural decline and social upheaval that marked the ‘natural’ evolutionary passage from the ‘primitive’ to the ‘modern’ stage of human development. There was no room in the ‘Vanishing Indian’ discourse for resilient and adaptive Indigenous societies. Hit hard by disease and unsettled by the disruptive influences of Euro-Canadian settler society to be sure, these societies were nonetheless capable of weathering the worst upheavals of contact and sustaining their collective identities as a new and ‘modern’ age unfolded.74

British Columbia’s Indigenous peoples have sustained their collective identities over the course of the last century. The politics of Native assimilation have failed and an emerging politics of collective difference, sharpened by a burgeoning sense of Native political empowerment, is taking their place.75 As recent land claim disputes, court rulings and treaty agreements attest, BC’s Native communities did not vanish and are now looking to rectify the numerous injustices visited upon them in the guise of ‘humanitarian’ policies of isolation, protection and acculturation. As Cole Harris notes,

74 For a good, albeit brief, discussion of the problems associated with the ‘traditional/modern’ binary that has often framed the ethnographic work of artists and anthropologists alike, see Bruce Braun, “Colonialism’s Afterlife: Vision and Visuality on the Northwest Coast,” Cultural Geographies 9,2 (2002): 202-247, esp. 236. Here, Braun emphasizes the point that Indigenous cultures—like all cultures—are inherently dynamic, adaptive and ever-changing, making any claim that ‘timeless’ and ‘traditional’ Aboriginal cultures were in need of rescue from the destructive elements of modern society spurious at best.

75 For a discussion of this emerging politics of difference in British Columbia, see Harris, Making Native Space, 299-311.
British Columbians—as well as non-Native Canadians in many other jurisdictions—are being forced to come to terms with the colonial past in order to establish a truly postcolonial future. Ironically, several of British Columbia’s Native groups—including the Haida—have employed Dawson’s ethnographic writings as critical evidence in their legal cases and land claims negotiations. Such writings help document their longstanding and exclusive occupancy of particular tribal lands and today carry authority due to Dawson’s credibility as a government scientist. Given this context, it is instructive to focus on George Dawson’s vision of the ‘Vanishing Indian,’ for it was this vision that undergirded imaginative geographies of BC that erased a Native presence and that contributed to the colonial policies of dispossession, relocation and assimilation that British Columbia’s Natives are currently seeking to redress.

---

76 Louise Mandell, chief legal counselor for the Haida, has spoken, for instance, of her intention of using Dawson’s reports and photographs—among other sources—in an impending land claims case to help establish the Haida’s exclusive occupancy on Haida Gwaii. See Louise Mandell, “Haida Title and Implications,” in SpruceRoots Magazine: Transcript Number 2 From the Gowgaia Institute Speaker Series 28 November, 2002 (http://www.spruceroots.org/Speakers%20Series/TLWD/TL%20Louise.html). Dawson’s report on Northern British Columbia and the Yukon District was also cited by the Gitxsan people as part of their recent land claim negotiations with their Nisga’a neighbours in the Nass River valley. See Neil J. Sterritt, Susan Marsden, Robert Galois, Peter R. Grant and Richard Overstall, Tribal Boundaries in the Nass Watershed (Vancouver: University of British Columbia Press, 1998), 216-218.
Chapter 7

Conclusion

Introduction

In this dissertation I have endeavoured to follow George Dawson on a number of his scientific explorations into the Canadian West in the decades immediately following Confederation, analyzing his efforts to “[lay] bare to inspection and open to exploitation” some of the most significant blank spaces still pervading the map of Canada in the late 19th century.\(^1\) I have focused on Dawson, not simply because he was a fascinating individual engaged in interesting work in a myriad of remarkable settings, but also because he undoubtedly did more than any other member of the Geological Survey of Canada to make the lands, resources and Native peoples of the newly-acquired West legible to government administrators and the Canadian public alike in this critical period. Upon joining the Survey in 1875 Dawson was handed the exhilarating yet daunting task of working out the complex topographic, geological and biotic landscapes of British Columbia. Over the course of a two-decade field career, he also conducted several significant explorations in the prairies, foothills and mountain passes of Alberta in addition to carrying out one of the first reconnaissance surveys of the southern Yukon District. Throughout his career, he tried to document the physical characteristics, customs, languages, social structures and geographic distributions of some of Western Canada’s most isolated and poorly known Native groups—ethnographic contributions that supplemented his official work for the Survey but ones that significantly contributed

\(^1\) Blank spaces, that is, as imagined by Euro-Canadians such as Dawson. See George Dawson, “On Some of the Larger Unexplored Regions of Canada,” *Ottawa Naturalist* 4 (1890): 29-40, p. 29.
to anthropology’s efforts to salvage what it could of the ‘traditional’ life ways of Western Canada’s Indigenous peoples widely expected to vanish in the wake of contact with Euro-Canadian settler society.

While my focus has been exclusively on Dawson, my aim has been to use his work to understand the wider contribution of the Geological Survey of Canada to the colonial project of making settler space in the West. With the acquisition of Rupert’s Land, the North-Western Territory and British Columbia from the British Crown in 1870-71 the Dominion of Canada increased its territory sevenfold—territory that was sparsely inhabited and, Native peoples aside, poorly known by all but a handful of traders, miners and pioneering settlers. Almost immediately the Dominion government took steps to exert its administrative authority over the West: delineating the international boundary, surveying potential rail routes and initiating the laborious process of parceling the land for settlement. In the form of the GSC, it also took the first steps toward establishing its epistemological dominion over its new territories, with Survey scientists sent west to analyze and report on the physical character and resource potential of this vast region. Such work not only symbolized the authority of the Canadian State over its new acquisitions, it also yielded a wealth of practical information that would facilitate effective settlement and resource exploitation in the West—acts of colonization that Survey reports portrayed as both inevitable and imminent. As Dawson assured his audience at the Ottawa Field Naturalists Club in 1890, the paths he and his Survey colleagues had traced through the hitherto poorly-known Western wilderness would be “closely followed by the trader, the lumberer, or the agriculturalist, and not long after
these comes the builder of railways with his iron road.”² In addition, primarily through Dawson’s work, the Survey’s contributions to salvage anthropology offered considerable practical utility to the Dominion’s efforts to make settler space in the West. Various ethnographic accounts made the Native societies of the West more legible to the government officials charged with administering these purportedly moribund communities and offered a scientifically-substantiated justification for the appropriation of Native lands and the relocation of their inhabitants to meagre reserves. In carrying out its work, the Survey made a fundamental contribution to the making of settler space in the West, both in terms of the practical value its assessments of the region rendered and in terms of the symbolic value afforded by this Dominion agency’s conspicuous efforts to draw the lands, resources and peoples of the West more firmly into the administrative orbit of the Canadian State.

Review of Findings

The making of settler space was no simple thing and analyzing the Survey’s contributions to this colonial project required me to elucidate the objectives, challenges and practices—both material and discursive—that framed George Dawson’s efforts to render the Canadian West legible in the last quarter of the 19th century. The first step was to demonstrate the Survey’s commitment to the project of making of settler space in the West—an analysis taken up in Chapter 2. The chapter began with an introductory section addressing the history of the GSC, its position as Canada’s pre-eminent scientific institution at the time of Confederation and its role in the Canadian West relative to other Dominion agencies after Canada had established itself as a transcontinental nation.

² Ibid.
following the territorial acquisitions of 1870-71. The chapter’s principal focus, however, was the 1884 Parliamentary hearings of the Select Committee on Geological Surveys, which convened to evaluate the Survey’s practical utility to the Dominion and that ultimately issued a series of recommendations designed to reign in the geographic breadth and scientific scope of the Survey and to bring it more in line with the needs of the country’s emerging mining industry. Especially revealing was the testimony recorded over the course of the hearings, which provided an important glimpse of how the Survey was understood by key stakeholders within the Canadian scientific and business communities. Most crucially, the testimony also included a series of detailed, impassioned and thus quite revealing comments from senior GSC officials—including Dawson—speaking in defence of the Survey’s operations. The 1884 hearings, then, offered an unparalleled opportunity to analyze how Dawson and several of his colleagues conceptualized and justified their work in the Canadian West.

What the testimony revealed was that many critics felt that the surveyors should devote most of their energies to the exhaustive examination of the promising mineral localities primarily located in Eastern Canada, providing detailed qualitative assessments and comprehensive statistical analyses for investors to draw upon in developing their mining operations. Such a focus, these critics felt, would offer the Canadian public a greater abundance of practical results in return for their tax dollars than the Survey had been providing in recent years. As far Dawson and his colleagues were concerned, the definition of practical science voiced by certain critics in the course of the hearings was too limited and they insisted that extensive reconnaissance surveying of the vast, remote

---

3 See the Report of the Select Committee Appointed by the House of Commons to Obtain Information as to Geological Surveys, etc. etc. (Ottawa: Maclean, Roger and Co., 1884).
and poorly-known regions of the West would yield essential knowledge about the natural resource wealth of the Nation and would help guide future settlement and resource extraction in Western Canada. Dawson was a particularly vociferous defender of the notion that scientific reconnaissance surveys in the West were a practical necessity for the Dominion and his remarks during the 1884 hearings were echoed and amplified on several occasions in later years. As such, the hearings provide a crystal clear expression of the objectives guiding the work of the GSC: surveying the West would greatly enhance the welfare of the Dominion by making these lands legible, governable and thus capable of being effectively transformed into settler space.

In addition, the hearings and their aftermath also offer some important insights into the workings of the Canadian State in the late 19th century. Bolstered by the critical appraisals proffered by numerous scientists and mining engineers, the Committee recommended a series of substantive changes to the Survey’s operations. None of these was given the weight of law by the Canadian Parliament, leaving Director Alfred Selwyn with control over the changes to be enacted. As a result, a few modest reforms were initiated but very little of substance changed with respect to the Survey’s work in the Canadian West. Extensive reconnaissance surveys into remote districts persisted and geological analyses continued to be supplemented by a good deal of topographic surveying, natural history collecting and ethnographic investigation because senior GSC officials were convinced that such broad-ranging scientific exploration served the interests of the Dominion. The Survey’s ability to persist with its agenda in the West despite such fervent calls for reform demonstrates that the GSC was not merely a

---

scientific instrument wielded by the Canadian State. Rather, it was a facet of the State itself, but one with very different notions about its role than those expressed by its Parliamentary critics and one that was determined to carry out its objectives with minimal interference. The tensions between GSC officials and the Select Committee members reveals that the Canadian State in the late nineteenth century was not a coherent, univocal and centralized institution that undertook the colonization of the West in any systematic way. Rather, the Canadian State was comprised of competing agents and agencies, each with particular agendas that were often incongruent and difficult to reconcile—a circumstance that also seemed to prevail in the United States and the United Kingdom in this period, given the comparable friction that existed between law-makers and geological surveyors in these countries.⁵

The 1884 Committee hearings reveal that, while the Survey’s scientific explorations in the Canadian West were not universally endorsed by all segments of the Dominion’s scientific community, business community or elected officials, they were regarded as vital practical contributions to the Nation by GSC officials themselves—as well as by a sufficient number of parliamentarians to leave the Survey’s work in the West intact and vital. As an esteemed and quasi-independent element of the Canadian State, the

---

Survey had the power to rebuff its critics and continue its contribution to the colonial project of making settler space in the Canadian West.

Having established the Survey’s background, its relation to the Canadian State and, most significantly, its objectives with regard to the Canadian West, I turned in Chapter 3 to an analysis of how Dawson conducted his reconnaissance work in the field. In carrying out his surveys in the West, Dawson was charged with the task of transforming the numerous fragments of knowledge collected over the course of a short field season into seemingly complete, precise and coherent representations of vast and complex territories. Yet, in conducting such field work, Dawson was forced to trace circumscribed circuits through vast and rugged territories, to employ imprecise and subjective surveying techniques and to supplement his own observations with idiosyncratic and potentially incompatible information provided by a network of assistants and informants. Such circumstances ensured that Dawson’s depictions of the West were cruder than he would have wished, even if these shortcomings were overshadowed by the aura of scientific authority exuded by his published reports and maps. The purpose of this chapter was to document the numerous challenges and obstacles that impinged upon Dawson’s field work each season as a way of better contextualizing and critically assessing the reports and maps that were the focus of Chapter 4.

My analysis of the field work began with a general discussion of the obstacles Dawson could expect to encounter during each of his western reconnaissance surveys. I first looked at how the time constraints imposed by a short summer field season, the challenging terrain found in the mountainous and heavily wooded regions of BC and the
Yukon District and the obfuscating topsoil found on the Alberta Prairies all prevented comprehensive surveys of his designated block of territory each season. Dawson was forced to keep moving along the narrow trails and waterways that crossed his designated territory but never covered it in ways that permitted systematic surveys to be carried out. Next, I looked at the various benefits and drawbacks associated with the technique of traverse surveying. I noted that, while this form of survey was the most practical way for a solitary explorer like Dawson to cover a large area in the course of a summer, the challenges associated with determining astronomical control points, the subjectivity inherent to estimating bearings and distances in the course of a journey and the errors that came with employing different methods of determining position, bearing and direction over the course of a field season prevented a completely reliable survey of the designated territory from being accomplished using the traverse survey technique. Finally I analyzed the ways in which Dawson relied on scientific assistants, as well as numerous guides and informants—both Native and White—to carry out his field work each season. The unavoidable result was that Dawson’s published depiction of the surveyed region was an amalgam of information gathered from multiple sources, with varying degrees of reliability and compatibility, ensuring that no truly uniform vision of the field would be developed. No matter how carefully Dawson planned and how meticulously he worked, there was always too much territory to cover in too little time, too many errors inherent to his chosen survey technique and too many disparate sources of information to reconcile to permit more than a rudimentary depiction of the territory surveyed.

Such shortcomings were particularly apparent with regard to Dawson’s ambitious 1887 reconnaissance of the vast, largely-unexplored region encompassing northern
British Columbia and the southern Yukon District. I devoted a good deal of attention to Dawson’s trials and tribulations during the summer of 1887 in the second half of Chapter 3 to demonstrate how the obstacles could compound over the course of a season, leading to a survey that fell some way short of Dawson’s established standards for making a particular district legible. On numerous occasions over the course of the season Dawson and his party were plagued by bad weather, inadequate supplies, torturous terrain, obscure geology, a lack of guides and poor morale due to the hardships of the journey and the threat of imminent violence from purportedly hostile Natives. While the resulting report and map were impressive in their scope, they contained little in the way of detailed information about geography, geology, natural history or ethnography. Dawson’s map, in particular, reveals just how little knowledge had been gathered in the course of the 1887 season, with blank spaces engulfing the relatively few topographic and geological details that had been included along the traversed route. When compared to Dawson’s other published reports and maps produced over the course of his twenty-year field career, the report on Northern BC and the Yukon District is palpably anomalous. While it would be tempting to see this field season as the lone disappointment in an illustrious career of field surveying, it is important to recognize that the obstacles encountered in 1887 were present in every field season. The Yukon reconnaissance is anomalous, not because the obstacles confronted were novel, but because the ambitious territorial scope of the season’s survey left an insufficient margin of error when the usual obstacles occurred. This forced Dawson to produce a more circumspect report and map than usual but his other field seasons were also hampered by impediments that inhibited his ability to produce a comprehensive, precise and systematic field survey of the district in question.
With a clearer grasp of the many challenges Dawson confronted in the field and the many compromises he was obliged to make in reporting on his field work, we are better able to cast a critical eye over his published reports and maps. In Chapter 4 I examined Dawson’s official report and accompanying geological map of the Queen Charlotte Islands—produced in 1880 and based on a field reconnaissance undertaken in the summer of 1878. As Dawson’s field notebooks and subsequent published report and map reveal, his fieldwork on the Charlottes was inhibited by many of the same challenges he would later face in northern BC and the Yukon District. Yet, like most of Dawson’s reports—with the notable exception of the Yukon report—Dawson’s 1880 report and map presented a detailed and quite vivid depiction of the Charlottes. These documents also conveyed two important messages about the archipelago. First, they suggested that, through Dawson, the Canadian State was establishing epistemological dominion over the lands, natural resources and Indigenous peoples of these remote and hitherto poorly-known islands. Second, they anticipated that these islands would soon undergo an orderly transformation from under-utilized wilderness to productive settler space. While the reports and maps were designed to facilitate this transformation by providing practical information for navigating the islands’ waters, settling the land, extracting its resources and governing its inhabitants rationally and efficiently, they also justified these colonial acts by depicting the creation of settler space on the Charlottes as inevitable and imminent.

As Raymond Craib asserts, scientific surveying and mapping were important symbols of the state’s rationality, modernity and authority, with the power to map
As a field scientist in the service of the Canadian Dominion, Dawson’s very presence on these islands carried symbolic weight. Dawson’s subsequent report further reinforced the notion of an emerging epistemological dominion over the Charlottes because it was filled with topographic, geological, meteorological, botanical, zoological and ethnographic detail and because it was imbued with references to scientific measurement and precision. In addition, the report offered an account of European exploration in the region that symbolically situated Dawson as the latest in a series of great explorers who had visited the Pacific Northwest and the one who had finally revealed the true essence of the Charlottes. This had implications for Canadian sovereignty in the region because it suggested that, through Dawson, the Dominion government had brought the power of science to bear on these remote and mysterious islands, finishing the work commenced by some of the Pacific’s great explorers and cementing the Dominion’s authority over an archipelago that lay at the far-flung margin of its newly-acquired territories. The accompanying geological map was also an important symbol of Canada’s emerging epistemological dominion. Like the report, the map presented an overt scientific symbolism that suggested precision, accuracy and depth of knowledge. The map also vastly improved on earlier representations of the archipelago’s southeastern coastlines, further signifying systematic surveying and scientific precision. In addition, the map codified a number of place names that Dawson had devised to honour some of the leading figures of 19th-century science—an act of imposing order and taking possession that further signified Canada’s emerging epistemological dominion over these islands. In the process, numerous Haida place

---

names were over-written—an erasure that belied the continued presence of the Haida on the islands they had possessed since time immemorial and that ignored the vital role that Indigenous knowledge had played in undergirding Dawson’s improved representation of the archipelago. Finally, Dawson went beyond finishing the outlines made by earlier explorers by filling in the map of the Charlottes with topographical and geological detail and, thus, linking these remote islands to the topographic depictions and geological formations denoted on other Survey maps of Western Canada—an effort that served to fill in the map of Canada and depict the Dominion as a ‘natural’ entity rather than a geopolitical construct.

In addition to evoking Canada’s emerging epistemological dominion, Dawson’s report and map also anticipated the archipelago’s orderly transformation from underutilized wilderness to a productive region of settlement, resource extraction and integration into the Canadian Nation. Of course, Dawson’s work was designed to facilitate this transformation by providing a wealth of information concerning navigable routes into and through the country, the abundance, quality and distribution of its natural resources, the character of its climate, soils and other variables pertinent to future settlement, as well as the condition, distribution and disposition of the indigenous Haida inhabitants. Dawson’s report and map also served to justify the colonization of the Charlottes by employing an anticipatory gaze that suggested that Euro-Canadian resource extraction and permanent settlement on these islands were both inevitable and imminent. Given Dawson’s profession, this anticipatory gaze was cloaked in the authority of science and made the transformation of the Charlottes into settler space seem as inevitable as the progress of civilization.
Excluded from this vision were the Haida who had called the Charlottes home since time immemorial and who were unlikely to look favourably upon Euro-Canadian interlopers occupying their land and harvesting its resources. Despite his focus on their characteristics and customs in an extensive ethnographic treatise he appended to his published report, Dawson had imagined no place for the Haida in his anticipatory gaze of the Charlottes. In Chapter 5 I addressed why Dawson might have manifested such an interest in the Haida and other Native peoples of the Pacific Northwest over the course of his career before explaining, in Chapter 6, why that interest did not translate into a significant Haida presence in the main body of the report on the Charlottes nor in the accompanying geological map. Turning first to the discussion of Dawson’s contributions to anthropology in Chapter 5, I argued that Dawson felt a scientific obligation to undertake a series of ‘salvage’ ethnographies of the West’s least-known Native peoples in order to document what remained of their traditional cultures before they vanished. The prevailing perspective of the day held that traditional Native societies in Western Canada were in the midst of rapid demographic decline and destructive social upheaval in the wake of contact with the vanguard of an ever-expanding Euro-Canadian settler society. This ‘Vanishing Indian’ discourse was widely articulated in Dawson’s day and formed the basis of a salvage imperative animating the emerging scholarly field of anthropology. According to the salvage paradigm, European colonialism had led to increased contact between Natives and non-Natives that was perceived to be destructive to Native societies. This perception was informed by Social Darwinism, which posited that the axiom ‘survival of the fittest’ also pertained to human societies and that all humanity existed on a common ladder of progress, with some societies further up that ladder than others. In
this formulation, the world’s Indigenous societies occupied positions several rungs below the leading European civilizations. Native peoples were proxies for ancestral Europeans and anthropologists were concerned that the destruction of the world’s remaining ‘primitive’ peoples would foreclose the possibility of understanding how human societies related to one another and, crucially, how they had progressed up the rungs of the evolutionary ladder.

Exacerbating these concerns was the recognition that there were too few trained anthropologists available to study the various Indigenous societies then under threat at the margins of the colonial world. Anthropological institutions began to make appeals to well-positioned amateurs to observe and collect amongst Native communities on the behalf of posterity. As his reading material in 1875-76 reveals, Dawson had been extensively exposed to anthropology’s salvage paradigm at an early stage of his field work in British Columbia. He was also in an ideal position to answer anthropologists’ appeal for assistance and to contribute to the emerging and exciting ‘science of humanity,’ given his access to Western Canada’s most remote Native communities and his position of authority within the administrative structure of the GSC. Over time, as Dawson’s role within the Survey evolved from junior field scientist to senior administrator, his anthropological contributions evolved in parallel. Initial, limited, attempts at collecting Native artefacts gave way to more robust ethnographic treatises based on first-hand field observation among the Haida, Kwakw̱aka’wakw and Shuswap peoples. These, in turn, formed the empirical foundations for several broader syntheses: one which focused on Native languages in British Columbia and another assessing the general condition of Canada’s Native groups from coast to coast. Ultimately, Dawson’s
anthropological contributions culminated in administrative roles overseeing the collection of Native artefacts for the Survey museum and helping to coordinate the ethnographic field work of Franz Boas, working on behalf of the British Association for the Advancement of Science. Throughout his career, Dawson’s substantial contributions to an evolving anthropology of Western Canada’s Native peoples always remained squarely within the salvage paradigm, as he sought to document the habits and customs of many of Canada’s ‘Vanishing Indians’ before they disappeared forever. In addition to an illustrious career as an earth scientist, Dawson managed to build a formidable reputation as a salvage anthropologist.

As Chapter 6 revealed, the discourse of the ‘Vanishing Indian’ did more than initiate a salvage imperative within the emerging discipline of anthropology. It had implications for the making of settler space in colonial contact zones such as the Canadian West because of the way it justified Native displacement and territorial appropriation. Dawson’s periodic efforts to document the ‘declining’ Native societies he encountered in the field served to justify their virtual erasure from the imaginative colonial geographies of Euro-Canadian settlement and resource extraction he depicted in his reports and maps. This is especially apparent in Dawson’s 1880 report on the Queen Charlotte Islands, which included a report and map largely devoid of references to the Haida but which also included two substantive appendices devoted to documenting the physical attributes, cultural customs, social structures, geographic distribution and linguistic peculiarities of this fascinating Indigenous people. Dawson’s report seemed to present two irreconcilable visions of the archipelago: one depicting it as an ancient Haida homeland and another portraying it as an empty resource hinterland awaiting settlement.
By documenting demographic decline, geographic displacements and cultural transformations amongst the Haida, Dawson painted a vivid picture of a vanishing people. Moreover, the nostalgic and imaginative reconstructions of pre-contact Haida customs that Dawson periodically wove into his ethnographic account served to displace an ‘authentic’ Haida society to the past. When juxtaposed with their degraded circumstances in the present, these nostalgic representations of the Haida past established an arc of decline that made their erasure from the anticipated future resource landscapes of the islands seem natural and unavoidable. By discursively displacing the Haida to a rapidly vanishing past, Dawson’s report implied that this Native group could stake few viable claims to the abundant resource landscapes of the Queen Charlotte Islands that Dawson envisioned would be exploited in the near future—a move that cleared the land for Euro-Canadian settlement and resource extraction. As the Queen Charlotte Islands example makes clear, Dawson ‘mapped Natives out’ of his representations of Western Canada’s future resource landscapes by writing them back into a ‘primitive’ past deemed to be vanishing forever.

As current struggles over issues such as Native land claims and Aboriginal self-government have revealed, the discourse of the ‘Vanishing Indian’ to which Dawson and his contemporaries adhered so closely was a severely limited, colonialist perspective that failed to envision the cultural tenacity and adaptability of Western Canada’s Native communities. These communities were often devastated by contact and forced to change many of their ways in order to survive but they were never completely assimilated into Euro-Canadian settler society. Instead, they have struggled for over a century to maintain a sense of collective identity and, in recent decades, a number of British Columbia’s
Native groups have been able to effectively use Canada’s legal system to assert their claims to lands and resources that were never formally extinguished through signed treaties. Ironically, in carrying out their legal challenges and political negotiations, these Native groups have started to make good use of the writings and documents produced by explorers such as Dawson because such documents, in their efforts to salvage what were deemed to be vanishing Native societies, provide a robust record of their long-standing, proprietary relationships with particular landscapes. In effect, documents that once served to justify Native erasure from these lands now serve to underline their rightful presence there—a fascinating about face that Dawson could surely have never predicted when undertaking his efforts at salvaging Western Canada’s ‘Vanishing Indians.’

**A Word About the Research Process**

A researcher interested in analyzing the activities of the Geological Survey of Canada in the Canadian West in the post-Confederation period faces an exhilarating yet daunting task. The National Archives in Ottawa house an abundance of notebooks, correspondence, memoranda, maps, illustrations, photographs and other miscellaneous items related to this crucial period in the Survey’s history. Unfortunately, this material, while rich in volume, lacks balance in terms of its coverage. In the first instance, it lacks a certain geographic balance in the sense that the vast majority of extant materials housed in the archives were produced in the field. Numerous field notebooks, manuscript plat maps, landscape photographs and much official correspondence was generated by Survey field scientists during their time in the West. These materials were the skeletal framework upon which an official report and geological map would eventually be erected and were
the ‘immutable mobiles’ that Latour defined as the essential scientific building blocks designed to permit meaningful calculation and facilitate ‘action at a distance.’ To have such a copious amount of such materials available for inspection and analysis is truly gratifying. Yet, for a researcher also interested in the work being done in the ‘centre of calculation’ that was the Survey headquarters in first Montreal and, later, Ottawa, the archival record is disappointing. Very little of what can be found in Record Group 45 at the National Archives pertains to the activities and interactions that took place within the Survey headquarters each winter. Nor is this material readily available elsewhere, with the exception of some interesting documents pertaining to the operations of the Survey Museum in the early decades of the 20th century, found in the archives of the Museum of Civilization in Gatineau, Quebec. After much effort spent in search of documents that would illuminate the ways in which Survey personnel conducted their work in the offices, laboratories and museum spaces of Survey headquarters, it became clear to me that such material simply did not exist—most likely because daily face to face contact with colleagues during the winter months required little in the way of correspondence or written documentation. While a researcher can develop a reasonably clear picture of the Survey’s myriad activities in the field, he or she will struggle to fully understand the quotidian practices that took place at the Survey headquarters in Montreal and Ottawa.

The extant archival record left by the Survey also lacks balance in terms of the kind of information it provides. Researchers interested in the minute workings of a reconnaissance traverse survey with geological investigations as the central objective will be most heartened by the abundant technical detail to be found in the official field notebooks created by Dawson and his Survey colleagues. These notebooks contain a rich
abundance of geological notes, astronomical measurements, positional calculations and topographic sketches. Everything a researcher could need to reconstruct each twist and turn of the surveyor’s route and envision each rock outcropping he cared to examine is provided. What these sources omit are many clear glimpses of the surveyor himself—his daily delights and distractions, his larger hopes and fears, the objectives that drive him forward each day and the impression building in his mind of all that he has encountered in the course of the journey. Without these details, the official notebooks are lifeless and one-dimensional. Once the vicissitudes of traverse surveying and the quotidian practices that comprised the field work of a Survey geologist have been established, these notebooks grow tedious and the time spent examining them seems better spent elsewhere.

In the case of researchers interested in Dawson, that means leaving the commodious environs of the National Archives in Ottawa for the more intimate confines of the McGill University Archives in Montreal. There, researchers can access Dawson’s personal papers and those of his immediate family. The most significant extant records in Dawson’s papers are the personal notebooks he kept during many of his field seasons in Western Canada. In these diaries, Dawson described much more of the day-to-day trials and tribulations of his seasons in the field and included more material reflecting on a diverse array of scientific topics, including some of his views on the Native communities he encountered in the course of his journeys. Yet, because no personal notebooks survive from (or possibly were recorded during) Dawson’s explorations of southern Alberta in the early 1880s, we get no insights into what occupied Dawson’s thoughts in those seasons nor how these perspectives compared to those he recorded during his explorations of British Columbia and, later, the Yukon District. In addition to his
notebooks, Dawson’s correspondence to his parents and siblings reveals something of the man—including his preoccupations and perspectives on a range of issues not immediately related to his work in the field. Yet, even with those he loved, Dawson remained a guarded and circumspect correspondent, unwilling to discuss personal issues pertaining to his health, his romantic life (or lack thereof) and his long-term plans once his passion for fieldwork (a passion his family never seemed to completely understand nor support) abated. While Dawson’s personal notebooks offer more of a glimpse into the mind of this astonishing man they still leave much unsaid.

As a result, interpreting Dawson’s mindset and motivations largely required focusing on subtle details and teasing out meaning from the various oblique traces provided by his notebooks and correspondence. There can be no standard formula for this kind of analysis. Much depends on a combination of intuition and the careful analysis of a series of contextual materials that shed light on the prevailing attitudes of Dawson’s day pertaining to science, statecraft and the complexities of the vexing ‘Indian Question.’ Not surprisingly, such research takes a good deal of time and requires a certain amount of faith that a given interpretation is reasonable and balanced—a faith that is not always easy to retain.

Thankfully, there are a host of published materials that offer significant insights into the perspectives and objectives that motivated Dawson and his Survey colleagues. The various published reports, scientific articles, scholarly addresses and popular accounts that Dawson produced shed a good deal of light on how he viewed his contribution to knowledge. Perhaps the most revealing document was the report produced by the 1884 Select Committee on Geological Surveys. This report provided not only the
Committee’s recommendations but also much of the testimony that had been delivered over the course of the hearings by both critics and Survey officials alike. By asking the Survey officials to justify their work to the Canadian public, the Committee provided an unprecedented forum for Survey officials like Dawson to articulate and defend the work they did in the service of the Dominion. This testimony illuminated much about the internal workings of the Survey and clarified a number of aspects of the work that had only been mentioned in passing in other documents. It also revealed much about Dawson’s role within the Survey and underscored his passionate commitment to reconnaissance surveying—a commitment that was subsequently confirmed in other publications and public addresses.

There is a lesson here. A researcher should not assume that the most important documents will be found in the most renowned archives. In fact, they may not be found in the archives at all but in the forgotten volumes residing in neglected corners of the Government Documents section of the campus library. In the case of Dawson’s work in the West, much of the most significant material was published work: the report on the 1884 hearings, Douglas Cole and Bradley Lockner’s annotated reproduction of Dawson’s personal notebooks for his field seasons in British Columbia and, of course, the numerous reports and maps that Dawson published in conjunction with his Western surveys. Without these documents, this dissertation would not be possible and, yet, months were spent sifting through papers and microfilm in Ottawa before these publications were examined. The archives are undoubtedly a beguiling place for historical geographers—the imagined ‘field’ at the heart of their scholarly explorations. Yet, these repositories

---

7 For more on the archives as the historical geographer’s ‘field’ see Cole Harris, “Archival Fieldwork,” *Geographical Review* 91,1/2 (2001): 328-334.
are also potentially treacherous environs for the unwary researcher, full of time-
consuming detours and momentum-sapping diversions. The savvy historical geographer,
then, would do well to exercise caution when entering this labyrinthine ‘field.’

**Scholarly Contributions**

With this dissertation I have attempted to contribute to a series of scholarly
conversations concerned with the intersection of exploration, science and colonialism in
the 19th century, both in Western Canada and further afield. Four contributions, in
particular, are worth highlighting in these concluding remarks.

First, I have devoted much effort to demonstrating the Geological Survey of
Canada’s commitment to making settler space in the Canadian West in the decades
following Confederation. This commitment was articulated most clearly during the 1884
hearings of the Select Committee on Geological Surveys, when Alfred Selwyn, George
Dawson and other senior Survey officials outlined and justified their reconnaissance
surveys of the West as a practical contribution to the emerging Canadian Nation. Dawson
further defended this approach in a series of scientific addresses later in his career,
making him the most consistently vociferous supporter of these western explorations.
Moreover, the Survey backed up these statements with action—continuing to carry out
extensive explorations in British Columbia and the North-West Territories throughout the
last quarter of the 19th century despite limited field personnel, numerous other
commitments and the, at times, quite vocal disapproval of their scientific priorities voiced
by numerous stakeholders in the Canadian mining industry, a handful of fellow scientists
and several Members of Parliament. Despite such obstacles, senior Survey officials
remained steadfast in their commitment to making settler space in the West, in word and deed, as my analysis of Dawson’s field career made clear.

This is significant because it provides a counterpoint to Cole Harris’s study on the making of Native space. For Harris, Native reserves were Western Canada’s “most basic colonial spaces” and the boundary line dividing these highly circumscribed Native spaces from the vast Crown Lands surrounding them was the “primal line” defining the colonial landscapes of the West. Yet, the colonial processes by which the extensive Crown Lands on the other side of Harris’s “primal line” came to be rendered legible as viable landscapes for settlement and resource extraction must also be understood. The vast settler space engulfing the isolated pockets of Native space also needed to be constructed through a series of discursive and material practices. Were it not for the concurrent making of settler space in the West, there would have been little need for the Native spaces that Harris has analyzed so effectively to have been brought into being in the ways they were. In a very fundamental way, the making of Native space in the Canadian West required the concomitant making of settler space and Harris’s study of the former should be used as a springboard for investigations of the latter if we are to better grasp the complexities of colonial geographies in the 19th-century Canadian West.

This is a task that Harris has readily acknowledged, urging geographers to scrutinize “the relationships among different forms of colonial power—and of different ways of theorizing them—out of which...a more balanced geographical contribution to

---

the study of colonialism is likely to emerge.”9 In making his plea, Harris expresses frustration that so much scholarship on colonialism, including much of the work produced by geographers, focuses exclusively on the cultural representations and discursive frameworks undergirding colonial power. These representations and discourses, he notes, tended to emanate from imperial metropoles such as London, leading many postcolonial geographers to focus their attention on the institutional entanglements of the imperial centre rather than on the quotidian practices of the colonial periphery. While Harris acknowledges that culturally-constructed discourses have helped to define, enact and justify the colonial project, he worries that too much focus on the exegesis of imperial texts comes at the expense of careful, critical and predominantly empirical analyses of the quotidian practices that constituted colonialism on the ground in the various “edges of empire” that collectively comprised the colonial theatre of operations in the 19th century. As Harris puts it, given its predominant emphasis on colonial culture, postcolonial scholarship is “well placed to comment on the imperial mind in its large diversity...but not on the diverse, on-the-ground workings of colonialism in colonized spaces around the world.”10 To mitigate this oversight, Harris urges geographers interested in colonialism to try and “bring both the imperial mind and the particularities of local colonial circumstances into focus.”11

My study of Dawson’s work in the Canadian West on behalf of the GSC attempts to bridge the gulf that Harris identifies between analyses of colonial discourse and

10 Ibid, 166.
11 Ibid. This is something that Harris has managed to do in his own work on the creation of Native reserves in 19th-century British Columbia—striking an effective balance between interpreting the colonial discourses that informed and justified the dispossession and relocation of Natives to reserves and analyzing the often mundane colonial practices that brought about these dispossessions and relocations ‘on the ground.’ See Harris, *Making Native Space.*
analyses of colonial practice. On the one hand, Dawson was very much implicated in the creation and perpetuation of colonial discourses because his primary task was to make the West legible as an inhabitable, exploitable and governable region to scientists, capitalists, parliamentarians, bureaucrats and the Canadian public alike. On the other hand, his efforts to represent the West as settler space were grounded in the myriad practices and quotidian experiences that collectively constituted his field surveys each summer. Geographically, Dawson had a foot in both camps: a colonialist who inhabited and wrote from the metropolitan centre of power but who also spent a considerable amount of time roaming the remote margins of the colonial territory. To study Dawson’s work with regard to the Canadian West is to study both the discursive and practical dimensions that together defined his efforts to transform these new territories into settler space. While my analysis of Dawson’s work perhaps focuses more attention than Harris would be comfortable with on the representations and discourses that enframed Dawson’s vision of the West—and the ways in which his representational strategies and discursive frameworks, in turn, constructed a particular vision of the West for others—I also attend to the material circumstances that enabled and constrained Dawson’s practices in the field.

I make no apologies for focusing so much attention on the ways in which Dawson understood and represented the West in his reports and maps because I firmly support Daniel Clayton’s assertion that “colonialism does not start with occupation alone, and it does not work solely on land; it also works with images and representations, with
imaginative geographies that precede, and to a degree anticipate, colonialism.”12 Here Clayton reminds us that we cannot easily divide the colonial project into discrete discursive and material components that can be analyzed in isolation. We must be sensitive to the ways in which discourse and practice mutually constituted and reinforced one another to create colonial landscapes, such as those that emerged in the Canadian West. Clayton’s emphasis on ‘imaginative geographies’ especially resonates with Dawson’s work in the West because, as we have seen, the numerous reports and maps that Dawson produced during his twenty years in the field were imbued with an anticipatory gaze that generally depicted extensive settlement and resource exploitation in the West as inevitable and imminent. To what extent Dawson’s specific imaginative geographies initiated the material creation of settler space in particular western localities remains unclear but there is little doubt that this was an important objective of Dawson’s work. Understanding how Dawson and his colleagues contributed to the colonial project of making settler space in the Canadian West constitutes a significant contribution to existing scholarship on geographies of colonialism, both in Canada and further afield.

My analysis of Dawson’s work has also demonstrated how he and his Survey colleagues helped to assert Canada’s epistemological dominion over its newly-acquired western territories. Throughout the course of his field career, Dawson produced a series of densely-detailed and seemingly authoritative scientific assessments of some of the most remote and poorly-known regions of the Canadian West. The geographic scope and scientific breadth of his reports and maps was impressive, depicting vast areas of often wild and rugged terrain and documenting their topographic, geological, meteorological,

botanical, zoological and even ethnographic character in more detail than had ever been produced. As we saw in the case of the Queen Charlotte Islands, Dawson occasionally had the opportunity to build upon earlier exploratory work, signifying his—and, by proxy, the Dominion’s—connection to, and supersession of, some of the previous century’s most celebrated explorers. Similarly, on several occasions, Dawson was able to apply place names of his choosing to the various ‘unmarked’ topographic features he encountered in his journey, an act of imposing order and asserting authority that further suggested that Canada’s epistemological dominion over the West was growing. In the course of conducting his geological analyses of the surveyed regions of the West, Dawson helped to fill in the map of Canada with topographic and geological detail. Again, this reinforced a sense of Canada’s growing intellectual authority over its territory while also symbolizing the Canadian territory as a natural entity made legible through the power of science.

By analyzing the ways in which Dawson’s reports and maps signified Canada’s emerging epistemological dominion over the West, I have sought to reinforce a point central to Raymond Craib’s analysis of the cartographic construction of Mexico in the 19th century. For Craib, the symbolic authority of scientific surveying and mapping had important implications for statecraft during this nascent period in the history of the Mexican Nation. The state’s power to map its territory, Craib suggests, was a very important indicator of its power to effectively rule over that territory and all that it contained. According to Craib, the national map’s “iconographic subtlety, combined with the certitude of scientific methodology, conveyed an impression not only of the land but of the regime that mapped and managed it...[Its] ordered surface suggested a

---

13 Craib, Cartographic Mexico, 9.
corresponding political, economic, and moral order, and integration in the state itself….What better instrument for, and image of, administered, rational rule?¹⁴ Craib, of course, is not alone in emphasizing the important role surveying and mapping played in both facilitating and symbolizing a state or colonial power’s authority over even the most remote and poorly known corners of its territory. Brian Harley has made repeated references to maps as robust symbols of colonial authority and state power, while Anne Godlewska and Matthew Edney have offered detailed analyses documenting the ways in which scientific surveying in the late 18th and early 19th centuries was used to undergird Napoleon’s possession of Egypt and Britain’s authority over India, respectively.¹⁵ Likewise, James Scott considers maps to be a central means by which national territories are made legible and thus governable while Scott Kirsch emphasizes that maps were central components of the traffic of knowledge that circulated between Washington DC and the remote western hinterlands under its jurisdiction.¹⁶ What my analysis of Dawson’s work offers, is a Canadian example that complements and reinforces an established body of scholarship on the practical and symbolic contributions surveying and mapping have made to colonialism and statecraft. Scientific exploration and map-making were a fundamental means of asserting epistemological dominion over a hitherto

¹⁴ Ibid, 189.
poorly-known territory in the nineteenth century, as Dawson’s efforts in the Canadian West on behalf of the Dominion government clearly reveal.

In addition, my analysis of the Survey’s operations in relation to the 1884 hearings of the Select Committee on Geological Surveys reveals that the GSC was not merely a scientific instrument to be deployed by a clearly-bounded and coherent Canadian State. Instead, the Survey was one of the many ‘competing agencies’ that jostled for power within the loose ‘institutional ensemble’ that might be labelled the Canadian State.17 This jostling for power was most evident during the course of the 1884 hearings, as various critics of the GSC and many senior officials within the Survey struggled to define what should count as ‘practical’ science in the service of the Dominion. While Selwyn, Dawson and several other prominent Survey scientists spoke eloquently in defence of their extensive reconnaissance work in the Canadian West, the Committee was unmoved and recommended that the Survey focus greater attention on conducting intensive analyses of the known mining districts in the eastern half of the Dominion. While Selwyn responded by creating a new Section of Mines within the organizational structure of the Survey, he also continued to send scientists west, charged with the duty of carrying out geographically extensive and scientifically broad-ranging reconnaissance surveys of the remote corners of the Dominion. That Selwyn was able to continue this work without government sanction is telling. First, it indicates that the Select Committee on Geological Surveys did not speak for the Canadian Parliament as a whole when it chided the GSC for neglecting the work of a ‘proper’ geological survey. None of the Select Committee’s recommendations were given the immediate force of law in 1884 and, while some of its recommendations were included in the new Survey Act of

1890, much of what they criticized in 1884 officially remained part of the Survey mandate in 1890 as well. Second, the Survey’s ability to persist with western reconnaissance surveys after 1884 indicates that the GSC had sufficient autonomy and parliamentary support to establish and carry out its scientific agenda within the institutional umbrella of the Canadian State. Cloaked in the beguiling mantle of science and steadfast in their assertions that they carried out their work with the practical interests of the Dominion firmly in view, GSC officials were able to neutralize their critics and maintain the Survey’s status as a semi-autonomous component of the State.

Moreover, as my analysis of the Geological Survey of Great Britain and the United States Geological Survey has shown, the GSC was not the only scientific body to clash with elected officials over the question of what constituted appropriately practical work for a publicly-funded geological survey. Nor, tellingly, was the GSC the only survey to effectively weather these political storms before carrying on with the scientific agenda that had invited criticism and debate in the first place. What these findings reveal is that the Survey’s relationship with the Canadian State was not especially unusual, which, in turn, suggests that the fragmented and fractious character of the Canadian State in the late 19th century was mirrored both across the Atlantic Ocean and south of the border. Raymond Craib has noted a similar pattern in his analysis of the relations between the Mexican federal state and its various mapping agencies in the 19th century.18 When taken together, these examples reinforce Craib’s argument that publicly-funded scientific surveys were a constituent element of the State itself, rather than merely an instrument of its will. Craib has gone as far as suggesting that scientific surveys and the states that sponsored them were mutually constitutive. Scientific surveys such as the GSC

18 Craib, Cartographic Mexico.
“propagated the idea, increased the presence, and buttressed the weight of the state” by creating the maps and reports that gave “textual tangibility to an otherwise metaphysical entity.” While such elaborate and expensive survey organizations could not exist without a state apparatus to support them, neither could the state solidify as a legitimate administrative framework without the efforts of surveyors to make legible the territory, resources and peoples to be administered. Bruce Braun concurs, arguing that it is a mistake to consider the GSC’s western reconnaissance surveys as work carried out “in the interests of a state whose power existed prior to, and apart from, how its territories were rendered legible.” By illustrating the GSC’s ability to persist with its western reconnaissance surveys despite trenchant criticism from elected officials, I have helped shed light on some of the internal struggles that characterized the Canadian State in the late 19th century and have thus lent further credence to Michel Foucault’s notion that the state “is no more than a composite reality and a mythicized abstraction.”

Finally, I have offered a plausible explanation for why Dawson largely excluded Native peoples from his geological maps and from the main sections of his official reports on the Canadian West, despite showing significant interest in Native cultures and despite producing a substantial amount of ethnographic material on the various Natives he encountered over the course of his field career. Dawson’s report on the Queen Charlotte Islands epitomized this double vision, with the Haida discussed in detail in the report’s appendices despite being largely excluded from Dawson’s map and written account of the archipelago’s topography, hydrography, geology, flora and fauna and

weather patterns. Bruce Braun has attempted to explain this double vision by suggesting that it reflects Dawson’s desire to conceptually divide the Charlottes into an extensive realm of uninhabited wild nature engulfing isolated pockets of Indigenous culture.\textsuperscript{22} As I have demonstrated, a careful reading of Dawson’s report and notebooks reveals that he did not exclude the Haida from the natural landscapes of the Charlottes in the way that Braun implies. Instead, he repeatedly acknowledged that the Haida had long-standing, wide-ranging and quite intimate proprietary connections with the landscapes beyond their winter villages, suggesting that his double vision was not one framed by a sharp division between nature and culture on the Charlottes.

In contrast to Braun, I suggest that Dawson’s double vision was infused with a strong temporal bifurcation that relegated the Haida to a rapidly vanishing past and that anticipated imminent settlement and resource extraction on an archipelago largely devoid of a Haida presence. Such a perspective was facilitated and justified by the prevailing view of native peoples in Dawson’s day. As far as most Euro-Canadians were concerned, the Native peoples of the Canadian West were a vanishing ‘race’ destined to suffer a series of drastic demographic declines and debilitating social upheavals as an inevitable consequence of extended contact with Euro-Canadian settler society. There were few people in Dawson’s day who felt that Native societies had the resilience and wherewithal to maintain their way of life in the post-contact era and it was decided that the best solution would be to relocate Native communities to a series of isolated Native reserves where they could be protected from some of the worst effects of contact and where they could be trained to integrate into the modern society that was in the process of supplanting their traditional life ways. With this powerful discourse of the ‘Vanishing

\textsuperscript{22} Braun, \textit{Intemperate Rainforest}, 50-57.
Indian’ as his guide, Dawson was able to anticipate the transformation of the West into settlement districts and resource hinterlands in ways that largely excluded the presence of Native inhabitants. Not surprisingly, then, when Dawson wrote about the Native communities he encountered, he did so in a nostalgic, past-looking mode—describing customs, traditions and social structures in ways that suggested how they might have appeared before contact and noting post-contact modifications in ways that implied cultural degradation and decline. The Native peoples that Dawson encountered were discursively displaced to a ‘primitive’ past from which they could stake few viable claims to the abundant resource landscapes that Dawson anticipated would be exploited in the near future.

Attending to the subtleties of Dawson’s double vision is important for two reasons. First, it allows us to see that his anthropological contributions were not simply a supplementary activity that stood apart from his other scientific pursuits and from his colonial contributions to the making of settler space in the Canadian West. Through Dawson’s reports, anthropology came to be juxtaposed with earth science in ways that fruitfully reinforced the certainty that the West would soon be settled and its abundant resources productively exploited. As Johannes Fabian reminds us, anthropology was every bit as implicated as scientific surveying in the colonial project of making settler space: “When in the course of colonial expansion a Western body politic came to occupy, literally, the space of an autochthonous body…the preferred strategy [was] simply to manipulate the other variable—Time. With the help of various devices of sequencing and distancing one assigns to the conquered populations a different Time.”

---

attention to what Fabian calls anthropology’s allochronic discourse and the ways in which it provided an ideal counterpoint to the anticipatory gaze that infused Dawson’s scientific analyses of the topography, geology and other natural features in the West, we gain a clearer understanding of how Dawson’s anthropological contributions were central to his commitment to making settler space.\(^{24}\)

Second, paying close attention to the ‘Vanishing Indian’ discourse that permeated Dawson’s ethnographic writing gives us greater understanding of the prevailing attitudes toward Native peoples widely held in Dawson’s day—an understanding that, in turn, sheds important light on some of the recent struggles that have taken place in British Columbia and elsewhere in Canada with regard to Native land claims, residential schooling and other thorny issues concerning Canada’s Indigenous communities. As I have demonstrated, Dawson’s belief that even the most robust and isolated Native societies in the Canadian West would inevitably “diminish and melt away” following contact with Euro-Canadian civilization was a view shared by a wide spectrum of Canadian society in the late 19\(^{th}\) century.\(^{25}\) Settlers, traders, miners, missionaries, lawmakers, survey scientists—virtually all were united in the belief that Native communities would not survive the upheavals brought by contact. Disease, moral degradation, cultural decay and pervasive poverty would take their collective toll and Native communities would ultimately disappear—their members retreating into the shadows at the margins of settler society. This process, reformers felt, might be attenuated through careful strategies of ‘acculturation,’ whereby Native peoples would be isolated on reserves for their own

\(^{24}\) Ibid, 143. Recall that “allochronic” is a compound of two Greek terms: *allos* (“other”) and *chronos* (“time”).

\(^{25}\) These remarks can be found in George Dawson, “Sketches of the Past and Present Condition of the Indians of Canada,” *Canadian Naturalist* Vol. IX, No. 3 (1881): 129-159, esp. 29-30.
protection and trained in the various industrial arts so that they might find a place as wage
labourers in the modern settler society then emerging in the West. Assimilation, then,
was both the expectation and the goal, and reserves, residential schools and other
institutional interventions into Native lives were the mechanisms by which this outcome
would be achieved. As Cole Harris points out, however, despite decades spent pursuing
the project of assimilation, Euro-Canadians have not succeeded in eradicating their
Indigenous forebears. Indeed, as the politics of assimilation have become more and
more ineffective, Euro-Canadians have been forced to contemplate a politics of
difference where the continued existence of Indigenous communities is not only accepted
but promoted and where past injustices are at least partially remediated through political
reconciliation and financial remuneration. Remarkable strides have undoubtedly been
made on these issues in recent years but more work remains to be done. An important
part of that work involves developing a more complete understanding of the historical
and geographical circumstances that gave rise to the colonial project of assimilation.
Such an understanding will bring past injustices into clearer focus, make true
reconciliation more likely and help define the path toward a truly postcolonial Canadian
West. In this context, understanding the ways in which Dawson’s deployment of the
‘Vanishing Indian’ discourse justified imaginative colonial geographies of the Canadian
West that largely excluded a Native presence is a step in the right direction.

26 See Harris, Making Native Space, 6-9.
Unanswered Questions and Future Directions

This dissertation has made several important contributions to our understanding of how the Canadian West was transformed into settler space in the late 19th century but there remain a number of avenues of inquiry to explore before a detailed understanding of this colonial project can be achieved. First, while George Dawson’s efforts on behalf of the Survey made undoubted contributions to the making of settler space in the West it is less clear how other GSC field scientists contributed to this project. While Dawson was the most prominent Survey explorer to work in the Canadian West, several other noted field scientists—some initially trained by Dawson—carried out important survey work in the West. It would be interesting to examine the reconnaissance work of Robert Bell, R. G. McConnell, J. B. Tyrrell, A. P. Low, John Macoun and even Alfred Selwyn in more detail to assess how such work compared to the surveys carried out by Dawson. Such an analysis would take time but would provide a fuller picture of the Geological Survey of Canada’s contribution to the making of settler space in the Canadian West, as well as shedding light on the Dominion’s efforts to establish epistemological dominion over its less habitable but still strategically important North.28

The GSC was only one of the several Dominion agencies at work in the Canadian West in the late 19th century. How did organizations such as the Canadian Pacific Railroad Survey, the Dominion Land Survey and the various Boundary Commissions created to delineate the border with the United States along the 49th Parallel and along the

28 Some of Tyrrell’s most celebrated exploratory work took place in the barren lands to the west of Hudson Bay in the early 1890s. Similarly, Low was responsible for a good deal of the exploration to the east of James Bay and Hudson Bay in the 1880s and 1890s. Low also carried out some preliminary explorations in the Hudson and Davis Straits just after the turn of the century, getting as far north as Ellesmere Island in 1904. See, Morris Zaslow, Reading the Rocks: The Story of the Geological Survey of Canada, 1842-1972 (Ottawa: The MacMillan Company of Canada in conjunction with the Department of Energy, Mines and Resources and Information Canada, 1975), 161, 167 and 172.
Alaskan frontier contribute to the colonization of the West? In addition, how did various provincial agencies in British Columbia and committed individuals in all corners of the West—Indian Agents, traders, missionaries, miners, scientists, settlers and more—help to make the West legible, exploitable and governable in the late 19th and early 20th centuries? Answering these questions would present a true challenge, as the desired manuscript and published material—insofar as it exists at all—would be scattered in archives and libraries throughout the country. Nonetheless, such material would permit a broader and more nuanced picture to emerge of the colonization of the West. In addition, examining such material might afford at least a glimpse of the influence that Dawson’s work and that of his GSC colleagues had on the making of settler space in the West. In the preceding pages I have offered a modest sense of how Dawson’s work was perceived and built upon by others, based mostly on serendipitous findings encountered in the course of looking for other things. There is every likelihood that more material exists that would provide a fuller picture of Dawson and the Survey’s influence on those interested or engaged in making settler space in the Canadian West but seeking out such material would undoubtedly prove time consuming and frequently exasperating. Still, such an investigation might be rewarded with a much greater sense of Dawson and the Survey’s contribution to colonizing the West than I could provide here.

It is also important to recognize that the colonial processes I have analyzed were not limited to the Canadian West in the 19th century. I believe that a number of fruitful comparative studies could be conceived to assess how the project of making settler space was carried out in different national contexts. Most promising would be efforts to compare how the colonial project of making western territories legible, exploitable and
governable was carried out in both Canada and the United States in the second half of the 19th century. Like Canada, the United States had a vast, poorly-known, yet resource-rich western hinterland that became the focus of scientific and government attention in the years following the end of the Civil War in 1865. Like Canada, the United States also created government-funded scientific surveys to explore the West and report on its lands, resources and Indigenous peoples—surveys that yielded important knowledge about the West but that also vexed the government officials responsible for allocating the funds that made such scientific explorations possible. The broad parallels between the two countries are apparent but what of the details? In what ways did Dawson’s activities and experiences in British Columbia correspond and diverge with John Wesley Powell’s work in the region of the Colorado Plateau? Such a comparative analysis might yield many fruitful insights into the particularities of government science and internal colonization in 19th-century North America. Looking further afield, similar comparisons might be made between the Canadian (or North American) approach and the ways in which settler space was constructed in British settler colonies such as Australia, New Zealand, South Africa and Rhodesia, as well as in non-British contexts, such as Russia, Mexico, Algeria, Israel and China. In each case, the goal should be to broaden our understanding of the myriad ways in which settler spaces came to be constructed in the territorial hinterlands of emerging settler societies in the modern period, much as I have attempted to do in analyzing George Dawson’s work in the Canadian West on behalf of the Geological Survey of Canada in the late 19th century.
BIBLIOGRAPHY

I. Manuscript Sources


Library and Archives Canada. Photograph: PA-025522.

Library and Archives Canada, Photograph: PA-038146.

Library and Archives Canada, Photograph: PA-038147.

II. Published Sources


*British Columbia Terms of Union, 1871.* Order of Her Majesty in Council, Windsor, UK, May 16, 1871.


Committee on the North-Western Tribes of Canada. “Circular of Inquiry.” London: British Association for the Advancement of Science, 1887.


*Constitution Act, 1867*. 30 & 31 Victoria, c. 3 [UK].

*Constitution Act, 1930*. 21, George V., c. 26 [UK].


---. “Notes and Observations on the Kwakiol people of the northern part of Vancouver Island and adjacent coasts, made during the summer of 1885.” *Proceedings and Transactions of the Royal Society of Canada* V (1887): 63-98.


McKercher, Robert B. and Bertram Wolfe. *Understanding Western Canada’s Dominion Land Survey System*. Saskatoon: Division of Extension and Community Relations, University of Saskatchewan, 1986.


*N:otes & Queries on Anthropology, for the Use of Travellers and Residents in Uncivilized Lands*. London: British Association for the Advancement of Science, 1874.


---. *Queen Charlotte Islands: A Narrative of Discovery and Adventure in the North Pacific.* London: 1872.


*Prince Edward Island Terms of Union, 1873.* Order of Her Majesty in Council, Windsor, UK, June 26, 1873.


*Report of the Select Committee Appointed by the House of Commons to Obtain Information as to Geological Surveys, etc. etc.* Ottawa: Maclean, Roger and Co., 1884.


Whiteaves, Joseph F. Mesozoic Fossils. Volume 1, Part I: On Some Vertebrates From the Coal-Bearing Rocks of the Queen Charlotte Islands Collected By Mr. James Richardson in 1872. Montreal: Government Printer, 1876.


III. Electronic Sources


