# AN AGENT OF CHANGE:
## *William Drewry and Land Surveying in British Columbia, 1887–1929*

Darby James Cameron

In 1912, William Stewart Drewry, a Dominion and provincial land surveyor, described the lands of the Cariboo District of British Columbia as "a great silent country waiting for the advent of road and rail to bear the population whose footsteps are even now approaching."[1] This quotation gives us a glimpse of surveyors' capacity to anticipate change and to superimpose ideology over space.[2] The idea that North America was a "great silent country," or *terra nullius* (empty land), waiting for appropriation and settlement permeated Anglo-American ideology during the nineteenth century.[3] This ideology supported the settler population and capital interests in acquiring land and natural resources by contributing to the abstraction of customary and local claims to land.[4] Moreover, in anticipating Anglo-American exploitation, Drewry's statement obscures the invasiveness of both the Dominion's and the Province of British Columbia's colonial land policies over the sustainability and welfare of native flora and fauna, including

[1] W. Drewry, Inspector of Surveys, "Report on Connection Surveys in Lillooet and Cariboo Districts," *Report of the Minister of Lands*, Government of British Columbia, 31 December 1912, D 248-52.

[2] "Space" is that which contains and surrounds all material bodies and is where all events occur. John Walsh and Steven High, in "Rethinking the Concept of Community," *Histoire Sociale/ Social History* 17, 64 (1999): 258, state that social experience and relationships gain meaning and value through space.

[3] The vast majority of colonial settlers perceived land as *terra nullius* ("a place that belonged to no one and was therefore free to be taken over by any interested settler") and largely discounted the "resource rights and beliefs" of Aboriginals. See Kilyali Kalit and Elspeth Young, "Common Property Conflict and Resolution: Aboriginal Australia and Papua New Guinea," in *The Governance of Common Property in the Pacific Region*, ed. Peter Larmour (Canberra: National Centre for Development Studies and Resource Management in Asia-Pacific, 1997), 186.

[4] Aboriginal peoples were not the only pre-existing residents whose local and customary land practices were affected by land surveying. As Andro Linklater, *Measuring America: How an Untamed Wilderness Shaped the United States and Fulfilled the Promise of Democracy* (Markham, ON: Fitzhenry and Whiteside, 2002), 163, states: "The race that developed between the surveyors and squatters marked the entire history of the land survey and it was rare for a surveying team to measure productive country that had no settlers at all."

humans. The best interests of First Nations, for example, were the fiduciary responsibility of the Dominion, which frequently disapproved of the province's colonial policies – sometimes even considering them illegal – but never challenged them in court. As a result, Dominion surveyors generally laid out for First Nations only as much land as the province was prepared to allocate. The province based its colonial policies upon the interests of the settler society and business interests, which overwhelmingly supported the compartmentalization of First Nations to fifteen hundred small reserves, making up only slightly more than one-third of one percent of British Columbia.[5] As an agent of both the Dominion and the province, Drewry worked to meet these interests. He used language, whether presented graphically, numerically, in speech, or in printed words, to appropriate space, reshaping it with limited, if any, local consultation and negotiation. In this way, surveying has been influential – if not paramount – in restructuring power relations in the world today.[6]

Surveying is a "mathematical science used to determine and delineate the form, extent and position of features on the surface of the earth for control purposes." In order to align land and create boundaries, or to check construction dimensions, "land boundaries are set or measured for proper descriptions" in field books, and the topography of landforms and natural or artificial objects are depicted on maps.[7] Surveyors like Drewry used this practice to appropriate land for settlement, administration, and transportation routes (such as roads), and it played a fundamental role in Anglo-American state building and economic development. The essential nature of their practice has empowered surveyors to leverage status among the learned professions, such as medicine, law, and engineering, and Drewry was instrumental in the development of provincial and national professional associations at the end of the nineteenth century, a critical institution-forming period in

[5] Cole Harris, "How Did Colonialism Dispossess? Comments from an Edge of Empire," *Annals of the Association of American Geographers* 94, 1 (2004): 167.

[6] P. Sinclair's and R. Ommer's definition of "power" as "the capacity to create (and to some degree control) an outcome of behaviour" is used in the context of this article. See Sinclair and Ommer, "Introduction," in *Power and Restructuring: Canada's Coastal Society and Environment*, ed. P. Sinclair and R. Ommer (St. John's: ISER Books, 2006), 15.

[7] MSN Encarta, s.v. "surveying," available at http://encarta.msn.com/encyclopedia_761576060/surveying.html (viewed 8 January 2009). This article defines "surveying" in the broadest sense in order to be as inclusive as possible regarding information that may have remained outside the scope of previous literature. "Surveyor" is derived from the French "sur" (over) and "voir" (to see).

North America.[8] Together with his associates, Drewry became part of a larger process that has resulted in what Cole Harris describes as "the elimination of distance" – the abstraction of local geographical and ecological complexities in order to make nature governable.[9]

Surveyors have changed power relations during colonial and post-colonial encounters, contributing to social, ecological, and economic struggles that continue today. These struggles result from surveyors representing the landscape as it might become rather than as they directly perceived it. Drewry framed an anticipatory geography based on Eurocentric conceptions of space. In other words, he utilized a vision that was both an arm of what Thomas Richard calls "the epistemological extension of Britain into and beyond its empire"[10] and a decentralized idea emanating from the aspirations and values of Anglo-American settlement society and capital interests in British Columbia.[11] Thus, Drewry's vision was representative of a wide, varying, and overlapping range of views, which I have consolidated and categorized in this article as the scientific, panoptic, commercial, and aesthetic gazes. Drewry strategically reproduced and disseminated his vision of the landscape based on different kinds of physical (cairns and surveying pegs), graphic (maps and field books), and printed (reports and systems of administration) representations, giving Anglo-Americans extensive powers to create, and sometimes to control, new social, ecological, and economic relations.[12] Throughout his career, Drewry operated between two land systems: one based on customary rights and local obligations, the other based on private property and market exchange. In this article I argue that, almost without concessions, Drewry implemented the latter capitalist system in an attempt to empower the settlement society, which had the effect of ensuring and maintaining corporate dominance and, to Drewry's dismay, monopolization of the BC landscape.

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[8] In 1849, the United Provinces of Canada first licensed surveyors, and, in 1874, Canadian surveyors officially adopted the title "Dominion Land Surveyor" (DLS) after establishing a system of examination. In April 1891, the British Columbia Legislative Assembly passed the Provincial Surveyors' Act, which established a board of examiners and set policies for articling pupils. However, not until 1905, with the passing of the Provincial Land Surveyors' Act, did legal surveys become mandatory under a common standard of practice set by the newly named Corporation of Land Surveyors of British Columbia.

[9] Provincial Surveyors' Act [54 Vic., c. 17]; Provincial Land Surveyors' Act [5 Ed. 7, c.7]; Cole Harris, *The Resettlement of British Columbia* (Vancouver: UBC Press, 1997), 182-93.

[10] Thomas Richards, *The Imperial Archives: Knowledge and the Fantasy of Empire* (London: Verso, 1993), 15.

[11] C. Harris, "How Did Colonialism," 178-79.

[12] David Nye, *America as Second Creation: Technology and Narratives of New Beginnings* (Cambridge: MIT Press, 2003), 11; Brian Harley, "Rereading the Maps of the Columbian Encounter," *Annals of the Association of American Geographers* 82, 3 (1992): 522.

Drewry's role as a surveyor is particularly important because colonial states such as Canada exploit not only gunboats and militias to secure control over land but also less obvious instruments such as surveyors and their representations.[13] As Palestinian philosopher Edward Said argues, the ability to measure, to categorize, and to name – the fundamental basis of Drewry's work – reconstructs cultures not in a "merely decorative or 'superstructural'" manner but, rather, in a powerful and historically underanalyzed way.[14] This article not only explores the larger colonial land appropriation project but also displays the degree of influence that the work of an individual surveyor can have on the world.

For some time, historians have narrated surveying as a vehicle for nation building – in other words, as liberal history, a story that reveals the progress of human development. These liberal historians reinforce the narratives of the earliest surveyors in North America, who described themselves as explorers, discoverers, and pioneers. However, revisionist approaches assert that, for discovery to be made possible, pre-existing knowledge, such as that of Aboriginal peoples, must be denied. Someone cannot discover something (in an absolute sense) if that something is already known. "Discovery is also a personal vision," states Simon Ryan, "the individual's pleasure and reward being pre-eminent."[15] The opportunity to name the landscape after oneself or one's culture, for example, extends the ability to identify with, and even claim ownership of, that "discovery." The desire for this reward leads to the abstraction of prior knowledge – a consequence that the progressive narrative has upheld and furthered.

Despite such revisionist approaches, the image of surveyors as founding fathers or unsung nation builders endures today. Katherine Gordon's recent "popular history" *Made to Measure*, for example, relates the "awe-inspiring" story of land surveyors and their influence on the "vast wilderness" of British Columbia.[16] Liberal historians continue to celebrate surveying as a means of describing the landscape, ensuring secure land transactions and ownership, and supporting, even facilitating, the production of capital. Many scholars, including Peruvian economic

[13] Matthew Edney, "Origins and Development of J. Harley's Cartographic Theories," monograph 54 in *Cartographica* 40, nos. 1 and 2 (2005): 113-14. (Also published by University of Toronto Press, 2005.)

[14] Edward Said, *The Palestine Question and the American Context* (Beirut: Institute for Palestine Studies, 1979), 25.

[15] Simon Ryan, "Discovering Myths: The Creation of the Explorer in Journals of Exploration," *Australian-Canadian Studies* 12, 2 (1994): 1, 8, 10.

[16] Katherine Gordon, *Made to Measure: A History of Land Surveying in British Columbia* (Winlaw: Sono Nis, 2006).

historian Hernando de Soto, attribute growing global economic disparities to certain cultures' failure to adopt Anglo-American forms of land management.[17] From this perspective, surveying is a scientific and rational approach to the "chaos" of communalism and nature. Most commonly, in commemorating surveyors as creators of national space that governments and citizens alike could visualize as their own, both liberal historians and surveyors have made the progressive narrative dominant within historical literature.

Without doubt, surveying has played a fundamental role in the formation of nations and the maintenance of domination over territory. Unfortunately, specific interests have also used surveyors' representations to condone ignorance of alternative views of the landscape. Edward Said describes representational practices like mapping as acts of "geographical violence." Surveying was a process of aggrandizement and state expansion that empowered the practitioner to seize "and devour … space from a distance." Space was objectified as something to be "delineated and carved up."[18] These delineations have been particularly powerful due to the social and economic elites' belief that surveyors' cartographic dimensions are progressive, universal, and objective.

Surveyors' representations of space were powerful instruments enveloped within broader ideas of civilization, progress, and deeply held Eurocentric thinking about sovereignty regimes. Within these regimes, "the Anglo-American world" of the settler was essentially regulated, and internal conflict tamed, by a body of laws about property and resource development. The development narrative told by newcomers made the "empty, unused[,] or poorly used land" into productive, useful, and settled land. A vision of progress promoted ideals such as improved transportation and the expansion of resource industries. On the other hand, leaving anything more than the most necessary lands to Aboriginal peoples was deemed an impediment to progress. Aboriginal peoples were to look to the "development" and "progress" around them as an opportunity to partake in the benefits of British civilization. While such narratives eventually drew some non-Aboriginal detractors, they remained remarkably consistent across European empires.[19] Essentially, these narratives – coupled with self-interest, rhetoric about civilization and savagery, and assumptions about

[17] Hernando de Soto, *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else* (New York: Basic Books, 2000), 182. Prominent authors, such as the journalist Thomas Friedman, have supported de Soto's argument.

[18] Edward Said, *Culture and Imperialism* (New York: Knopf, 1994), 271.

[19] C. Harris, *Making Native Space*, 295.

race – gave settlers and capital production the power to control what happened within the borders surveyors created for them. In turn, the "Aboriginal world," being viewed as *terra nullius*, became a land ripe for colonization.[20] While positioning themselves for patronage and authority, surveyors like Drewry and the interests for whom they worked enthusiastically created a world; however, this was a creation that was based far more upon myth than upon reality.

The manner in which surveying has allowed Anglo-Americans to dominate the landscape has become one of the most pressing issues of our time. In British Columbia, litigation over title to land has prompted historians, among others, to question surveyors' constructions of identity and space. Historical literature over the past few decades has increasingly urged reconciliation, or at least recognition, of past differences or tensions in the hope that people will then be able to jointly identify with the present. For too long anxieties about the present have influenced people to construct narratives that smoothed over or abstracted tensions in the past.

The values of land and capital invested in it have not been the only contributors to anxieties about the historical analysis of surveying. Anxieties have also sprung from land's centrality to cultural and national identities. Land gives people a means of identifying themselves. First Nations have successive systems of oral history and, at times, textual history (e.g., maps) that link their cultures to geographical locations, "land" and "culture" often being indistinguishable terms in First Nations languages. The land has had not only cultural importance but also economic importance, which, almost universally, First Nations traditional practices maintained through sustainable resource extraction. European settlers also identified with land. They did so, however, less with what they called the "New World," which was strange and alien to them, than with the European world that they had recently left behind.[21] According to historian Patrick Dunae: "Few of the gentlemen settlers turned their backs completely on their heritage or severed their emotional and spiritual ties with the Old Country."[22] In order to claim sovereignty over the land, Anglo-Americans had to make North America more European. In this process, they abstracted the legitimacy

[20] C. Harris, "How Did Colonialism," 165.

[21] G. Malcolm Lewis, "Introduction," in *Cartographic Encounters: Perspectives on Native American Mapmaking and Map Use*, ed. G. Malcolm Lewis (Chicago: University of Chicago Press, 1998) 2-3; Ted Steinberg, *Down to Earth: Nature's Role in American History* (Oxford: Oxford University Press, 2002), 16-17, 20, 38.

[22] Patrick Dunae, *Gentlemen Emigrants: From the British Public Schools to the Canadian Frontier* (Vancouver: Douglas and McIntyre, 1981), 12.

of Aboriginal peoples' claims to land in North America in spite of the Royal Proclamation of 1763, which upheld Aboriginal claims to traditional territory and decreed that they were to be compensated for the use of their land.[23] In order to satisfy European settlers' desire for land, early European scholars gave Anglo-Americans the conceptual tools to abstract Aboriginal title to land. Anglo-American land laws adopted the theories of European philosophers such as John Locke, who reasoned that settlers could purchase land from the state – not from Aboriginals – if they transformed it into something modelled more after European notions of space.[24] Anglo-Americans used linguistic devices, such as describing their land-use practices as "improvements," to justify the dispossession of Aboriginal land, despite the equity of customary land-use practices.[25] Moreover, Anglo-American anxieties over land remain especially strong today because First Nations within British Columbia – with the exception of those signatory to the Douglas Treaties on Vancouver Island, to Treaty 8 in the northeast corner of the province, and to a few more recent agreements (e.g., the Nisga'a and Tsawwassen treaties) – have not modified their title to land. Understanding the history of colonial land policy is central to resolving issues over title to land, to addressing questions of sovereignty, and to reducing the growing social and economic divides in the world today.

In this article I unveil alternative realities in an effort to balance the established "progressive" narrative of surveying, following the lead of scholars who have used socially and environmentally minded counter-narratives to re-envision how surveying has effected change. An examination of Drewry's work offers a glimpse into a critical space and time and reveals the links and patterns that can help us uncover the silences that remain in the language of surveying. The foundations of today's land management and administration system in British Columbia were established during this institution-forming period at the turn of the twentieth century and in the abstractions then created (such as the geographies of First Nations), and they are perpetuated in government institutions today. Therefore, in order to enable Aboriginal peoples, whose cultures were either abstracted or otherwise represented by federal and provincial institutions, to identify with the present,

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[23] Brett McGillivray, *Geography of BC: People and Landscapes in Transition* (Vancouver: UBC Press, 2000), 55-79.

[24] James Tully Strange, *Multiplicity: Constitutionalism in an Age of Diversity* (Cambridge: Cambridge University Press, 1995), 72-75; Daniel Clayton, *Islands of Truth: The Imperial Fashioning of Vancouver Island* (Vancouver: UBC Press, 2000), 184.

[25] The Government of British Columbia did not play any role in the negotiation of Treaty 8.

we must, at the very least, recognize the history that lies in the "great silent country" of the past. To do so, we must continue to ask ourselves about the nature and history of surveying.

I organize this article so as to draw out the role surveyors played in remaking spaces, focusing on British Columbia and William Drewry as a case study but locating both within the larger international historical literature of land surveying. The first section provides a chronology of Drewry's life as a surveyor, which, together with the historiographical information in this introduction, provides a foundation upon which to expand historical analysis according to certain themes. It also examines the manner in which Drewry classified the landscape, including his vision of nature as a commodity and his use of such measurement techniques as photo-topography.[26] Drewry and fellow surveyor J.J. McArthur were responsible for an unprecedented application of this technique as they mapped the Rocky Mountain Railway Belt, an area of land 32.2 kilometres (twenty miles) wide on each side of the Canadian Pacific Railway (CPR) track. The second section explores how Drewry communicated his classifications, focusing particularly on the manner in which he constructed representations of space in order to convey an impression of objectivity. The penultimate section shows how states, commerce, and associations attempted to control the use of land and natural resources on the basis of Drewry's classifications. These three sections underscore the subjectivity of surveying, which gave Drewry the linguistic capacity to make change. Overall, the themes within these sections are organized to display the capacity of surveying to support state building and the integration of communities into the international market. However, first and foremost, they show how surveying has conditioned knowledge and power. The last section summarizes the findings and considers some of the implications for today.

## "CORRELATION OF THINGS": HOW DREWRY ENVISIONED SPACE

John Haworth Drewry was modest when he described William Stewart Drewry, his father and fellow BC land surveyor, as having a "very active professional life."[27] Upon becoming a Dominion land surveyor in 1883,

[26] Photo-topography (photogrammetry) was the process of making surveys and topographical maps using photographs taken from strategic mountaintop positions.

[27] John H. Drewry, "William Stewart Drewry," Eulogy (c. 1940), British Columbia Archives (hereafter BCA), MS 2259.

William Drewry participated in the extension of a new land system westward, contributing, on the one hand, to the building of Canada as a nation and, on the other, to resistance to that project in the Red River Rebellion of 1885. In 1887, Drewry and fellow famed surveyor/mountaineer James McArthur were the first North Americans to experiment with a new survey technique called photo-topography. At this time, while elements of British colonial surveying practice were profoundly influential in British Columbia, colonies like Canada and India had become the leading developers of survey practices and theory, among which photo-topography was a prime example.[28] Despite the impediments of smoke, bad weather, and equipment problems, which caused the photographs to be not "as good as hoped for," the method proved "sufficiently" accurate and was the only means by which some precipitous regions could be surveyed. Drewry estimated that using the photo-topographical method (see Figure 1) across the mountainous landscape had reduced costs by as much as fifteen times over traditional surveying methods (i.e., chaining baselines and township outlines).[29] From 1888 to 1892, Drewry took part in the unprecedented exploitation of photo-topography to survey the Rocky Mountain Railway Belt, which helped the governments of Canada, British Columbia, Alberta (eventually), along with the CPR, among others, to divide this alleged *terra nullius* among themselves.[30] Between 1893 and 1908, he played an equally significant role during the Kootenay hardrock mining boom, contributing to British Columbia's becoming the leading mining province in the Dominion.[31] In 1909, just as popular views of the conservation movement were crystallizing in North America – largely around the concept of multipurpose river development and, ultimately, planned and efficient progress – Drewry turned his attention to "white coal," becoming British Columbia's first and only chief water commis-

[28] Peter Collier and Rob Inkpen, "The Royal Geographical Society and the Development of Surveying, 1870-1914," *Journal of Historical Geography* 29, 1 (2003): 100.

[29] W. Drewry, "Report of Standing Committee on Phototopography as Applied to Topographical Surveying," *Proceedings of the Association of Dominion Land Surveyors* (hereafter ADLS), sixth annual meeting, 19-21 February 1889, CIHM no. 01884. Drewry's work also assisted in the establishment of the Coast Meridian. The province originally surveyed the Coast Meridian at 122° 45' 39.6" in 1874-75 as part of its "fifth survey." Drewry remade the meridian, the eighth meridian in the Dominion survey system. See Robert McKercher and Bertram Wolfe, *Understanding Western Canada's Dominion Land Survey System* (Saskatoon: Division of Extension and Community Relations, University of Saskatchewan, 1986), 24.

[30] Alberta did not become a province until 1905.

[31] Martin Robin, *The Rush for Spoils: The Company Province, 1871–1933* (Toronto: McClelland and Stewart, 1972), 16, 17.

Figure 1. Photograph of one of the cameras used for the topographical survey of Canada. *Source*: Library and Archives Canada, Mikan no. 3389791.

sioner.[32] In 1911, he returned to surveying as British Columbia's inspector of surveys, and, from 1913 until his retirement in 1929, he surveyed for both the BC government and in private practice. Over this latter period, Drewry was instrumental in the development of the Corporation of British Columbia Land Surveyors. Throughout his professional career, Drewry acted as an agent of change by appropriating and making an inventory of land and natural resources and then communicating those classifications through his field books, maps, and reports.

This short biography is insufficient to show how Drewry empowered change, how that change influenced other individuals and groups, or how specific individuals and groups exploited that change in their own interests or in the interests of others. To tackle these questions, we must examine how Drewry classified the landscape.

[32] In early twentieth-century British Columbia, "white coal" was a common expression for water, which was viewed as a commodity for irrigation and hydroelectricity rather than as a common resource.

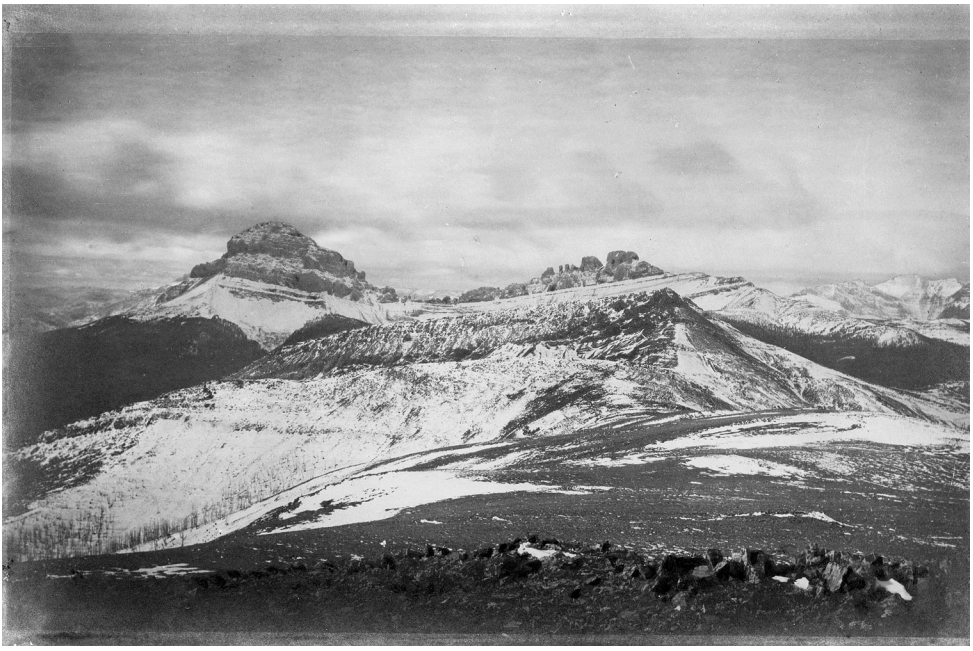

Figure 2. Drewry took this photograph of Crowsnest Pass in 1888 while using the photo-topographical technique to establish the Fifth Meridian. *Source*: British Columbia Archives, Ann ten Cate unprocessed records.

Look at Figure 2. Ceci n'est pas une montagne (this is not a mountain).[33] It is not a mountain because it is an image, which is much different from the mountain it represents.

The preceding paragraph is not a riddle or a play on words but, rather, an attempt to unveil the fiction of "reality" that exists around photographic representations of the landscape. In 1888, while using the photo-topographical technique to establish the Fifth Meridian, Drewry took this picture of Crowsnest Pass in the Rocky Mountains. The photograph represents Drewry's visual image at the moment he took the picture. Yet lived experiences can never be reproduced absolutely. Indeed, some interpretations may be better than others and the best interpretation may not be "reality" but, rather, the most accurate knowledge of lived experience.

Drewry's task as a surveyor was not so much to represent the landscape accurately as to envision a new "reality." Drewry's vision, like that of any surveyor, was individual and subjective; nevertheless, imperial rationali-

[33] The phrase "this is not a mountain" is borrowed from René Magritte's famous painting *La Trahison des images (Ceci n'est pas une pipe)*.

zations, colonial legislation, professional surveying associations, and the settlement population acculturated the scope of his vision, producing four different types of gaze. The scientific gaze exploited reason and the construction of knowledge to "perfect" vision; the panoptic gaze universalized space; the commercial gaze commodified the land and natural resources; and the aesthetic gaze promoted preservation and use. As a result of these acculturated gazes, Drewry classified the landscape in a manner that contributed to the larger colonial project, sanctioning the ignorance of customary rights and local obligations and playing a pivotal role in the creation of a new capitalist economy based on market exchange and private property.

Contemporary imperial rationalizations sanctioned Drewry's ignorance of pre-existing peoples, such as First Nations and "squatters." Drewry, in turn, furthered this ignorance by appropriating an anticipatory geography. As political scientist James Tully states, it "is difficult to overestimate the influence" of British philosophers like John Locke, who argued that the benefits of private property and commerce outweighed customary rights. Tully further argues that Anglo-Americans reasoned that "the conqueror" should consider only the bigger picture when settling a new land. The potential of a new and large settlement in the near future outweighed the consideration of the smaller pre-existing population.[34] Accordingly, Drewry did not recognize pre-existing peoples as having any form of government, reasoning that neither settlers nor surveyors needed their consent to impose a new geography upon the land. Such ideological constructions also justified Drewry's future vision, which did not so much construct existing knowledge as classify the landscape as "Possibilities" or "Conditions Changing."[35] In this, Drewry practised what historical geographer Ken Brealey calls "selective 're-presentation.'"[36] His anticipatory geography homogenized space as Anglo-American and gradually broke down what historian Don Thomson calls "time-tested ideals and systems of morality."[37] The imperial discourse of the time encouraged surveyors like Drewry to classify the landscape as vacant and justified encroachment on these

[34] Tully, *Strange Multiplicity*, 73-74, 161.

[35] W. Drewry, Inspector of Surveys, "Columbia Valley, East Kootenay," BC Legislative Assembly, Sessional Papers, 1912, *Report of the Minister of Lands*, G 16.

[36] Ken G. Brealey, "Mapping Them 'Out': Euro-Canadian Cartography and the Appropriation of the Nuxalk and Ts'ilhqot'in First Nations Territories, 1793-1916," *Canadian Geographer* 39, 2 (1995): 140.

[37] Don Thomson, *Skyview Canada: A Story of Aerial Photography in Canada* (Ottawa: R.B.W. Ltd., 1975), 2.

lands as a necessary process that brought a better life to Aboriginal peoples and squatters.[38]

## THE SCIENTIFIC GAZE

Drewry used reason and the construction of knowledge to classify space. In 1887, Canada's Association of Dominion Land Surveyors (ADLS) called for "a more exact system of survey than that in vogue," expressing what historian Suzanne Zeller calls the desire "to increase and diffuse knowledge."[39] Surveyors were at the root of the Victorian era's preoccupation with "'inventory science', which highlighted the mapping and cataloguing of resources and other natural phenomena."[40] The landscape classifications of Drewry and his associates reinforced the nineteenth-century Anglo-American shift from artistic conception to scientific law. For instance, Otto J. Klotz stated in his 1886 presidential address to the ADLS that "some people" felt the late nineteenth century was "too 'practical' an age." However, he argued, "probability" did not exist in nature; rather, everything was "subject to fixed laws" that science could explain.[41] Drewry heard Klotz reinforce this argument in an 1889 speech to the ADLS. "The object of Science is the discovery of truth and the practical man applies that discovery," Klotz asserted.[42] In other words, only reason could construct knowledge: one could not exist without the other.[43] Surveyors were at the heart of Europeans' fascination with what historical geographer Dan Clayton calls the "power of reason to domesticate kingdoms of otherness and the capacity of 'man' to live contemporaneously, without the crutch of the past."[44] Surveyors like Drewry used science – reason and the construction of knowledge – to classify the landscape as free for Anglo-American expansion.

Surveyors recognized that their measurements were sometimes inaccurate, but they argued that they could submerge uncertainty under sys-

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[38] Tully, *Strange Multiplicity*, 73-74.

[39] Canada, *Proceedings of the ADLS*, fourth annual meeting, 8 and 9 March 1887. If "exact" is defined as "correct and complete in every detail," then how can anything be more exact than anything else? Surveyors exploited linguistic devices that abstracted the approximate nature of their measurements. See Susanne Elizabeth Zeller, *Inventing Canada: Early Victorian Science and the Idea of a Transcontinental Nation* (Toronto: University of Toronto Press, 1987), 4.

[40] Zeller, *Inventing Canada*, 4.

[41] Canada, *Proceedings of the ADLS*, third annual meeting, 16-17 February 1886.

[42] Otto Klotz, "Report of Committee on Topographical Surveying," *Proceedings of the ADLS*, sixth annual meeting, 19-21 February 1889.

[43] Matthew Edney, *Mapping an Empire: The Geographical Construction of British India, 1765-1843* (Chicago: University of Chicago Press, 1997), 51.

[44] Clayton, *Islands of Truth*, xxii.

tematic analysis.[45] For instance, the ADLS celebrated the "more perfect" trigonometrical survey as a practice "all civilized" (i.e., European) nations exploited.[46] In applying this technology, Drewry "carefully" measured baselines by chain so that he and subsequent surveyors could run "a net of triangles" adjoining selected mountaintops.[47] They then used trigonometry to calculate the lengths of all other triangle sides. "The result," Matthew Edney concludes, "is a rigorous mathematical framework in which all points are defined with respect to each other."[48] From this framework, surveyors could quantify space by connecting secondary (sections) and tertiary (legal subdivisions) surveys to the triangulation points, which were marked by cairns.[49] As Andro Linklater argues, "In its rawest guise, greater accuracy has given empires the power to explore new areas and to exploit them at the expense of the less accurate."[50]

Drewry applied systematic methodology to recast pre-existing geography as a knowable and sometimes controllable Anglo-American landscape; however, several factors often severely hampered the quality of measurement and analysis. For example, on 29 October 1889, Drewry complained to Surveyor General of Canada Édouard Gaston Deville, "I have tried measuring but for the last three days the wind has been blowing strongly and I find it impossible to hold the tape to within from one to two tenths of an inch of mark. This would give a much greater error than allowable and I have therefore decided to postpone measurement until a calm day."[51] Smoke and fog also made accurate measurement difficult, sometimes limiting visibility to six metres. Snow concealed cairns and contributed to snow blindness. The cold frequently made equipment inoperable and so "stiffened" Drewry's hands that he had to curtail work. During the bitter winter of 1896, he worked for a

[45] Edney, *Mapping an Empire*, 51.

[46] W. Drewry, *Report of Committee on Geodetic and Topographical Surveying* (1892), BCA, box 93-6553-3, file 3.

[47] Arthur Wheeler, "Irrigation Surveys, 1898: Report of Arthur O. Wheeler, DLS, in Charge," *Sessional Papers of the Dominion of Canada* (Ottawa: S. Dawson, 1899), 10:13-58; W. Drewry, Inspector of Surveys, 7 January 1921, "Vicinities of Bradley Creek, Bridge Creek and Timothy Mountain, North-East Lillooet District," BC Legislative Assembly, *Sessional Papers*, 1921, *Report of the Minister of Lands*, G 62; W. Drewry, Inspector of Surveys, "Connection Surveys in Lillooet and Cariboo," BC Legislative Assembly, *Sessional Papers*, 1912, *Report of the Minister of Lands*, D 249; Canada, *Proceedings of the ADLS*, seventh annual meeting, 18-19 February 1890; Canada, *Proceedings of the ADLS*, eighth annual meeting, 17-18 February 1891.

[48] Edney, *Mapping an Empire*, 19.

[49] Each section contained sixteen legal subdivisions, which usually consisted of 16.2 hectares (forty acres).

[50] Linklater, *Measuring America*, 258.

[51] W. Drewry to E. Deville, 26 October 1889, BCA, GR 437, box 19, file 4.

week in temperatures below -21° centigrade (-5° Fahrenheit).[52] "Jungles" of brush, trees, windfall, nettles, and devil's club, and "clouds" of black flies and mosquitoes, made life so miserable that canoeists and packers deserted.[53] Drewry lost packhorses to poison while conducting subdivision surveys near Timothy Mountain Lake and Mahood Lake, Kamloops District, and one was killed by a CPR train in 1889 while Drewry was carrying out his railway belt triangulation survey.[54] In 1893, he almost lost two of his crew when a "snow-slide" carried them away and injured them.[55] People, animals, and the environment destroyed boundary markers. While working on the West Coast Highway from Sooke to Jordan River, Drewry took considerable time "hunting up old boundary-markers" because, he complained, "most all the country" had been "logged over by the Milligans," and they appeared to have been "at some pains to destroy all traces of the old surveys, especially if there were a few good trees outside the boundaries of the lots logged by them." Drewry also had to contend with food shortages, raging streams, falling rocks, precipitous mountains, isolation, injury, sickness, and fire, such as the 1916 blaze that began in the crew's hotel in Ashcroft, claiming some of their surveying equipment and razing much of the city.[56] Drewry and

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[52] W. Drewry, "Triangulation Survey in the Rocky Mountains," *Sessional Papers of the Dominion of Canada* (Ottawa: B. Chamberlin, 1891), 14:44; W. Drewry to E. Deville, Surveyor-General, 14 December 1889, "Report of W. Drewry, DLS: Triangulation Survey of Railway Belt in Rocky Mountains, No. 14," *Sessional Papers of the Dominion of Canada* (Ottawa: B. Chamberlin, 1890), 11:44; W. Drewry, "Ainsworth and Slocan Mining Divisions Survey," BC Legislative Assembly, *Sessional Papers*, 1896, Crown Land Surveys, 813.

[53] Thomson, Skyview Canada, 245-46; W. Drewry, "Report of W. Drewry, DLS: Triangulation in the Railway Belt, BC, No.13," 4 February 1893, *Sessional Papers of the Dominion of Canada* (Ottawa: S.E. Dawson, 1892), 9:40.

[54] W. Drewry, "Report of Standing Committee on Phototopography"; W. Drewry, DLS, to E. Deville, Surveyor-General, "Report of W. Drewry, DLS: Triangulation Survey of Railway Belt in Rocky Mountains, No. 14," 14 December 1889, *Sessional Papers of the Dominion of Canada* (Ottawa: B. Chamberlin, 1890), 11:48; W. Drewry, Diary, 6 September 1921, BCA, box 93-6553-3, file 1. The BC government, with an 1877 ordinance, had already attempted to limit indiscriminate poisoning of animals to preserve community food resources. See George Colpitts, *Game in the Garden: A Human History of Wildlife in Western Canada to 1940* (Vancouver: UBC Press, 2002), 86.

[55] J. McGregor to W. Drewry, "Mr. McGregor's Report to Mr. Drewry," BC Legislative Assembly, *Sessional Papers*, 1894, Crown Land Surveys, 792; W. Drewry, "Report of Standing Committee on Phototopography."

[56] W. Drewry to Credit Foncier F.G., 18 March 1924, BCA, box 93-6553-3, file 1; W. Drewry to John H. Drewry, 1 July 1929, BCA, box 93-6553-9, file 5; W. Drewry, 4 February 1893, "Report of W. Drewry, DLS: Triangulation in the Railway Belt, BC, No.13," *Sessional Papers of the Dominion of Canada* (Ottawa: S. Dawson, 1893), 8:71; W. Drewry to Robert Fraser, 3 November 1922, BCA, box 93-6553-3, file 1; W. Drewry to McPhillips and Heisterman, 24 October 1908, BCA, box 93-6553-3, file 1; E. Deville to W. Drewry, 16 May 1892, BCA, GR 437, box 21, file 1; W. Drewry, 10 February 1923, "Clearwater Valley, Kamloops District," BC Legislative Assembly, *Sessional Papers*, 1923, *Report of the Minister of Lands*, K 105; W. Drewry, "Tri-

McArthur were the first surveyors in North America to reach over three thousand metres, and, as Drewry stated, "Here a misstep means death."[57] Moreover, Drewry typically worked between twelve to fifteen hours a day under what he described as "the most severe physical exercise."[58] Despite the obstacles, Drewry was still expected to somehow (emphasis in original) complete work within time constraints. Needless to say, this frustrated him. "The trail being blocked," Drewry told his brother Jack (managing director of True Blue Mines Ltd.) in 1902, "the only way to reach the mine was to fly; and I have not yet grown wings."[59] Hardships and time constraints contributed to significant inaccuracies; in one case, Drewry produced a map with sections as far as 3.2 kilometres (two miles) off their true positions.[60]

Drewry's "rough work" often significantly complicated measurement and systematic analysis, which inevitably reduced accuracy.[61] Nevertheless, he used reason and the construction of "accurate" knowledge – in other words, the scientific gaze – to abstract the limitations of his profession, secure title to land, reduce settler anxieties over the land claims of Aboriginal peoples, and entice future settlement and capital investment. Drewry's task was not so much to accurately recreate the landscape as it was to construct a new reality. The seemingly unitary and coherent representations of land and natural resources that surveyors created were in fact malleable texts of ideas used to fortify the colonial state, prepare the way for private property rights, and enhance industrial capitalism.[62]

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angulation Survey in the Rocky Mountains," *Sessional Papers of the Dominion of Canada* (Ottawa: B. Chamberlin, 1891), 14:44; W. Drewry, Diary, to Department of Interior and Surveyor General's (1887), BCA, box 93-6553-1, file 1; W. Drewry, Diary, 16 August 1895, BCA, box 93-6553-3, file 1; W. Drewry to Twigg, 17 November 1907, BCA, box 93-6553-3, file 1; W. Drewry, Diary, 15 July 1918, BCA, box 93-6553-3, file 1.

57 W. Drewry, 5 March 1892, "Report of W. Drewry, DLS: Triangulation Survey in the Rocky Mountains, No. 9," *Sessional Papers of the Dominion of Canada* (Ottawa: S.E. Dawson, 1892), 9:32; W. Drewry, 10 February 1923, "Clearwater Valley, Kamloops District," BC Legislative Assembly, *Sessional Papers*, 1923, *Report of the Minister of Lands*, K 105; Dennis to E. Deville, 3 July 1889, BCA, GR 437, box 19, file 4; John H. Drewry to Claire Drewry, 15 July 1916, BCA, box 93-6553-9, file 1.

58 W. Drewry, Diary, to Department of Interior and Surveyor General's (1887), BCA, box 93-6553-1, file 1; J. McGregor to W. Drewry, "Mr. McGregor's Report to Mr. Drewry," BC Legislative Assembly, *Sessional Papers*, 1894, Crown Land Surveys, 792; Drewry, "Report of Standing Committee on Phototopography."

59 W. Drewry to J. C. Drewry, 24 January 1902, BCA, box 93-6553-2, file 1; Don Thomson, *Men and Meridians: The History of Surveying and Mapping in Canada* (Ottawa: R. Duhamel Queen's Printer, 1966), 93.

60 E.B. MacKay to W. Drewry, 10 September 1907, BCA, box 93-6553-2.

61 W. Drewry to John H. Drewry, 25 June 1928, BCA, box 93-6553-9, file 5.

62 Douglas Harris, *Landing Native Fisheries: Indian Reserves and Fishing Rights in British Columbia, 1849-1925* (Vancouver: UBC Press, 2008), 191.

## THE PANOPTIC GAZE

Despite Anglo-Americans' strong faith in this scientific reality, Drewry exploited gazes other than just the scientific. For example, while making an 1891 reconnaissance survey in the Selkirk Mountains, he selected elevated viewing stations that would give him a position of omnipotence, or, in other words, great power from which to classify the landscape. He described one such viewpoint on Bald Mountain:

> From a coign of vantage on the mountain a view of solemn grandeur was obtained. I must confess that the feeling of awe and impotence which the spectacle inspired will long remain with one … Not a living thing was visible and the sense of desolation and aweful [sic] loneliness was over-powering. No where [sic] else in the mountains have I seen such immense masses of glaciers and icefields and I believe that but little of the area in which these lie has yet been trodden by man.[63]

Historian Giselle Byrnes terms this viewpoint "the panoptic gaze," which takes the form of "a solar eye, looking down like a god."[64] The scope (distance) of the viewpoint meant Drewry was limited to using his sense of sight; it reduced hearing, smell, and all other senses to non-factors. But scientists now argue that humans have evolved perceiving space horizontally, with the result that we do not perceive landscape or distances as accurately when viewing them from a vertical perspective.[65] In Drewry's case, his position and dependence on sight alone ultimately empowered him to make space empty, to promote universalism, and to subsume difference.

The panoptic gaze made space *terra nullius* – empty land waiting for appropriation and settlement. "Not a living thing was visible" from such a vantage, Drewry wrote when describing the view from a mountaintop. In 1894 he stated: "I have been traversing the [Selkirk] mountains … not only along the main routes of travel, but often in the very heart of the mountains seldom visited by civilized man."[66] Drewry recognized that First Nations had been present within this region of British Columbia

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[63] Arthur Wheeler, "W. Drewry" (c. 1939), BCA, MS 2259, box 9, file 27.

[64] Giselle Byrnes, *Boundary Markers: Land Surveying and the Colonisation of New Zealand* (Wellington: Astra Print, 2001), 62. I use the term to signify more than Drewry's use of the unobstructed and wide mountain vantage to view extensive areas in all directions. The gaze also worked more broadly to serve the purposes of the state by permitting surveyors to, in their view, observe all parts or elements of any space and thereby create the desired preconditions for state control.

[65] "The Science of the Senses: Sight," *The Nature of Things*, CBC NewsWorld, 31 January 2008.

[66] W. Drewry, "Photo-Topographical Survey of West Kootenay," BC Legislative Assembly, *Sessional Papers*, 1894, Crown Land Surveys, 788.

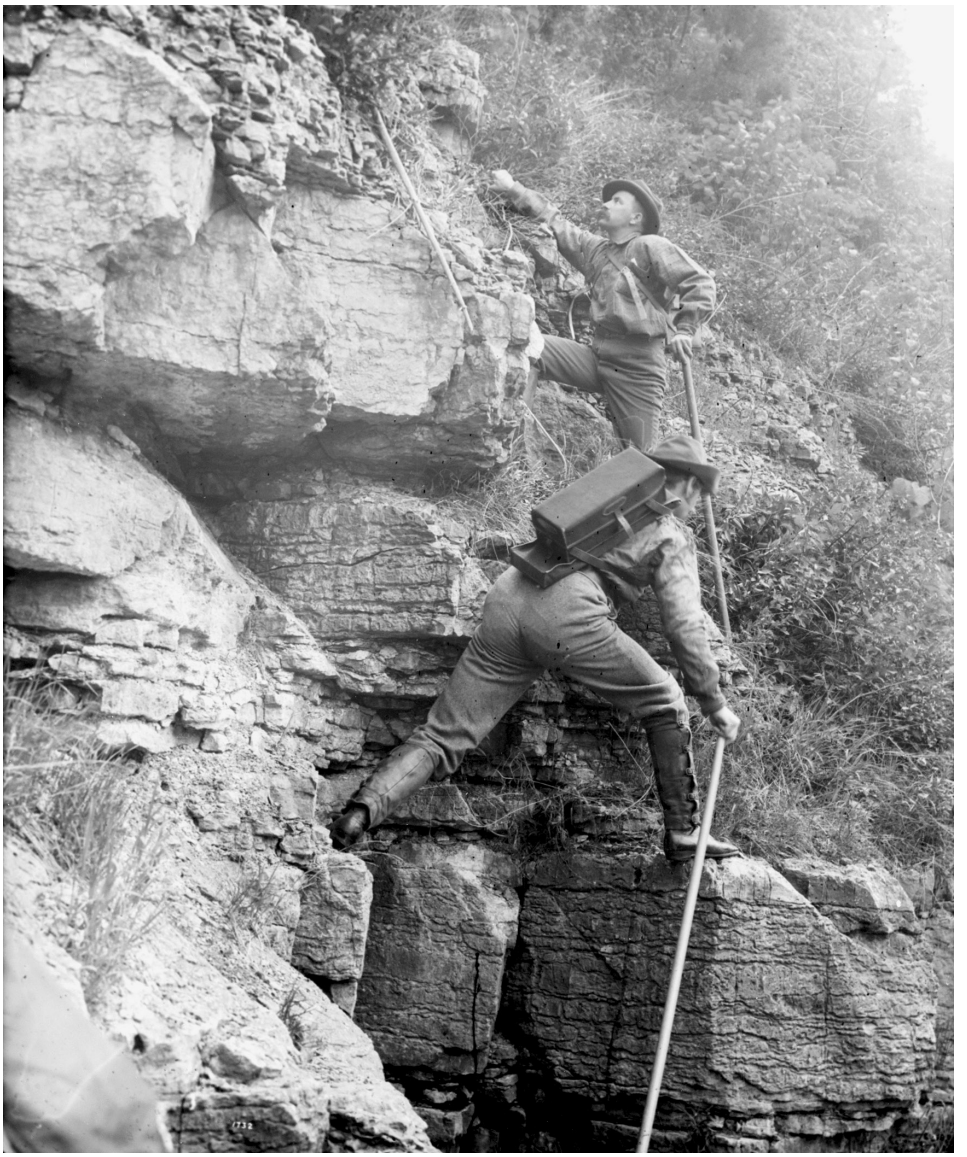

Figure 3. Seeking a predetermined point from which to apply the panoptic gaze, Drewry leads an unidentified survey crew member up a precipitous slope while experimenting with the photo-topographical technique near Harrison Lake in 1887. *Source*: Library and Archives Canada, PA-023141.

since time immemorial; however, he did not describe them as civilized peoples. Drewry's panoptic gaze abstracted the pre-existing geographies of First Nations, and occasionally squatters, so that he could reinvent the landscape.

This gaze also subsumed difference, giving Drewry a distance from localities that allowed him to overwrite existing knowledge with his own definitions and determinations and making him an omniscient narrator, an individual having complete knowledge, awareness, and understanding, with the power to abstract the plurality of pre-existing geographies.[67] Panopticism, a vantage point allowing people to believe they were viewing all parts or elements of a vast space, allowed Drewry to make sweeping generalizations that converted history into what James Tully calls "unified science, capable (at least in theory) of looking at the whole of human life from a standpoint distinctly its own."[68] The position of omnipotence permitted Anglo-Americans to believe surveyors were constructing "a single, complete, truthful and ordered archive of geographical knowledge."[69] Drewry believed his panoptic gaze brought knowledge to residents, even the "uncivilized," but in practice he often made illegitimate those cultures that already existed. As a result, Aboriginal peoples experienced loss of access to resources, economic marginalization, and institutionalized racism. Anglo-Americans celebrated the change, but tension between Aboriginal and non-Aboriginal peoples peaked over the period in which Drewry surveyed.[70] And yet another gaze contributed significantly to both change and tension.

## THE COMMERCIAL GAZE

To turn *terra nullius* into a space of commerce and to facilitate ownership of land, Drewry used a commercial gaze to define, fix, quantify, and qualify, ultimately leading to the valuation and marketability of land. His standard measurements enabled supply and demand to determine the price of land and resources, even if they had not been seen. Today's economy could not exist if surveyors like Drewry had not established

[67] The section entitled "It Should Be to Our Advantage" provides examples of how specific interests subsumed difference within pre-existing geographies on the basis of Drewry's classifications.

[68] Tully, *Strange Multiplicity*, 67.

[69] Edney, *Mapping an Empire*, 17.

[70] R. Galois, "The Indian Rights Association, Native Protest Activity and the 'Land Question' in British Columbia, 1903-1916," *Native Studies Review* 8, 2 (1992): 1; Wendy Wickwire, "'We Shall Drink from the Stream and So Shall You': James A. Teit and Native Resistance in British Columbia, 1908-22," *Canadian Historical Review* 79, 2 (1998): 209.

such a system of property rights. "Land … is not a commodity in nature," Eric Wolf observes, "it only becomes such when defined as such by a new cultural system intent on creating a new kind of economics."[71] Drewry set much of the foundation for this change in British Columbia, his commercial gaze ultimately classifying the landscape into neat categories of irrigation, mining, timber, agricultural, fishing, and game resources as well as grazing and dairy lands and transportation routes – each of which promoted ideals of maximized yields and resource exploitation.

Drewry sometimes recognized how Anglo-American commodification and "progressive" practices placed stress upon existing geographies. He was an avid freshwater fisher and noted in his reports how dams, logging, and the introduction of alien species threatened existing fish habitat. Yet, an excerpt from a 1928 letter to his son suggests where Drewry's priorities ultimately lay: "There has been no fishing this year in Prospect Lake owing to the damming of the lake by Butchart Gardens to store water for summer use. They are holding it about ten feet above the normal level at which they have the right to hold it, but the gardens are such a public asset that we cannot start a row."[72] For Drewry, like so many of his associates, economic opportunities outweighed conservation.

## THE AESTHETIC GAZE

While Drewry constructed the Pacific Northwest as *terra nullius*, he also promoted an aesthetic gaze as another catalyst for settlement and capital investment. As he began remaking the landscape, he increasingly recognized the great aesthetic potential of British Columbia, as when, in 1887, he described the Coast Mountains near Harrison Lake:

> On reaching the top of the peak, which presents a sheer precipice towards the lake, a view was presented to our gaze which upset all preconceived ideas of mountain tops; for here, to our astonishment, was a natural park spread beneath our feet; grassy glades dotted here and there with patches of sombre fir, among which gleamed ponds of limpid water, while in the back ground towered the hoary snow capped

[71] Eric Wolf, *Peasants of the Twentieth Century* (London: Faber and Faber, 1971), 277.

[72] W. Drewry to John H. Drewry, 25 June 1928, BCA, box 93-6553-9, file 5. By the 1920s, more than fifty thousand people came each year to Butchart Gardens. See *The Butchart Gardens: Over 100 Years in Bloom*, available at http://www.butchartgardens.com/the-gardens/our-history/our-history.html (viewed 5 February 2009).

> mountain peaks, grey with the age of centuries and deeply seamed from unceasing warfare with the forces of nature.[73]

The quotation presents a contradictory vision to that of *terra nullius* and expresses a larger change in European attitudes towards nature. Thomas Richards and Bernice Gilmore describe this transformation during the colonial period as a shift from the Enlightenment's depiction of nature as foreboding and monstrous to the settlers' view of nature as sublime and spiritual.[74]

Contrary to what one may assume, the aesthetic gaze contributed to ecologically detrimental practices. Towns and cities often failed to adequately maintain their infrastructure in the early twentieth century due to the rapid influx of settlers. Engineers, sanitation experts, and city officials, eager to encourage settlement and tourism, laid thousands of kilometres of pipes to ensure they maintained an aesthetically pleasing space and did not, as Ted Steinberg states, "drown in their own filth."[75] Unfortunately, the pipes usually discharged raw sewage into rivers, lakes, and harbours. As the chief water commissioner and an avid sport fisher, Drewry made the connection between the resulting algae blooms and fish kills. He proposed sewage treatment in Victoria – a city that, in the context of a gradual exodus of big business and industry to Vancouver after the arrival of the CPR in 1886, became increasingly dependent upon tourism – and the rejection of his plan apparently contributed to his resignation as chief water commissioner.[76] A century later, the provincial government has yet to seriously address the high concentration of sewage contamination around the capital city.

Drewry's aesthetic gaze created a space to which Anglo-Americans with greater disposable incomes would increasingly devote time and money. Visions like his set the stage for a huge post-Second World War recreational exodus to the "woods" of British Columbia and Alberta. Today tourism has emerged as a fundamental and continuously growing sector of these provincial economies. Drewry recognized the aesthetic opportunities in Alberta and British Columbia as well as many of the ecological and ethical consequences that their realization would bring.[77]

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[73] W. Drewry (Belleville, Ontario), 27 December 1887, "Report of W. Drewry, DLS, No. 24," *Sessional Papers of the Dominion of Canada* (Ottawa: A. Senecal, 1888), 12:III.

[74] Richards, *Imperial Archives*, 71; Bernice Gilmore, *Artists Overland: A Visual of American Landscape* (Cambridge: Cambridge University, 1980), 17-18.

[75] Theodore Steinberg, *Down to Earth: Nature's Role in American History* (New York: Oxford University Press, 2002), 166.

[76] Personal correspondence, Joanna Drewry, 17 October 2005.

[77] W. Drewry to John H. Drewry, 25 June 1928, BCA, box 93-6553-9, file 5.

In order for Drewry – through the aesthetic, scientific, panoptic, and commercial gazes – to disseminate his vision to settlers and speculative interests, he had to communicate his classifications of space, which is the subject of the next section.

## THE ART OF MAKING SPACE: HOW DREWRY COMMUNICATED HIS CLASSIFICATIONS

Surveyors remake space by communicating their classifications through physical markers, graphic delineations, and spoken and printed words, giving rise to a new geography, history, and reality. They justify these changes by arguing that their "more perfect" methodology represents space universally. To better understand the process by which surveyors make change, this section focuses on how Drewry used linguistic devices to reshape British Columbia. He dramatically altered customary and local knowledge by using methods of translation, naming (nomenclature), and orthology (the "right" description of things) that had been laid out by land-surveying associations. He fixed this new geography to the landscape with physical objects, such as cairns and survey pegs,[78] and then disseminated the anticipatory geography with written synopses as well as field books and maps based on new topographical and grid-formatted representations, rendering the landscape consumable by a wider audience. Provincial and federal agents like Drewry solidified the new geography in legislation and through administration. Ultimately, however, Drewry's representations communicated space not universally but, rather, in a manner designed to empower commercial/industrial interests and settlement. As a result, revenues from the resources in rural communities and regions increasingly flowed to distant interests, leaving British Columbians little recourse when it came to dealing with the local social, environmental, and economic consequences.

### MAKING SPOKEN SPACE

Overall, these consequences were most detrimental to First Nations. Drewry did not negotiate space with Aboriginal peoples, although he sometimes gathered their knowledge, codifying and translating it into the language formulated by his surveying associations. Despite the nature of Drewry's work – simply put, encroaching upon, surveying,

[78] W. Drewry, "Columbia Valley, East Kootenay," BC Legislative Assembly, *Sessional Papers*, Crown Land Surveys (1896), G 15.

and confiscating Aboriginal peoples' traditional lands without their consent – he did not report resistance from First Nations.[79] With the exception of a couple of instances in which he was called to resolve boundary disputes between settlers and First Nations, his reports are void of any references to protest or any justification for its absence. Several factors help explain this. The photo-topographical technique allowed Drewry to survey at a distance from local populations, thus providing him with a buffer against potential resistance. Physical violence was another powerful tool of colonialism. The British military and navy's violent demonstrations of their power were usually sufficient to suppress scuffles. The threatening presence of a naval vessel off the shores of a First Nation's village was usually enough to mitigate an uprising.[80] Whether on the Coast or in the Interior, First Nations knew that, while a brief victory might be achievable, keeping armies at bay for the longer term was quite another matter.[81] Moreover, reporting resistance was not in the interests of settlement or capital investment and thus was not in Drewry's interests either. The speed and magnitude of change that surveyors enabled over First Nations spaces, as well as the fear of violence, allowed the process of dispossession to proceed relatively peacefully.

Peace does not indicate acceptance of change. First Nations often did what they could to slow down or lessen the effects of surveying, disrupting surveyors or, on occasion, engaging in scuffles with survey parties despite the implicit threat of the British military and navy.[82] Customary landowners, whether Aboriginal or not, were suspicious and resisted institutional change in landownership, recognizing that it was usually, if not always, constructed in the interests of the better-informed and the politically better-connected. As the case of the CPR and its subsidiary, the Consolidated Mining and Smelting Company of Canada Ltd. (COMINCO), reveals (see below), equality of control over capital and production has not materialized, even within the middle-class Anglo-American interests for whom Drewry created space. The centralization of power facilitated by early surveyors continues to construct divisions around the world, despite marginalized individuals, communities, and

[79] Drewry did settle disputes between First Nations and settlers over surveyed land. See W. Drewry, 7 January 1921, "Vicinities of Bradley Creek, Bridge Creek and Timothy Mountain, North-East Lillooet District," BC Legislative Assembly, *Sessional Papers*, 1921, *Report of the Minister of Lands*, G 63.

[80] Barry M. Gough, *Gunboat Frontier: British Maritime Authority and Northwest Coast Indians, 1846-1890* (Vancouver: UBC Press, 1984), 190-210.

[81] C. Harris, "How Did Colonialism," 179.

[82] Ibid., 175-76 and 179.

regions having long agitated for more control over, and a greater share of, the benefits gained from what they see as their collective land and resources. Ultimately, contested spaces have remained relatively peaceful due only to the radically unequal state of power between the colonizer and the colonized.[83]

Surveyors extended their ability to make change by avoiding dialogue with certain populations. In spite of the presence of about thirty-five thousand to forty thousand First Nations people in British Columbia by the end of the nineteenth century (reduced from a pre-contact population of well over 100,000),[84] surveyors increasingly imposed their own knowledge of the land and natural resources when it came to naming geographical features.[85] These "names are to be the property of our descendants as well as ourselves," surveyor Thomas Drummond told the ADLS in 1889, "and will be perpetuated in the thousands of deeds and documents which will be executed and in the numerous maps and books that will be published, in coming years, when change will become more difficult and impossible."[86] Similarly, Paul Carter considers place names to be the "spatial and conceptual co-ordinates within which history could occur."[87] Surveyors exploited the opportunity to create an Anglo-American history by accepting names applied by traders, settlers, and miners. Surveyor General Deville also instructed surveyors to name the landscape after distinguished people or remarkable occurrences. Accordingly, Drewry named the Harrop-Procter Waggon Road and Procter Creek after his friend and business associate T.G. Procter, manager of the Kootenay Valley Company and the Balfour Brick Company, and Battle Creek after a prospector's encounter with a grizzly bear.[88] By ignoring the "barbarous" in favour of the "civilized," the ADLS empowered the "judgement of the explorer" to ensure that

[83] Satish Chand and Ron Duncan, "Resolving Property Issues as a Precondition for Growth: Access to Land in the Pacific Islands," in *The Governance of Common Property in the Pacific Region*, ed. Peter Larmour (Canberra: National Centre for Development Studies and Resource Management in Asia-Pacific, 1997), 39; D. Harris, *Landing Native Fisheries*, 191.

[84] Robert Boyd, *The Coming of the Spirit of Pestilence: Introduced Infectious Diseases and Population Decline among Northwest Coast Indians, 1774–1874* (Vancouver: UBC Press, 1999), 2; Robert P.C. Joseph and Cynthia F. Joseph, *Working Effectively with Aboriginal Peoples*, 2nd ed. (North Vancouver: Indigenous Corporate Training Inc., 2007), 17.

[85] W. Drewry, *Proceedings of the ADLS*, seventh annual meeting, 18–19 February 1890.

[86] Thomas Drummond, *Proceedings of the ADLS*, sixth annual meeting, 19–21 February 1889, 178.

[87] Paul Carter, *The Road to Botany Bay: An Essay in Spatial History* (London: Faber, 1987), 46.

[88] G. Dawson, *Proceedings of the ADLS*, fourth annual meeting, 15 and 16 March 1888, 51. The association did not want nomenclature and orthology left to railway companies. See Édouard Deville, *Proceedings of the ADLS*, fourth annual meeting, 15 and 16 March 1888, 53; W. Drewry to H. Wright, 25 June 1908, BCA, box 93-6553-3, file 1; T. Procter to W. Drewry, 8 September 1898, BCA, box 93-6553-1, file 9.

settlers could better identify and connect themselves and their history to the land, using nomenclature to memorialize and celebrate the Anglo-American presence.[89]

## MAKING PHYSICAL SPACE

Surveyors inscribed the space that they were inventing upon the landscape with physical objects. Cairns became the foundation for the new geography in the Coast, Rocky, and Selkirk mountains. Drewry would choose mountaintop locations where his crews located stones to construct these pyramid-shaped signals as a base for secondary and tertiary triangulation surveys. This base was particularly important because, as Deville stated in 1907, "the whole system of Dominion Land Surveyors hangs on the baselines; if their accuracy is not perfect, every subsequent survey is bound to go wrong."[90] Furthermore, as Drewry noted, baseline work provided an "immense" saving in the survey of agricultural lands, timber limits, and, especially, mining claims.[91] Ultimately, cairns, as well as survey pegs, represented the physical manifestation of the territorial claims of Canada and British Columbia.

## MAKING GRAPHIC SPACE

Maps, of course, are another instrument used to represent claims to land. Drewry promoted topographical maps as communicative "Aids to Development," arguing that the "waste of rugged mountains, deep valleys and dense forest" and the "totally unknown character" of British Columbia deterred capital investment. In his view, public money should fund topographical mapping because the "public" ultimately benefited from the attraction of "outside" capital. Drewry articulated myriad examples of how topographical maps supported capital investment: by penetrating the "vastness" of the wilderness; by facilitating the exploitation of natural resources; by furnishing settlers and mountaineers with information regarding the natural features of the country; by encouraging pre-emption claims in remote regions; by making it practical

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[89] Deville, *Proceedings*, 53.

[90] W. Drewry to E. Deville, Surveyor-General, 14 December 1889, "Report of W. Drewry, DLS: Triangulation Survey of Railway Belt in Rocky Mountains, No. 14," *Sessional Paper of the Dominion of Canada* (Ottawa: B. Chamberlin, 1890), 11:46, 48; Judy Larmour, *Laying Down the Lines: A History of Land Surveying in Alberta* (Calgary: Brindle and Glass, 2005), 106.

[91] W. Drewry, 5 March 1892, "Report of W. Drewry, DLS: Triangulation Survey in the Rocky Mountains, No. 9," *Sessional Papers for the Dominion of Canada* (Ottawa: S.E. Dawson, 1892), 9:41.

for governments to spend money to survey railways and the "no less important" tramways, wagon roads, and trails; and by reducing the costs of locating and constructing such transportation routes.[92] Drewry anticipated the change that would come through construction of what he called "the main lines of communication with the supply centres and markets of the world."[93]

Moreover, because gravity provided what Drewry called "the first method of utilizing water supply," topographical maps became a particularly powerful technology in planning irrigation, expanding agriculture, calculating the area of basins, enhancing water rights administration, avoiding legal difficulties, and controlling "otherwise wasted water."[94] Richard Bocking argues that such communicative technology satisfied Anglo-American dreams of "a hydraulic order … to correct past ills, raise wealth, to impose control over nature and others."[95] Drewry created a new order of previously unimaginable scope over rural areas in British Columbia by first surveying land and then creating topographical maps: he regarded topographical mapping as the *only* method by which an *accurate* map could be made (emphasis in original).[96]

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[92] Ibid., 38; W. Drewry, "Ainsworth and Slocan Mining Divisions Survey," BC Legislative Assembly, *Sessional Papers*, Crown Land Surveys (1896), 814; W. Drewry, Inspector of Surveys, "Connection Surveys in Lillooet and Cariboo," BC Legislative Assembly, *Sessional Papers*, *Report of the Minister of Lands* (Victoria: Province of British Columbia, 1913), D 251; W. King to E. Deville, 30 March 1889, BCA, GR 437, box 21, file 1. Martin concurs with Drewry's assessment that the wagon roads and trails were fundamental to the growth of the Crowsnest and Kootenay mining industry. See Robin, *Rush for Spoils*, 63. Likewise, in a 9 March 1895 edition of the *Rossland Miner*, editorial remarks described roads as "everything to a new camp" and absolutely fundamental for a "town to progress"; W. Drewry, "Triangulation Survey in the Rocky Mountains," *Sessional Papers of the Dominion of Canada* (Ottawa: B. Chamberlin, 1891), 14:43.

[93] W. Drewry, "Report on Photo-Topographical Work in West Kootenay District," BC Legislative Assembly, *Sessional Papers*, 1893, 962; W. Drewry to E. Deville, Surveyor-General, 14 December 1889, "Report of W. Drewry, DLS: Triangulation Survey of Railway Belt in Rocky Mountains, No. 14," *Sessional Papers of the Dominion of Canada* (Ottawa: B. Chamberlin, 1890), 11:44.

[94] Matthew Evenden, *Fish versus Power: An Environmental History of the Fraser River* (New York: Cambridge University Press, 2004), 2. Legal difficulties included parties claiming that their lands did not lie in the basin to be drained. Topographical maps helped settle such disputes.

[95] Richard Bocking, *Mighty River: A Portrait of the Fraser* (Vancouver: Douglas and McIntyre, 1997), 263-68; W. Drewry, *Proceedings of the ADLS*, fourth annual meeting, 15 and 16 March 1888.

[96] W. Drewry, "Photo-Topographical Survey of Kootenay," BC Legislative Assembly, *Sessional Papers*, Crown Land Surveys (1896), 812.


Figure 4. In 1896, Drewry published this, the first coloured topographical map of a region of British Columbia that also displayed the "geography of the country" (e.g., wagon roads, trails, Crown-granted lands, railways, smelters, and mines). *Source*: 26T1 Original Maps, Surveyor General Division, Land Title and Survey Authority of BC.

In 1896, Drewry published the first such map of a region of British Columbia for the provincial government (see Figure 4).[97] Plotting the map on a scale one mile to an inch of (640 metres to a centimetre), with contour intervals of 250 feet (76.2 metres), he delineated roads, trails, Crown-granted lands, and mineral claims, in addition to the "geography of the country." His geography included physical features such as Toad Mountain and the basins of Crawford, La France, and Lockhart creeks, as well as industrial developments such as Ainsworth and Hendryx mining camps, the Nelson-Fort Sheppard Railway, and the location of the Pilot Bay and Hall Mines smelters. In making reference to this map in his 1896 report to the BC Legislative Assembly, he noted that

[97] Gray Scrimgeour, "Postal History of a Pioneer Western Canada Family: The Drewry Find," *Postal History Society of Canada* 131 (2007): 7.

many of the mining claims being worked "prove[d] of great value."[98] Drewry's map, along with several that followed, were published and sold nationally and internationally. British Columbia was open for business, and Drewry's maps invited capital investment.[99]

Drewry's "accurate" mapping also made notable exclusions. While the first official census of 1881 recorded the indigenous Ktunaxa population at 625, down dramatically due to the waves of epidemics carried from Europe, Drewry nevertheless failed to delineate any evidence of this pre-existing people, such as their encampment in Galena Bay or a rock and mineral mine not far from COMINCO's Bluebell lead-zinc operation at Riondel. The Ktunaxa, who had numbered over ten thousand prior to contact, had prospected, mined, and traded mostly flint but also other rocks and minerals in this region long before the arrival of non-Aboriginals.[100] Surveyors were certainly aware of Aboriginal peoples' mineral interests, and, as Richard Mackie observes, the late nineteenth-century landscape was covered with the remnants of thousands of years of habitation and use, such as middens, trade beads, house remains, fishing weirs, arrowheads, and other instruments. While some early surveyors made notations of deserted and uninhabited First Nations houses when making tertiary surveys, Drewry's new large-scale primary and secondary surveys only made reference to established reserve lands.[101] Despite their knowledge otherwise, surveyors did not delineate non-Anglo-American uses or claims to natural and mineral resources.

The most common medium through which any surveyor communicates his or her classifications of land and resources is the field book. "Invaluable and indispensable," states Giselle Byrnes, the field book is a "constant companion" to any surveyor.[102] In 1907, BC surveyor general E.B. MacKay forwarded his most recent draft of general survey instructions to Drewry for his comments. Together they established that surveyors were to use field books to note pre-emptions and timber and coal licences; to sketch diagrams of the land surveyed and to give connection to existing surveys; to show centres of activity, topography, and "improvements"; and to mark the number of stations, bearings,

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98 Drewry, "Photo-Topographical Survey of Kootenay," 811.

99 A. Terry Turner and Susan Hulland, *Impressions of the Past: The Early History of the Communities of Crawford Bay, Gray Creek, Kootenay Bay, Pilot Bay and Riondel, on the East Shore of Kootenay Lake, British Columbia* (Riondel: Riondel and Area Historical Society, 2002), 5.

100 Ibid., 6-7.

101 Richard Somerset Mackie, *The Wilderness Profound: Victorian Life on the Gulf of Georgia* (Victoria: Sono Nis Press, 1995), 51-52.

102 Byrnes, *Boundary Markers*, 78.

and distances and the acreage of every claim on any plan.[103] Essentially, surveyors used their field book to display change and their evaluations of the landscape.

## MAKING PRINTED SPACE

Two other techniques of surveying and mapping that Drewry often used were chaining and the grid. Chaining can be traced back to Europe's establishment of a cash economy, which made the state much less interested in the land's capacity to support people than in how much rent the land could produce. Hence, in 1581, Welshman Edmund Gunter devised a 6.7-metre (twenty-two-foot) chain to measure land so that property owners could calculate rent. In addition to Gunter's Chain, Canadian surveyors adopted the grid that US president Thomas Jefferson had directed American surveyors to extend west. Linklater credits Canada's adoption of Gunter's Chain and the grid to the country's "faith in technology," "respect for property," and "greed for territory." Both the instrument and the technique made it easy to measure and compute a numerical value for the land.[104] While Drewry resorted to trigonometrical surveying and photo-topography in precipitous regions, he otherwise relied on the simplicity and efficiency of Gunter's Chain and the grid to remake the landscape. Don Thomson and I.S. McLaren concur that overlaying this "uniform" system over the immense space that is now Canada was a feat "unequalled anywhere in the world" and remains "one of the great civil engineering triumphs of all time."[105]

The practice of chaining and applying the grid (see Figure 5) was straightforward. Surveyors took bearings on a distant mark with a compass and then sent an axe man forward to clear a path for the chainman. With one man holding the chain at the starting stake, the chainman carried the rest of the chain towards the distant mark, unrolling the chain as he went. The two men worked like a caterpillar, hunching up and then stretching out in a straight line. The surveyor recorded the details in his field book for later plotting on map surfaces in grid formations. Finding the area of any lot was as easy as calculating the area of a square. The chain and the grid were effective until hori-

[103] E. MacKay to W. Drewry, March 1907, "General Instructions," BCA, box 93-6553-2, file 1.
[104] Linklater, *Measuring America*, 5, 12, 13, 18.
[105] Don W. Thomson, review of James MacGregor, *Vision of an Ordered Land*, in *Canadian Surveyor Supplement*, March 1982, 11; I.S. McLaren, *Mapper of Mountains* (Edmonton: University of Alberta Press, 2005), 24, with citation from Thomson, *Men and Meridians*, 26.

zontal land became irregular; then the surveyor resorted to increasingly sophisticated calculations and instrumentation.[106]

To attract settlers and capital investment to North America, the Canadian and US governments described the grid as a scientific mastery of the landscape based on ideals of liberty, democracy, and accuracy. The liberty of individual property rights justified surveyors' disregard for customary land-use practices, and Anglo-Americans were only too pleased to reap the obvious economic benefits.[107] The grid proved to be the most practical and the speediest method of recreating space, transforming it into a commodity or, as Ted Steinberg states, "a uniform set of boxes easily bought and sold."[108] Surveyors used the grid to equalize difference and to render every place the same. The fact that the simple square shape of lots ensured that surveyors and land registry officials could not manipulate lots in settlers' interests in return for bribes added to the narrative that the grid supported democracy. Like the Jefferson administration, the Canadian government rationalized that the grid would enable surveyors to distribute land and natural resources evenly among settlers, at the same time quickly absorbing space. In measuring and delineating the grid, surveyors like Drewry predicated white migration as Canada's foreordained, logical, and inescapable destiny; and in inscribing the grid upon the land and upon maps, they transformed ideas into concrete reality.[109] The grid, however, fell well short of its egalitarian principles.

In practice, the grid, whether on the Prairies or among the valleys and plateaus of the Pacific slope, denied local and customary rights, created social isolation, failed to provide sufficient knowledge of land and natural resources, and imposed inconvenient and ecologically detrimental boundaries.[110] The "grid plan is characterized, like the map grid," states Paul Carter, "by its 'placelessness,' by its elimination of view points, of comings and goings and indeed of history."[111] As Aboriginal peoples and settlers gradually felt this erasure, they increasingly agitated for a system that fit the shape of their cultural diversity. The grid did not suit Aboriginal peoples' complex relationship with the land, which relied on mobility to exploit seasonal natural resources. Likewise, the Métis resisted the grid and demanded recognition of their land title

[106] Linklater, *Measuring America*, 18, 166.
[107] Benedict Anderson, *Imagined Communities: Reflections on the Origins and Spread of Nationalism* (London, UK: Verso, 1991), 65.
[108] Steinberg, *Down to Earth*, 60.
[109] Nye, *America as Second Creation*, 24, 247.
[110] Ibid., 290.
[111] Carter, *Road to Botany Bay*, 204.

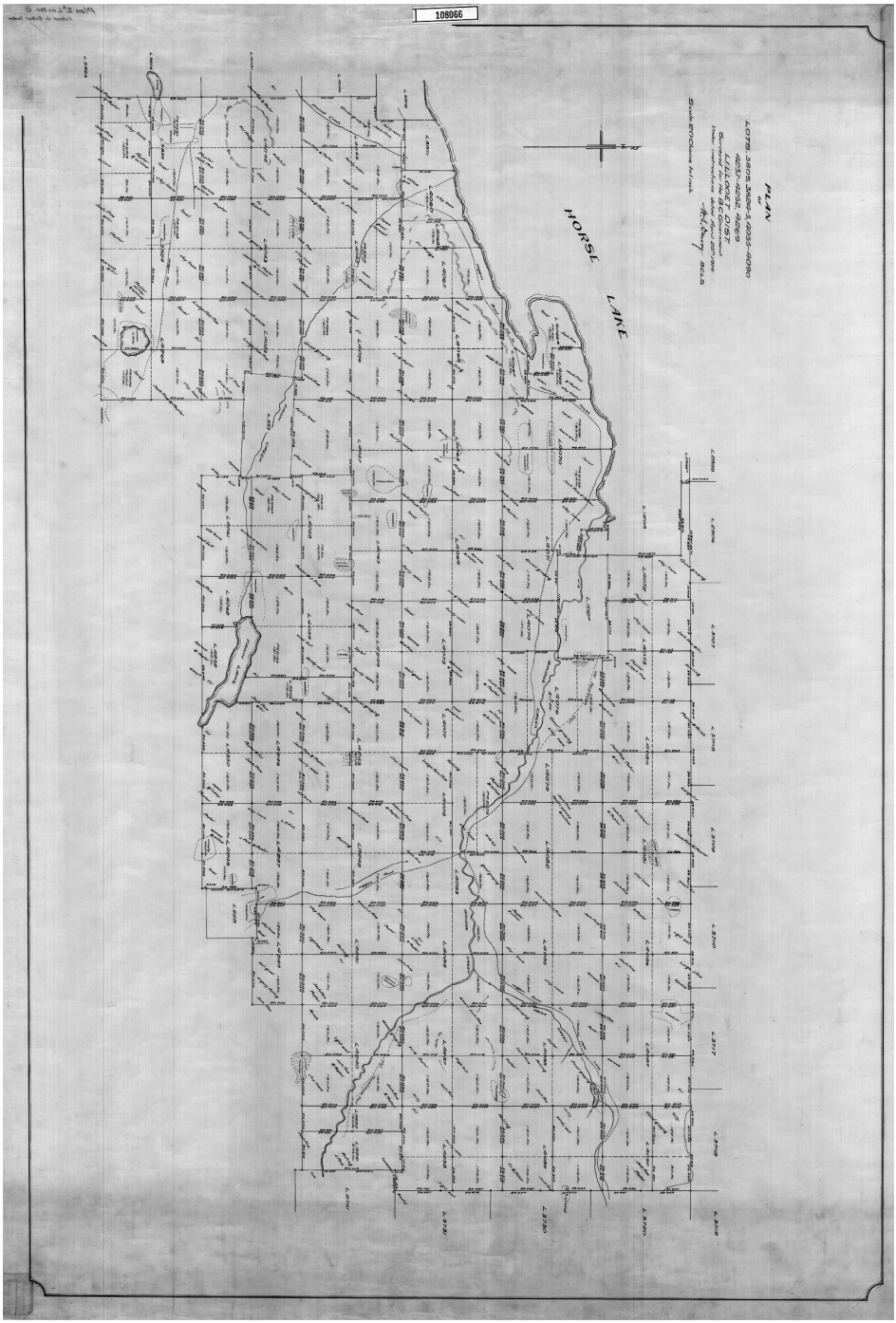


Figure 5. On 25 April 1914, Drewry delineated Plan of lots 3383-3422, 3779-3780, 3782-3808, 3810-3830, and 4035-4054, displaying a grid-formatted subdivision at Horse Lake (Lillooet District) and the "no less important" (than railways) wagon roads and trails, extending out from the Great Eastern Railway. *Source*: A2 Locker 6, Surveyor General Division, Land Title and Survey Authority of BC.

in accordance with the river-lot system culminated in the Northwest Rebellion of 1885. Furthermore, the grid's emphasis on the individual over the community often left Prairie settlers feeling isolated on their individual 64.7-hectare (160-acre) parcels, contributing to an alarming amount of insanity.[112] The uniform set of boxes also failed to provide sufficient information for settlers or speculators hoping to locate desirable land; in precipitous British Columbia, where only about 10 percent of the land is appropriate for agriculture, they were only too aware that some parcels were better than others. The discourse of topographical maps, with their "more perfect" detail, only emphasized the grid's inadequacy. Finally, the grid imposed ecological constraints as it often forced landowners to ignore natural water basins and to irrigate dry plains, which eventually contributed to water shortages and the Great Depression.[113] In these ways, the grid failed to meet the ideals of liberty, democracy, and accuracy, instead abstracting pre-existing geographies and sapping the sense of locality in favour of artificial uniformity that served the interests of government executives and corporate elites.

Yet another device, the Torrens System, played a fundamental role in attracting settlers and capital to British Columbia as well as in the abstraction of pre-existing geographies. The work of surveyors formed the foundation of this system, in which the state records all land titles and transfers. Replacing British Columbia's previous chain-of-title system, the Torrens System, like the rest of Drewry's representations of space, made holdings more easily marketable and thus facilitated capital development and change.[114] Due to increasing litigation in nineteenth-century British Columbia, where "a single foot of ground" could be "worth thousands of dollars," Drewry emphasized the need for secure registration of land,[115] which would establish "indefeasible title" and eliminate the need to look to the past for possible flaws in the chain of title.[116] The system did much to discount and to abstract the "prior right" of First Nations or those deemed to be squatters. By re-presenting space in a secure and accessible form, Drewry and his associates converted economic potential into capital, transferring land from the material world into the "conceptual universe where

[112] Tully, *Strange Multiplicity*, 100, 197; Larmour, *Laying Down the Lines*, 47; Joseph and Joseph, *Working Effectively*, 20; Nye, *America as Second Creation*, 289-90.
[113] Linklater, *Measuring America*, 232.
[114] Greg Taylor, *The Law of the Land: The Advent of the Torrens System in Canada* (Toronto: University of Toronto Press, 2008), 26.
[115] Drewry, "Photo-topographical Survey of Kootenay," 811.
[116] Taylor, *Law of the Land*, 3, 10.

capital lives."[117] Therefore, surveyors like Drewry surveyed, mapped, and recorded not only to open land for settlers but also to integrate the landscape into the Torrens System and give speculative interests the fungibility, bureaucratic machinery, and network required to produce capital. Drewry's representations ultimately facilitated the huge European, Canadian, and American capital infusion that the "new extractive economy" in British Columbia depended upon and continues to depend on today. [118]

## "IT SHOULD BE TO OUR ADVANTAGE": HOW DREWRY'S CLASSIFICATIONS WERE USED

Through the strategies behind his vision and representations laid out in the previous two sections, Drewry and his associates remade British Columbia in the interests of states, settlers, investors, and their collective associations. Drewry's maps, field books, cairns, surveying pegs, spoken discourses, legislative contributions, and synopses allowed these actors to seize land and resources cost-effectively. They also simplified revenue collection; attracted settlement, tourism, and capital investment; reinforced individual and property rights; and facilitated planning and making secure transactions, often leading to monopolization of vast spaces. In addition, the governments of Canada and British Columbia, as well as distant national and international investors, employed Drewry as an agent to represent their interests through dialogue and interactions with certain remote rural localities. Drewry also participated in a couple of influential and very different Anglo-American associations: (1) the anti-labour, anti-regulation Silver-Lead Mining Association during the Kootenay hardrock mining boom and (2) the professional Dominion and BC land surveyors' associations. Throughout his lifetime, Drewry participated in many organizations, constructing a middle-class, Anglo-American country in Canada, but he also reflected the populace's widespread frustration at their diminished opportunity due to big business's increasing monopolization of land and natural resources. He resented the amount of control that large corporations such as the CPR gained over land, resources, and production due to the state's preoccupation with creating conditions favourable to capital accumulation, even though, as we shall see in this section, it was often on the basis of

[117] De Soto, *Mystery of Capital*, 46, 49, 50, 182.
[118] Robin, *Rush for Spoils*, 18.

Drewry's own classifications that these interests gained control of land and natural resources.

To extend their influence over North America, states used surveyors to construct knowledge of the land that fit their own geographical worldview before settlement and resource exploitation began. Constructing knowledge before newcomers arrived had many significant benefits for the governments of Canada and British Columbia: it meant they could lay prior claim to the land and natural resources and, in turn, immediately collect revenue from leases, licences, and sales; they could promote a landscape to investors and the preferred settlement population on their own terms, making any competing worldviews, such as those of Aboriginal peoples, violate what "seemed natural"; they could limit the number of squatters, who would otherwise be increasingly difficult to control or contain as they migrated into the periphery; and they could establish mining claims, townsites, timber reserves, and other such boundaries.[119] By depending upon agents like Drewry to quickly construct knowledge of distant or rural spaces, the governments of Canada and British Columbia extended their control, giving, as Cole Harris puts it, "abstract geopolitical space concrete political meaning."[120]

Surveyors offered governments myriad other benefits: surveys and maps allowed states to manage land and resources from great distances; new surveying techniques like photo-topography significantly reduced the costs of inventorying and classifying, which had the direct effect of increasing the dollar value of land and resources and the revenue that could be extracted as a result; and surveys made it easier for states to offer private property to settlers and capital investors in exchange for rents in the form of land or water taxes, mining royalties, or timber leases. They also made it easier for states to control and limit Aboriginal and Chinese peoples' access to land and resources while exploiting transient American labourers, among others. Surveying practices, backed by racialized policy, gave Canada and British Columbia the ability to extend power to a preferred settlement population.[121] The Dominion and province were able to attract settlers to British Columbia with no other incentive than the opportunity to attain private land; at the same

[119] Linklater, *Measuring America*, 163; D. Harris, *Landing Native Fisheries*, 10; Larmour, *Laying Down the Lines*, 126.

[120] C. Harris, *Resettlement of British Columbia*, 193. Here, Harris refers specifically to the "elimination of distance"; however, surveyors' construction of knowledge was a fundamental dimension to this larger project.

[121] Hugh Dempsey, *The CPR West: The Iron Road and the Making of a Nation* (Vancouver: Douglas and McIntyre, 1984), 56; Robert Cail, *Land, Man, and the Law: The Disposal of Crown Lands in British Columbia, 1871–1913* (Vancouver: UBC Press, 1987), 36.

time, the two governments were able to take control of resources that existing localities considered their collective property.

Throughout his lifetime, Drewry supported capitalist interests. His work, which consisted of tying in surveys; assessing mineral claims; locating the "exact" position of mine chambers, tunnels, and drifts for planning purposes; making recommendations for cost reduction and mining "development"; and increasing return on the investments of speculators,[122] contributed to significant change in the Kootenays. An 1889 British Columbia Mining Review article stated that "lands originally purchased from the government for two or three dollars an acre [0.4 hectare] have been resold at $10, $100 and as high as $400 per acre. One tract bought for $5,000 was resold at $16,000, then at $160,000; and part of it again at $450,000."[123] The resale values of these properties depended largely on the security offered by Drewry's and his partner Herbert Twigg's mine surveying – for which they became famous in the Kootenays.[124] In 1896, the same year Drewry published the first coloured topographical map of the Kootenays (see Figure 4), the Canadian Mining Review reported that a "wave of partial insanity" for mining speculation in the Kootenays had "broken loose" in Toronto.[125]

Likewise, powerful timber lobbies harnessed surveyors' representations, in the form of topographical maps, to seize control of forests from afar and to more accurately estimate costs and profits. In 1907, for example, Drewry's maps enabled his brother Jack C. Drewry, who became a wealthy man during the Kootenay hardrock mining boom, to make preliminary estimates of timber limits in the Lower Arrow Lake tributaries, on Vancouver Island, and in the Kootenay River and Slocan districts from as far away as Montreal.[126] While Jack still needed his brother to report cruise timber figures, the final determinations of surveyors and engineers became little more than actions already planned by distant interests.[127] Companies that exploited surveyors' practices

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[122] W. Drewry to J. MacMaster, 8 May 1901, BCA, box 93-6553-2, file 1; David King to W. Drewry, 30 August 1898, BCA, box 93-6553-1, file 6; *Proceedings of the ADLS*, fourth annual meeting, 15 and 16 March 1888; Wm. Hale to W. Drewry, 20 July 1905, BCA, box 93-6553-1, file 1.

[123] "Provincial Mining Laws," *British Columbia Mining Review*, 1, 3 (Rossland: March 1889), 15.

[124] W. Drewry, Autobiography, BCA, box 93-6553-3, file 1.

[125] *British Columbia Mining Critic* (Rossland) 1, 1 (1896).

[126] Thomas Roach, "Stewards of the People's Wealth: The Founding of BC's Forest Branch," *Journal of Forest History* 28, 1 (1984): 22; W. Drewry to J.C. Drewry, 15 February 1907, BCA, box 93-6553-3, file 1; Hugh Johnston, *The Pacific Province: A History of British Columbia* (Vancouver: Douglas and McIntyre, 1996), 212; W. Drewry, "Report of Committee on Geodetic and Topographical Surveying" (1892), BCA, box 93-6553-3, file 1.

[127] Richard Rajala, *Clearcutting the Pacific Rain Forest: Production, Science and Regulation* (Vancouver: UBC Press, 1998), 63-64.

and representations to connect remote localities to the world market extended their control over ever more land and resources.[128]

In most cases, capital interests, such as mine owners, benefited legally from the "absolute" nature of the delineations and documents Drewry produced.[129] However, in 1903, during a famous litigation involving mineral claims in the Kootenays, Drewry acted as an expert witness for the Slocan Star Mining Company, arguing successfully that the company had rights to a vein that extended into the White Company's fractional claims.[130] Both Drewry and the mine owners for whom he worked used the knowledge of the landscape that Drewry constructed and at the same time were only too willing to overlook the apparent rigidity of survey boundaries when doing so helped them "win out."[131] Law was applied where useful and ignored when considered a hindrance or irrelevant. In either case, mine owners, especially big industry, benefited greatly from surveyors' representations.

As an agent of the Province of British Columbia, Drewry surveyed primarily in the interests of the rural BC business community as well as that in Vancouver, Victoria, and beyond. As a result, Drewry, a booster of smaller, regional mining interests, often resented big eastern capital, such as that behind the CPR's COMINCO smelter in Trail, which increasingly held a monopoly on ore processing in British Columbia.[132] He and his local business associates also resented how, in the late 1890s, profit began running east on the Crowsnest Pass Railway rather than running west to the coast or remaining in the Kootenays.[133] Larger forces were at play, however, as both federal and provincial policies tended to

[128] C. Harris, *Resettlement of British Columbia*, 193.

[129] Pooley, Luxton, and Pooley, 1902, "N/No. 1 in the Supreme Court of BC between the Boble Five Consolidated Mining and Milling Company Limited, Plaintiffs, and the Last Chance Mining Company Limited, Defendants," 29 April 1902, BCA, box 93-6553-1, file 12; Whealler and Martin to W. Drewry, 24 March 1900, BCA, box 93-6553-1, file 12.

[130] "Slocan Star: Judgement of Chief Justice Hunter in the Famous Sandon Suit," *Daily News*, newspaper clippings of the "Star v.s. White Judgement," BCA, box 93-6553-4, file 1.

[131] W. Drewry to J. MacMaster (Denver, Colorado), 30 October 1903, Diary, BCA, box 93-6553-2, file 1, pp. 145-46.

[132] W. Drewry, Diary, 23 January 1903, BCA, box 93-6553-2, file 1, pp. 109, 963; David Jones, "It's All Lies They Tell You," in *Dempsey*, CPR West, 215; John A. Eagle, *The Canadian Pacific Railway and the Development of Western Canada, 1896-1914* (Montreal and Kingston: McGill-Queen's University Press, 1989), 232; Elsie Turnbull, *Trail: A Smelter City* (Langley: Sunfire Publications Limited, 1985), 66, 69.

[133] British Columbia, "Defects of Mineral Act Explained: Interesting Address Is Given to Vancouver Island Prospectors' Association by Mr. F.C. Green - Claim Jumping Is Condemned," 22 January 1929, BCA, box 7, file 4, MS 2259. Drewry complained that one owner in the Steward District held eighty-seven mineral claims.

favour concentrations of eastern capital, which were making inroads into British Columbia through massive land grants and purchases.[134]

Corporations and investors employed surveyors to extend their power over space. Whether British, American, or Canadian, they depended on surveyors' inspections, reports, and surveys to gather knowledge of land and resources. This business community used surveyors primarily as remote agents who brought localities into the larger national and international marketplace, relying on the discourse that surveyors' representations "opened" land and natural resources, supported the liberty of self-reliance, built provinces and nations, and contributed to an international "free market." The rhetoric figured in the abstraction that concealed the actual erosion of small-scale enterprise, self-reliance, and community was due, at least in part, to surveyors' overlaying a land system that allowed often distant companies and speculators to monopolize the landscape.

Another group vying for more control over space based on surveyors' classifications – in this case, professional space – was the surveying associations themselves. They leveraged power from the governments of Canada and British Columbia in return for the knowledge of surveyors' practices and representations. These associations also lobbied the government, organized as professions, proliferated discourses of surveyors' progressiveness, and narrowed membership with tests and measurements. While they recognized advantages in broader interconnectedness, they did so only within Anglo-American circles. Whether in the Kootenays during the hardrock mining boom or elsewhere in Canada, surveyors were well aware that the great expanses of land and natural resources in these regions ensured a need for their services. The knowledge that surveyors possessed and the power that they could disseminate affirmed "without contradiction," according to Thomas Fawcett, president of the ADLS in 1888, "that no class of professional men" was "more necessary or more important in the development of a country."[135] Like those in other middle-class learned professions, such as medicine, law, engineering, and architecture, surveyors organized to assert their status.

To extend their power over space, surveying associations encouraged their members to broaden the usefulness of their representations.

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[134] David H. Breen, "The CPR and Western Petroleum, 1904-24," in *Dempsey*, CPR West, 108; Eagle, *Canadian Pacific Railway*, 258; Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920* (Cambridge: Harvard University Press, 1959), 20-21.

[135] Canada, *Proceedings of the ADLS*, fourth annual meeting, 15 and 16 March 1888.

In February 1889, acting as chairman of the sixth annual meeting of the ADLS, Drewry stated:

> It is evidently the unquestionable and first duty of the members of our Profession and especially of this Association, to jealously guard against any innovation of a nature to diminish the efficiency of the profession, or to impair, in the slightest degree, the standing of its members, or the privileges they have latterly been accustomed to enjoy; and it must also be evident that we can only maintain our present standing and hope for still further advancement in the future, by striving to improve our methods of executing work, by adding to our scientific and practical knowledge and by encouraging a feeling of friendliness towards all our associates and of independence and manliness in our transactions with the public.[136]

Drewry directed surveyors to add more detail to their representations of land and natural resources so that not only the "intending" settler and "general public" would benefit but also the "lumberer," the miner, and all those "interested in science." Surveyors were to provide foresters, for example, with an inventory of the "important forest trees" such as fir or cedar.[137] By increasing the efficiency and accuracy of their representations, spreading the knowledge of land and natural resources to a broader interest group, and, if possible, doing so without adding to the labour involved, Drewry argued, they would raise the professional standing of surveying.[138]

## AN AGENT OF CHANGE: CONCLUSION

Surveyors are agents of change. Drewry worked to transform space through mediums based on what Graham Huggan calls an "imaginative revisioning of cultural history."[139] Surveying was also rooted in law and politics based upon ideas of civilization, progress, and deeply Eurocentric thinking about sovereignty. After British Columbia joined Confederation in 1871, it remained "colonial" into the twentieth century.

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[136] Drewry, *Proceedings of the ADLS*, sixth annual meeting, 19-21 February 1889.

[137] Ibid. Alternatively, Drewry considered pioneer species such as alder and pine to be undesirable and not worthy of representation. See W. Drewry (Belleville, Ontario), 27 December 1887, "Report of W. Drewry, DLS, No. 24," *Sessional Papers of the Dominion of Canada* (Ottawa: A. Senecal, 1888), 12:112.

[138] Drewry, "Report of Standing Committee on Phototopography."

[139] G. Huggan, "Decolonizing the Map: Post-Colonialism, Post-Structuralism and the Cartographic Connection," in *Past the Last Post: Theorizing Post-Colonialism and Post-Modernism*, ed. I. Adam and H. Tiffin (Calgary: Calgary University Press, 1990), 125.

In other words, its worldview remained commensurate with a body of ideas, practices, and images that took hold during the colonial era and that involved boundary-making procedures that placed an overwhelmingly Anglo-American population on the land, regulating them, taming internal conflict, and dispossessing Aboriginal peoples. Nevertheless, provincial agents like Drewry were not only imitators and implementers of imperial practices but also innovators who developed categories, approaches, and technologies to meet the local context of British Columbia. The extent of Drewry's application of photo-topography, for example, was internationally unprecedented, dramatically expanding the reach of these colonial appropriation schemes. The resulting topographical maps allowed centres of power like London, New York, Toronto, Victoria, and Vancouver increased access to land and resources in more remote and rural regions. The reappropriation schemes did not, of course, begin and end with Drewry or even surveyors: individuals and groups, whether they were managers, speculators, governors, military commanders, field officials, or associations, strategically and tactically wielded the information that surveyors provided. They were able to plan and administer land and resources without face-to-face cooperation or accommodation with the people within those localities, imposing revision and centralized power with limited, if any, resistance.[140] In this way, surveyors have remade, and continue to remake, the world, lending much power to states, settlement society, and, most of all, commercial interests.

Throughout his career, Drewry reappropriated space from a system largely based on customary rights and local obligations to a system based on private property and market exchange. Even the Anglo-American middle class, for whose interest Drewry primarily surveyed, became marginalized to some degree. Because it was linked to the federal and provincial governments' motives for creating conditions for capital accumulation, Drewry's work increasingly lent power to big, usually distant, businesses like the eastern-based CPR. Social, ecological, and economic struggles arose largely because surveyors like Drewry represented the landscape not as they perceived it in the present but as they perceived what it might become.

This analysis of the consequences of surveying gives us a better understanding of why governments, economic elites, and liberal scholars continue to jam the diversity of the world into the conceptual space

[140] E.J. Hart, "See This World before the Next," in *Dempsey*, CPR West, 155; Clayton, *Islands of Truth*, 192-93; Tully, *Strange Multiplicity*, 15.

that surveyors, among others, invented. Scholars would better represent the world's diversity and create a more mutual space if they adopted nuanced approaches, such as those put forward by Edward Said and Michel Foucault, who show that the shape of human organization does not fit into this conceptual space.[141] Perhaps the greatest opportunity now for unveiling alternative realities comes from our exploration of the role that the makers and users of cartographic texts have played. Brian Harley and David Woodward argue that deeper meaning can be elicited by considering the "historical context, the cartographic principle, the geography, the politics and the complex human aspirations behind each map."[142] Scholars should also explore the zone between inclusion and exclusion, with an emphasis on the largely untold story of the latter, in order to balance the established narrative.

Scholars, surveyors – indeed, everyone – must aim for mutual recognition instead of emphasizing and, as a result, upholding the boundaries that have become so deeply ingrained. To achieve this goal, people must continue working to realize surveying's potential in promoting cultural awareness.[143] Furthermore, boundaries, laws, and the politics around them need to be reworked to allow people more access to, benefit from, and governance over the land and resources within their localities and regions. Whether in reference to tree-farm licensed land in the Renfrew District on Vancouver Island, farm lands along the Peace River within the potential flood area of the Site C dam, or Inuit requests for more meaningful consultation about gas and oil exploration in their traditional fishing and hunting territories in the North, appropriation strategies must promote both more generous allocation of revenues for land and resource use to local communities and fairer measures of control. By providing such agency, surveying can better promote the economic, social, and environmental sustainability of localities, regions, and countries everywhere.

[141] Tully, *Strange Multiplicity* , 201.

[142] J.B. Harley and David Woodward, *The History of Cartography: Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean* (Chicago: University of Chicago Press, 1987), 1:xix.

[143] J.B. Harley and David Woodward, "Why Cartography Needs Its History," *American Cartographer* 16 (1989): 8.