

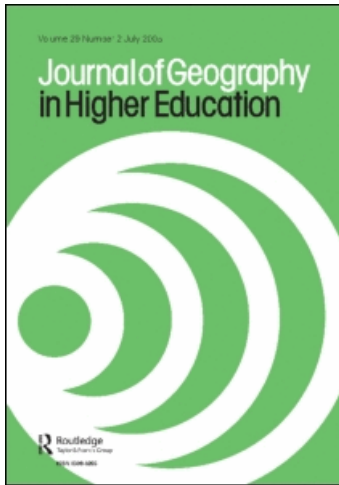
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SYMPOSIUM

The Geographical State: The Development of Canadian Geography

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ABSTRACT *The purposes of this paper are to discuss the historical emergence of academic geography in Canada, and how it has been tied closely to the nation-state. Canadian geography is not simply a slice from a pre-existing disciplinary block but has been actively formed and moulded by a set of evolving national imperatives determined and coordinated by the state. Justification for this larger argument derives from science studies which aver that context, in this case the national one of Canada, enters into the very lineaments of knowledge. The paper is divided into three main sections. The first is a conceptual discussion drawn from science studies of the relation between national context and disciplinary knowledge. The second sets out the historical development of Canadian geography from the seventeenth century until the inaugural meeting of the Canadian Association of Geographers in 1951. The final section reviews the subsequent 50 years of Canadian geography by focusing on four important moments within the discipline's history, each of which reflects in various forms the nation-state: the quantitative revolution, humanistic geography, the development of GIS, and immigration and the Metropolis project.*

KEY WORDS: Canadian geography, nation-state, science studies

Mackenzie King, Canada's longest serving Prime Minister (for more than 20 years during the period 1921–1948), said that “while some countries have too much history, we have too much geography”. While this might be true physically—Canada is the second largest nation in the world by land area, bounded by three oceans—it is not true for the academic subject. As a university discipline, Canadian geography emerged systematically only after the Second World War and, at some sites, well after the Second World War. For example, the Department of Geography at Queen's University was not created until 1960, and there was no independent Geography Department in the four Atlantic Provinces until the same year when Memorial University of Newfoundland finally established one. While there was growth in the discipline especially during the 1960s, the subject's roots remained shallow, and never as deep as in the United Kingdom or even the United States. Membership within

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the Canadian Association of Geographers (founded only in 1950) peaked by the mid-1970s, and then fell (in 1975 total membership was 1345, but 1126 in 2005). Over the last 30 years, Departments of Geography have closed as at the University of Alberta and Windsor, and while the number of undergraduate majors has increased it has failed to keep pace with the general increase in population (total undergraduate students, honours and majors, in 1985 was 6532, and in 2005, 6629). In this sense, there is hardly too much geography in Canada; if anything, there is not enough—at least not enough, given that as Cole Harris (2003) put it, Canada “is not comprehensible other than through a geographical perspective”.

The purposes of this paper are twofold. First, to trace historically the emergence of *Canadian* geographical perspectives found primarily at the university level (but which of necessity also means saying something of its relation to school geography). Second, to make a larger argument about the role of the nation-state in shaping disciplinary knowledge, in this case, geography's. I will argue that the Canadian modifier is critical. Disciplinary knowledge is not singular but multiple. As other papers in this special issue also demonstrate, a critical fracture line along which disciplines fragment is the nation-state. Such an argument has already been pursued for the physical sciences. Ian Hacking (2002) discusses the contribution of national context in forging different ‘styles’ in the plural of ‘scientific reasoning’, and Peter Galison and David Stump (1993) identify the splintering force of nation-states in creating what they term the ‘disunity of science’. More generally, the literature of science studies, from which these two works derive, demonstrates how historical and geographical context contort the form and nature of disciplinary knowledge, creating heterogeneity not homogeneity. If this is so for the hard sciences, then even more so for the softer sciences that include geography. National spaces make a difference. They are not just empty containers to be filled with pre-existing disciplinary knowledge. Rather, they actively shape it by provoking particular kinds of institutional structures, including academic ones, inciting intellectual agendas and practices, and moulding cultures of inquiry. To understand Canadian geography one must understand something of Canada. Canadian geography is not just another slice off a uniform disciplinary block.

This is no singular determinate relation, though: Canadian geographical knowledge as the faithful mirror of Canada. Canadian geography is overdetermined, subject to multiple determinations. But while one can take Canadian geography out of Canada, one cannot take Canada out of Canadian geography. Disciplinary knowledge does not exist in the firmament but is always grounded, including grounded within specific state formations involving national agendas, forms of bureaucracy and governmentality, historical relationships with other nations, the treatment of citizens including the very definition of a citizen, sub-national regional political divisions, and larger cultural discourses around what it means to be in this case Canadian.

The paper is divided into four sections. First, I elaborate on the conceptual argument underpinning the paper of a relationship between the nation and disciplinary knowledge using examples from the history of geography, and Canada's history of the discipline in particular. Second, I discuss the historical and geographical emergence of Canadian geography up to the first meeting of the Canadian Association of Geographers in 1951. Third, I discuss the subsequent 50 years of Canadian geography. Because of the enormous range of work carried out over this period, it is impossible to provide a comprehensive review. Instead, I concentrate on four moments in which Canadian geography has made significant disciplinary contributions: the quantitative/theoretical turn of the early 1960s; humanistic geography of the 1970s; GIS that begins in the 1960s but which comes to

fruition within academic geography two decades later; and studies of international migration and social identity and associated with the Metropolis Project inaugurated in 1996. I recognize other contributions could legitimately be added to this list (and that there might be reasons for deleting some of the four I chose). The four are certainly no definitive inventory of Canadian geography's last 50 years. But no such inventory exists. It is a judgement call. My reasons for choosing these four areas to represent Canadian geography since 1951 are (1) because they are cases of international visibility, moments when non-Canadians especially looked at the work of Canadian geographers; (2) because they mark important intellectual achievements in geography's history, becoming part of the disciplinary furniture of ideas; (3) because they directly connect to the paper's larger thesis of the disciplinary shaping role of the state; and (4) because they are areas in which I possess particular knowledge and, in two of the cases, I interviewed some of the leading players. Finally, by way of conclusion, I think very briefly about the future of Canadian geography, and the future of Canada to which it is intimately connected.

National Disciplines

On the one hand, disciplines appear immune to effects of international borders. Disciplines are presented either as the consequence of (Kantian) a priori principles or (following Plato) as 'nature carved at its joints'. In neither case should arbitrarily drawn lines on the earth's surface separating countries make a difference. The presumption is that disciplinary knowledge is pure and undefiled, untouched by the grubby details, including geographical, that surround its production. To use Karl Popper's (1968) well-known distinction, those details form part of only the 'context of discovery'. They do not influence, and are not part of the 'context of justification'. So, while national institutions, funding bodies, government agendas, state ideologies, and the like, may be important in maintaining the existence of a discipline, and giving it an outer form, they do not enter into its inner knowledge, which is the result of a set of core general principles that know no national bounds and are even presumed to be universal.

On the other hand, the work in science studies over the last 40 years suggests a very different perspective (Hess, 1997, provides a useful introduction). Disciplinary knowledge is the effect of a set of grounded relationships among many different kinds of entities material and non-material, social and natural, institutional and individual. Those entities are not innocent but carry with them the baggage of their setting, which can include specific national formations. Disciplinary knowledge is not guided by the unfurling of ineluctable general principles but the consequence of the often hesitant, contingent and open-ended relationship that exists among the situated heterogeneous sources that individually and collectively enter its constitution. Those sources are not just 'intermediaries' but 'mediators', shaping, channelling and entering into the form of knowledge that is produced (Latour, 1993, pp. 79–82). As a result, the distinction between context of discovery and context of justification does not hold. It is continually flouted and transgressed as discovery and justification bleed and intermingle.

Drawing on the literature of science studies, I focus on four factors critical to shaping knowledge: institutions, money, society and culture, and place. My argument is that because of connections among each of these four factors and the national spaces in which they are embedded, a peculiarly national disciplinary knowledge is produced, which includes over the last half-century a distinctive Canadian geography.

The word "SYMPOSIUM" is written in a bold, sans-serif font and is enclosed within a thick, black, horizontally-oriented oval border.

First is the role of institutions. For science studies institutions are woven into the very fabric of knowledge. The notion of a lone scholar generating knowledge, a “brain in a vat” to use Hilary Putnam’s (1981, p. 7) image, is absurd. Knowledge is always produced through social processes that go all the way down to the truth claims made. But social processes are themselves shot through with institutions. They are not mere background conditions. This is evidenced in the very notion of an academic discipline. By definition it is coupled to a specific institution, the university. An institution makes a discipline a discipline. Or not. As we shall see, it was a struggle to have geography recognized in Canadian universities. Universities in Europe and the United States established Geography Departments by the late nineteenth century (Livingstone, 1992). But Canadian universities resisted geography. It was not until 1935 that the University of Toronto created the country’s first separate Department of Geography. And even for a good decade and a half afterwards, its disciplinary status was perilous, dependent on decisions made at other Canadian universities.

In turn, the university itself is part of a larger network of other institutions, and it is intimately linked, for example, to government, to schools, to professional associations, to foundations, to business, and even to the military. That larger institutional network may or may not work to favour a particular discipline or a particular kind of disciplinary knowledge. The institutional network that developed in Canada immediately after the Second World War, which gave a strong role to the Federal government and was robustly connected to the public school system, contributed to geography’s growth and development. But in the United States, where a different institutional network emerged during the same period, one in which the military and private industry took on a greater role, and where the linkage to high school geography was weak or non-existent, there was a different outcome. Geography was seen at best as superfluous and at worst as simply inadequate, resulting in departments closing rather than opening. For example, in 1947 at Harvard University, James Conant, the President, and a key postwar scientific manager with links directly to the US military-industrial complex, declared that geography “was not a university subject” and closed the department (quoted in Smith, 1987, p. 159). That decision, in turn, rebound deleteriously down the line on the fate of Geography Departments at other US Ivy League and elite private universities for the next 25 years (Barnes & Farish, 2006).

Second is the role of money. In one sense, this is obvious. For disciplinary knowledge to emerge universities must allocate sufficient financial resources for the formation and maintenance of the associated academic department. But it can be a tremendous struggle. For example, obtaining the prospective salary for Griffith Taylor, the first Professor of Geography in a Canadian Geography Department (at the University of Toronto), was several times put in jeopardy because of insufficient funds, and in the end was barely cobbled together.

There is also another issue around money that speaks more directly to national disciplinary knowledge: the relation between the payee and the kind of knowledge produced. Who pays is not an innocent question. It is frequently connected to the larger role and purposes of the state. The classic study is by Paul Forman (1989, p. 150) who showed that US military research funding in American physics from 1940 caused “a qualitative change in its purpose and character”. Forman argued that the intellectual trajectory of physics was altered by US military funding changing the knowledge physicists created and the problems they studied. Since Forman’s work, similar

conclusions have been reached in respect of other disciplines (for example, the earth sciences, *Social Studies of Science*, 35(5), 2003). The point is that who pays is central, resulting in disciplinary knowledge directly tethered in these cases to US state concerns. There was no comparable military-industrial complex in Canada but the Federal state, the main provider of research funds for Canadian geographers, allocated and continues to allocate monies based on national interests, which, as I will argue, continue to shape Canadian geographical knowledge.

Third are society and culture. Knowledge is embedded in larger structures of society and culture and which, in turn, reflect a national impress. Donna Haraway's (1991, 1997) work is particularly useful. It is concerned with how scientists are drawn into wider social and cultural meanings and relations of power that are then reflected in the kind of knowledge they produce. On the surface, academics appear only as 'modest witnesses', passively observing and recording the truths of the world. But for Haraway, such modesty is a front that obscures and protects the social and cultural interests of those who propose and most benefit from it. Being a modest witness turns out not to be very modest at all. Haraway's task is to undermine that modesty by exposing the social and cultural interests and concomitant relations of power that are entrenched within that knowledge. For my purposes, what is significant is that those social and cultural interests are often related to the nation-state. For example, one of the first tasks into which Canadian geographers were enlisted was a national atlas project (initiated by a Cabinet order, and supervised by the Ministry of Mines and Resources). As a task it personified geographers as modest witnesses, passively observing and recording on a map the world as it is. But following Haraway, this was a false modesty. As a national project it interred in the very details of the atlas's plates a set of social and cultural values and interests, justifying them, while obscuring and diminishing values and interests deemed not in the national interest. In this case, the national interest was of the two 'founding' white European settler cultures, French and English. Accordingly, the atlas celebrated their accomplishments in transforming unruly and hostile blank Northern spaces into a country, into Canada. Absent from the atlas, though, was the presence of aboriginal peoples, or representation of their claims to the territory of what became the Canadian state. Rather than the "gaze from nowhere" (Haraway, 1991, p. 188), the atlas was the gaze from somewhere, representing and reinforcing the cultural and social interests of those with power.

Fourth is place. Science studies stresses that acquiring and disseminating disciplinary knowledge is always a local activity, found within place. It might seem that disciplinary geographical knowledge exists everywhere but in reality it is confined to only a limited number of specific sites. Of course, disciplinary knowledge travels but it does so only from one local site to another. It is neither universal nor is its movement instantaneous. Over the last decade there has been increasing interest within science studies in the role that places play in actively shaping the knowledge produced within them, as well as the processes and consequence of knowledge travelling between places (the work of the geographer David Livingstone, 2003, is exemplary). Tom Gieryn (2002) has coined the term 'truth spot' to designate places that gain authority to speak for knowledge of a discipline. I want to suggest that how a place is designated a truth spot, and the relationship that results among them, is influenced by the larger national setting. In the case of Canadian geography, the national setting is a severely marked regionalism and separate regional powers, so severe that one region, Quebec, has over the last 30 years twice formally attempted to secede from the Federation. Canada's truth spots for the discipline of geography are as a result themselves

highly regionalized, with the traffic between them, especially the traffic between Anglophone and Francophone geography, hesitant, and often non-existent.

One of Canada's most well-known intellectuals, Northrop Frye, said—in contrast to the United States that began with a founding constitution—that Canada “is not very deductive” (quoted in Harris, 2001, p. 206). The same point applies to Canadian geography. It is not the national derivative of the larger genus, Geography. It has been constructed from the bottom up, a consequence of heterogeneous constituents. From the perspective of this paper what is interesting is that those heterogeneous sources carry with them marks of the nation, which then comprise the discipline, *Canadian* geography.

Institutionalizing Canadian geography

The Early Years

Geography came to Canada with the European colonizers. Jesuits introduced the subject as part of the school curriculum within New France as early as 1660, and by 1830 it was required for primary and secondary school children in what had then become Lower Canada (that is, the predominantly French-speaking region that is now Quebec) (Hamelin, 1962; Tomkins, 1980). There were sporadic outbreaks of geography in English Upper Canadian schools (now Ontario) but nothing sustained until the mid-nineteenth century when the first high school textbook was adopted, J. G. Hodgkin's *Geography and History of British North America* (1857). Even so, geographical education in English Canada was carried out poorly, with inadequately trained teachers, if they were trained at all, and if they existed (Tomkins, 1980, p. 11). It was a vicious circle: geography teachers were bad because the discipline was not represented at college level, and there was no warrant for offering geography at the college level given the state of its disrepair at schools.

French Canada, where the geographical tradition was rooted more deeply, was in a slightly better position. In 1910 at the Faculty of Higher Commercial Studies, University of Montreal, Henry Laureys was made Professor of Commercial Geography. Trained in France, he remained the only geographer on the faculty, however. Eleven years later at the Faculty of Social Sciences at the same university, Emile Miller was appointed Professor of Geography, and was succeeded in 1925 by the well-known French regional geographer, and a student of Vidal de la Blache, Jean Bruhnes. When Bruhnes left in 1927, a strong connection with France was corporally maintained by annual summer visits to the faculty from his friend Raoul Blanchard (Professor at the University of Grenoble), which, with exception of the war years, continued until 1949 (Robinson, 1951).

Lone geographers scattered across different university faculties, short-term visits by foreign luminaries, and poorly taught school geography do not make for a viable discipline. Needed was the imprimatur of a permanent institutional base, a department at a first-rank Canadian university. In 1935 it happened with the appointment of the hitherto peripatetic Australian geographer, Griffith Taylor, as Professor and Head of the newly created Department of Geography, University of Toronto. British born, raised in Australia, Cambridge educated, a member of Robert Scott's ill-fated expedition to the Antarctic (but obviously not present at the final camp), and the first Associate Professor and Head of Geography at the University of Sydney, Taylor was lured from the Antipodes first to the University of Chicago in 1928, and then to the University of Toronto in 1935 where he remained until his retirement in 1951 (Sanderson, 1988). Enticing him to Canada was someone not known for seduction, the often dyspeptic Harold Innis.

Innis was able to make a case for geography better than the geographers, however. A Professor at the Department of Political Economy, University of Toronto, and later Dean of Graduate Studies at Toronto, Innis from the beginning burnt with a nationalist vision of Canadian social science as unshackled from colonial intellectual chains. The task was to cultivate an indigenous Canadian social science, a home-grown alternative. Geography was central because of the very character of the country. Canada, Innis (1956, p. 393) famously wrote, “emerged not in spite of geography but because of it”. It was imperative, therefore, that the discipline be represented. Indeed, so exercised was Innis by geography’s absence in Canada’s academic halls that for a short period he anointed himself Associate Professor of Economic Geography even though no such position existed (on Innis’s role see Dunbar, 1985; Sanderson, 1988).

Plans for a Department of Geography at the University of Toronto began in the 1920s but were delayed for financial reasons, and the absence of any suitable candidate for Professor. Innis wanted a young Canadian for the post, with new ideas. Instead, he got the ageing, old-time environmental determinist Griffith Taylor (58 years old), and recommended, albeit not without qualification, by Isaiah Bowman, America’s most powerful geographer, geographer to the US President. Bowman said of Taylor, and referring to his sometimes dubious environmental determinism, that he had “an outer fringe of lunacy” (quoted in Dunbar, 1985, p. 161). The lunacy did not prevent Taylor from striking a hard financial bargain on salary, the negotiations over which were salvaged only when the Ontario Department of Education agreed to contribute funds in return for lectures by Taylor for Ontario High School teachers (showing the important institutional linkage between schools and the university; Sanderson, 1988, p. 142). The lunacy, however, did put pay to any sustained intellectual relationship between Innis and Taylor once he arrived in Toronto, beginning with the latter’s inaugural lecture in which he predicted the construction and growth of a string of metropolitan centres built north of the Arctic Circle in the MacKenzie Delta.

University Geography in Canada

The Department of Geography was formally listed in the University of Toronto calendar in 1936, the same year that geography courses were first taught there under the disciplinary rubric. It was two more years, however, before a second faculty member was hired, Donald Putnam, a Canadian botanist specializing in potato blight, followed a year later by the recruitment of George Tatham, a British geographer, with a PhD from Clark University (biographies of both men are given by respectively Putnam & Sanderson, 2000, and Warkentin, 2002). A three-person department allowed the offering of geography Honours courses, begun in 1940, and in 1944 Toronto’s first PhD graduated, Fen-Chun Lee. With Toronto on board, other universities hesitantly followed. In 1942 McMaster signed on, then Western Ontario and McGill in 1945 (McGill was especially important because it was the most prestigious Canadian university, and in the country’s then largest city, Montreal). In the late 1940s, both the University of Laval and Montreal created fully fledged departments (Robinson, 1951). Geography majors increased precipitously to well over 1000 by 1949, and that same year the University of Toronto boasted 25 graduate students. By 1950, a critical academic mass had formed to support the discipline.

But there was one more essential ingredient, giving the discipline a distinct national inflection: the role of the state. In Western Europe the state had been involved in academic

geography from the beginning of its insitutionalization in the nineteenth century, interested in its potential contribution to military strategy and imperial expansion. For example, in Britain under the state's guidance geography was to be a "'sternly practical' pursuit" (Livingstone, 1992, p. 216; see also Hudson, 1977). Similarly, in the United States, albeit slightly later, geographers were important contributors to both First and Second World War military and political intelligence (seen in their role within respectively the Inquiry and the OSS; Barnes, 2006). In Canada, however, the state paid almost no attention to geography. There was a Geography Section of the General Staff during the Second World War, but it contained technical drawers of maps not geographers (geographers in fact were officially listed in the Canadian civil service occupational typology as technicians, 'draftsmen' [*sic*]). But after the war there was greater recognition of the potential for the discipline as the government increasingly moved towards significantly expanding its role in national management and planning, both urban and rural. In addition, with a heightened awareness of the importance of boundaries and resource stocks brought about by an emerging cold war, the state also sought a geographical inventory of the nation (which clearly also contributed to its new-found purpose of national planning and management). Geographers contributed to both tasks.

In 1947 the Geography Section (later Branch) was established within the Department of Mines and Resources. It most directly originated through the offices of H. L. Keenleyside, the Deputy Minister, who as a result of a PhD (in International Relations) at Clark University came to know the discipline—Clark's graduate programme in geography was the first in the US and one of the most well known. Keenleyside championed geography within government, and was backed by his protector, the 'Minister of Everything', C. D. Howe. Howe, originally an American MIT-trained industrial engineer, and later a cabinet minister in Mackenzie King's Liberal wartime and postwar governments, pioneered national planning in Canada, especially in industrial and transportation infrastructure. His vision of Canada was Fordist, of an integrated and managed industrial nation. Through Keenleyside, Howe was persuaded of the potential contributions of geographers. They could act first as hands-on planners. The first geographer employed by the Federal Government was J. L. Robinson, later inaugural Head of the Geography Department, UBC, but hired initially as a planner in 1943 by Keenleyside in the North West Territories. And second, they were indispensable as cartographers and map interpreters. Howe realized that to implement his instrumental and managerial programme in a country with 'too much geography', Canada's spaces needed to be brought under control and ordered. As Iain Taylor (1995, p. 14) puts it in his history of Canadian cartography, Canada needed to be "ruled on paper". It was C. D. Howe who put through Cabinet the formation of the Geography Branch, and also secured C\$250,000 for its first task, the production of a new national atlas.

Officially charged with "collecting, organising, and making readily available, geographic data on Canada, and of foreign areas of importance to Canada" (Watson, 1951, p. v), by 1950 the Geographic Branch grew to a staff of 10 geographers (far larger than any university department existing at the time). It carried out a punishing schedule of summer field research, commissioned "its own specially built ship to make a regional study of several newly-found islands" (Lloyd, 1979, p. 100), acquired its own map library, and in 1951 set up an in-house glossy professionally produced research magazine, the *Geographical Bulletin*. That publication undoubtedly overshadowed the *Canadian Geographer* published for the first time also that same year, but in contrast was

“mimeographed and stapled between two sheets of green construction paper” (Kobayashi, 2001, p. 4).

The *Canadian Geographer* was the official journal of the newly founded Canadian Association of Geographers/L'Association Canadienne des Geographes, founded in 1950, with the first annual meeting in Ottawa in May 1951 (65 registrants). Toronto's Donald Putnam was the first President, and delegates came from the six independent Departments of Geography (Toronto, McMaster, McGill, Western, Laval and Montreal), as well as UBC (where geography was a joint department with geology), and the Federal government, especially the Geographic Branch that subsidized the meeting and production of the resulting journal (as a result the Association's own expenditure for the inaugural conference was only C\$45). The papers given at the conference, and subsequently published in volume 1 of the *Canadian Geographer*, are illustrative of the larger national forces bearing on the discipline. There were papers in English on geography and education, on military geography, on national atlases, and in French on geographical research and training in France, and the urban functions evolution and planning of Chicoutimi, Quebec.

Also in the same year that the first volume of the *Canadian Geographer* appeared, L. Dudley Stamp (1951), perhaps at the time the best known British geographer, submitted his evaluative report for the Canadian Social Science Research Council on *Geography in Canadian Universities*. It was a set-up job, a report designed from the beginning to confirm the importance of geography for Canada, and to persuade the Council for research funding. Innis was on the Council that recommended commissioning the report, J. Wreford Watson, Head of the Geographic Branch, wrote the Foreword, and Stamp, who had many connections with Canada and Canadian geography (his student, George Kimble, was first Head of Geography at McGill, and Stamp even owned a house in British Columbia), wrote the commendations. The report was couched not as an interrogative—should geography exist in Canada?—but as declarative—Canadian geography exists. The only issue was how it should best be developed. For Stamp, this was already being worked out in novel, local forms, and exemplified by the Federal Government's Geography Branch. “In this, Canada is in the forefront”, wrote Stamp (1951, p. 55). It showed that the discipline was crucial to the task of governance and nation-building.

The Geography Section existed until 1967 but by that time it had done its work, as had Stamp's report. Geography flourished at the university level through the 1950s and 1960s. By 1959 there were 14 university departments of Geography in Canada and by 1970, 20 more (Fraser, 1979, pp. 5–6). By the silver anniversary of the Canadian Association of Geographers, 1976, geography had unquestionably arrived. But as I have argued so far, it was a markedly *Canadian* geography. In line with the earlier argument, it was Canadian because it was shaped by a peculiar set of national institutional responses, including inadequate high school geography teaching and recalcitrant universities before the war but an enthusiastic Federal government after, which clearly persuaded universities and schools of the discipline's merits. It was made possible by postwar money that, following C. D. Howe's form of Fordism, was made available for geographical planning and resource inventory. It was wrought by particular kinds of bodies, overwhelming men of European extraction, many born in Europe, and who brought with them an Old World conception of geography, and in some cases just an old conception (such as Taylor's). It carried with it national political interests that were masculinist, instrumental, and reflected Canada's two founding European settler cultures. The content of the first issue of the



Canadian Geographer was a perfect illustration emphasizing the military, education, national atlases, urban planning, and the intellectual geographical heartland of Western Europe. Finally, like the nation as whole, the places of geography were inscribed by the stark regional divisions dividing the country. French and English (Lower and Upper) Canada were the most obvious, but there were others. On the Eastern seaboard geography was consistently resisted with no independent department established until 1960. Even at present geography is found in only four departments, and not in the most important university of the region, Dalhousie in Halifax. In the far west, however, the discipline proliferated. Currently all nine of British Columbia's universities have a Department of Geography, including even the private evangelical Christian college, Trinity Western.

Growing up Canadian: Four Moments

Once the discipline was launched and began to gain momentum, it began to take on a life of its own, to exceed its origins. Of course, it remained embedded in Canada but Canada itself was changing, becoming more modern, urban rather than rural, geared towards an economy of services rather than being a hewer of wood and drawer of water, and defined by its human and not its natural environment. Further, it was increasingly multicultural especially from the 1960s, less tied to the former colonial apron strings of Britain (but becoming increasingly dependent on America, albeit sometimes reluctantly), and was beginning to assert cultural, political and creative autonomy. But some things remained the same: the stubborn presence of regional divisions, including a fully fledged independence movement in Quebec from the 1960s, and the powerful role of an interventionist and instrumental central state.

The first Canadian professional geography tended to be of the Geography Branch variety, involving mapping, or carrying out detailed fieldwork in remote places, or grappling with Canada's 'Great White North', or scrupulously gathering data for management and planning. But there were limits on how many editions of a national atlas could be required, or how many new islands could be explored. Moreover, there was no intellectual frisson. The civil service listing got it right: Canadian geographers were too often only technicians (which partly explains why the Geography Branch was closed down). For Canadian geography to be vibrant and vital, to continue to exist, it needed to move on, to keep up with Canada as a whole rather than being mired in the past.

Just such an opportunity was seized in May 1962 when Kenneth Hare, former Head of Geography at McGill and recently appointed Dean of Arts and Science, organized a session at the annual meeting of the CAG in Quebec City on the recent introduction to the discipline of quantitative methods. Hare was chair, and the two speakers were Ian Burton and Leslie King. Both had been recently hired by Canadian geography departments after having completed dissertations in two of US geography's key 'centres of calculation'. Burton had worked with Gilbert White at the University of Chicago and was hired as the first 'quantitative guy' at the University of Toronto (I. Burton, interview with the author, Toronto, Ontario, 17 June 2000). While King had been supervised by Ed Thomas at the University of Iowa, and once hired at McGill in 1961, he, like Burton, was "responsible for the teaching of statistics in the geography department" (L. J. King, interview with the author, Toronto, Ontario, 13 June 2000). In the CAG session, Burton (1963, and interview with the author, 2000) gave the overview in a paper that he wrote in a week, 'The quantitative revolution and theoretical geography'. And King provided substantive

examples drawn from his work on central place theory. Burton (interview with the author, 2000) remembers “a fairly tame discussion, [with] one or two polite questions”. But his paper had legs, especially once it was published in the *Canadian Geographer* in 1963, becoming the journal’s all time most cited article. It was exactly the right piece for the right time and place, and was subsequently reprinted in several collections as well as translated into German and Japanese. It also helped to set the course for Canadian geography, as especially the University of Toronto and later McMaster and Western Ontario went quantitative and theoretical; that is, they went modern (Kobayashi, 2001). At Toronto the ‘fuddy-duddy’ (Burton, interview with the author, 2000) old department was transformed especially between 1964 and 1966 as yet more University of Chicago (Canadian) quantitative graduate students such as Larry Bourne and Jim Simmons were hired. With other recruits such as Ross McKinnon (another Canadian), Leslie Curry, Emilio Casseti, and later still Allen Scott, by 1970 the University of Toronto’s Department of Geography entered the pantheon of world quantitative geography departments and, given the grip of that approach on the discipline, it was consequently at the apogee of all geography departments.

Canadian geography, at least as it was found in the heartland of Southern Ontario, was morphing into something different. And with the institutional clout of the universities represented, in combination with funding from the Canada Council that substantially increased after 1967, the quantitative/theoretical approach came to define, at least to those on the outside, what was most interesting about Canadian geography. Of course, that quantitative/theoretical approach came originally from the United States, and was physically brought to particular Canadian sites by the bodies of, as Burton (1963) describes them, ‘quantitative revolutionaries’ (which included his own). While the impetus and means for change may have come from outside, it chimed with internal alterations within Canada, and its image of itself as modern and progressive (and reinforced by Canada’s centennial world fair, *Expo 67*, held in Montreal, which embodied the leading edge of technology and design—it was the future). Furthermore, the kind of concerns, theories and techniques associated with the quantitative/theoretical approach in Canadian geography dovetailed with the state’s purpose at all scales of Fordist governance, management and control.

But not everything changed, and not everyone agreed that this should be the new face of Canadian geography. Francophone geography barely registered the ‘revolution’, and even Anglophone geographical centres outside Central Canada’s heartland were not always willing to share the fervour. Important elements for understanding the country were omitted in the rush to calculate and to formalize mathematically including social relations, cultural meaning and history. For example, in Leslie Curry’s (1966) celebrated paper, ‘Chance and landscape’, written at Toronto in 1966, and set squarely within the quantitative/theoretical tradition, geography was simply the consequence of random spasms that left stochastic spatial traces. There were no people, only probabilistic equations. While the Canadian geographer Jim Houston called Curry a ‘national treasure’, others even in Curry’s own department were not so sure, or were at least uncertain, that the treasures he and others within the quantitative/theoretical group brought were so useful to understanding Canada.

This emerged starkly in spring 1970 when Cole Harris, a Toronto historical geographer, gave a seminar in the basement of Sidney Smith Hall, home to the University of Toronto’s Geography Department: ‘Reflections on the fertility of the historical-geographical mule’



(published as 'Theory and synthesis in historical geography', Harris, 1971). Harris (interview with the author, Vancouver, British Columbia, 9 March 2006) remembers that the impetus for the paper was a class field trip in autumn 1969 run by him and Ian Burton to a rural area south of Perth, Ontario. Burton wanted the students to sample residents on their perceptions of water quality, and then bring back the data to Sidney Smith Hall to analyse. Harris (interview with the author, 2006) says that as the field trip continued, he got "madder and madder". The "intriguing landscape" of S. Ontario all around them, "begging to be interpreted", was ignored in favour of a "trivial exercise" (Harris, interview with the author, 2006). Harris began writing his anti-quantitative/theoretical paper at the Autocourt Motel that very evening. Denis Cosgrove, then an MA student working under Harris, remembers "the tension" of the subsequent seminar as Harris "launch[ed] an uncompromising philosophical attack" on "the senior staff [of the Department] who included some of the most respected figures in theoretical geography" (Cosgrove, 1996, p. 197). Harris's argument was that history needed to be present in any understanding. The Canadian landscape was not a set of 'random walks' but the consequence of a deeply ingrained historical-geographical process that could only be understood synthetically, and outside the vocabulary of covering laws, spatial theories and stochastic models.

Harris (interview with the author, 2006) remembers the ensuing three-hour debate as "polite, friendly, with no viciousness in the air, but no agreement . . . no one changed their mind". That is not surprising. It represented a radically different vision of the discipline, and a radically different vision of the country. In 1971 Harris left Toronto for UBC. It was there, although he was only marginally involved, that over the next decade a more systematic alternative to the quantitative/theoretical approach was developed under the rubric of 'Humanistic Geography' (Ley & Samuels, 1978). It included Harris's historical synthesis but other perspectives as well, including phenomenology, existentialism, social interactionism and hermeneutics. David Ley was key, collaborating with his UBC geography colleagues Marwyn Samuels and James Duncan. Although Ley was a graduate student of an arch-quantifier/theorist, Peter Gould, at Penn State, like Harris he was interested in the complexity of a landscape and not in simplifying it. For him that complexity was a consequence of rich patterns of social and cultural meaning, which, like Harris, he thought un-amenable to mathematical logic. As a result, he was attracted to UBC, which "saw itself as the intellectual other to the quantitative innovations in Seattle, Pennsylvania, [and] Toronto" (Ley, 2006, p. 181). The emerging postindustrial character of Vancouver, in fact, became Ley's (1996) extended case study. The city's activities in its all important quaternary sector, in its venues of commerce, in its processes of gentrification and planned development on the ground, were shaped by a cultural and social logic and not one of economic calculability; that is, they are held together by complex sociocultural systems of meaning and not the simplified computation of less or more, and concomitant equations.

A third moment in the growing up of Canadian geography was around GIS, or Canadian Geographic Information Systems (CGIS) as it was labelled by the 'father of GIS', Roger Tomlinson. (Nick Chrisman, 2005, disputes the originary function that 'father' implies but says nothing about the gendered implications). I want to argue that CGIS represented a bridge between the old geography and the new kind, as well as between an older Canada and what it was becoming. The larger national context was the transformation of Canada from a rural, agricultural-based nation, to an urban, manufacturing and increasingly service-based one. The resulting rural depopulation became an important policy issue for

government, and consequently resulted in the need for “land management, [including] planning the utilization of natural resources, and monitoring change” (Tomlinson & Toomey, 1999, p. 466). In turn, to accomplish such tasks required an enormous amount of cartographic information. Apart from any other reason, given the two distinct and separate levels of government (federal and provincial) operating in Canada, the maps themselves needed to range from scales of anything from 1:250,000 to 1:20,000.

Such a task was given greater force and urgency with the passing of the Agricultural Rehabilitation and Development Act in June 1961. Charged with evaluating land resources, and future potential uses, the Act necessitated creating a comprehensive catalogue of land use and land capability, and was formalized the following year as the Canada Land Inventory (CLI) under the auspices of the federal Department of Agriculture. Furthermore, the Inventory was intended not just as a record of what existed on the ground but also what land use could be. Land was to be rated according to its potential to be turned into alternative uses such as forest plantations, recreational areas or wildlife refuge areas.

Using traditional cartographic methods and information acquisition to obtain a full set of working maps, and to analyse them, was prohibitively expensive. It was here that Tomlinson entered the story. Working for an aerial survey company in Ottawa, Spartan Air Service, and beginning to experiment with the use of computers for mapping, in spring 1962 he met by chance Lee Pratt, the recently appointed Director of CLI. Tomlinson suggested using computer-based cartography as a means to reduce costs and to improve efficiency. Within three years, Tomlinson was employed by the Government of Canada to develop GIS mapping (Tomlinson & Toomey, 1999, p. 469). Critical to his project, of course, was the computer, which in the early 1960s was still very crude. Tomlinson worked first on an IBM 1401 that had only 8 KB of memory. And even when he moved up to the IBM 360/365 that had 256 KB, there was still no RAM and so all information was inputted on magnetic tapes, there was no graphic display, and computer speeds were painfully slow (Tomlinson, 1996).

As a result, developing CGIS was hard work, and often frustrating. Tomlinson (1996) says, though, that the approach was born out of ‘necessity’. But this is not quite right. Necessity implies that there was some inherent set of forces inevitably producing the eventual result. But there was no inevitability. CGIS emerged because of the peculiar and contingent character of the Canadian state: its concern with land use inventory and management; recent alterations in the country’s socioeconomic foundations; and the government’s deep financial pockets (Tomlinson (1996, p. 3) says that “It was government [financial] support that really took this nucleus of an idea . . . and put the engine behind it that developed the system”). Further, all of this coincided with the contingent availability of an emerging technology—the computer—capable of making the end realizable. But even the computer’s development was the result of state-directed support (albeit not the Canadian state).

Trained as a geographer, which partly explains the ‘Geographical’ in GIS, Tomlinson was always keen to bring his perspective into the academic discipline of geography, and this began to occur from the 1970s onward. Likewise Canadian geography also sought to recoup Tomlinson, although he never held an academic appointment. He was elected President of the CAG in 1987, and was a recipient of the Gold Medal from the Royal Geographical Society of Canada in 2003. That he was also awarded the Order of Canada in 2001 only further reinforces the link between his work on GIS and the country.



The final illustrative moment is the Metropolis Project. While not exclusively bearing on geographers, it has been a forum in which they have come to the fore, and which has helped to direct Canadian geographical research now for over a decade. Created in 1996, the Project is a multidisciplinary (all of the social sciences are represented), multi-site (there are five centres located coast to coast), and multi-million dollar (C\$8m was the start up grant) inquiry into "migration and the integration of ethnic and religious minorities in large cities around the world".¹

As a Project, it goes to very heart of contemporary Canada, and issues of governance. Canada has always been an immigrant nation, but those immigrants during the last part of the nineteenth and first part of the twentieth centuries were predominantly Western European. From the late 1960s this changed and, in conjunction with Pierre Trudeau's policy of multiculturalism, resulted in large numbers of immigrants of non-European heritage entering Canada, and most often settling in Canada's biggest cities (Toronto, Montreal and Vancouver; Hiebert, 2000). Increasing globalization beginning from the mid-1980s further strengthened the trend. There were over two million new immigrants admitted to Canada over the 1990s, for example. While producing social and cultural strains, immigration also created new national opportunities. Thus, Canada early on attempted to lure in business immigrants. The point is that Canada as a country is now defined by a large visible minority immigrant population who live in metropolitan urban centres (in Vancouver and Toronto the percentage of visible minorities is close to 40 per cent).

The Metropolis Project is partly about describing and analysing immigration and urban settlement in contemporary Canada, but it is also about providing resources and expertise for governance. This is clear from the consortium of Federal government departments that support and are integrated within the Metropolis Project, and which among others include: Citizenship and immigration, Human resources, Public works, as well as SSHRC and Statistics Canada. The Canadian state, through the large sums of research money it provides and its hands-on management through involvement of its various agencies, is getting exactly the kind of geography it wants. As Meyer Burstein, the civil servant who initiated Metropolis, says: "The Metropolis Project is a policy research project. What this means is that we try to stimulate research that will help the government, but not just the Federal government, but governments generally, to do a better job in developing policies and programmes. So, the emphasis is on scientific knowledge and how it helps to improve decision making."²

The Project is organized around five Metropolis Centres of Excellence located in Vancouver, Edmonton, Toronto, Montreal, and jointly between Moncton and Halifax. Twenty different universities are involved, and several hundred researchers from professors, to post-docs, to graduate students. Around 75 geographers have been involved in the Project over the last decade (D. Hiebert, personal communication). The volume of work produced has been enormous (see the online resources listed under 'Publications' and 'Virtual library' on the main web page of the Project at http://canada.metropolis.net/generalinfo/index_e.html). The geographical work deals with urban spatial patterns of immigration, particular ethnic immigrant groups in specific cities, labour market segmentation and business entrepreneurship, housing markets and transnationalism. The scientific knowledge produced is fine scholarship. But the point which connects to the argument running throughout this paper is that it is geographical scholarship of a particular national bent. The nation is not just the 'context of discovery', but enters into the very

'context of justification'. The monographs, articles, research reports and working papers would not have been written without Canadian state involvement. Following Forman's study of US physics, Canadian geography has taken on a different 'purpose and character'.

Conclusion

Cole Harris (2001, p. 206) writes: "There is no clear Canadian meta-narrative, and that, at the country's best, is perhaps Canadians' singular opportunity—to live with a nation-state, but outside a meta-narrative, and appreciatively and supportively with difference, and with the interlinked identities associated therewith." This is Canadian geography's opportunity as well.

As I have argued, the Canadian geographical project, which is barely over 50 years old, has been indissolubly connected to the nation-state. This is inevitable, and as the other papers in this special issue make clear, reflects a common experience in other countries. Funding for the academy in most nations derives from the state and so, if for no other reason, is necessarily coloured by that relation. But clearly there is also much more going on than only funding, which I have tried to elucidate in the paper. I am also not implying a draconian state that precisely dictates academic curriculum and research. Even in Canada, however, the relation with the state can sometimes be much more hands-on than -off. The state makes a difference.

For Harris (2001, p. 206), the Canadian state is unusual in that even more than in other countries it is a "complex assemblage" and "never quite in focus". Partly this is because right from the beginning there were at least two founding visions (French and English), deeply etched regional divisions, quasi-autonomous provinces in terms of political power (far more, say, than given to US states), and in the latter half of the twentieth century an enormously varied population in terms of ethnic, religious and cultural origin. Nonetheless, such diversity more or less readily fits within the larger container of Canada, and works in spite of the absence of some larger narrative that makes coherent the individual pieces. In this sense, Canada is like a Heath-Robinson contraption with seemingly no overall design, bringing together the most diverse assortment of components, with individual pieces barely held together but nonetheless delivering the required result. I think it is also a model for future Canadian geography. It implies, on the one hand, eschewing any final plan, and on the other, bringing together the incredibly diverse elements of Canadian geography, joining them by whatever means works, and delivering the product: undertaking Canadian geographical scholarship but without reference to any fixed idea of what is Canadian.

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Notes

¹ The development of the Metropolis project is available at: http://canada.metropolis.net/generalinfo/sub/bakgrou_e.html (accessed March 2006).

² Interview available at: http://canada.metropolis.net/generalinfo/Meyer_Burstein.mov (accessed March 2006).



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