# 8 Après le Déluge: Periodizing Canada's Episode of Light

In the opening chapter of this book, I represented the period from the mid-1960s to early 1990s with the stylized image of a pair of overlapping arcs—one rising, one falling. The first of these arcs tracks the origins and early deployment of new media and the digital arts in Canada, propelled by the singular surge of national élan following Expo 67 and ascending to the mass diffusion phase of the "digital revolution" in the 1990s. The second, descending arc follows the evolving national politics in Canada, likewise passing through the heady enthusiasms of Expo 67, but this time tracking a declining figure of disillusionment and existential crisis that reaches its nadir in the 1990s, when Canada faced severe doubts about its continued survival. While the rising arc is global in scope, the declining arc is unique to Canada. The divergence captured in this image defines the end of the period covered in this book—when the digital revolution explodes into the mainstream, just as Canadian identity appears diminished, fractured, and uncertain—and prefigures the opportunities and challenges that would face Canada's creative and research community in the following decades.

I have characterized what was most distinctive about the Canadian transition into the era of digital media in terms of an "alternative technological ethos," a concept developed across this book in two complementary ways. First, as a characteristic spirit of experimental discovery-in-use, it designates a method for approaching new technological means that favors sensorial immediacy and improvisatory expressiveness, prior to the closure and standardization that comes with commodification and mass adoption. In this sense, it contrasts with the kind of normative, instrumental consideration of the potential of a new technology, which seeks solutions to predetermined problems and where a technology's value is judged on the basis of optimization metrics. Second, this alternative technological ethos has

appeared in the preceding chapters as a component in the wider set of factors shaping multifaceted innovative outcomes, unconfined by field, form, or practice, spanning out to foster the coalescence of new interdisciplinary fields, research paradigms, and models for digital sociality. Norman McLaren's instrumental, hand-made cinema, for instance, left traces of an innovative proto-computational approach to filmmaking, demonstrating a digital sensibility *avant la lettre*, and in the process helped to actualize research in computer graphics through its impact on the computational imaginary of the emerging community of software engineers. In a similar vein, the previous chapter revealed how virtual reality in Canada was framed and contested from philosophical and critical as much as engineering and artistic perspectives, through a common, underlying creative method emphasizing embodied interaction and multisensorial expression. In this concluding chapter, I want to draw together these parallel strands of the alternative technological ethos—as both an exploratory method and a model of interdisciplinarity—in order to clarify the wider significance of the story of Canadian innovation during the years of transition into the digital era that marks the conclusion of the period explored in the preceding chapters.

At the media-technological level, the distinctively Canadian alternative ethos that I have described was initially fostered by its appearance at a moment, in the late 1960s, defined by an expansive unbinding of national-political energies in Canada. This supportive environment for innovative media-artistic initiatives was never deliberately realized as a consciously designed policy framework; rather, it emerged out of a decentralized constellation of temporary, often ad hoc projects and programs over the 1970s and 1980s. In the 1990s, as information technology, repackaged with a neoliberal ideology of creative industries, swept the planet, "new media innovation" itself became a cognizable policy objective. While media convergence and ubiquitous connectivity had been anticipated since the 1970s in Canadian government reports as well as academic and popular writing on culture and communication, official attempts to formulate innovation policy, upon the full arrival of the internet and media convergence on a mass scale during the 1990s, were handicapped by bureaucratic miscues and confusion. In this contentious context, intensified by a fraught political climate, the emerging community of new media and arts practice sought out and often found novel resources and strategic policy spaces to support their work. This entailed realigning creative arts practice within the traditional

research institutions, like granting councils and university-based graduate programs, finessing creative-economy incentives, and mainstreaming digital media in the wider field of the established arts. The full details of these efforts at policy and disciplinary realignment lie beyond the scope of this chapter, other than to briefly note their thematic continuities with the alternative technological ethos that characterized the preceding period described in this book.

The first of these continuities, apparent across the cases explored in this book, lies in the way creative agency is distributed between people and technologies. Canadian prominence in human-computer interaction (chapters 3 and 4), as well Canadians' key contribution to the origins of acoustic ecology (chapter 5), arose from a nation that placed a special emphasis on communication in both the quotidian and the practical, nation-building senses. At the fine scale of creative practice, Canadians evinced an early grasp of software as an expressive medium and of user interfaces as playable thresholds. More broadly, in 1993, during the high tensions of its disunity crisis, B. W. Powe went further to call Canada a "communication state" *tout court*, "an experiment in alternate current . . . [in a] condition of receptivity . . . mediated through technology."[1] Urging Canadians in that fraught period to consider their country less as a nation-state and more as a "state in process," Powe wrote that rather than insisting on a monolithic conception of political unity, Canadians should "welcome what is multifarious, flexible, personalized, paradoxical and protean" in their national character and accomplishments.[2] This processual idea of Canadian identity as plural and polyphonic can be read now as a valedictory, even elegiac statement of loss for what was felt to be a threatened set of supposedly national traits. Yet a penchant for finding meaning in the "resonant interval," the gaps *between* rather than within the essential natures of people, things, ideas, or institutions, was constitutive of the McLuhan-inflected creative atmosphere of the 1970s and 1980s in Canada. The alternative technological ethos, with its focus on enriching media interface and interaction as a "fertile nexus" for creative practice, registers throughout this book as homologous to this processual, experimental idea of Canada as a communication state.

A second continuity locates an emphasis on sensorial immediacy and embodied interaction within an organizational frame encouraging the interpenetration of art and research. The worlds of art, engineering, and science came together around research objects imbued with a certain "interpretive

flexibility" that allowed groups to work together without necessarily sharing an explicit consensus.[3] An early fostering of computer music, animation, and dance as driving elements of computer science research programs, on one hand, and the experimental development of networked, interactive and immersive environments within art studios and cultural institutions, on the other, are scattered across the chapters in this book. In the standout case of a squandered opportunity, the absence of involvement by creative users in the design phase of the Telidon project stands apart from a general tendency favoring mutually informing interconnections between art, science, design, and engineering. As I have already noted, the organizational context in which this propensity toward artistic research occurred was typically ad hoc, and sometimes not even well understood by its instigators: early breakthroughs in creative applications for interactive computing at the NRC, for instance, were not sustained after what was understood simply to be an interesting proof of concept.

Both of these thematic continuities, that of distributed creative agency and the co-production of art and research, appear across the full range of art forms. The figure of the artist as creator of "counter-environments,"[4] a term McLuhan also applied to Canada as a whole, is a third thematic continuity linking the period described in this book to the years that follow. Artworks can reveal and perturb the invisible effects of media environments. Already at the dawn of the digital era, the ecological approach to sound and music fostered by the World Soundscape Project (chapter 5), Gould's emphasis on reconfigured "structures of participation" afforded through new music technologies (chapter 5), McLaren's counter-Hollywood paradigm of artisanal animation (chapter 2), and Canadian artists' experiments with telecommunications as a performative milieu (chapter 6) all ran counter to the mainstream cultural or corporate environments within and against which they were posed; yet they were *also* prefigurative of the rising computational sensibility to come. By the 1990s, the arts would be more deliberately incorporated in research and innovation policy, though in the Canadian instance, not without considerable confusion.

## Creative Industry Becomes Global Orthodoxy

For historian Eric Hobsbawm, the "short twentieth century" ended in 1989, demarcated by the end of the Cold War and the attendant triumph

of neoliberalism, the latter vitally propelled by the Information Paradigm itself.[5] The experimental, exploratory cultural uses of new media, seen here through a primarily Canadian lens, grew from a rising wave into a global deluge. In the jargon of the 1990s, "content" was king. Convergence—in various guises, generally entailing the merging of the content industries with the tech sector—was driving the wildest of economic get-rich fantasies. Executives with the slightest connection to the arts were positioning themselves alongside the "creatives" who would, ostensibly, become key components in their new-economy strategies. Art came to be understood as an instrumental input to the content pipeline for new technological platforms: multimedia, networked, interactive, immersive. A flavor of this consideration of the arts from an engineering standpoint can be found in Patrick Purcell's 1997 argument in favor of "the primacy of content in digital media."[6]

> The success of this content-led approach . . . will depend on a close working relationship between content creation and technology in the form of new platforms and advanced communication systems. It calls for the content creation community to take a more robust and assertive stance—"pole position"—in research. The technology disciplines must therefore jettison outmoded professional cultural baggage and foster a new cadre of content makers with radical ideas.[7]

Television, for instance, could be reenvisioned in ways that go beyond higher-definition displays or more program selections, as Purcell observed that the "incipient feedback" then available could lead to "innovative forms of content."[8] It was during these same years, while art was being formulated as a research and development input, that the policy discourse of "creative industries," inflected by and serving the ends of the Information Paradigm, was coming to the fore, first in Britain and then around the world.

The Blair government's initial formulation of the concept of creative industries in 1997 was as follows: "Those activities which have their origin in individual creativity, skill and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property."[9] Explicitly, "creative industries" embraced the arts and media, museums, archives, and the traditional mass cultural industries, but just as crucially software, design, and advertising. The phrase spread quickly, with sober economic treatments, like Richard Caves's eponymous 2000 volume that emphasized "contracts between art and commerce," and other breathless celebrations of the "creative class" as the panacea for all economic and social ills.[10] In 2003, the US National Academy of Sciences

sought to align information technology with the arts and media, dubbing them all an "exciting new domain" of "creative practices" that went beyond the supposed productivity gains usually associated with, and expected of, computerization.[11] Stuart Cunningham, a key framer of creative industries policy discourses, wrote in 2005 that "creative disciplines" can no longer be relegated just to the realm of "civilizing" activity.

> Instead they must be recognized as one of the vanguards of the new economy. R&D strategies must work to *catch the emerging wave of innovation needed to meet demand for content* creation in entertainment, education, and health information, and to build and exploit universal broadband architectures in strategic partnerships with industry.[12]

Embraced by the European Union, China, and the United Nations, by 2015 creative industry policy had become, in the phrase of Philip Schlesinger, a "global orthodoxy."[13] For critics of this orthodoxy, the absorption of the arts into the creative economy reduced the assumed intrinsic value of culture to its economic contribution, which is hardly a new story; indeed, in the Canadian case, this reframing of the arts and media occurred at a particularly fraught moment.

Just as Canada crossed the threshold out of Hobsbawm's truncated twentieth century, it was experiencing a plummeting sense of itself as a sustainable national entity. Writing at the time from the standpoint of his own discipline of history, Michael Bliss diagnosed a turn away from issues of broad national scope, toward matters of a more private scale, like ethnicity, family, class, and gender. "The sundering of a sense of Canadian history," he argued in 1992, "became part and parcel of the sundering of Canadians' consciousness of themselves as a people."[14] The very years that had elsewhere been welcomed triumphally as the end of history were, in Canada, suffused with existential angst, often expressed in terms of a search to define an essential, and therefore presumably unifying, concept of Canadian identity.

This was most clearly articulated though the obvious contrasts with the United States, against which Canada could still appear to be a more tolerant society, less conflictual and violence-ridden, and more committed to collective provision and diversity. For philosopher Charles Taylor, writing in 1992, accommodating Québec's aspirations as a nation, alongside those of indigenous peoples, would require going beyond this elementary level of tolerance for diversity, to what he called "deep diversity," where "a plurality

of ways of belonging would also be acknowledged and accepted."[15] Yet at the time, Taylor was pessimistic, harboring fears that the country was actually "drifting towards break-up," with "little being done to prepare for this, let alone head it off."[16]

Not surprisingly, seen against this broader canvas, the clarity of Canadian policy aims during these years was undermined by an unstable tension between measures conceived to keep the country together and a pragmatic embrace of the established cultural industries as competitive exporter in the emerging neoliberal international order.[17] During the negotiations beginning in the 1980s leading eventually to the 1994 North American Free Trade Agreement with the United States and Mexico, Canada fought for and won an exemption to permit continued direct and indirect subsidy of its cultural industries. Remarking on this maintenance of the cultural exemption, Alison Beale observed that for Canadians, cultural sovereignty is tantamount to national security.[18] This hard-won concession was primarily in support of the old media that comprise the usual grouping of cultural industries—broadcasting, cinema, publishing, and sound recording—producers of what McLuhan dismissed as "packaged programming, nineteenth-century style":[19] commodified and transmissible in the mass media. The irony of this emphasis on safeguarding old media should now be evident in light of the abundance of examples presented in this book that feature an exceptionally early Canadian competence with the affordances of the emerging new media: interactivity, participation, connectivity, and immersion.

In many ways the instrumentalization of the arts and media that is constitutive of creative-economy discourse and policy was, by the 1990s, already long established in Canada. As I described in chapter 1, by the 1990s the mandates of Canada's central cultural agencies and its media and arts funding policies had become common knowledge to Canadians, who at least from the 1930s looked favorably upon publicly supported provision of culture as a bulwark against the deluge of American commercial programming. The particular conception of identity-reinforcing culture that came to the fore in the 1990s, however, appears to have been accentuated by the dissolution in 1993 of the federal Department of Communications, which reassigned responsibility for arts and culture to a new Department of Canadian Heritage, and technology and research mandates to the Department of Industry. In mandating the "promotion, dissemination and preservation of stories and symbols reflective of the past and expressive of our values and

aspirations," Canadian Heritage adopted a strikingly retrogressive stance, particularly in light of the Department of Communications' earlier efforts, however ineffective they sometimes were, to unify technological and cultural concerns "under one roof."[20] A high-profile federal commission established in 1994 to study and make recommendations on the "information highway" is a good example. This commission struck the defensive posture of traditional cultural policy discourses when it adopted as one of its pillars the reinforcement of Canadian sovereignty and cultural identity, alongside universal access, job creation, and investment in the information technology sector. This turning backward to identitarian notions of culture at just the time when a more synergistic approach to content-led research might have been prioritized reflects the relative dislocation of Canadian policy thinking, a sense in which time was out of joint during the last decade of the century. Within this anachronistic policy context, where heritage concepts of Canadian identity were emphasized alongside a focus on old-media cultural exports, Canadian success in the animation software and production industries could be duly celebrated, heralded by the foundation in the 1980s of firms like Softimage, Alias, Discrete Logic, and SideEffects, though most of these had already been sold to American multinational corporations in the 1990s.

Against this anachronistic backdrop, efforts were made to define new media research itself as a policy object—an effort I contributed to while serving as a consultant to Industry Canada and Canadian Heritage. These proposals included the approval of public support for hybrid research networks, which aimed to group together university-based research with the independent media arts scene and artist-run center networks, alongside industry partners, national labs, and cultural agencies. Other proposals advocated the placement of artists in science labs, and new funding programs more generally seeking to reposition the creative arts explicitly as research so as to make them more fundable by non-arts funding bodies. The success of these federal policy initiatives was varied. Between 2002 and 2005 regional research networks for new media were supported directly by Canadian Heritage. From the federal flagship program for research centers of excellence, a network for computer graphics and animation was funded from 2009 to 2015.[21] In 2002, the Social Science and Humanities Research Council launched regular granting programs for "research-creation," following the example previously set by the government of Québec, with the

aim of legitimizing artistic practice as a kind of academically acceptable form of knowledge production.

Hexagram, an interuniversity network for creation in media arts and technologies launched in 2002, was an early example of such "research-creation" initiatives. Founded in 2002 through a partnership between Concordia University and the University of Québec, Hexagram began with a broad mission to establish close relations between the worlds of academia, business, and the technological arts. Indicative of the mixed effectiveness of these kinds of linkages more broadly, studies of Hexagram's first decade of operations pointed out the dilemmas artists faced when confronted with the sometimes-contradictory imperatives of Hexagram's "double rationality, at once artistic and entrepreneurial."[22] For sociologist Jean-Paul Fourmentraux, the duality he found inside Hexagram represented a "primordial challenge," when seen in the context of a justifying discourse that is at once a "gamble and promise," combining "rational strategic forecasting (development of markets, technology, applications) with speculative conjecture that belongs more in the realm of social utopia and literary and artistic imagination."[23] In another case of bridging between art, research, and industry, the Banff Centre widened its focus beyond VR to embrace the burgeoning digital content industries, first in an effort to develop multimedia authoring tools for artists,[24] and then in its Institute for New Media, founded in 1996, which for a lively decade supported high-powered summit meetings and catalyzed collaborations involving researchers, artists, business firms, and policymakers.[25]

It will be noted that many of the research initiatives just mentioned were launched *after* the dot-com crash of 2001. Canada had been insulated somewhat from this recession, having engaged already in the mid-1990s in a deep austerity program that, by the 2000s, allowed for budget surpluses to be channeled into renewed cultural and research funding. As in previous moments discussed in this book, the 2000s saw comparatively generous state support given to experimental media arts production, in the form of direct subsidies to individuals, R&D tax credits, and jobs programs, along with the academic institutionalization of artistic research.

An understanding of artistic research as a distinctive form of knowledge production continued to develop along several trajectories in the 2000s. Under the rubric of "research-creation" many Canadian universities have sought to leverage digital media practice as knowledge production and to reclassify graduate education in creative arts fields as the training of "highly qualified

personnel." In its implementation at the federal level of Canada's Social Science and Humanities granting council, the criteria for research-creation were replete with accountability-grounded requirements for a well-defined "scholarly apparatus," "clear research problems," and a rigorous "methodological approach" to the artistic creation process.[26] Research-creation when formalized in this way provides crucial support to sustain long-range, blended academic-artistic inquiry in emerging fields, while, for less sympathetic critics, it risks being milked as a haven providing "props to bad artists."[27]

Henk Borgdorff has described artistic research within a European academic context as a "conflict of the faculties," urging a consideration of the intrinsic value of artworks themselves as "non-discursive knowledge" that challenges traditional disciplinary monopolies and epistemologies.[28] Less abstractly, Concordia University media artist and scholar Chris Salter and coauthors coming from science and technology studies offer a survey of topics and sites for critically grounded artistic knowledge production, such as performativity and improvisation, sensorial engagement, social intervention, and "emergent biosensibilities." As Salter notes, this last "heterogeneous category of artistic work with living systems . . . is carried out in both science labs and art studios, taught in art schools, and increasingly institutionalized in special programs and academic centers."[29] These biosensitive concerns with living systems can be understood as carrying forward the alternative technological ethos that figures so prominently in the mid-to-late-twentieth-century transition to a computational sensibility documented in this book.

This book has provided a detailed history of the way Canadian artists catalyzed innovation during the early, developmental phase of a new techno-economic paradigm. From a more distant vantage, this was a period of "decompartmentalization," a term used by art historian Erwin Panofsky to refer to the European Renaissance, when new "transmission belts" between domains of knowledge and between artists, scientists, and engineers enabled novel "methods of picturing and comprehending the world."[30] The conjuncture in Canada of this kind of techno-aesthetic fluidity with a short-lived burst of political self-reinvention was followed by a complex overlay of forces. The country adapted to globalizing pressures while the digital became ubiquitous and artistic research itself was institutionalized academically. Today, advocates for an explicitly "postdigital" agenda for art and technology turn away from what are seen as the depleted attraction of dematerialized virtuality, life on the screen, and surveillance capitalism, urging instead

the deconstruction of distinctions between digital and analog, old and new media, and the celebration of "DIY agency" outside "totalitarian innovation."[31] This call for a different set of research values in the arts, media, and technology is occurring just as voices in the cultural policy research community like Philip Schlesinger are calling for countervailing values to oppose the reductionism and simplifications of the creative-economy orthodoxy. Drawing on a 2016 British government white paper, Schlesinger notes a renewed recognition of the "intrinsic, enriching value of culture in and of itself," and "the social value of improving educational attainment and health."[32] Yet he allows, with a whiff of exasperation, that returning to older logics of intrinsic artistic elevation or social utility does not, on its own, go very far toward generating the new thinking needed to refresh cultural policy thinking after the "creative turn." In innovation policy studies, a trove of recent publications reframe innovation for a time of virulent tech-backlash and disillusionment with the lures of "disruptive innovation."[33] The two calls for policy renewal, formulated separately, beg to be combined constructively. The Canadian experience of an alternative technological ethos, conceived as intrinsically attuned to the innovation process itself, offers evidence for the value and promise of such a fusion.

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# Northern Sparks

## Innovation, Technology Policy, and the Arts in Canada from Expo 67 to the Internet Age

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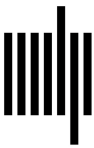

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