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Michael Century’s *Northern Sparks: Innovation, Technology Policy, and the Arts in Canada from Expo 67 to the Internet Age* explores the interplay between cultural policy, artistic experimentation, and technological innovation, resisting unnuanced oppositions between government initiatives and radical critique and acknowledging the important role of institutions in fostering alternative art practices between the late 1960s and early 1990s in Canada. Relevant to histories of media, art, and technology as well as to innovation policy studies, Century’s narrative hinges on his characterization of Canada’s “alternative technological ethos,” set in opposition to art designated solely for the market and technology geared merely toward efficiency and productivity. Instead, Century argues that this ethos “emphasized sensorial immediacy, embodied interaction, and improvisatory expression” (p. xiii). Meant to provide an answer to “restrictive standardizations” and “corporate consolidation” of telecommunications in the latter half of the twentieth century, this ethos undergirded critical artistic interventions contesting a familiar pattern for emergent technology: the normalization, essentialization, and instrumentalization of the affordances of a new technology without in-depth exploratory use (p. 3).

Century positions this history within the national context of Canada during globalization. He terms this period the “Information Paradigm,” a time of intense acceleration in computing and telecommunications with concomitant postmodern cultural shifts, elsewhere theorized as “informaticization” (by Michael Hardt and Antonio Negri in *Empire* [2000]), “the network society” (by Manuel Castells in *The Rise of the Network Society* [1996]), and “late capitalism” (by Ernest Mandel in *Late Capitalism* [1972] and Fredric Jameson in *Postmodernism, or, the Cultural Logic of Late Capitalism* [1991]). Broad in scope but with detailed detours, *Northern Sparks* covers a half century of Canadian media art and technology policy, providing a useful model for examining the work of a country on its own terms in an increasingly global context.
With inspiration from B. W. Powe’s 1990s-era political philosophy, Towards a Canada of Light, Century contends that his focus historical period represents an “episode of light,” tying a uniquely generative period of art-and-technology experimentation to a reconfiguration of Canadian nationalism (p. xiii). As one might expect, Marshall McLuhan is a central figure in both policy and theory contexts. From McLuhan’s comments on art’s role in technological experimentation during Expo 67—a world’s fair held in Montreal that serves as Century’s starting point—to his exchanges with Pierre Trudeau regarding the potential role of government in modern telecommunications, Century demonstrates the direct effect McLuhan had on arts funding and technology policy, as well as on media theory and critique. Other important, more recent media-theoretical interlocutors he discusses include Jody Berland and Jonathan Sterne.

Century’s text provides a mix of institutional history, technological genealogy, and art analysis. After an introductory chapter summarizing the complexities of Canadian nationalism and cultural policy over the focus decades, chapter 2 examines Scottish Canadian animator Norman McLaren’s influence within the National Film Board (NFB). Century’s characterization of McLaren as a bricoleur or tinker aims to trouble the perceived gulf between art and science, noting with Bruno Latour that the space between science and non-science consisted of a “lot of small, uncertain, unexpected divides” (p. 50). Chapter 3 continues the study of innovation in computer animation, looking at software development at the NFB and the National Research Council of Canada (NRC) in the ’60s and ’70s and contextualizing later developments in 3D animation software packages. Where earlier chapters focus on artist-driven research, chapter 4 considers the relationships between interface theory, experiments in human-computer interaction (HCI), and metaphors for Canadian national experience as “borderline” (p. 76). The wide-ranging chapter includes brief analyses of Ron Baecker’s computer-mediated animation system using hand-drawn gestures, Bill Buxton’s innovations in HCI, the computer-aided choreography software Lifeforms, David Rokeby’s landmark media artwork Very Nervous System (1982-91), and Michael Snow’s investigation of the possibilities of camera movement in La Region Centrale (1971). Chapter 5 progresses from HCI to experimental electronic music, connecting Glenn Gould’s music theory and radiophonic composition before exploring the development of soundscape studies and acoustic ecology. Chapter 6, which argues most convincingly for the value of an artist-driven technology policy, contrasts the “top-down” government development of the pre-web networking system Telidon with the impressively generative “bottom-up” media art experiments of Canada’s network of artist-run art centers in the 1970s and 1980s. Though Century emphasizes Telidon’s expense combined with its failure to gain mass appeal, he also acknowledges its unintended constructive effect of beginning to build a user base for online services, most notably via artist trials. Finally, chapter 7 takes the Banff Centre’s experiments in virtual reality (VR)—and particularly its “Bioapparatus” residency—in the late 1980s and early 1990s as a case study highlighting the practical and theoretical interventions in VR as a tool for not just consumer adoption but also cultural critique.

As is clear from the above, the text is wide ranging in its cases and genres of art and technology, usefully characterizing links between resource allocation, institutional support, and artistic innovation and experimentation. With some exceptions—including the connection between Fluxus-affiliated artist Robert Filliou’s conceptualization of the “Eternal Network” to collaborative experiments in real-time global networking by artist-run spaces—the study could have benefited from a more thorough grounding in the broader art history of conceptual and media art, and the relationship between postmodernism, the transition to a
postindustrial global economy, and the professionalization of the arts and arts-related fields.

Further, Century notes a shift in the 1980s in Canada’s artist-run art space network from the democratization of art-and-technology services to “identity politics” (p. 138). Though early chapters include few mentions of the contributions of Canadian women and artists of color—with the notable exception of Evelyn Lambert at NFB and Char Davies at Softimage—chapters 7 and 8 contextualize some landmark art-and-technology works by more diverse artists, including Vera Frenkel, Catherine Richards, and Lawrence Paul Yuxuluptun, among others. It would be illuminating for a future study to examine more artistic fusions of technology democratization and identity exploration in order to complicate this perceived historical dichotomy between oppositional and identity politics.

One common tendency within policy-centered studies is to argue that state support of arts-and-technology innovation leads to “creative capital” and new uses for technologies; such gestures can inadvertently undercut noninstrumental arguments for governmental arts funding. Century acknowledges this dilemma in his concluding chapter, noting current calls for renewal within innovation policy studies, citing both “creative-economy” fatigue and the post-digital rejection of logics of social utility. Refreshingly, Century’s analyses of select artworks in each chapter sidesteps this effect by positioning them as improvisatory affective and sensory explorations and as meditations on cognitive, physical, and social effects rather than mere demonstrations for new technologies. As he illuminates the impacts of both innovation policy (and the lack thereof) and national identity amid globalization on creative technological experimentation and cultural critique in the arts, Century convincingly argues that the “Canadian experience of an alternative technological ethos” attests to the possibilities for renewed considerations of art-and-technology policy (p. 193).

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