"THER IS A VERY INSISTENT NOISE FROM THE MACHINES IN HERE": Theorizing Digital Media through Greg Curnoe's Computer Journals

Mark Hayward
York University

Henry Adam Svec
University of Waterloo

ABSTRACT

Background *This article explores the Canadian artist Greg Curnoe's experiments with computer-based composition with an emphasis on the Computer Journals project (1969–1971). The Computer Journals project is situated in relation to the art scene in London, Ontario, the development of computer art during the late 1960s, and contemporary theories of technology and culture.*

Analysis *It is argued that the project elaborates an innovative analysis of the relationship between technology and creativity that offers a critical understanding of power, agency, and expression.*

Conclusion and implications *It is suggested that a return to Curnoe's computer-based work offers an alternative to dominant schools of media theory and the philosophy of technology in Canada during the second half of the twentieth century, as well as anticipating contemporary discussions of digital media and creativity.*

Keywords *Greg Curnoe; Media theory; Electronic culture; Phenomenology*

RÉSUMÉ

Contexte *Cet article explore les expériences de composition par ordinateur faites par l'artiste canadien Greg Curnoe en mettant un accent particulier sur le Computer Journals Project (1969-1971) de ce dernier. L'article situe ce projet par rapport au milieu artistique de London, Ontario, au développement de l'art informatique pendant les années 1960 et aux théories contemporaines sur la technologie et la culture.*

Analyse *L'article soutient que le projet de Curnoe élabore une analyse innovante du rapport entre technologie et créativité, offrant par la même une compréhension critique du pouvoir, de l'agentivité et de l'expression.*

Mark Hayward is an Associate Professor in Department of Communication Studies at York University. Email: mhayward@yorku.ca . **Henry Adam Svec** is an Assistant Professor in the Department of Communication Arts at the University of Waterloo. Email: henry.adam.svec@uwaterloo.ca .

Conclusion et implications *L'article propose que le travail informatique de Curnoe offre une alternative aux écoles dominantes de théorie des médias et de philosophie de la technologie au Canada durant la seconde moitié du vingtième siècle tout en anticipant des discussions contemporaines sur les médias numériques et la créativité.*

Mots clés *Greg Curnoe; Théorie des médias; Culture électronique; Phénoménologie*

Introduction

The late Greg Curnoe (1936–1992) is recognized both nationally and internationally as a painter, and he has been praised for his contribution to the creation of Canadian Artists' Representation (now CARFAC), an organization advocating for the rights of artists as workers. Critics and curators alike have highlighted his commitment to regional culture, his outspoken nationalism, and his incorporation of autobiographical material into his art as central themes in his work (see Cholette, 2007; Théberge, 1982). As Katie Cholette (2016) has observed, Curnoe's early rise to prominence in the 1960s was later challenged by the ascendancy of postmodernism and emergent articulations of Canadian nationalism. However, since his tragic death in a cycling accident in 1992, Curnoe's œuvre has perhaps regained the stature it enjoyed in the mid-to-late 1960s. Alongside official endorsements and legitimations (see Museum London, 2011; Reid & Teitelbaum, 2001; Rodger, 2016), Curnoe's work has garnered a more subterranean sense of reverence connected to the continued successes and canonization of the Nihilist Spasm Band, a proto-noise band he co-founded in 1965.

Recent scholarly work has situated Curnoe in the context of Canadian art as well as more fully documented his working practice. Drawing from her exhaustively researched dissertation on Curnoe and fellow London artist Jack Chambers (Cholette, 2007), Cholette (2014) brings Mikhail Bakthin's concept of the carnivalesque to bear on Curnoe's anti-institutional performances, such as his participation in Canada's first "happening" in 1962—a welcoming party at the train station for artists Michael Snow and Joyce Wieland, which evolved into a parade through the streets of London. In a later essay, Cholette (2016) charts the arc of Curnoe's fame in the context of broader transformations in Canadian cultural production. Others have studied the role and significance of the archive in Curnoe's practice. Janice Gurney (2008) considers the evidence of activism in Curnoe's personal archive, drawing connections between Curnoe's engaged institution-building and the ideas of Antonio Gramsci, while Stacy Ernst (2016) places Curnoe's later book and research-driven projects in conversation with postcolonial and decolonization theory (Curnoe 1995, Curnoe 1996). And yet, despite this revival of interest in Curnoe's work, very little attention has been given to the theme of technology or media in his art, even though it is a topic he returned to on numerous occasions throughout his career. Indeed, Curnoe's interest in computers and other information technology has garnered only minor interest, discussion about it having been relegated to footnotes and passing mentions.[1]

This article argues that this oversight, due in part to the complexity of archiving and accessing computer-based work, has contributed to the erasure of a fruitful reflection on how media and technology shape the practices of composition and creation, as well as the broader socio-political consequences of digitization. These themes are ad-

dressed in Curnoe's work through a discussion of his Computer Journals project, which was the result of collaboration between Curnoe and members of the Department of Computer Science at the University of Western Ontario (UWO), which Curnoe worked on between 1968 and 1971.[2] Situating the Computer Journals in relation to discussions about the convergence of art and technology taking place in London, Ontario, at the time, the lasting significance of the project rests with its self-reflexive exploration of the phenomenology of computer-based composition. The article begins by providing some context for Curnoe's Computer Journals in relation to experiments and discussions bringing together art and computer technology that were taking place in London in the late 1960s. Next, it describes and analyzes Curnoe's Computer Journals project in detail. It discusses the relationship between the Computer Journals and Curnoe's earlier experiments in journaling his experience of media, specifically the "Radio Journal" column that he wrote for *20 Cents Magazine* in the late 1960s. It then unpacks the Computer Journals, paying particular attention to moments in the text where the themes of media, technology, writing, and creativity emerge. Documenting Curnoe's resistance to the work of Marshall McLuhan, the article concludes by briefly exploring the potential contemporary significance of the Computer Journals in relation to a proposed alternative history of Canadian media and communication theory, one yet to be written, but one in which Computer Journals of Greg Curnoe might be considered an early contribution.

The methodology deployed throughout this article owes much to recent research operating under the banner of "media archeology." As Jussi Parikka (2012) writes, media archeology is "a way to investigate … new media cultures through insights from past new media, often with an emphasis on the forgotten, the quirky, the non-obvious apparatuses, practices and inventions" (p. 2). While some researchers in this field have emphasized the epistemological or ontological dimensions of particular "technological media" (e.g., Ernst, 2013, 2016; Kittler, 1999, 2010), others have more clearly operated in a discourse-analytical register, exploring in a Foucauldian vein the complex intersections of institutions, practices, texts, discourses, and materialities (e.g., Emerson, 2014; Gitelman, 2006; Kittler, 1990).[3] The path taken in this article, however, is perhaps closest to the ambulatory research of Siegfried Zielinski. As Zielinski (2006) has retrieved various thinkers and practitioners of media, from the Renaissance to the early twentieth century, as a means of disrupting hegemonic narratives of techno-cultural change, this article too is attempting to think with Curnoe's Computer Journals insofar as the work both overlaps and diverges from "Canadian media theory" (the discourse of which crystalized in Canadian popular discourse even before Curnoe first plugged into the UWO's mainframe).[4] Early stages of this research asked what it would have looked like if here had been a "London (ON) School of Communication Theory" alongside the more visible Toronto School. The sound of the "waterfall" James Carey (2009, p. 109) has suggested is running from Marshall McLuhan to Harold Adams Innis, may have drowned out a tributary that is quieter but no less interesting, one running from Gilbert Simondon through the Department of Computer Science at the University of Western Ontario and its chair at the time, John Hart, to Greg Curnoe.

A media-archaeological excavation of Curnoe's Computer Journals also contributes to historical research on the postwar development of the discourses and prac-

tices relating to computation and "personal" computing more broadly (see Manovich, 2013; Streeter, 2011; Turner, 2006). For example, in *A Prehistory of the Cloud*, Tung-Hui Hu (2015) connects the origins of those forms of subjectivity that have flourished under the conditions of networked media—from the revolution in mainframe architecture that marked the shift from batch-processing, which handles tasks and programs serially, to time-sharing, which processes queries and commands form multiple users nearly simultaneously. For Hu (2015), this development in computer architecture supports the establishment of a new form of user subjectivity characterized by "intimacy and privacy" (p. 40). This intimacy, the term preferred by the engineers who pioneered these systems, refers to the new experience of receiving frequent and near immediate feedback from the system, whereas "privacy" captures the technical advances required to make use of a single computer simultaneously. According to Hu (2015), these emergent characteristics presupposed an economic logic of ownership and responsibility. A media-archaeological approach to Curnoe's Computer Journals, can help to expand and complicate the history Hu charts. The "intimate" and "personal" encounters found in Curnoe's Computer Journals project, also a product of the arrival of time-sharing computer networks, bring into the foreground intersections between the phenomenological and the structural. Hu (2015) emphasizes the schematic and the structural in his account of the emergence of the interactive user, while Curnoe represents a different kind of user: one reflexively aware of the rich relationships between creative expression, media assemblages, infrastructural power, and subjective experience.

Computers, art, and London, Ontario

Greg Curnoe and computer art made their appearance on the international art scene more or less simultaneously. *The Heart of London*, a group showcase for young artists from London, Ontario, that did much to draw attention to the city's art scene, opened at the London Public Library in September 1968 before touring across the country for nearly a year and concluding with a month-long run at the National Gallery in Ottawa in May 1969. Also in 1968, the *Cybernetic Serendipity* exhibition at the Institute of Contemporary Arts in London and *The Machine as Seen at the End of the Mechanical Age* at the Museum of Modern Art in New York, provided computer-based art with prominent and popular platforms in both Europe and North America. Closer to *The Heart of London* (at least geographically), there was a growing interest in computer art in Canada around the same period. Beginning in early 1968, Toronto-based computer scientist Leslie Mezei (1968) initiated a regular column in *artscanada* that ran until 1970 on "science in art in science in art in science …" (p. 39). A number of other experiments also started to take shape across the country, although there was little sense of a unified Canadian approach to computer-based art. In a discussion of Earle Birney's experiments with computer poetry at the University of Waterloo in the 1960s, Dean Irvine (2015) has remarked upon the appearance of "a much larger, if disparate and disconnected, avant-garde arts movement that performed visual and linguistic experiments with mainframe computers" taking shape across the country.

Despite the burgeoning interest in computer art among artists both near and far, *The Heart of London* drew upon markedly different trends in both style and subject

matter from those usually associated with computer art. Influenced by pop culture and industrial aesthetics (but making no mention of computers or automation), *The Heart of London* stood a world away from the abstract images composed of gridded lines and smooth curves associated with early computer art. At the time, the collected pieces were described as "deeply personal and aesthetically individual" (Dault, 1968, p. 43), despite originating from the same geographic region and being described in relation to a shared cultural and artistic milieu. Highlighting the absence of abstraction as well as any engagement with recent technological innovations, Roald Nasgaard (2007) has commented more recently that, in contrast to emergent trends in conceptual art, "the work of these artists was largely representational and often Pop art-inflected but rooted in home-grown Canadian subject matter. At the other end of the technological scale, photography, film and video were the exciting new mediums" (p. 163). While the artists in London were in regular contact with artists and curators in Toronto, Vancouver, and elsewhere, there is no evidence that Curnoe and his colleagues were interested, or even aware, of events taking place elsewhere surrounding the growing popularity of computer art.

There is no record of Curnoe's initial reaction upon being approached by John Hart, chair of the Department of Computer Science at the UWO, about the possibility of collaborating. Founded in 1960, the Department of Computer Science at the UWO offered academic programs as well as providing administrative support for the university's computer needs, such as the automation of the payroll system (Hart, 1993). In 1968, the department in collaboration with the university-wide Computing Centre took a major leap forward in terms of technology with the acquisition of a PDP-8/i minicomputer and a PDP-10/KA10 mainframe, both manufactured by the Digital Equipment Corporation (DEC). It was the first PDP-10 in Canada, and only the fifteenth iteration of this model anywhere. The decision to purchase the DEC computers was the fruit of a major financial and institutional commitment to a campus-wide timesharing computer system based on a vision put forward by the head of the Computing Centre, George Lake. Indeed, both Hart and Lake cited the ability to access the system quickly and easily use teletype terminals that could be installed across campus as the deciding factor for purchasing the PDP-10 rather than comparable IBM models (Hart, 1993).

Over the next decade, the department focused its research in three areas: artificial intelligence, computer-aided instruction, and community computing (Hart, 1993). The last of these areas is particularly significant, as the idea to invite local artists to work with the department can be seen as an extension of this aspect of the research already taking place in the department. However, it is also important to recognize how the offer made to Curnoe and other artists was a testament to the unique intellectual climate in the department in the 1960s, which Hart (1993) would later describe as a "peripatetic" ethos. In an interview conducted many years after his retirement, Hart (1993) recalled how "it was the department that walked rather than the individuals, although none of us exactly stood still. But we had a connection with philosophy that was important in another manner. During the sixties, we ran a seminar throughout the decade on cybernetics and general systems organized by Peter Denny in psychology, John Davis in philosophy, and myself."

It was as part of the department's wanderings that Curnoe and other local artists came into conversation with Hart and the other faculty. The artist Murray Favro (2016), one of Curnoe's friends and collaborators, believes that Suzanne Rivard-Le Moyne, then head of the visual arts division at the Canada Council, encouraged Hart to get in touch with members of the "downtown" arts community. Hart had been corresponding since 1965 with Rivard-Le Moyne's husband, an essayist and filmmaker turned assistant and speechwriter for Prime Minister Pierre Trudeau named Jean Le Moyne, on the subject of mechanology, a general science of machines (Thibault & Hayward, 2017). Hart's decision to build bridges with Curnoe and the other artists associated with the Region and 20/20 Galleries, both centres of activity for the local art scene, was already taking shape following his decision to hire Keewatin Dewdney as a member of the department in 1968. Dewdney had produced a series of well-received avant-garde films in the mid-1960s, and while he focused his time primarily on research in computer science, he remained in contact with artists in London. Dewdney's father, Selwyn, had been an important influence on many of the city's artists, including Curnoe and Favro, as a teacher in the innovative arts program at London South Collegiate Institute.[5] Finally, Peter Denny, with whom Hart organized the inter-departmental seminar on cybernetics and systems theory, was also a frequent participant in the city's music scene as a member of the London Experiment Jazz Quartet, a group that occasionally performed with Curnoe and his fellow members of the Nihilist Spasm Band.

The initial interactions between Curnoe and Hart took place in the context of the occasional seminars organized at the university by the department. In late 1968 or early 1969, Hart invited Curnoe and others artists to seminars on philosophy and technology at which texts relating to cybernetics, artificial intelligence, and philosophy were circulated. It was at these meetings that Hart introduced the group to the idea of mechanology, sharing unofficial translations of texts by Jacques Lafitte (1932) and Gilbert Simondon (1958) he had commissioned himself. There are references in the notebooks kept by both Curnoe and Favro from around this time indicating that Hart discussed Lafitte and Simondon at these meetings (Curnoe, 1969). John Hart's offer to collaborate appears to have grown out of the invitation to participate in these seminars.

Journaling media

In its initial configuration, the Computer Journals entailed the composition of a journal consisting of stream-of-consciousness entries documenting Curnoe's thoughts and experiences. Curnoe input the entries (all in caps) into a simple teletype terminal, consisting of a keyboard connected to the mainframe; the terminals also had a paper roll that allowed for the input to be printed, but no monitor or screen. The journal entries were then stored by the mainframe on magnetic tape, where other members of the university community could access them, provided they knew the file name under which they were stored.

Curnoe's decision to focus from the outset on text rather than something more visual might seem surprising given he is best known as a visual artist. However, there are a variety of factors that contributed to this decision. Although Keewatin Dewdney was teaching a course in computer graphics for the department at the time, there were technical limitations preventing the development of projects that encompassed sig-

nificant graphical components. For the first years of their collaboration, the PDP-10 was only equipped with a "storage tube"—a simple non-refreshing CRT screen—that was not capable of displaying complex images or animation (Dawdy, 2016). The teletype terminals used to access both the PDP-10 and the PDP-8 lacked a graphical display entirely. Murray Favro (2016) recalls proposing a project that required more substantial graphic capabilities and being told the computers at the university lacked the speed for such a complex task. This left Curnoe's project, which resulted in the Computer Journals, as the only one able to proceed, as it required significantly less computational power and fewer technical resources.

However, the decision to focus on text should not be seen as entirely determined by the capacities of UWO's technology at the time. Curnoe also viewed himself as a writer throughout his career. As Curnoe (1981) describes himself in the video documentary *Greg Curnoe*, "I'm a painter … and a writer. … I don't just do paintings. I do write and I do play in a band." Indeed, acts of inscription and publication have a privileged place in Curnoe's worldview and artistic practice; an obsessive documenter and transmitter, it was through his personal journals that Curnoe developed an understanding of the relationships between himself and his environment. Fragments of text from his journals were often used to supplement images and collages in his paintings (Museum London, 2011). He also wrote a series of articles for a local artist-run newspaper called *20 Cents Magazine*, which evolved from an occasional column about music into a regular series entitled "Greg Curnoe's Radio Journal." The "Radio Journal" columns are a significant precursor to the Computer Journals project in two ways: first, they are Curnoe's first experiments with the journal as a mode of capturing his personal experiences for public circulation; second, they are among the first examples of his writing in which he turns his attention to media as a consistent topic of reflection.

In their conception and execution, the "Radio Journal" pieces build upon his lifelong desire to blur, through communication, distinctions between "high" and "low" in the fields of art and culture. As Cholette (2016) has observed, Curnoe's position on cultural hierarchies is similar to Raymond Williams' insistence that we consider "culture" not only an elite domain but was rather a "lived phenomenon" (p. 51). Along these lines, Curnoe's most consistent contribution to *20 Cents Magazine* deals not with Continental philosophy or trends in international art but with the popular music that constitutes the lived fabric of daily existence. Curnoe discusses good pop music, bad pop music, classical and jazz, French jongleurs, the radio stations across southwestern Ontario, his family life, his immediate surroundings—all of which are rendered, in the public sphere, as significant elements of his world. This blurring was accomplished in both content and form, for "Greg Curnoe's Radio Journal" also offered Curnoe a public venue through which he could hone his approach to stream-of-consciousness writing that foreground the mediated environment. The reader seems to be sitting with the writer in real time as he absorbs the media-cultural ecosystem around him:

> "Lady Godiva" — Peter and Gordon A Novelty Song. I'm sure I will be hearing more like it today. It has that 20's sound like Guy Lombardo's sax section. I don't like it. Peter and Gordon have always been pretty mediocre.

> Owen is crying loudly. He drowns out this one, which is just as well.

> I bought the first Shangri-Las album this week. It was disappointing with the exception of "Remember, Walkin' in the Sand," which I think is a great song. (Curnoe, 1966b)

At other times during the column's run he gets even more experimental: fragmented sentences and disjunctive syntax begin to evoke a consciousness in flux. He borrows the techniques that belong to the broader field of countercultural journalism, as in the writing of Tom Wolfe or Lester Bangs, to place the subjectivity and situated-ness of the critic on full display (see Lindberg, Guðmundsson, Michelsen, & Weisethaunet, 2005). Hearkening back to the Beats and in particular to Jack Kerouac's romantic typewriting, there is a sense sincerity (which is to be sought after) involves pouring it all out onto the page, thereby striving for "immediacy" (Bolter & Grusin, 1999).[6]

Despite the apparent drive for the sincerity and immediacy of transparency, Curnoe also takes care in his "Radio Journal" to highlight the various windows and channels that inflect and interrupt his reception of experience and information, in other words to meditate on hypermediacy (Bolter & Grusin, 1999). Across the articles, his exposition moves from the radio apparatus itself to the particular stations on which he listens to the song(s) and his impression thereof. A piece from 1966, for instance, begins by naming not a song or album but the particular machine through which this listener is accessing the ether:

> September 23 - Studio Radio (Old Philco
>
>   Painted blue)"
>
>   CKLW - By the Hair of my Chinny Chin
>
> Chin (Sam the Sham) — terrible.
>
> Mr. Dyingly Sad — fair but
>
> draggy, the usual teenage selfpitty. …
>
> Devil with the Blue Dress
>
> (Smith Ryder) — much the same as his
>
> version of "See See Rider", a col-
>
> age of other rock phrases and
>
> styles. Mitch Ryder is frantic.
>
> You can tell it is him — he insults
>
> Little Richard — a poor record.
>
> CHLO — 96 Tears (? and the Myster-
>
> Ians) — a drag but the lyrics are
>
> "Funny". How to get back at a
>
> girl by crying. (Curnoe, 1966a)

Sounds, recordings, experience, judgements, and institutions/apparatuses (radio stations) are collapsed together into a single field of vision or, more exactly, into a single field of audition. Curnoe reviews not only the music or the performance per se but the entire environment in which the music is resonating, phenomena inscribable through the speed and propulsive aesthetic of the typewriter (Wershler-Henry, 2005). Although Curnoe's relationship to his writing tools will shift as he begins to compose with and on digital machines, his desire to document his relationship to the media environment (on both local and global scales) would continue to serve as the foundation for the Computer Journals project he initiated in mid-1968.

The Computer Journals

Despite its simplicity, it is perhaps surprising that Curnoe was able to pursue the Computer Journals project, given the cost of experimenting with open-ended stream-of-consciousness writing at a time when access to computers was limited and expensive. But Curnoe likely found a willing audience for such modes of expression when he first proposed the project to Hart. Through his conversations with Le Moyne, Hart had come into contact with the idea of the reverie, as developed in the later writings of Gaston Bachelard (1971). Bachelard saw the reverie as a mode of writing in which the mind was left to drift upon the sensations it encountered, producing a written account of experience less constricted by the structures of scientific reason. Inspired by Bachelard's attempt to produce a poetic account of the material world, Le Moyne worked intermittently on a project he called the *Itineraire Mechanologique* (Mechanological Itinerary) beginning in the mid-1960s, which he hoped would become a book-length essay that would document his experiences of technology since his youth in Montréal. Not unlike Curnoe's "Radio Journal," these technological reveries drew upon sound, touch, and sight in order to fully evoke the transformative role technical objects played in the formation of subjectivity (Thibault & Hayward, 2014). Hart's interest in Le Moyne's reveries is evident in his decision to adopt this method himself when writing about mechanology in a lengthy text he would later share with Curnoe, a document Hart found among the papers in Curnoe's studio at the time of his death (Hart 1969).

It is difficult to provide a coherent and comprehensive analysis of the Computer Journals as a collection of texts because of the frequency with which they shift between topics. It is also not clear if there exists a complete collection of the entries Curnoe made during his time working with the computer science department. To make sense of the project, it is helpful to outline the project's development both in terms of chronology as well as how the project's structure evolved over time. The first entry into the journal was made in June 1969, and the project was completed (or abandoned) in the summer of 1972. Initially, the project entailed Curnoe visiting the labs to make entries. These visits mostly occurred during the summer break, likely because this is when the computer was not in high demand from students or faculty. At Curnoe's request, he was allowed to make use of a terminal in Hart's office beginning around April 1970. In 1971, plans were put together to install a rented terminal in Curnoe's studio at his home on Weston Street.

The move to an off-site terminal coincided with a number of significant changes in the project. First, due to the complexity of scheduling access to the timesharing

mainframe for a terminal located off campus, the project was transitioned from the PDP-10 operated by the university Computing Centre to the PDP-8, which the computer science department operated. At more or less the same time, conversations between Curnoe and the department's programmers, Mike Dawdy and Bill Fraser, lead to the project being expanded beyond a collection of texts stored on the university's computers. Based on an idea initially proposed by Fraser, Dawdy and Fraser designed a program that would both record Curnoe's entries on the department's computer and allow them to be accessed remotely, repeating the entries back with the same cadence of keystrokes as Curnoe initially entered them. The code for the computer program, written by Dawdy, has survived in the archives, but there is no record of where the memory tapes Curnoe used for the project are today.

Over the course of the three years Curnoe worked on the project, the Computer Journals evolved from an attempt to translate Curnoe's practice of writing the "Radio Journal" column to a new medium into a project exploring the phenomenology of computer-based composition. Portions of the journals were shown as part of the influential conceptual art exhibition *45'30"N – 73'36" W* organized by Gary Coward, Bill Vazan, Arthur Bardo, and Zoe Notkin, which took place at the beginning of February 1971 in Montréal. For the exhibition, the journal entries were simply printed out for display and there was no indication of the more elaborate computer project that Curnoe, Fraser, and Dawdy were already working on at the time. The show's emphasis on the process of creation, however, provides some indication that Curnoe was already thinking about the project in relation to the process of composition. Indeed, the later stages of the project expand the focus on the process, rather than the product, of computer-based composition. This is a theme he frequently discussed in the Computer Journals, and it is echoed in the attempt to recreate the temporality of composition. Throughout the project, Curnoe presents his experience of the computer as a medium that is at once empty, open, and highly restrictive. In this way, he speaks to the contradictory status of computers as providing a new means of expression while also being extremely rigid in their modes of access.

Although this would not become the focus of the project until a year later, the temporality of composition emerges as a theme in even the earliest of Curnoe's journal entries. Initially, this involved Curnoe's account of the dead time of sitting, staring blankly in front of a terminal (at the time, still a relatively novel and rare experience). In contrast to the "Radio Journal" columns, where the rhythms of both radio and daily life seem to give structure to his writing, the amplified awareness of the microscopic particularities of the local that resulted from his encounter with mainframe computing often brought about only silence. In an early journal entry written in August 1969, Curnoe turns his attention to the place in which he now finds himself, offering a brief description of the organization and orientation of the terminals in the computer lab:

> INTERESTING. THE ROOM IS LIKE A NEW INSTITUTIONAL BATH-
> ROOM. THE ATMOSPHERE IS VERY IMPERSONAL. NOT LIKE BEING IN
> A BUS, TRAIN, OR ACAR *[sic]* OR PLANE. THERE ARE NO WINDOWS.
> SO I HAVE NO REFERENCE TO ANYTHING ASIDE FROME *[sic]* HUMANS

> AND MANUFACTURED OBJECTS. JOHN HART MENTIONED A SIMILAR
> THING A WHILE AGO. IT MAKES IT HARDER BECAUSE I HAVE TO
> BRING IN EVERYTHING FROM ELSE WHERE. ALMOST. (Curnoe 1969d)

In the same entry, he goes on to note the complications of writing in the lab. Having
come prepared, his inspiration faded at the terminal,

> I HAD A LOT OF STUFF GOING ON IN MY HEAD BUT HAD TO WAIT TO
> GET A TERMINAL. WHEN I GOT HERE … I STILL HAVE SOME OF THAT
> CRAP ABOUT COMPUTERS IN ME. ABOUT HOW IMPRESSIVE THEY
> ARE. ETC. MAINLY NOT BEING AT EASE. (Curnoe, 1969d)

Indeed, one of the most frequent themes Curnoe struggled with and documented in
the Computer Journals is his perception of the dead time that fills the process of com-
position on the new medium. While he does not articulate the connection between
this experience and a broader interest in the experience of temporality resulting from
the new medium, he begins to pay greater attention to it as the project continues. On
July 25, 1969, he writes that he has started to bring a stopwatch with him to the lab
and is going to record the time he spends writing the journal.

This engagement with temporality was only one aspect of the project's engage-
ment with the conditions of composition. The importance of time was supplemented
throughout the project with an interest in the relationship between place and tech-
nology, amplified in part by Curnoe's attempt to flesh out how the new medium might
be affected as it moves through space. Initially, the computer lab appears as a non-
place, inhibiting his compositional practice. Yet, this relationship between place and
composition is further explored as he is granted permission to use terminals outside
of the lab. Even before this is made available to him, Curnoe is taken with the possibil-
ities presented by these new conditions of composition. In one lyrical sequence from
very early in the journals, he develops what place might mean for the computer's ca-
pacity to capture information:

> THE POSSIBILITY WAS ALSO MENTIONED ABOUT PUTTING TELETYPE
> IN JOHN'S OFFICE BY THE WINDOW. WOULDN'T IT BE GREAT TO BE
> OUT IN THE COUNTRY SOMEWHERE WITH A PORTABLE PHONE AND
> A KEYBOARD LIKE THIS, WOULDN'T IT BE GREAT TO HAVE A MA-
> CHINE LIKE THIS CONNECTED TO A TAPE RECORDER OUT IN A FIELD,
> WOULDN'T IT BE GREAT TO HAVE THIS MACHINE CONNECTED TO A
> TAPE RECORDER DURING A VERY PERSONAL MOMENT, NEAR YOU,
> LIKE WHEN YOU ARE FUCKING. WHAT EFFECT WOULD THIS HAVE
> ON THE MACHINE AND WHAT EFFECT WOULD IT HAVE ON SOMEONE
> WHO CAME ACROSS THIS INFORMATION IN THE CORE, I'M GETTING
> EXCITED ABOUT THE WAY STUFF IS COMING OUT OF MY HEAD RIGHT
> NOW. (Curnoe, 1969b)

It is a way of approaching writing on the computer that clearly stuck with him, as he
would return to it a year later, mentioning it in one of his "Radio Journal" pieces.
Perhaps referring to an encounter that took place at one of the reading groups orga-
nized by Hart on the UWO campus, Curnoe (1970) writes,

> [O]ne of the geographers at Western feels that computers with remote terminals — which will enable people to work and be educated at home etc. will hasten decentralization. … I am going to get ahold of the portable terminal when they get it at Western computer sciences dept. and use it at home — or at Huey's Restaurant near his payphone to send in my journals. Place is important and one place is as important as any other.

The development of this theme in Curnoe's Computer Journals is not unrelated to his interest in regional culture. If much of his artwork throughout his career was dedicated to preserving and acknowledging the significance of the cultural specificities of London and its surrounding area, this emphasis on the grounded nature of composition that might result from the new medium is a logical extension of this position.

However, as with Curnoe's regionalist politics, the emphasis on the local was not separate from a broader critique of the hierarchical structures of "culture" within which such regional specificities were marginalized or made invisible (Cholette, 2016). While his interpretation of the geographer's remark was optimistic in the "Radio Journals," he had approached the claim a year earlier with a less positive outlook with a less positive outlook. At times toying with the hopes of the emergent techo-libertarian ethos taking shape at the time around computers (see Barbrook & Cameron, 1996; Turner, 2006), Curnoe was also nonetheless concerned about the unexpected threats such decentralization might cause. In a journal entry from December 9, 1969, Curnoe connects decentralization to the inequalities of art world, writing:

> THIS ALL RELATES TO THE GEOGRAPHER'S REMARK ABOUT HOW COMPUTERS WILL LEAD TO MORE DECENTRALIZM … AS IN THE CASE OF THE NEW YORK ART IM TALKING ABOUT, IT MEANS THE COMPUTER WILL BE IN NEW YORK AND ANYONE IN THE STICKS CAN FIND OUT WHAT TO DO IMMEDIATELY, AND ANYONE IN THE STICKS CAN DO AND PUT INTO CIRCULATION HIS WORK IN NEW YORK RIGHT AWAY WITHOUT GOING THERE, WHICH WILL IN TURN MAKE THE HIERARCHY MUCH STRONGER. (Curnoe, 1969e)

Curnoe grapples with the new cartographies of power that might be instantiated through the "global village," which for McLuhan (1964) was to bring about the erasure of space and the collapsing of distinctions. For Curnoe, decentralized networks might instead reinforce existing hierarchies.

In the second phase of the project, Curnoe was able to rent a home terminal, essentially a customized teletype machine, from Bell Canada and connect it to the mainframe on the UWO campus using a dedicated telephone line. He saw this as bringing the project closer to the rhythms of his daily life as it was no longer necessary to travel to campus and struggle with the crowded lab in order to make entries into his journal. However, the move to his studio did not result in the naturalization of the new medium, as it rather brought into focus how the new form of networked communication with which he was experimenting was already implicated in the complexities of communication power in Canada. Complaining about the arrangement with Bell for the home terminal, Curnoe writes:

> THE FACT THAT BELL REFUSED TO SUPPLY AN EXTENSION CORD OR
> OUTLETS AND THE FACT THAT BELL OWNS THIS MACHINE BRINGS
> UP A LOT OF QUESTIONS FOR ME; WHEN THIS MACHINE IS GIVEN
> BACK TO BELL, WHAT HAPPENS TO THE CORE.? *[sic]* WHO HAS AC-
> CESS TO THE CORE RIGHT NOW? CAN BELL FROM ITS HEAD OFFICE
> IN THE STATES RETRIEVE ALL THE INFORMATION CONTAINED IN
> THIS MACHINE? AM I UNWITTINGLY PLACING MYSELF AT THE
> MERCY OF BELL CORP? (Curnoe, 1969c)

For Curnoe, digital writing is not something that happens above material structures;
it is always already embedded within them. Yet, despite his sensitivity to economic
imperatives and geo-political forces and his general anxiety about corporate control,
Curnoe (1969) nonetheless remains committed to the opportunities afforded by digital
writing systems:

> I HAVE NO COMMITMENTS TO THIS SYSTEM I AN [sic] I AM WORKING
> WITH AN ITS POSSIBLE I BELIEVE TO USE THIS MACHINE IN SUCH A
> WAY THAT THE INFORMATION PLACED IN IT BECAUSE OF ITS CON-
> TENT TENDS TO CHANGE THE NATURE OF THE MACHINE AND OF
> BELL. THAT'S WHAT I'M DOING RIGHT NOW. (Curnoe, 1969b)

Curnoe was not entirely constrained by the political or technical limitations of his new
writing assemblage. On the contrary, he enacts through his practice the mutual re-
ciprocities and influences that might be occurring between the artist-writer and the
machine. In the face of his sensitivity to the terrors and structural dynamics latent in
informational assemblages, Curnoe seems determined to have fun with his new com-
panions in thinking.

It is through this interest in transforming the machine that he comes to focus on
the nature of writing with and on digital machines. In the lab, his attention is drawn
toward the presence of the mainframe itself, but not in terms of its capacity to complete
complex computations so much as the sensorial experiences that accompany it. At
one point, attending to the sounds and tactile experience of the PDP-10, Curnoe
(1969c) writes,

> THER IS A VERY INSISTENT NOISE FROM THE MACHINES IN HERE
> SOMETIMES A RAPID CLICKING, I LIKE THE FEEL OF THESE KEYS BET-
> TER THSAN THOSE ON MY TYPEWRITER, THERE IS A GIVE TO THEM
> AND YOU SENSE THE OTHER PROCESSES THAT FOLLOW YOUR PRESS-
> ING THE KEY, BEYOND THE PRINTED MARK ON THE PAPE [sic].

Elsewhere, it is the interface with the terminal that draws his attention. The teletype
terminal used for inputting text into the system brings other writing technologies he
was using at the time—specifically the large font typewriter he had started to use in
transcribing his daily journals—into consideration, as he describes how they have sub-
tly shifted his ability to make words: "IT IS INTERESTING THAT SINCE BUYING THE
TYPEWRITER I AM LESS CONCERNED ABOUT SPELLING MISTAKES LIKE THAT
ONE 8 WORDS AGO" (Curnoe 1969e). Digital culture would eventually be character-
ized, if only at the level of myth, by usability and individual expressivity (Bolter &

Grusin, 1999; Turner, 2006). For Curnoe, however, it was a complex mix of new possibilities and clear constraints.

Conclusion: Curnoe contra McLuhan?

The Computer Journals is unique in Curnoe's œuvre; he would not explicitly make use of digital tools in his art practice until much later in his career, when he used early database technology to manage information a part of the Deeds project researching the history of the lot his London house was located on (see Ernst, 2016). Nonetheless, the Computer Journals is certainly an early example of computer-based textual composition, beginning several years before other documented attempts to write or publish materials composed on digital platforms, according to Matthew Kirschenbaum's (2016) history of word processing. And in the history of "computer art" in Canada—a sorely under-researched topic—the Computer Journals differs in its attention to the interface between human users and automated computation because it is not so focused on the aesthetic potential of increased rates of computation, which were the defining quality of many early experiments with computer-aided visual and textual composition at the time (Higgins & Kahn, 2012). Curnoe's Computer Journals thus provides an early record of the process through which forms of subjectivity, informed by older media such as typewriting and radio listening, were reformatted as "user" in relation to the computer. These elements are important not simply because of the way they would be subsequently incorporated into the social and technological logic of contemporary capitalism (cf. Hu, 2015), but because they capture those ephemeral aspects of experience that are not usually accounted for in discussions of the history of computing.

However, it would be a mistake to reduce Curnoe's Computer Journals to raw material for retrospective theorizations about the emergence of digital culture. Curnoe himself engaged in an attempt to account for his experience of media and technology during these years, and his ideas about technology and art developed by means of a productive tension with the widely read publications of Marshall McLuhan (1964, 2011), even if the Londoner's work lacked the disciplinary references and rhetorical tropes of "media theory." Indeed, influenced in part by the ideas of Simondon (1958) and Lafitte (1932), which Curnoe was exposed to by Hart, Curnoe's understanding of technology drifts from the implicit dialectic between human and machine that shapes McLuhan's (1964) theorization of media as extensions of the human. For Simondon (1958), this culminated in ideas about the "technical milieu," (p. 64) which viewed humans and machines as part of a single continuous system informed in part by the contributions of cybernetics and systems theory. The Computer Journals, with its interest in the experience of being with (and interacting with) the computer, is suggestive of Curnoe's attempt to interact with the computer as a distinct being in a way that does not immediately default to the humanist dialectics that characterize McLuhan's (1964) theorization of media. The computer is that thing you bring with you to the diner, into the field, but it is not something you can control.

This way of thinking about technology is outlined in a video from 1971, filmed while Curnoe was a member of the Toronto-based Video Ring collective (Hayden, 1971). The footage shows Curnoe and fellow artist Favro alongside Toronto-based artist

Michael Hayden and the publisher and poet Victor Coleman. Prompted by Hayden (1971), who puts forth the claim that our technologies reflect ourselves back to us, Favro interjects: "I think that this is what mechanology is about. That's the common way of looking at things. And that there is a different way." Responding to Favro's comment, the others use the example of the camera to reiterate the claim that technology is an extension of our faculties, showing us what we would not otherwise be able to see, extending human vision. Curnoe, with a mixture of conviction and provocation, responds to the comment by building on Favro's earlier remark: "See that's the thing. I think that there's another way of looking at machines and technology. And Murray's saying the same thing. And it's that I don't think that technology is necessarily always a self-portrait. And I don't think that that is the most important thing going on. There has to be another vantage point from which you could look at it." Favro adds, "And that's to look at the machines as if they're phenomena" (Hayden, 1971). Curnoe takes the point further, "That's right. Something that's happened" (Hayden, 1971). Favro concludes, "It's like looking at a tree or looking at anything. You look at it as having its own characteristics rather than an extension of yourself. Not seeing the human qualities, but seeing its own qualities" (Hayden, 1971).

Building on what might be described as Curnoe's "new materialist" approach to computer-based composition (see Parikka, 2012)—an approach that simultaneously foregrounds the materiality of the technical object and the perceptual experience of the machine's interlocutor—one arrives at a fundamentally different picture of the effects between humans and machines in techno-cultural systems from McLuhan.[7] Whereas McLuhan's (1964) hyperbolic approach had him persistently articulating the point that "the medium is the message" (p. 7), Curnoe's (digital) writings about media, though elusively poetical, render a more complicated assemblage of connection, affection, and collaboration. Sensitive to hierarchical structures and power (he is characteristically paranoid about whether or not Bell owns his digital communications), Curnoe bears witness to techno-human couplings as an assemblage comprised of diverse agents and opportunities.

This recovery of and engagement with Curnoe's Computer Journals project has attempted to develop two related, yet seemingly contradictory, claims. The first of these entails displacing those hegemonic authors, forms, and themes of media theory that have been variously labelled as "Canadian media theory" or the "Toronto School" in order to grant greater space and recognition to alternative conceptualizations of the social, cultural, and phenomenological place of contemporary media and technology. At the same time, this engagement with Curnoe's project has simultaneously contributed to reframing the conceptual, generic, and institutional contexts that legitimate media theory. Curnoe's attempt to bridge the formal and experiential relationships between humans and technology by situating the Computer Journals project as part of the historical emergence of the user supports this second point. These two points appear contradictory insofar as the kind of theory Curnoe offers effects a fundamental transformation in the epistemological ground "theory" usually occupies. However, this article's consideration of Curnoe's Computer Journals project is not simply meant to show how he anticipated issues taken up by subsequent authors. Rather, it brings into

focus the ongoing need to expand the range of materials, forms, and fields that shape the historical and contemporary constitution of media theory, if not media studies.

Acknowledgements

Notes

1. Gurney (2008) briefly mentions that Curnoe used a computer in his studio for writing stream-of-consciousness journal entries. Cholette (2007) briefly discusses the project but combines it with Curnoe's "Radio Journal," which is also discussed in this article.

2. Curnoe himself did not name the project and it went by a variety of names both over the course of its development and afterward. Initially, it was simply a collection of entries stored in a file on the university system named simply "Curnoe." Later on, it was connected with a program commissioned by Curnoe called "Glog" (short, presumably, for "Greg's log"). When exhibited, it was given the descriptive name "Teletype Journal" (perhaps by Curnoe himself), but it is described in the finding aid of Curnoe's papers at the Art Gallery of Ontario as a "computer journal." We have opted for the latter designation, as it would be easiest for other researchers to locate and consult these materials in the archive using this name. However, the variability of these names serves to highlight the degree to which the technological and cultural form Curnoe was experimenting with was in flux.

3. For an important early attempt to synthesize media-archaeological research for English readers, and for an example of more recent directions in the field, see, respectively, Erkki Huhtamo and Jussi Parikka (2011) and Ben Roberts and Mark Goodall (2019).

4. See Henry Adam Svec (2018) for an earlier attempt along these lines, a media-archaeological examination of the media theories articulated across the American folk revival.

5. While it is not clear that Dewdney was Hart's initial contact with Curnoe, Favro, and other artists, Hart certainly knew of Dewdney's earlier activities as a filmmaker. One of the first tasks assigned to Dewdney at UWO was the production of a short instructional film entitled *The Turing Machine* in 1968.

6. For a media-archaeological account of the discourse of Romanticism and the ways in which the typewriter challenged Romantic notions of transparency and intimacy, see Friedrich Kittler (1990, 1999) and Darren Wershler-Henry (2005).

7. Curnoe's poetic and elusive observations thus straddle two sides of a debate in media theory. One side emphasizes the agency and the ontological primacy of technological media (Ernst, 2016; Kittler, 2010); the other prioritizes the (human) user within digital communication (Hansen, 2004).

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