N.E. Thing Co. Ltd.
The Logic of Sensitivity

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N.E. Thing Co., *Iain Baxter using Telecoper to Transmit Artwork* (ca. 1969-70)

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This essay is dedicated to the research mandate of visual informers everywhere.

A Note to Users

> N.E. Thing Co. predicts that the new galleries of the future will not be what we know them now [sic.] – but will be *Television Stations*, and *Radio Stations* and *Communications Companies*. (N.E. Thing Co., 1967, "Some Thoughts," u.p.)

The electronic format of the *IB&raisonnE* affords a unique opportunity for experimentation with new modes of interactive, open-ended scholarly communication. This essay—a component part of the *IB&raisonnE—will be*, *is being*, *has been* issued incrementally in draft form as an invitation for comment and review by users. Revisions and drafts of subsequent sections will be issued in the coming months as they become available. At a later date, these draft sections will be knitted together into a single, revised manuscript, which will be likewise made available via the *IB&raisonnE*. Please submit comments to the attention to the author: alauder@yorku.ca , or, post to the project blog: <http://www.andraisonne.blogspot.com/>

Introduction

> I.B.M. or any of those companies are just totally all over the place. And they're into a level of sophistication that behooves us all to really understand, otherwise they're going to— .
> (BAXTER& in Robin White 1979: 11)

Information plays a conspicuous role in the art of N.E. Thing Co. Ltd. (NETCO), the conceptual project and business venture founded by IAIN BAXTER& in 1966. NETCO was legally incorporated January 16, 1969 and co-administered with Ingrid Baxter until the Company's dissolution in 1978 (N.E. Thing Co., January, 18, 1969). Prior to the establishment of N.E. Thing Co. as a registered name in 1967, BAXTER& employed the moniker N.E. Baxter Thing Co.—and the futuristic handle "IT" before that—as an "umbrella" for the manufacture of "products": vacuum-form or inflatable plastic landscapes whose weightlessness anticipated the experiential artifacts of the leisure economy predicted by futurologists such as Marshall McLuhan and Alvin Toffler (Paynter June 21, 1970: 1; Lippard June, 1969: 5-6; McLuhan 1968: 119; The British Columbia Gazette, January 30, 1969: 291; Toffler 1970: 234; Tomas 2010: 219).[1] With the formation of N.E. Thing Co., this Pop-inflected production was rapidly phased out in favour of dematerialized techniques of information processing. Henceforward, the Company traded in "Sensitivity Information": a distinctive cybernetic choreography for corporate actions. This informatic commodity was documented by Company personnel using certificates and information sheets that cannibalized institutional

conventions of notarization and information storage (Bonin in Lauder December 2010: 36).

NETCO's transition to a post-studio practice registered an early awareness of the "Age of Information" forecast by McLuhan (1964: 36). BAXTER& became familiar with the ideas of the Canadian media theorist through his participation in the 1965 McLuhan-themed Festival of the Contemporary Arts at the University of British Columbia, where he was then employed as an assistant professor (Knight 1995: 7, 10). Ken Allan (2004, 2010) has begun the process of tracing McLuhan's influence on BAXTER& and N.E. Thing Co. In the wake of new electronic technologies, McLuhan predicted an end to the specialization of sense and sensibility enforced by mechanical technologies:

> In the electric age, when our central nervous system is technologically extended to involve us in the whole of mankind and to incorporate the whole of mankind in us, we necessarily participate, in depth, in the consequences of our every action. (McLuhan 1964: 4)

McLuhan's exploration of shifting sensory ratios and an emergent global consciousness under the impact of electronic media constitutes a distinct point of departure for the information experiments of NETCO relative to the technological contexts of early information and computer art analysed by Michael Schwab (2003), Edward Shanken (2009) and Stephen Wilson (2002). As an attempt to represent information as embodied experience, Sensitivity Information belongs to the posthuman genealogy studied by literary scholar Katherine Hayles (1999). Rather than theorizing information as an abstract quantity or applying macro-political frameworks, NETCO adopted the approach—unusual enough for Conceptual Art in the years prior to the impact of feminism, and extremely unusual for art produced "in the mode of information" even today—of documenting the information behaviours of everyday life in post-industrial society (Poster 1990).

Long before the publication of de Certeau's influential *The Practice of Everyday Life*, NETCO was busy at work "bring[ing] to light the models of action characteristic of *users* [my emphasis]" (de Certeau 1984: xi-xii). NETCO's Sensitivity Information brought into representation the "tactics" of ordinary people appropriating the "strategies" of technocratic structures to "make do" (ibid: xiv-xv, xix). As early as 1966, NETCO focused its sights on the everyday actions of information users (in sharp contrast to the consumers of manufactured commodities who remain the focus of de Certeau's study two decades later). It is within this framework of improvised resistance to totalizing systems that NETCO's poetic "re-use of marketing structures" (ibid: xv) is situated here. Like the cybernetic management theories of Stafford Beer, NETCO's occupation of business models is properly understood as an exercise in "subpolitics"—a prescient attentiveness to the "the human element in the information processing industry" (BAXTER& June 26, 1970; Beer 1972; Pickering 2010: 282). NETCO's scientifically-inflected practice was coterminous with the ludic production of aesthetic information by a "creative microgroup" envisioned by French

psychologist Abraham Moles—whose *Information Theory and Esthetic Perception* was available in English translation in 1966 (Hermann 2010; Moles 1966 [1958]: 180). As an aesthetic and social intervention within technocratic systems, NETCO's information tactics reveal a sensitivity to the cultural politics of information that resembles the "daily deployment of informational tactics" described by Tiziana Terranova, for whom such tactics "address not simply the individual statement and its intertextual connections but also the *overall dynamics of a crowded and uneven communication milieu* (my emphasis)" (2004: 54). NETCO's information tactics were deployed in the noisy channels of the new service economy.

While there is no question of direct influence, de Certeau's thick descriptions of the "room to manoeuvre left for consumers by the situations in which they exercise their 'art'" are invoked to clarify aspects of NETCO's practice that remain under-theorized in previous studies. The actual sources of NETCO's tactics lie in McLuhan's belief in the redemptive possibilities of media artifacts as well as BAXTER&'s reading against the grain of concepts such as the "banal" and "kitsch" in the work of Moles. Yet, De Certeau's writings offer a coherent framework for making sense of NETCO's highly original *bricolage* of McLuhan and Moles to produce what de Certeau has termed "a *therapeutics for deteriorating social relations*" (de Certeau: xxiv). NETCO's satirical practice sought sustainable ways of making do within existing structures rather than revolution. In a 1975 interview, Ingrid Baxter underlined NETCO's departure from the Marxist perspective that was orthodoxy in many conceptual circles: "I don't see it as getting out; out is the wrong word. It's getting deeper *in*, if anything. […] We're sold *in*" (Baxter in Capilano Review Fall/Spring 1975/1976: 170-71).

Unlike the artist-researcher partnerships facilitated by the Bell Labs engineers of Experiments in Art and Technology (E.A.T.), N.E. Thing Co.'s exploration of information did not grow out of a technical knowledge of computer science or information theory, nor did it constitute a mere "dabbling" with new technologies (Wilson: 36). The Company's playful and satirical approach to information is more appropriately classed with Lev Manovich's preliminary, and usefully broad, definition of "info-aesthetics" as encompassing "those contemporary cultural practices that can be best understood as responses to the new priorities of information society: making sense of information, working with information, producing knowledge from information" (2008: 6). In keeping with this description, NETCO explored the impact of information technologies and information theory on perception and everyday life. In de Certeau's language, NETCO pitted the Philosopher's discourse against the knowledge claims of the Expert (de Certeau: 6). In employing "ordinary language" to study everyday information behaviours, NETCO undertook a "radical critique of the Expert" that disrupted institutional boundaries—even disturbing fellow critics such a Lawrence Weiner (de Certeau: 9).[2] Following de Certeau, NETCO's "science of the ordinary" can be aligned with the intensified interest in "linguistic behaviours and uses" found in the later work of Ludwig Wittgenstein (though it should be emphasized that Wittgenstein was not an influence on NETCO) (de Certeau: 11,

13). The ontic-ontological orientation of NETCO's language games stands out from the representational concerns of the Vancouver School. The Company's aloofness from the analytic economy of *critique* which has dominated North American art discourse for the last forty years may be responsible for its absence from recent histories of conceptualism. Isabelle Hermann has suggested that BAXTER&'s irreverent humor also played a role. For all its irony, the work of Graham, Wall and Wallace has no place for the irrepressible absurdity which drives BAXTER& (Hermann 2010: 11). However, fashions change. Today, the art world is once again shifting its attention to *synthetic* practices and theories of ecology, information, media, ontology, organization and systems. A renewed interest in NETCO—which explored all of these areas in depth—appears in tandem with this trend.

Further differentiating the Company's "sensitive" approach to information technologies from the hardware-intensive strategies deployed by such early adopters as Sonia Sheridan, museum initiatives such as the Los Angeles County Museum of Art's Art and Technology Program, and corporate-sponsorships such as the Xerox Palo Alto Research Centre (PARC), NETCO's projects primarily took the form of artist-initiated interventions within real-world systems that were intended to enhance the artist's opportunities for creative expression in a cultural environment dominated by proprietary media (Harris 1999; Kirkpatrick 2006; Tuchman 1971):

> You can't penetrate certain structures unless you have—a structure that looks like their structure. So by having the N.E. Thing Co. over the years I've been able to move like that. (BAXTER& in White 1979: 12)

Like British telematic artist Roy Ascott (Ascott 2003), NETCO also demonstrated an atypical tendency to theorize the effects of information. Yet, it must be stressed that NETCO's theoretical activities were resolutely intuitive and unsystematic (akin to McLuhan's dictum "observation minus ideas"): NETCO's pseudo-cybernetic approach to systems was always *hands on* (McLuhan in Marchand 1998: 130). NETCO's statements on information grew out of a performative imperative to "discover distinct properties or effects and the means of putting them into operation" (N.E. Thing Co., "Operations Statement," 1967: 1). This dialogical orientation aligns the production of N.E. Thing Co. with calls from such critical information theorists as Donald M. MacKay (1967: 13-15), John M. Budd (1995), Ron E. Day (1996), Gary P. Radford (1998, 2005) and Jonathan Rose (2003) for alternative models of information.

The informational tactics of NETCO "researchers" presage recent conceptualizations of information as affect (Booth-Butterfield and Booth-Butterflied 1990; Clore and Tamir 2002; Clough 2004; Clough, Goldberg, Schiff, Weeks and Willse 2007; Terranova 2004) as well as research on human information behaviour (Courtright 2007; Sonnenwald and Iivonen 1999; Spink and Cole 2006), information ecology (Huvila; Nardi and O'Day 1999; Strate 2010; Williamson 1998), media ontology (Kittler 2009), and personal information management (Cushing 2010; Das and Loui 2009; Marshall 2008). Finally,

NETCO's "social" approach to the network aligns its practice with an Actor Network Theory (ANT) approach to the study of social interaction on the web (Mika 2006) as well as critical approaches to social media (Ekstrom, Julich, Lundgren and Wisselgren 2011; Lamb and Kling 2003).

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Designed to enhance efficiencies in telephony, Claude Shannon's quantitative model of information was the dominant paradigm during the period of NETCO's activity, as it remains today (Hayles 1999). Shannon defined information as a measure of the *uncertainty* in a message. His classic 1948 article "A Mathematical Theory of Communication" proposed a statistical definition of information as the degrees of freedom between signal and noise in a given message. Semantic meaning is notoriously left out of Shannon's equation: "semantic aspects of communication are irrelevant," he declared (Shannon and Weaver 1962: 3). His probabilistic definition relied on a structural model of communication in which information is conceptualized as passing through a "channel" composed of a sender, a medium and a receiver. "Information" is basically a quantitative measure of the *capacity* of the channel.

In contrast to critics such as Eve Meltzer who equate information with facticity or classification, the work of NETCO reveals a prescient understanding of information as what Terranova has termed "communication beyond meaning" (Meltzer 2006: 120; Terranova 2004). Far from denoting a factual content, strictly speaking information is *non*-sense.[3] Viewed through the lens of Shannon's information theory, the greater the certainty or redundancy in a message (what we ordinarily think of as "content"), the less *information* it actually contains. Paradoxically, those who make knowledge claims with greater certainty are, from an information-theoretic perspective, the information *poor*. Susan Artandi clarifies this point, noting that when viewed from a pragmatic perspective, "negative information is in fact information" (July/August 1973: 244). NETCO's early awareness of the non-semantic and, indeed, nonsense character of information will be revisited in greater depth below with reference to the writings of Gilles Deleuze on the paradoxes of sense and sensation (Deleuze 2003 [1981]; 2004 [1969]). By way of a brief introduction, McLuhan's riposte to the information-theoretic definition of "noise" illuminates the Company's prescient recognition of the fundamentally non-representational character of information: "what they call 'NOISE,' I call the *medium*" (McLuhan in Cavell 1999: 350). Similarly, Philip Leider reported that BAXTER&'s conceptualization of information as a *medium* grew out of the artist's intuition that McLuhan's provocative description of electric light as "pure information" generated new possibilities when applied to the ambient sculpture of Dan Flavin (Leider June/July 1967: 7; McLuhan 1964: 8). This insight marks the moment of BAXTER&'s departure from the parodic appropriation of contemporary art *qua* commodity fetish which defined the Pop-inflected conceptualism of IT (cf. *Pneumatic Judd* (1965)). Henceforward for BAXTER& "art is all over" because, when viewed from the perspective of McLuhan's critical reworking of information theory, everything

hums with the noise of information. The instant that BAXTER& accepted McLuhan's proposition that the environment is an art form, *anything* could be art.

Critics of the "conduit metaphor" in information theory have argued that Shannon's model achieved and maintained dominance because its probabilistic definition of information reduced problems in communication to a manageable set of variables (Day 2000; Hayles 1999: 67). The tractability of Shannon's model made it attractive to exponents of cybernetics, the science of communication and control pioneered by MIT mathematician Norbert Wiener. Cybernetics experienced a vogue in computer science, management and military circles from the 1940s through the 1970s (Hayles 1999). It applied Shannon's models of communication and information to concrete problems in systems design. As Hayles has shown, cybernetics frequently conflated human and machine behaviour, even extending mechanistic analogies to psychological phenomena: "Transforming the body into a flow of binary code pulsing through neurons was an essential step in seeing human being as an informational pattern" (Hayles 1999: 61). Together, Shannon's theory of communication and cybernetics participated in a re-inscription of corporeal and psychological channels as information circuits. In Eve Meltzer's words, "sense perception is reconfigured as data transmission" (Meltzer 2006: 123). McLuhan was early in recognizing the effects of this trend: "[w]e see ourselves being translated more and more into the form of information," he wrote in 1964 (McLuhan 1964: 57). NETCO followed McLuhan in translating actions performed by its human operators into the informatic code of Sensitivity Information.

N.E. Thing Co.'s concept of SI represents a highly ambivalent response to the informationalization of the body. In keeping with cybernetic principles (Wiener 1961 [1948]), SI instituted an equivalence between the computational and the corporeal. The symbolic interchangeability of the body and its technological "extensions" assumed the form of a context-independent code for expressing states of activity that parodied then-current machine readable languages (McLuhan 1964).[4] Yet, SI also implied a dependency on the human operator that resisted full acceptance of the cybernetic strategy—namely, through the requirement that code be processed "sensitively" (N.E. Thing Co. 1993 [1969-70]: 42).

Setting the stage for subsequent students of network culture, NETCO's interventions targeted the channels of cultural, financial and social transmission—be they the dematerialized network of the Vancouver-based startup Facsend[5] or the hallowed chambers of the Vancouver Board of Trade—rather than the semantic content broadcast by those channels. NETCO's informational investigations constituted a series of tactical interventions within the infrastructure of the nascent information economy which turned the evacuation of meaning performed by information theorists against itself. Eschewing representational concerns, the information art of NETCO focused on the ontological problem of how media constrain what messages can come to be in the first place (*what* can be represented as opposed to *how*) and, in turn, how communication channels shape how that content is circulated. NETCO's occupation of a medium—the corporation—to "penetrate" the structures of the

Network Society sets the stage for the interventions within informational milieus studied by contemporary scholars such as Terranova (BAXTER& in White: 12, 15). The Company's participation in the 1970 conference of the Data Processing Management Association in Seattle, like its transmission of 10- and 30-second Company announcements via CBXT Television in Edmonton and cross-Canada via CBC radio in 1971, is evidence of NETCO's intervention within the dynamics of an emergent informational milieu (N.E. Thing Co. 1978: u.p.; Young 1971). "Very few (Artists) or Visual Informers (As NETCO refers to them) qualify," wrote NETCO in 1967, "when it comes to the means by which their concepts are disseminated. […] The nature of today's VSI is global and immediate and open to all, thus it is the challenge of the Artist to seek other means […] to allow for more sensitive broadcasting" (N.E. Thing Co., 1967, "Some Thoughts," u.p.). The information tactics of NETCO attest to "the power of the invention to displace the closed horizon of the communication channel" (Terranova 2004: 70). Staking a claim on the communication channel re-appropriates possibilities for creative expression in the Information Age.

If McLuhan's adage—"the medium is the message"—resonates like a mantra through previous literature on NETCO's media interventions, connections between the ecological dimension of the Company's practice and the holistic thought of McLuhan have received less attention. Nathalie Blanc and Julie Ramos (2010) and Isabelle Hermann (2010) have begun to investigate the ecological aspects of BAXTER&'s practice, but the properly informational character of NETCO's ecological tactics remains relatively unexplored. I propose that looking to the work of McLuhan's mentor, Harold Adams Innis—particularly its focus on the staple-character of the emergent "information industries" (Innis 2008 [1951]: 83)—bridges the gap between the medium theory of McLuhan and a properly ecological perspective. Robert E. Babe has argued that McLuhan's holistic reception theory fills an important gap in the ecological thought of Innis (Babe 2008: 12, 15). Ecology is also central to Arthur Kroker's geo-political analysis of both Innis and Mcluhan in *Technology and the Canadian Mind* (1984). Kroker's perspective is echoed by Ronald Deibert, who—pointing to Innis's contention that "geography provides the grooves" of economic development (Innis 1946: 87)—dubs Innis's outlook "non-reductive physicalism" (41). The legacy of Innis's ecological orientation is evident in McLuhan's understanding of media as "environments" (McLuhan February 1967: 6).[6]

McLuhan's ecological framing of media had a particular resonance for contemporary artists, since the Canadian theorist argued that the technological environment is itself an art form; correlatively, he posited that artists are producers of "counter-environments" (ibid: 5; Allan 2010).[7] The anti-environment produced by the artist throws the normally invisible contours of the everyday environment into relief (Mcluhan 1966). In periods of environmental change, the environment itself becomes a "teaching machine" and the *work* of art is "the training of perception" (McLuhan 1966: 56, 1968: 124). Marie Fleming has interpreted NETCO's concept of Sensitivity Information as just such an exercise in sensory training (Fleming 1982: 37).

McLuhan's environmental approach to communications framed his ecological critique of Shannon's conduit paradigm. Richard Cavell has interpreted McLuhan's critique of Shannon as an insistence that "context is part of communication" (Cavell 1999: 356). Derrick de Kerckhove has similarly observed that McLuhan replaced Shannon's conception of "matching" messages sent and received with a "transformation of the source and target simultaneously" (de Kerckhove 1981: 8). For McLuhan, communication meant "participation in a common situation" (McLuhan April 1954: 6). This contextualist view of communication echoes the critical information theory of British researcher Donald M. MacKay (1922-1987). Whereas Shannon proposed a context-independent definition of information, MacKay insisted that information was relational (Hayles 1999: 53). Setting the stage for the informational *ACT* and *ART* certificates of the N.E. Thing Co., MacKay's dialogic approach to information reintroduced the semantic content of communication ignored by Shannon through a translation of information into *action* (ibid: 56):

> From a physical point of view, the two-way interaction of people in dialogue (as distinct from purely manipulative monologue) introduces a coupling between the physical states of their cognitive mechanisms. They thus become effectively one system for purposes of mechanistic analysis, so that to this joint cognitive system, no matter how many people are involved, the foregoing argument applies. No party to a dialogue can can logically regard any of the others as a fully determinate system. (MacKay 1967: 13-14)

Although MacKay's alternative to Shannon's reductive model did not gain currency in the United States (due to the complexities which it implied vis-à-vis application), he was an outspoken critic at the influential Macy Conferences and remained a leading information theorist in Britain (Hayles 1999: 56). It is therefore plausible that McLuhan was aware of his work. Certainly, as Fred Botting (2004) has demonstrated, their respective approaches to information make for fruitful comparison. MacKay's dialogic information theory resonates with McLuhan's non-linear formulation of communication in the following passage from "Radio and TV vs. the ABCED-Minded":

> There is necessarily discontinuity in metaphor. There has to be a leap from one situation to another. If I say: 'I'll take a rain-check on that,' I am breaking the wire of direct reply: 'Sorry, can't make it,' and creating an independent circuit. […] The new circuit sets up a drama which reshapes and controls the initial situation. (McLuhan June 1955: 16-17)

MacKay and McLuhan alike link the indeterminacy of information with the fundamentally contingent and performative nature of communication.

Critics of Innis and McLuhan have consistently charged their work with technological determinism. Yet, contrary to the determinism espoused by contemporary media theorist Friederich Kittler—who has notoriously posited that "media determine our situation"—the writings of Innis and McLuhan alike consistently guard against a reductive reading (Kittler 1999: xxxix; McLuhan 1962: 3). I follow students of Innis such as Deibert, who interpret his work as an exercise in "ecological holism" that privileges the "interaction of contingent variables in human history" (Deibert 2007: 5, 36). Menahem Blondheim's interpretation of Innis's writings as articulating a "dynamic of inverted determinism" (2007 61), in which the relative bias exerted by a new medium is conceptualized as setting in motion a challenge from the margins of society that, through unpredictable factors, generates a crisis or rebalancing of social forces, complements the interpretation of Innis found in these pages. Blondheim's inverted determinism is also consistent with Arthur Kroker's geopolitical reading of Innis: "the bias of one medium toward decentralization," writes Kroker, "is offset by the bias of another medium toward centralization" (1984: 103-04). A recurring theme in following sections will be the dynamic interaction of organism, environment and technology treated by Innis and McLuhan as it resurfaces in the informational tactics of NETCO. NETCO's ecological approach to the contemporary information landscape suggests that the Company properly belongs to the specifically "Canadian tradition of pragmatism" identified by Kroker (1984: 105). NETCO's pragmatism consisted in a "search for survival strategies" under conditions of dependency (ibid: 100). Looking to geography and technology as resources, NETCO improvised an information ecology to cope with the stress of life in a marginal economy.

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This paper is structured as an inventory of information concepts produced by the N.E. Thing Co.'s "visual informers" (Deleuze and Guattari 1994; McLuhan 1967; N.E. Thing Co.1993 [1969-1970]: 42). It sets out to situate those concepts within their conceptual and social conditions of emergence. The result is a "toolbox" for information users everywhere: a compendium of actions, affects, concepts, effects and "way[s] of using imposed system[s]" which can be (re)activated and (re)deployed anytime and anywhere (de Certeau 1984: 18; Foucault 1994 [1974]).

Notes

1. IT was a collaboration with American artist John Friel. NETCO personnel also occasionally operated under such monikers as SIDCO and ICOME (Grescoe January 25, 1969: 15; N.E. Thing Co. December 21, 1970: 1).

2. In 1969, Lippard noted NETCO's tendency to "repel purists in any area" (Lippard 1969: 6).

3. “Information is such only because it displays some pattern of redundancy and frequency that allows a channel to distinguish it from noise” (Terranova 2004: 56). Terranova underlines that “the dynamics of information take precedence over those of signification” (ibid: 55).

4. Appropriately, NETCO’s corporate directory included an “extension” department (Lippard 1969: 5).

5. The Facsend network—“the first publicly accessible facsimile transmission network serving Western Canada”—facilitated NETCO’s remote participation in a 1969 exhibition at Paula Cooper Gallery in New York (Facsend April 22, 1969, May 18, 1969).

6. Kroker portrays McLuhan as a “radical ecologist” (66).

7. Ken Allan has compared NETCO’s *Environment* (1969) to McLuhan’s notion of the counter-environment in an unpublished paper (Allan 2010).

References

Allan, Ken. 2004. Understanding Information. In *Conceptual Theory, Myth, and Practice*, ed. Michael Corris, 144-68. Cambridge: Cambridge University Press.

---. 2010. N.E. Thing Co. Ltd., Marshall McLuhan, and the Counter-Environment. Unpublished paper presented as part of the conference Traffic: Conceptualism in Canada, University of Toronto, November 26-28.

Artandi, Susan. July/August 1973. Opinion Paper: Information Concepts and their Utility. *American Society for Information Science, Journal* 24(4): 242-45.

Ascott, Roy. 2003. *Telematic Embrace: Visionary Theories of Art, Technology, and Consciousness*. Berkeley, CA; Los Angeles; London: University of California.

Babe, Robert E. 2008. Innis and the Emergence of Canadian Communication/Media Studies. *Global Media Journal - Canadian Edition* 1(1): 9-23.

Baker, William H., Earl J. Larrison, Charles Yocom and IAIN BAXTER&. 1961. *Wildlife of the Northern Rocky Mountains: Including Common Wild Animals and Plants*. Healdsburg, California: Naturegraph.

Beer, Stafford. 1972. *The Brain of the Firm: The Managerial Cybernetics of Organization*. London: Allen Lane the Penguin Press.

Blanc, Nathalie and Julie Ramos. 2010. *Écoplasties: art et environment*. Paris: Manuella.

Brautigan, Richard. 1967. *Trout Fishing in America*. New York: Dell.

Bell, Daniel. 1973. *The Coming of Post-Industrial Society: A Venture in Social Forecasting*. New York: Basic Books.

Botting, Fred. 2004. Culture, Literature, Information. In *Post-Theory, Culture, Criticism*, ed. Ivan Callus and Stefan Herbrechter, 215-250. Amsterdam and New York: Rodopi.

Budd, John M. 1995. An Epistemological Foundation for Library and Information Science. *The Library Quarterly* 65(3): 295-318.

Booth-Butterfield, Melanie and Steve Booth-Butterfield. 1990. Conceptualizing Affect as Information in Communication Production. *Human Communication Research* 16(4): 451-76.

Capilano Review. Fall/Spring 1975/1976. Interview/N.E. Thing Co. *The Capilano Review* 8/9: 167-80.

Cavell, Richard. 1999. McLuhan and Spatial Communication. *Western Journal of Communication* 63(3): 348-63.

Clore, Gerald L. and Maya Tamir. 2002. Affect as Embodied Information. Psychological Information. *Psychological Inquiry* 13(1): 37-45.

Clough, Patricia Ticineto. 2004. Future Matters: Technoscience, Global Politics, and Cultural Criticism. *Social Text* 22(3): 1-23.

Clough, Patricia Ticineto, Greg Goldberg, Rachel Schiff, Aaron Weeks and Greg Willse. 2007. Notes Towards a Theory of Affect-Itself. Ephemera 7(1): 60-77.

Courtright, Christina. 2007. Context in Information Behavior Research. *Annual Review of Information Science and Technology* 41(1): 273-306.

Cushing, Amber L. 2010. Highlighting the Archives Perspective in the Personal Digital Archiving Discussion. *Library Hi Tech* 28(2): 301-12.

Das, Madirakshi and Alexander C. Loui. 2009. Event Classification in Personal Image Collections. In *ICME 2009*, edited by IEEE, 1660-63. New York: IEEE.

Day, Ronald E. 1996. LIS, Method, and Postmodern Science. *Journal of Education for Library and Information Science*, 37(4), 317-24.

---. 2000. The 'Conduit Metaphor' and the Nature and Politics of Information Studies. *Journal of the American Society of Information Science* 51(9): 805-11.

De Certeau, Michel. 1984. *The Practice of Everyday Life*. Los Angeles: University of California Press.

De Kerckhove, Derrick. May 1981. Understanding Media. *Canadian Forum* 51: 8-9, 33.

Deleuze, Gilles. 2003 [1981]. *Francis Bacon: The Logic of Sensation*, trans. Daniel W. Smith. Minneapolis, MN: University of Minneapolis.

---. 2004 [1969]. *The Logic of Sense*. London: Continuum.

Deleuze, Gilles and Félix Guattari. 1994. *What is Philosophy?* New York: Columbia University Press.

Diebert, Ronald J. 2007. Between Essentialism and Constructivism: Harold Innis and World Order Transformations. In *The Toronto School of Communication Theory*, edited by Rita Watson and Menahem Blondheim, 29-52. Jerusalem: Hebrew University Magnes Press.

Ekstrom, Anders, Solveig Julich, Frans Lundgren and Per Wisselgren, eds. 2011. *History of Participatory Media: Politics and Publics, 1750-2000*. New York; London: Routledge.

Facsend. 22 April 1969. Facsend press release. Box 10, File 1, Iain Baxter Fonds, E.P. Taylor Research Library and Archives, Art Gallery of Ontario, Toronto.

---. 18 May, 1969. Facsend to All Factors. 10, File 1, Iain Baxter Fonds, E.P. Taylor Research Library and Archives, Art Gallery of Ontario, Toronto.

Fleming, Marie L. 1982. *BAXTER$^{2:}$ Any Choice Works*. Toronto: Art Gallery of Ontario.

Foucault, Michel. (1994 [1974]) Prisons et asiles dans le mécanisme du pouvoir. In *Dits et Ecrits*, t. II, 523-4. Paris: Gallimard.

Grescoe, Paul. 1969. Steady, Now. Is this Art? *Canadian Weekend Magazine* January 25.

Hayles, Katherine. 1999. *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. Chicago; London: University of Chicago Press.

---. 2005. *My Mother Was a Computer: Digital Subjects and Literary Texts*. Chicago; London: University of Chicago Press.

Harris, Craig. 1999. *Art and Innovation: The Xerox PARC Artist-in-Residence Program*. Cambridge, MA: MIT Press.

Hermann, Isabelle. *IAIN BAXTER&: Pionnier et premier critique du photoconceptualisme 1967-1969*, http://archives.library.yorku.ca/iain_baxterand_raisonne/archive/files/hermann_iainbaxterand_pionnier_rev_3d95caf07e.pdf (accessed May 18, 2011).

Huvila, Isto. 2009. Ecological Framework of Information Interactions and Information Infrastructures. *Journal of Information Science* 35(6): 695-708.

IAIN BAXTER&. 26 June 1970. Synopsis of Speech – DPMA International Conference June 23 – 26, 1970. IAIN BAXTER& Personal Papers.

---. 1999. Artist's Statement. In *Landscape Works*. Banff, AB: Walter Phillips Gallery.

Innis, Harold A. 1999 [1930]. *The Fure Trade in Canada*. Toronto: University of Toronto Press.

---. 1946. *Political Economy in the Modern State*. Toronto: Ryerson Press.

---. 2007 [1950]. *Empire and Communications*. Toronto: Dundurn Press.

---. 2008 [1951]. *The Bias of Communication*. Toronto: University of Toronto Press.

Kirkpatrick, Diane. 2006. Sonia Landy Sheridan and the Evolution of Her Generative Systems Program. *Visual Resources* 22(4): 343-61.

Kittler, Friederich. 1999. *Grammophone, Film, Typewriter*. Stanford, CA: Stanford University Press.

---. 2009. *Towards and Ontology of Media*. Theory, Culture & Society 26 (2/3): 23-31.

Knight, Derek. *N.E. Thing Co.: The Ubiquitous Concept*. Oakville, ON: Oakville Galleries.

Kroker, Arthur. 1984. *Technology and the Canadian Mind: Innis/McLuhan/Grant*. Montreal: New World Perspectives.

Lamb, Roberta and Rob Kling. 2003. Reconceptualizing Users as Social Actors

in Information Systems Research. *MLS Quarterly* 27(2): 197-236.

Lauder, Adam. 2010. Documents of Self-Administration: A Conversation with Vincent Bonin. *C* 108: 34-42.

Lippard, Lucy. 1969. Iain Baxter: New Spaces. *artscanada* 126(132/133): 3-6.

MacKay, Donald M. 1967. *Freedom of Action in a Mechanistic Universe*. Cambridge, Eng.: Cambridge University Press.

Manovich, Lev. 2008. Introduction to Info-Aesthetics. http://www.mariabuszek.com/kcai/PoMoSeminar/Readings/ManovichInfoAesthetics.pdf (accessed May 18, 2011).

Marchand, Philip. 1998. *Marshall McLuhan: The Medium and the Messenger*. Cambridge, MA: MIT Press.

Marshall, Catherine C. 2008. Rethinking Personal Digital Archiving, Part 1. *D-Lib Magazine* 14(3/4), http://www.dlib.org/dlib/march08/marshall/03marshall-pt1.html (accessed May 18, 2011).

McLuhan, Marshall. 1954. Joyce, Mallarmé, and the Press. *The Sewanee Review* 62(1): 38-55.

---. April 1954. Notes on the Media as Art Forms. *Explorations* 2: 6-13.

---. June 1955. Radio and TV vs. the ABCED-Minded. *Explorations* 5: 12-18.

---. 1962. *The Gutenberg Galaxy: The Making of Typographic Man*. Toronto: University of Toronto Press.

---. 1964. *Understanding Media: The Extensions of Man*. New York: McGraw-Hill.

---. October 1966. Art as Anti-Environment. *Art News* 31: 55-57.

---. February 1967. The New Technology and the Arts. *artscanada* 24(2), issue 105: 5-7.

---. 1967. *The Medium is the Massage: An Inventory of Effects*. Bantam: New York; Toronto.

---. 1968. Environment as Programmed Happening. In *Knowledge and the Future of Man: An International Symposium*, ed. Walter J. Ong, 113-24. New York: Holt, Rinehart and Winston.

Meltzer, Eve. 2006. The Dream World of Information. *Oxford Art Journal* 29(1): 115-135.

Mika, Peter. 2007. Ontologies Are Us: A Unified Model of Social Networks and Semantics. *Journal of Web Semantics* 5(1):5-15.

Nardi, Bonnie A. and Vicky L. O'Day. 1999. Information Ecologies: Using Technology with Heart. *First Monday* 4(5), http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/viewArticle/672/582 (accessed May 18, 2011).

N.E. Thing Co. 1967. Some Thoughts re: *Communications and Concepts*. Box 7, File 1, Iain Baxter Fonds, E.P. Taylor Research Library and Archives, Art Gallery of Ontario, Toronto.

---. 1967. Operations Statement. Box 7, File 1, Iain Baxter Fonds, E.P. Taylor Research Library and Archives, Art Gallery of Ontario, Toronto.

---. 1969. Minutes of the First Meeting of Directors of the N.E. Thing Co. LTD. January 18. Box 9, File 18, Iain Baxter Fonds, E.P. Taylor Research Library and Archives, Art Gallery of Ontario, Toronto.

---. 1970. ICOME: Bits of Information – Con't. *Architecture Canada*, December 21.

---. 1978. *N.E. Thing Co. Ltd., Vol. 1*. Vancouver: N.E. Thing Co.

---. 1993 [1969-1970]. Some Thoughts re: Communications and Concepts. In *You Are Now in the Middle of a N.E. Thing Co. Landscape: Works by Iain and Ingrid Baxter, 1965-1971*, ed. Nancy Shaw, Scott Watson, and William Wood, 42. Vancouver: Fine Arts Gallery, University of British Columbia.

Pickering, Andrew. 2010. *The Cybernetic Brain: Sketches of Another Future*. Chicago; London: University of Chicago Press.

Poster, Mark. 1990. *The Mode of Information: Poststructuralism and Social Context*. Cambridge, Eng.: Polity.

Radford, Gary P. 1998. Flaubert, Foucault, and the Bibliotheque Fantastique: Toward a Postmodern Epistemology for Library Science. *Library Trends* 46(4): 616-34.

---. 2005. Structuralism, Post-structuralism, and the Library: de Saussure and Foucault. *Journal of Documentation* 61(1): 60-78.

Rose, Jonathan. 2003. Alternative Futures for Library History. *Libraries & Culture*

38(1): 50-60.

Schwab, Michael. 2003. Early Computer Art and the Meaning of Information, http://www.seriate.net/Early_Computer_Art.pdf (accessed May May 18, 2011).

Shanken, Edward A., ed. 2009. *Art and Electronic Media*. London; New York: Phaidon.

Shannon, Claude E. and Warren Weaver. 1962 [1948]. *The Mathematical Theory of Communication*. Urbana, IL: University of Illinois Press.

Smith, Barry. 2003. Ontology. http://ontology.buffalo.edu/smith/articles/ontology_pic.pdf (accessed May 25, 2011).

Sonnenwald, Diane H. and Mirja Iivonen. 1999. An Integrated Human Information Behvior Research Framework for Information Studies. *Library and Information Science Research* 21(4): 429-57.

Spink, Amanda and Charles Cole. 2006. Human Information Behavior: Integrating Diverse Approaches and Information Use. *Journal of the American Society for Information Science and Technology* 57(1): 25-35.

Strate, Lance. 2010. Studying Media *as* Media: McLuhan and the Media. In *Transforming McLuhan: Cultural, Critical, and Postmodern Perspectives*, ed. Paul Grosswiler, 67-80. New York: Peter Lang.

Susan Paynter. 1970. Doing N.E. Thing for Gross National Good. *Seattle Post-Intelligencer*, June 21.

Terranova, Tiziana. 2004. Communication Beyond Meaning: On the Cultural Politics of Information. *Social Text* 22(3): 51-73.

Toffler, Alvin. 1970. *Future Shock*. New York: Random House.

Tomas, David. 2010. The Dilemma of Categories and the Overdetermination of a Business Practice. In *Documentary Protocols (1967-1975)*, ed. Vincent Bonin and Michèle Thériault, 218-53. Montreal: Leonard & Bina Ellen Gallery.

Tomic, Taeda. 2010. The Philosophy of Information as an Underlying and Unifying Theory of Information Science. *Information Research* 15(4), http://informationr.net/ir/15-4/colis714.html (accessed May 25, 2011).

Tuchman, Maurice. 1971. *A Report on the Art and Technology Program of the Los Angeles County Museum of Art*. New York: Viking.

White, Robin. 1979. Iain Baxter/N.E. Thing Co. *View* 2(4): 17.

Wiener, Norbert. 1961 [1948]. *Cybernetics, or Control and Communication in the Animal and the Machine*. Cambridge, MA: MIT Press.

Williamson, Kirsty. 1998. Discovered by Chance: The Role of Incidental Information Acquisition in an Ecological Model of Information Use. *Library & Information Science Research* 20(1): 23-40.

Wilson, Stephen. 2002. *Information Arts: Intersections of Art, Science, and Technology*. Cambridge, MA; London: MIT Press.

Young, Dennis. 1971. *49th Parallels: New Canadian Art*. Sarasota, FL: John and Mable Ringling Museum of Art; Chicago: Museum of Contemporary Art; Museum of Contemporary Art.