

REFRESH!

FIRST INTERNATIONAL CONFERENCE
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Digital Analysis of Structure and Form
Extensible Markup Language XML in History of Architecture

The markup language XML allows to describe structures of any object and to organize the related information in a very simple, but extremely flexible way. In addition to this, computer-based transformations can convert these XML-descriptions into various forms and document formats. How can this principle of separation between structure and form be made useful in regard to the questions and the needs of the history of architecture?

Considering as an example the classical orders of columns, this poster demonstrated how the analysis of historical treatises can result in a structural description (of the orders) in the syntax of XML. Furthermore a set of graphical representations (of the XML-data) was presented.

This ongoing investigation concerns itself with several aspects: On the one hand the technology can be used as a scientific tool for architectural historians to analyze selected treatises by means of the generated forms. For a more experimental approach XML on the other hand provides an instrument to reorder old and to create new forms, all based on the rules found in the historical sources. But above all this procedure points to a new conceptual method for architectural historians including the description of objects, the acquisition of information and the analysis of structure and form.

On the following illustrations you can see three different styles of representation of the ionic order.

Historical Treatises

Ten historical treatises were analysed. The selected authors range from the ancient Vitruvius over some Renaissance writers (e.g. Vignola, Palladio) to Chitham in the 20th century. The editions considered are not always the original folios.

Digital Structure

An analysis of all the ionic orders in the treatises leads to a structural

description which fits every ionic order and thus also the particular treatise/authors. The presented XML-documents contain all the important information about the individual author and the specific order, the used elements, their arrangement and proportions. It is the basis for the following transformation processes.

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RENCE ON THE HISTORIES OF MEDIA ART, SCIENCE AND TECHNOLOGY
September 28 - October 1, 2005 & Summit Oct. 2nd - 3rd, 2005

OUTERSPACE

Todd Davis, Jeremy Turner and Douglas **REFRESH!**

FIRST INTERNATIONAL CONFERENCE ON THE HISTORIES OF MEDIA ART, SCIENCE AND TECHNOLOGY

September 28 - October 1, 2005 & Summit Oct. 2nd - 3rd, 2005

OUTERSPACE

Todd Davis, Jeremy Turner and Douglas Jarvis

ABSTRACT:

The history of SAT-TEL-COMP at Open Space (Victoria, British Columbia, Canada) and COLLABORATORY as a curatorial basis which set the groundwork for a communications network between artists, engineers. As well, the creation and development of Direct Media Association (1974-1984) by Bill Bartlett, and early communication networks between artists and through engineers. Also discussed are early information technology systems across Canada, the U.S. and internationally and their role in art making of the mid to late 1970's.

We have come to reassess the ideals of production and imagery through and analysis of the following: the interaction of regional and local art, Government supported networks with the international art world, new media's historical use of the satellite as a precursor to the Internet and streaming video, and the use of slow-scan television during the period of 1978 through 1981. This is ultimately where it has led us in today's world of variable media.

This paper was presented at the REFRESH conference, First International Conference on the Media Arts, Sciences and Technologies held at the Banff Center sept 29-oct 4 2005 and co sponsored by the Banff New Media Institute, the Database of Virtual Art

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Leonardo/ISAST will contextualize the networks, personal computer and other pertinent technologies within these early telecommunication collaborations between artists and technology. This presentation will also explore such aspects as the early satellite, telephone and computer equipment used in the development of these artistic networks and the projects that contributed to the globalization of technology.

Todd Davis, Jeremy Turner and Douglas Jarvis
January 2005

Todd DAVIS

SAT-TEL-COMP: Utopia in Canadian Art and Artist-run Centres, 1974-1984

During the late 1960's and early 1970's, the development of many avenues within contemporary art, especially with the expansion of technology advancing notions of an artistic and sanctioned social utopia, challenged the notion of 'art for art's sake' that had subjugated art production since the end of WWII. This examination of art through social concerns and technological advancement available to the artists, was a binary payoff which is being analyzed through art historical scholarship and museum exhibitions as research turns to previously suspended moments of late 20th-century art & technology.

In Canada, developing alongside the artistic and utopian concepts in art were the beginnings of a network of artist-run culture. Although the burgeoning social networks were dependent upon, and at the same time, crucial in the development of technology, especially in the arts and early use of video, satellite development, availability, and other exchange networks.

SAT-TEL-COMP, a network utilizing technology emanating from the west coast of Canada, can be viewed as one group dialogue within the many artistically utopian networks. Looking at such developments as the massive, and massively influential Experiments in Art and Technology (E.A.T.) instigated by Bill Klüver (ex-Bell Laboratory engineer and co-founder of E.A.T.), Robert Whitman (multimedia artist, E.A.T. co-founder) and others, primarily artists based in cities throughout the world looking for engineers and the technological insight they held, one can see symbiotic relationships of art and technology. On the west coast of Canada, INTERMEDIA, a coalesced group of artists was the driving force within the Vancouver community which A.A. Bronson referred to as a clue to our future artistic lifestyle; the Image Bank of Morris-Trasov-Nova was a late 1960's image network and repository which continues to this day. As well, N.E. Thing Co. ¹ –in 1966-78 Ian Baxter worked with Ingrid Baxter as the N.E. Thing Company, based in Vancouver– and their many international interactions such as the Time-ZonePhoto-VSI Simultaneity Projects which also utilized existing print and new technology for communicative art works can be added to the lists of art networks within which is situated the Canadian Artist-run Centres (ARCs) network.

¹ N.E. Thing Co. and their Time-ZonePhoto-VSI Simultaneity Projects utilized photography, print, Xerox, and the first 'facsimile/telephone' units, sometimes called telecopiers. The 1969 May-June cover of *Art in America* (AiA) presented a Simultaneity project initiated by Ian and Ingrid Baxter of N.E. Thing Co. based in Vancouver where Ian Baxter was teaching at the University of British Columbia and the Nova Scotia college of Art & Design and Kasper Koenig who was initiating many projects in Halifax. The AiA cover was conceptually part of the Simultaneity project to, and through NSCAD, extended the rigorous tenets of conceptual art and culminated as a 4-colour lithograph at NSCAD Press, again extending reproduction issues and informational transmissions through technology.
Canadian Heritage Centre for Canadian Contemporary Art website: N.E. Thing Co.: *Art in America* May-June 1969: http://www.ccca.ca/artists/work_detail.html?languagePref=fr&mkey=17152&title=%3Ci%3EArt+in+America%3C%2F%3E+Cover%2C+May-June+1969&artist=N.+E.+Thing+Company&link_id=1843
Art in America Cover, May-June 1969, 1969, 4-colour lithograph, magazine, 20 slides, ACT Seal; Litho: 60cm x 120cm; magazine and slide sheet, each: 11 x 9 in.; 28 x 23 cm

“In the late 1960s, artists within the conceptual movement eschewed form and aesthetics as a means of verifying art objects; they tested the structures within which work was exhibited, distributed and purchased; they queried the relationship of the artist to society, working in a climate of anti-authoritarianism and excitement about new technology. The term "document" encompasses a range of media such as photography, text, maps, telegrams, film and sound recording. The document existed and continues to exist as a means for artists to record or communicate ideas, processes and analyses, to employ a highly theorized self-reflexivity while embracing ideas about creative freedom and anti-materialism.”²

INTERMEDIA was the format through which any medium had relevancy, as it became the model for artist centres across Canada. The artist-run network with centres of varying size and scope brought about a small revolution regarding social concerns within art and developed in parallel with the last ‘ism’ of 20th century art: conceptualism. “Conceptual art defined as process art regimented by the intent of the concept, is now recognized as one of the most critical developments in the globalization of contemporary art.”³

Other parallel tracks continued the expansion of race and other underlying concepts such as the recognition of Aboriginal development on many fronts, especially the arts, notions of gender issues, and certainly social interests of a constantly expanding sort brought new fodder for the artists in the development of their networks.

Social network theory⁴ views social relationships in terms of nodes and tie, entities and interaction, certainly a reasonable description of ARCs and their network. Nodes are the individuals, such as artists within the networks; and ties are the relationships between said individuals, say, and social concerns in art. There can be a multitude of ties between the nodes. In its most simple form, a social network is a map of all of the relevant ties between the nodes participating. Much like has been developed by Jeremy Turner in his initial research of SAT-TEL-COMP at Open Space, the 33 year old ARC situated in Victoria British Columbia. The network can also be used to determine the social capital of individuals. These concepts are often displayed in a social network diagram, where nodes are the points and ties are the lines, much like many other networks that utilize social interaction. Please see OUTERSPACE.ca developed by Turner and Douglas Jarvis.

² Exhibition: Conception - The Conceptual Document 1968-1972; Curated by Catherine Moseley; monograph with essay; The Morris and Helen Belkin Art Gallery, Main Mall 1825, V6T 1Z2 Vancouver, British Columbia Canada; 12.10. - 2.12.2001; this touring exhibition emanated from the Norwich Gallery, Norwich School of Art and Design in England; Participating Artists: Art & Language, John Baldessari, Bernd + Hilla Becher, Marcel Broodthaers, Victor Burgin, Jan Dibbets, Gilbert & George, Douglas Huebler, On Kawara, Joseph Kosuth, Christine Kozlov, Sol LeWitt, N.E.Thing Co., Bruce Nauman, Adrian Piper, Edward Ruscha, Robert Smithson, Jeff Wall, Lawrence Weiner

³ Atkin, Robert. *Artspeak: A Guide to Contemporary Ideas, Movements, and Buzzwords*. Abbeville, 1990. p 97

⁴ A social network is a social structure commonly between artists, mostly individuals, but also extending to organizations. It indicates the ways in which they are connected through various social familiarities ranging from casual acquaintance to close familial bonds. The term was first coined in 1954 by J. A. Barnes (in: *Class and Committees in a Norwegian Island Parish*, "Human Relations".1954; 7: 39-58)

A social network, such as INTERMEDIA, SAT-TEL-COMP or the developing ARCs across Canada, especially during their early stages in 1972-76, will eventually lead to one, or more of the following: Community of Practice, Community of Action, Community of Circumstance and Community of Interest or Position and Purpose. For the purpose of this paper which was presented at the REFRESH conference, First International Conference on the Media Arts, Sciences and Technologies held at the Banff Center Sept 29-Oct 4 2005 and co sponsored by the Banff New Media Institute, the Database of Virtual Art and Leonardo/ISAST, some retro-application of terms for the networks is at times necessary.

The concept of a community refers to the process of social learning that inevitably follows the interaction of individuals, and which occurs when people who have a common interest in some subject or problem collaborate over an extended period to share ideas, find solutions, and build innovations. Canadian ARCs could be defined by any of the above descriptions; SAT-TEL-COMP falls under a 'community of interest, position and purpose in its needs, utilizations and end product. 'Community of Practice' (CoP) as a term was first used in 1991 by Jean Lave and Etienne Wenger in relation to situated learning as part of an attempt to "rethink learning" during group linguistic experiments at the Institute for Research on Learning. A 1995 analysis of a report explaining the technological/human revolution at Xerox by John Seely Brown and Estee Solomon Gray exposes the corporate seesaw of money v. evolution as it expands on (CoIPP). In 1998, the theorist Etienne Wenger (website)⁵ extended the concept and applied it to other contexts, including organizational settings. More recently Communities of Practice have become associated with knowledge management as people have begun to see them as ways of developing social capital, nurturing new knowledge, stimulating innovation or sharing existing tacit knowledge within an organization. It is now an accepted part of organizational development at all levels.

Key (Communities of Practice) CoP concepts are: periphery & core membership, participation, domain, practice, boundaries, reification (also called hypostatization, is treating an abstract concept as if it were a real, concrete thing), making meaning and legitimate peripheral participation.

Open Space (OS) became the 'community of practice' as Bill Bartlett, brought in as its first Director/Administrator after the founder Gene Miller another ex-pat from the U.S. had set it in motion as a theatre, bazaar and gathering place for the artistically bent individuals of Victoria, BC. Bartlett's notion of OS was based in the art and technology he had witnessed further down the coast of the U.S. with art and science working on new technologies and concepts. The collaboration of artist and engineer under industrial sanction emerges as a revolutionary contemporary process. Artists and engineers were becoming aware of their crucial role in changing the human environment and the relevant forces shaping our society. Engineers are being made aware that the artist's insight can influence his direction and give human scale to his work, and the artist recognizes richness, variety and human necessity as qualities of the new technology and the operating mandates demanded by all involved.

⁵(website)http://www.creotec.com/index.php?page=ebusiness_solution&title=Community_of_practice

E.A.T. Mandate:

" Maintain a constructive climate for the recognition of the new technology and the arts by a civilized collaboration between groups unrealistically developing in isolation. Eliminate the separation of the individual from technological change, expand, and enrich technology to give the individual variety, pleasure and avenues for exploration and involvement in contemporary life. Encourage industrial initiative in generating original forethought, instead of a compromise in aftermath, and precipitate a mutual agreement in order to avoid the waste of a cultural revolution. " ⁶

The government or state-supported, and the at times mandated artistic production of these groups, challenged art historical modes of modernism and post-modernism based on visual culture and the use of mass media: print, text and image transfer systems (telex, facsimile, satellite transmission). We have come to reassess its ideals of production and imagery, our involvement throughout its development and ultimately where it has led us today.

The purpose of ARCs and their programs was to assist and catalyze the inevitable active cooperation of artists within the community and around the world. Their interaction with industry, labor, technology and the arts has assumed the responsibility of developing an effective method for collaboration between artists and engineers with the sanction of government sponsorship. The old system of art was breaking down and this appealed to Canadians who viewed this as an historical moment for Canada to put forth an international model in which their art, Canadian art and the culture in which it developed could be a part of the international scene.

"Paradoxically, the Canadian model could serve as an example to the world. Certain nationalists of Canada have expressed the hope that within such an indigenously produced model, aesthetic formalism would cease to be of significant interest to Canadian artists, citing it as an asocial characteristic endemic to contemporary American art. In language that unwittingly echo the justification for socialist realism, Canadian writer Tom Henighan has argued '...that art-for-art's sake movements would be of less importance in the absence of a flagrantly materialist environment and a powerful elite of private patrons. Canada's art system would encourage the development of aesthetic heterogeneity and cultural diversity.'" ⁷

A view of technology and contemporary art has so far been studied primarily under the rubric of the advent of mass technology in culture. This direction disregards the extended development of artist's use of technology through mass communication, government communication and the early days private, or corporate, international satellite communication. Most commentators have devoted more attention to the cultural function of technology as pure ideology than to the specificities of the resulting pictorial form.

⁶ Énoncé de mission de Experiments in Art and Technology, 10 octobre 1966, gracieuseté de E.A.T. avec la collaboration de la Fondation Daniel Langlois

⁷ Conference in Wroclaw, Poland - June 1999 Canadian Cultural Policy: A Metaphysical Problem by Ken Lum where he discusses, amongst others, the ideas of T. Henighan, *The Presumption of Culture*, Vancouver: Raincoast Books, 1996, pp. 10-11, 63, 120-121.

The abstract curatorial concept which came into being at Open Space was called COLLABORATORY, by its creator Bill Bartlett, The Executive Director from 1974 through 1979, and, as well, primary curator throughout his tenure as director. This concept as a curatorial model borrowed from 'collaboration' and 'laboratory' to create a space for new media within the practice and lexicon of art production on the west coast of Canada in the early to mid 1970's. As an extension of the E.A.T. projects COLLABORATORY was an attempt to involve as many individuals from as many knowledge viewpoints as possible. Bartlett brought individuals, artists, engineers, corporations and government agencies into the mix in an attempt to create ideas and concepts, as well as make art. It was primarily a development process of the social network and the growing utilization of technology: video, mass media, sound and computers to produce images at both ends of the relationship that brought about early variable media art in Canada.

The history of new media in Canada is tied to that of Artist-run Centres. The knowledge management and organizational development of these institutions goes hand-in-hand. The curatorial development which courted non-traditional media also developed dissemination and critical theory about the art work, distribution systems tied to world-wide art practices (i.e. international symposiums), interaction with the educational systems at all levels (SAT-TEL-COMP in British Columbia) and expanded associations with the museological world. This was accomplished through such directly expansive new media productions as SAT-TEL-COMP

Todd A Davis
October 2005

JEREMY TURNER

SAT-TEL_COMP – SSTV at Open Space 1978-1982

Pioneering the historical paradigm for an emerging global Media Arts Network.

SAT-TEL-COMP out of all the "collaboratory"¹ initiatives developed at Open Space in Victoria, Canada probably has had the most influence on current paradigms of contemporary net art and broadband telecommunication applications in both artistic and educational realms.

Technically speaking, SAT-TEL-COMP stands for Satellite-Telephone-Computer. In contemporary historical literature, SAT-TEL-COMP has come to simply mean "Slow-Scan TV" or SSTV².

¹ "Collaboratory" = "Collaboration" + "Laboratory". Term first defined as an ongoing exhibition series at Open Space. See Davis, Todd. SAT-TEL-COMP: Utopia in Canadian Art and Artist-run Centres, 1974-1984. www.openspace.ca/outerspace

² For more information about the technology and community behind SSTV, please see www.panix.com/clay/ham/sstv.html or type "Slow-Scan" into www.google.com

Before moving on towards the historical importance of Bill Bartlett's particular vision for a global Slow-Scanning Media Arts community, SSTV itself should be explained for the reader:

"Slow-scan television equipment used a computerised memory to sample a picture from a television camera every few seconds, "freeze" it and send it down a telephone line [in this case satellite transmission as it was old] as an audio signal. (This took approximately 8 - 60 secs depending on picture quality required.

The early systems transmitted a black-and-white picture at 128 lines/screen resolution whereas later equipment operated at 256 or 512 line resolution in colour.) The machines could only be used between two points at a time. At the receiving end, the signal was decoded and slowly scanned out a still frame on a television monitor.

The result was a time-lapse series produced at intervals, like a very slow animation. The digital scan moved from the top to the bottom of the screen, line by line, and when the total image was scanned out, it was held until replaced by the next scan."³

For all its technical bells and whistles, in hindsight, the real historical success of SAT-TEL-COMP was motivated by the timely emergence of the beginnings of a truly global and post-institutional facilitation network.

This network in particular, heralded an innovative transition from the conventions of exhibiting within the confines of a centralized institutional space to the idea/concept of being able to collaborate across a heterogeneous network of both formal and impromptu location-nodes.

What is interesting in this truly proto-internet context is that the segregations between: High Art Vs. Public Education, established artists vs. students and amateurs and urban vs. rural (even isolated) communities were starting to dissolve.

³ Explanation taken from: www.hss.uts.edu.au/oth/telematic_art/tech.html#slowscan

In terms of the more far-reaching international High-Art nodes, Bill Bartlett saw this new form of art as a kind of "Social Sculpture" – a concept similar to that of Joseph Beuys.⁴

Bill Bartlett said more specifically that,

"We are arranging for Satellite time to activate a global "sculpture", to tie together centres from around the globe into one "piece"... Our intention is real-time broadcast of interdisciplinary activities and process. Our next step will be connecting with a leading Computer manufacturing company and tapping into computer communications. By October our aim is Satellite transmissions to several parts of the globe." – Bill Bartlett, 1978.⁵

Bill Bartlett finally realized his expansive vision with Carl Loeffler in 1980 when they organized the *"Artist's Use of Telecommunications Conference" at the San Francisco Museum of Modern Art.*⁶

It was at this conference where Bartlett was able to publicize and spread the once esoteric meme of Slow-Scan as perhaps the first viable proto-internet artistic medium-net to entice prestigious curators, historians, artists and critics around the world to consider ephemeral artistic transmission over object-driven commodification.

Some of those invited to this landmark conference include: Douglas Davis, (New York), Willoughby Sharp & Liza Bear (New York), John Southworth (Hawaii), Aldo Tambellini (M.I.T.), Michael Goldberg (Tsukuba University, Japan), Judith Doyle, Gene Youngblood, Hank Bull & Kate Craig (Vancouver), Glenn Lewis

⁴ Beuys, Joseph and Kuoni, Carin (compiler). **Joseph Beuys in America: Energy Plan For The Western Man.** New York: Four Walls Eight Windows Publishing, 1990. Chapter I – Social Sculpture, pp. 19.

⁵ Taken directly from the Open Space paper archives. Open Space Gallery, Victoria, B.C. Canada.

⁶ For Online commentary on this event by Austrian Telecommunications Art Historian, Heidi

Grundmann, please visit her website at: <http://wiencouver.aaeol.ca/html/history/wc2.php>

The on-line part of the "Artists' Use of Telecommunications Conference" was organised by Bill Bartlett for "La Mabelle" (an artist-run space in San Francisco) and the San Francisco Museum of Modern Art (SFMMA).

The project was organised with the help of the I.P.Sharp computer timesharing network who provided free user accounts for participants which not only facilitated project coordination but also functioned as an art- communications medium during the event (an on-line chat and text exchange)

The "Conference" was also the first global use of Slow-Scan TV (video images transmitted over the telephone) by artists. Slow-Scan equipment (Robot Research 530 transceivers) was in use in many, but not all, locations.

(Vancouver), Robert Adrian X (Vienna), Richard Kriesche (Vienna), Helmut Mark (Vienna) and Norman White (Toronto).

Perhaps the less anticipated result of such a high-profile meeting was the simultaneous creation of grassroots global Media Arts nodes operating on the local and rural, rather than urban level of engagement. It was these rural and local nodes of Slow-Scanning activity that really fueled Bartlett's optimism that SSTV would become the first step towards a truly global art movement.

Bartlett himself, after leaving the institutionalized Directorship of Open Space Gallery, set up his base of operations on the remote Pender Island – a Gulf Island off the Pacific Northwest Coast of Canada. In 1979 and under the retro-chic (in hindsight) moniker of the “Direct Media Association”, Bartlett gave non-artists” and “locals” the chance to participate directly inside the once-sacred white-cubed High-Art canon of the Contemporary Art Market.

Bartlett's enthusiasm for including regional marginality into Urban-Centre discourse did not stop with his immediate geographic environs. On the contrary, he also made efforts to invite curators and artists from such “exotic” locales as Raratonga (Cook Islands) and Papua New Guinea. In only 26 years, such places have moved from complete Art-Market isolation to an active part of the global Art-World which we now take for granted in the Internet-Age.

Bartlett and his colleagues went even further to expand SSTV opportunities to those who did not even fit into the traditional context of art. SAT-TEL-COMP even encompassed educational ambitions. Thanks to Peggy Cady, SAT-TEL-COMP gave tours throughout the local public school system in Victoria. In 1979, Cady, wrote a sort of practical manifesto called “*Talk Back*” that pre-dated the desire for using video-conferencing and IRC environments in classrooms⁷

To summarize, Open Space's “SAT-TEL-COMP” program headed by Bill Bartlett and Peggy Cady proved itself to be a direct catalyst in evolving the art-historical paradigm of global artistic collaboration and genuine institutional decentralization.

Jeremy Turner.
October 2005 – Revised April 2006.

...Douglas Jarvis text
s Jarvis

ABSTRACT:

⁷ For more information, please see these web links:
www.openspace.ca/outerspace/PeggyCadyInterview2003.html
www.openspace.ca/outerspace/TalkBack-PeggyCady1979.html

The history of SAT-TEL-COMP at Open Space (Victoria, British Columbia, Canada) and COLLABORATORY as a curatorial basis which set the groundwork for a communications network between artists, engineers. As well, the creation and development of Direct Media Association (1974-1984) by Bill Bartlett, and early communication networks between artists and through engineers. Also discussed are early information technology systems across Canada, the U.S. and internationally and their role in art making of the mid to late 1970's.

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Todd Davis, Jeremy Turner and Douglas Jarvis
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Todd DAVIS

SAT-TEL-COMP: Utopia in Canadian Art and Artist-run Centres, 1974-1984

During the late 1960's and early 1970's, the development of many avenues within contemporary art, especially with the expansion of technology advancing notions of an artistic and sanctioned social utopia, challenged the notion of 'art for art's sake' that had subjugated art production since the end of WWII. This examination of art through social concerns and technological advancement available to the artists, was a binary payoff, which is being analyzed through art historical scholarship and museum exhibitions as research turns to previously suspended moments of late 20th-century art & technology.

In Canada, developing alongside the artistic and utopian concepts in art were the beginnings of a network of artist-run culture. Although the burgeoning social networks were dependent upon, and at the same time, crucial in the development of technology, especially in the arts and early use of video, satellite development, availability, and other exchange networks.

SAT-TEL-COMP, a network utilizing technology emanating from the west coast of Canada, can be viewed as one group dialogue within the many artistically utopian networks. Looking at such developments as the massive, and massively influential Experiments in Art and Technology (E.A.T.) instigated by Bill Klüver (ex-Bell Laboratory engineer and co-founder of E.A.T.), Robert Whitman (multimedia artist, E.A.T. co-founder) and others, primarily artists based in cities throughout the world looking for engineers and the technological insight they held, one can see symbiotic relationships of art and technology. On the west coast of Canada, INTERMEDIA, a coalesced group of artists was the driving force within the Vancouver community, which A.A. Bronson referred to as a clue to our future artistic lifestyle; the Image Bank of Morris-Trasov-Nova was a late 1960's image network and repository which continues to this day. As well, N.E. Thing Co. ¹ –in 1966-78 Ian Baxter worked with Ingrid Baxter as the N.E. Thing Company, based in Vancouver– and their many international interactions such as the Time-ZonePhoto-VSI Simultaneity Projects which also utilized existing print and new technology for communicative art works can be added to the lists of art networks within which is situated the Canadian Artist-run Centres (ARCs) network.

¹ N.E. Thing Co. and their Time-ZonePhoto-VSI Simultaneity Projects utilized photography, print, Xerox, and the first 'facsimile/telephone' units, sometimes called telecopiers. The 1969 May-June cover of *Art in America* (AiA) presented a Simultaneity project initiated by Ian and Ingrid Baxter of N.E. Thing Co. based in Vancouver where Ian Baxter was teaching at the University of British Columbia and the Nova Scotia college of Art & Design and Kasper Koening who was initiating many projects in Halifax. The AiA cover was conceptually part of the Simultaneity project to, and through NSCAD, extended the rigorous tenets of conceptual art and culminated as a 4-colour lithograph at NSCAD Press, again extending reproduction issues and informational transmissions through technology.

Canadian Heritage Centre for Canadian Contemporary Art website: N.E. Thing Co.: *Art in America* May-June 1969: http://www.ccca.ca/artists/work_detail.html?languagePref=fr&mkey=17152&title=%3Ci%3EArt+in+America%3C%2F%3E+Cover%2C+May-June+1969&artist=N.+E.+Thing+Company&link_id=1843

Art in America Cover, May-June 1969, 1969, 4-colour lithograph, magazine, 20 slides, ACT Seal; Litho: 60cm x 120cm; magazine and slide sheet, each: 11 x 9 in.; 28 x 23 cm

“In the late 1960s, artists within the conceptual movement eschewed form and aesthetics as a means of verifying art objects; they tested the structures within which work was exhibited, distributed and purchased; they queried the relationship of the artist to society, working in a climate of anti-authoritarianism and excitement about new technology. The term "document" encompasses a range of media such as photography, text, maps, telegrams, film and sound recording. The document existed and continues to exist as a means for artists to record or communicate ideas, processes and analyses, to employ a highly theorized self-reflexivity while embracing ideas about creative freedom and anti-materialism.”²

INTERMEDIA was the format through which any medium had relevancy, as it became the model for artist centres across Canada. The artist-run network with centres of varying size and scope brought about a small revolution regarding social concerns within art and developed in parallel with the last ‘ism’ of 20th century art: conceptualism. “Conceptual art defined as process art regimented by the intent of the concept, is now recognized as one of the most critical developments in the globalization of contemporary art.”³

Other parallel tracks continued the expansion of race and other underlying concepts such as the recognition of Aboriginal development on many fronts, especially the arts, notions of gender issues, and certainly social interests of a constantly expanding sort brought new fodder for the artists in the development of their networks.

Social network theory⁴ views social relationships in terms of nodes and tie, entities and interaction, certainly a reasonable description of ARCs and their network. Nodes are the individuals, such as artists within the networks; and ties are the relationships between said individuals, say, and social concerns in art. There can be a multitude of ties between the nodes. In its most simple form, a social network is a map of all of the relevant ties between the nodes participating. Much like has been developed by Jeremy Turner in his initial research of SAT-TEL-COMP at Open Space, the 33 year old ARC situated in Victoria British Columbia. The network can also be used to determine the social capital of individuals. These concepts are often displayed in a social network diagram, where nodes are the points and ties are the lines, much like many other networks that utilize social interaction. Please see OUTERSPACE.ca developed by Turner and Douglas Jarvis.

² Exhibition: Conception - The Conceptual Document 1968-1972; Curated by Catherine Moseley; monograph with essay; The Morris and Helen Belkin Art Gallery, Main Mall 1825, V6T 1Z2 Vancouver, British Columbia Canada; 12.10. - 2.12.2001; this touring exhibition emanated from the Norwich Gallery, Norwich School of Art and Design in England; Participating Artists: Art & Language, John Baldessari, Bernd + Hilla Becher, Marcel Broodthaers, Victor Burgin, Jan Dibbets, Gilbert & George, Douglas Huebler, On Kawara, Joseph Kosuth, Christine Kozlov, Sol LeWitt, N.E.Thing Co., Bruce Nauman, Adrian Piper, Edward Ruscha, Robert Smithson, Jeff Wall, Lawrence Weiner

³ Atkin, Robert. *Artspeak: A Guide to Contemporary Ideas, Movements, and Buzzwords*. Abbeville, 1990. p 97

⁴ A social network is a social structure commonly between artists, mostly individuals, but also extending to organizations. It indicates the ways in which they are connected through various social familiarities ranging from casual acquaintance to close familial bonds. The term was first coined in 1954 by J. A. Barnes (in: *Class and Committees in a Norwegian Island Parish*, "Human Relations".1954; 7: 39-58)

A social network, such as INTERMEDIA, SAT-TEL-COMP or the developing ARCs across Canada, especially during their early stages in 1972-76, will eventually lead to one, or more of the following: Community of Practice, Community of Action, Community of Circumstance and Community of Interest or Position and Purpose. For the purpose of this paper which was presented at the REFRESH conference, First International Conference on the Media Arts, Sciences and Technologies held at the Banff Center Sept 29-Oct 4 2005 and co sponsored by the Banff New Media Institute, the Database of Virtual Art and Leonardo/ISAST, some retro-application of terms for the networks is at times necessary.

The concept of a community refers to the process of social learning that inevitably follows the interaction of individuals, and which occurs when people who have a common interest in some subject or problem collaborate over an extended period to share ideas, find solutions, and build innovations. Canadian ARCs could be defined by any of the above descriptions; SAT-TEL-COMP falls under a 'community of interest, position and purpose in its needs, utilizations and end product. 'Community of Practice' (CoP) as a term was first used in 1991 by Jean Lave and Etienne Wenger in relation to situated learning as part of an attempt to "rethink learning" during group linguistic experiments at the Institute for Research on Learning. A 1995 analysis of a report explaining the technological/human revolution at Xerox by John Seely Brown and Estee Solomon Gray exposes the corporate seesaw of money v. evolution as it expands on (CoIPP). In 1998, the theorist Etienne Wenger (website)⁵ extended the concept and applied it to other contexts, including organizational settings. More recently Communities of Practice have become associated with knowledge management as people have begun to see them as ways of developing social capital, nurturing new knowledge, stimulating innovation or sharing existing tacit knowledge within an organization. It is now an accepted part of organizational development at all levels.

Key (Communities of Practice) CoP concepts are: periphery & core membership, participation, domain, practice, boundaries, reification (also called hypostatization, is treating an abstract concept as if it were a real, concrete thing), making meaning and legitimate peripheral participation.

Open Space (OS) became the 'community of practice' as Bill Bartlett, brought in as its first Director/Administrator after the founder Gene Miller another ex-pat from the U.S. had set it in motion as a theatre, bazaar and gathering place for the artistically bent individuals of Victoria, BC. Bartlett's notion of OS was based in the art and technology he had witnessed further down the coast of the U.S. with art and science working on new technologies and concepts. The collaboration of artist and engineer under industrial sanction emerges as a revolutionary contemporary process. Artists and engineers were becoming aware of their crucial role in changing the human environment and the relevant forces shaping our society. Engineers are being made aware that the artist's insight can influence his direction and give human scale to his work, and the artist recognizes richness, variety and human necessity as qualities of the new technology and the operating mandates demanded by all involved.

⁵(website)http://www.creotec.com/index.php?page=ebusiness_solution&title=Community_of_practice

E.A.T. Mandate:

" Maintain a constructive climate for the recognition of the new technology and the arts by a civilized collaboration between groups unrealistically developing in isolation. Eliminate the separation of the individual from technological change, expand, and enrich technology to give the individual variety, pleasure and avenues for exploration and involvement in contemporary life. Encourage industrial initiative in generating original forethought, instead of a compromise in aftermath, and precipitate a mutual agreement in order to avoid the waste of a cultural revolution. " ⁶

The government or state-supported, and the at times mandated artistic production of these groups, challenged art historical modes of modernism and post-modernism based on visual culture and the use of mass media: print, text and image transfer systems (telex, facsimile, satellite transmission). We have come to reassess its ideals of production and imagery, our involvement throughout its development and ultimately where it has led us today.

The purpose of ARCs and their programs was to assist and catalyze the inevitable active cooperation of artists within the community and around the world. Their interaction with industry, labor, technology and the arts has assumed the responsibility of developing an effective method for collaboration between artists and engineers with the sanction of government sponsorship. The old system of art was breaking down and this appealed to Canadians who viewed this as an historical moment for Canada to put forth an international model in which their art, Canadian art and the culture in which it developed could be a part of the international scene.

"Paradoxically, the Canadian model could serve as an example to the world. Certain nationalists of Canada have expressed the hope that within such an indigenously produced model, aesthetic formalism would cease to be of significant interest to Canadian artists, citing it as an asocial characteristic endemic to contemporary American art. In language that unwittingly echo the justification for socialist realism, Canadian writer Tom Henighan has argued '...that art-for-art's sake movements would be of less importance in the absence of a flagrantly materialist environment and a powerful elite of private patrons. Canada's art system would encourage the development of aesthetic heterogeneity and cultural diversity.'" ⁷

A view of technology and contemporary art has so far been studied primarily under the rubric of the advent of mass technology in culture. This direction disregards the extended development of artist's use of technology through mass communication, government communication and the early days private, or corporate, international satellite communication. Most commentators have devoted more attention to the cultural function of technology as pure ideology than to the specificities of the resulting pictorial form.

⁶ Énoncé de mission de Experiments in Art and Technology, 10 octobre 1966, gracieuseté de E.A.T. avec la collaboration de la Fondation Daniel Langlois

⁷ Conference in Wroclaw, Poland - June 1999 Canadian Cultural Policy: A Metaphysical Problem by Ken Lum where he discusses, amongst others, the ideas of T. Henighan, *The Presumption of Culture*, Vancouver: Raincoast Books, 1996, pp. 10-11, 63, 120-121.

The abstract curatorial concept which came into being at Open Space was called COLLABORATORY, by its creator Bill Bartlett, The Executive Director from 1974 through 1979, and, as well, primary curator throughout his tenure as director. This concept as a curatorial model borrowed from 'collaboration' and 'laboratory' to create a space for new media within the practice and lexicon of art production on the west coast of Canada in the early to mid 1970's. As an extension of the E.A.T. projects COLLABORATORY was an attempt to involve as many individuals from as many knowledge viewpoints as possible. Bartlett brought individuals, artists, engineers, corporations and government agencies into the mix in an attempt to create ideas and concepts, as well as make art. It was primarily a development process of the social network and the growing utilization of technology: video, mass media, sound and computers to produce images at both ends of the relationship that brought about early variable media art in Canada.

The history of new media in Canada is tied to that of Artist-run Centres. The knowledge management and organizational development of these institutions goes hand-in-hand. The curatorial development which courted non-traditional media also developed dissemination and critical theory about the art work, distribution systems tied to world-wide art practices (i.e. international symposiums), interaction with the educational systems at all levels (SAT-TEL-COMP in British Columbia) and expanded associations with the museological world. This was accomplished through such directly expansive new media productions as SAT-TEL-COMP

Todd A Davis
October 2005

JEREMY TURNER

SAT-TEL-COMP – SSTV at Open Space 1978-1982

Pioneering the historical paradigm for an emerging global Media Arts Network.

SAT-TEL-COMP out of all the “collaboratory”⁸ initiatives developed at Open Space in Victoria, Canada probably has had the most influence on current paradigms of contemporary net art and broadband telecommunication applications in both artistic and educational realms.

⁸ “Collaboratory” = “Collaboration” + “Laboratory”. Term first defined as an ongoing exhibition series at Open Space. See Davis, Todd. *SAT-TEL-COMP: Utopia in Canadian Art and Artist-run Centres, 1974-1984*. www.openspace.ca/outerspace

Technically speaking, SAT-TEL-COMP stands for Satellite-Telephone-Computer. In contemporary historical literature, SAT-TEL-COMP has come to simply mean “Slow-Scan TV” or SSTV⁹.

Before moving on towards the historical importance of Bill Bartlett’s particular vision for a global Slow-Scanning Media Arts community, SSTV itself should be explained for the reader:

“Slow-scan television equipment used a computerised memory to sample a picture from a television camera every few seconds, “freeze” it and send it down a telephone line [in this case satellite transmission as it was old] as an audio signal. (This took approximately 8 - 60 secs depending on picture quality required. The early systems transmitted a black-and-white picture at 128 lines/screen resolution whereas later equipment operated at 256 or 512 line resolution in colour.) The machines could only be used between two points at a time. At the receiving end, the signal was decoded and slowly scanned out a still frame on a television monitor.

The result was a time-lapse series produced at intervals, like a very slow animation. The digital scan moved from the top to the bottom of the screen, line by line, and when the total image was scanned out, it was held until replaced by the next scan.”¹⁰

For all its technical bells and whistles, in hindsight, the real historical success of SAT-TEL-COMP was motivated by the timely emergence of the beginnings of a truly global and post-institutional facilitation network.

This network in particular, heralded an innovative transition from the conventions of exhibiting within the confines of a centralized institutional space to the idea/concept of being able to collaborate across a heterogeneous network of both formal and impromptu location-nodes.

What is interesting in this truly proto-internet context is that the segregations between: High Art Vs. Public Education, established artists vs. students and amateurs and urban vs. rural (even isolated) communities were starting to dissolve.

In terms of the more far-reaching international High-Art nodes, Bill Bartlett saw this new form of art as a kind of “Social Sculpture” – a concept similar to that of Joseph Beuys.¹¹

⁹ For more information about the technology and community behind SSTV, please see www.panix.com/clay/ham/sstv.html or type “Slow-Scan” into www.google.com

¹⁰ Explanation taken from: www.hss.uts.edu.au/oth/telematic_art/tech.html#slowscan

¹¹ Beuys, Joseph and Kuoni, Carin (compiler). **Joseph Beuys in America: Energy Plan For The Western Man.** New York: Four Walls Eight Windows Publishing, 1990. Chapter I – Social Sculpture, pp. 19.

Bill Bartlett said more specifically that,

"We are arranging for Satellite time to activate a global "sculpture", to tie together centres from around the globe into one "piece"... Our intention is real-time broadcast of interdisciplinary activities and process. Our next step will be connecting with a leading Computer manufacturing company and tapping into computer communications. By October our aim is Satellite transmissions to several parts of the globe." – Bill Bartlett, 1978.¹²

Bill Bartlett finally realized his expansive vision with Carl Loeffler in 1980 when they organized the *"Artist's Use of Telecommunications Conference" at the San Francisco Museum of Modern Art.*¹³

It was at this conference where Bartlett was able to publicize and spread the once esoteric meme of Slow-Scan as perhaps the first viable proto-internet artistic medium-net to entice prestigious curators, historians, artists and critics around the world to consider ephemeral artistic transmission over object-driven commodification.

Some of those invited to this landmark conference include: Douglas Davis, (New York), Willoughby Sharp & Liza Bear (New York), John Southworth (Hawaii), Aldo Tambellini (M.I.T.), Michael Goldberg (Tsukuba University, Japan), Judith Doyle, Gene Youngblood, Hank Bull & Kate Craig (Vancouver), Glenn Lewis (Vancouver), Robert Adrian X (Vienna), Richard Kriesche (Vienna), Helmut Mark (Vienna) and Norman White (Toronto).

Perhaps the less anticipated result of such a high-profile meeting was the simultaneous creation of grassroots global Media Arts nodes operating on the local and rural, rather than urban level of engagement. It was these rural and local nodes of Slow-Scanning activity that really fueled Bartlett's optimism that SSTV would become the first step towards a truly global art movement.

Bartlett himself, after leaving the institutionalized Directorship of Open Space Gallery, set up his base of operations on the remote Pender Island – a Gulf

¹² Taken directly from the Open Space paper archives. Open Space Gallery, Victoria, B.C. Canada.

¹³ For Online commentary on this event by Austrian Telecommunications Art Historian, Heidi Grundmann, please visit her website at: <http://wiencouver.aaeol.ca/html/history/wc2.php>
The on-line part of the "Artists' Use of Telecommunications Conference" was organised by Bill Bartlett for "La Mamelle" (an artist-run space in San Francisco) and the San Francisco Museum of Modern Art (SFMMA).

The project was organised with the help of the I.P.Sharp computer timesharing network who provided free user accounts for participants which not only facilitated project coordination but also functioned as an art- communications medium during the event (an on-line chat and text exchange)
The "Conference" was also the first global use of Slow-Scan TV (video images transmitted over the telephone) by artists. Slow-Scan equipment (Robot Research 530 transceivers) was in use in many, but not all, locations.

Island off the Pacific Northwest Coast of Canada. In 1979 and under the retro-chic (in hindsight) moniker of the “Direct Media Association”, Bartlett gave non-artists” and “locals” the chance to participate directly inside the once-sacred white-cubed High-Art canon of the Contemporary Art Market.

Bartlett’s enthusiasm for including regional marginality into Urban-Centre discourse did not stop with his immediate geographic environs. On the contrary, he also made efforts to invite curators and artists from such “exotic” locales as Rarotonga (Cook Islands) and Papua New Guinea. In only 26 years, such places have moved from complete Art-Market isolation to an active part of the global Art-World which we now take for granted in the Internet-Age.

Bartlett and his colleagues went even further to expand SSTV opportunities to those who did not even fit into the traditional context of art. SAT-TEL-COMP even encompassed educational ambitions. Thanks to Peggy Cady, SAT-TEL-COMP gave tours throughout the local public school system in Victoria. In 1979, Cady, wrote a sort of practical manifesto called “*Talk Back*” that pre-dated the desire for using video-conferencing and IRC environments in classrooms¹⁴

To summarize, Open Space’s “SAT-TEL-COMP” program headed by Bill Bartlett and Peggy Cady proved itself to be a direct catalyst in evolving the art-historical paradigm of global artistic collaboration and genuine institutional decentralization.

Jeremy Turner.

October 2005 – Revised April 2006.

¹⁴ For more information, please see these web links:
www.openspace.ca/outerspace/PeggyCadyInterview2003.html
www.openspace.ca/outerspace/TalkBack-PeggyCady1979.html

DOUGLAS JARVIS

SAT-TEL-COMP: The cost of Humanizing Technology

The Utopian notion of humanizing technology has fueled many initiatives from artists and government funded (Canada Council) organizations with mandates to support Canadian interests bringing together individuals practicing artistic methodologies with individuals practicing engineering and computer related methodologies. This 'working togetherness' has been a strategy of governing bodies to proactively pursue competitive production schedules, as well as methods of social and political resistance, by forming parallel and alternative entities, avant-garde groups, collectives and organizations to counter-act the enormous evangelical tendencies of progressive free-market demands. As artists have often found themselves within odd and curious proximity to major institutions of technological development, the notion of humanizing the function and purpose of new technological devices becomes paramount to the necessity of research strategies that are not complacent to multinational profit margins.

This spectrum of possibility that research and development of telecommunications technologies has cast upon human communications inspires many to challenge the canons of public interaction by creating direct relations with the devices that enlist them in a practice of challenging systems, and re-directing narrative outcomes.

What are the energy costs involved with sustaining an oxymoron such as humanizing technology?

Competition in the aerospace engineering field during the 1970's was a main motivator of the research and development of commercial uses of telecommunications technologies. As with the advent, and subsequent introduction of the computer into the fold of the mechanics of communications, the quest to make available to humans less expensive and more accessible options with which to interact with communications technologies, became a prime motivator for competing projects. This energy plays to a culture that is heavily influenced by Government foreign policies regarding the collaboration and interaction with other nations within the Geo-political realm.

Canada's involvement with communications systems and their utilization of new technologies within a global market place of inter-national relations, is of interest to groups and individuals searching for creative solutions to the monopoly of corporate control of product placement and the rhetoric of 'making things easier for the consumer'.

SAT-TEL-COMP was a collaborative project motivated by a desire to humanize tele-communications' devices. The project was developed to make the devices available to the curiosity and uncalculated interaction of a general public. Building upon the popular perception of the telephone as a communications tool the public was introduced to the notion that more was happening with the technology than first meets the eye.

Another project utilized a promotional poster featuring Bill Bartlett, with the caption "*When was the last time you saw BC (over your telephone)?*"¹⁵. It depicted Bill and a series of telephones implying that more than just sound was being sent over the telephone lines. This type of dissemination contributed to the general impression that something different was being made available.

How SAT-TEL-COMP contributed to the utopian notion of humanizing technology by introducing new telecommunications devices is my curiosity.

Inspired by his institutional affiliations with Experiments in Art and Technology (E.A.T.), and the Electronic Information Exchange System (EIES) computer network out of New Jersey, along with a strong belief that the power of industry would dictate the function and role of telecommunications technologies for use in the public sphere, Bill pursued a personal and curatorial mandate to expose both the public to these technologies and these technologies to the public.

"Unfortunately, hardly any field work has been accomplished in researching creative applications and social implications towards humanistic technological development. The de-mystification of technology is very important. People are threatened by computers and micro-electronics, and rightly so. We see more media attention paid to misuse than to possible benefits." - Bill Bartlett 1978¹⁶

His personal experience with the communications instruments and his promotion of these technologies for public communication use helped to establish his concern with their development. The fact that this project was used to expose the use of these devices towards a more humanistic end, could also be viewed as exposing the demand upon one's personal resource, becomes interesting in the context of his collaborations.

But at what cost to Bill?

In talking with Bill he has expressed that at a certain point in the development and coordination of the SAT-TEL-COMP projects, he realized that his commitment to the equipment was such that a lot of his time and energy was put into maintaining the devices and facilitating their exposure to others.

¹⁵ Bartlett, Bill. *Direct Media Association, Spaces by Artists- Parallelogramme Retrospective 3, 1978-79*, Toronto, ANNPAC Publisher, page 195.

¹⁶ Bartlett, Bill. *Speed, Mechanization, Convenience & Accessibility, Spaces by Artists- Parallelogramme Retrospective 3, 1978-79*, Toronto, ANNPAC Publisher, pages 86-88.

As recorded in correspondence between Bill Bartlett in Victoria, Robert Adrian X in Vienna and Tom Klinkowstein in the Netherlands, taken from computer printout transcripts from a computer mailbox discussion in 1981-82, the topic and concern with expenses endured from working with the technologies, was revealed.

To quote Bill's entry;

"I'm going to address this to both Tom and Bob. I decided to sell my I.T. Terminal: \$1200 Canadian complete with coupler, and two robots, \$750 each US. I've just finished making out a direct mail flyer for each. Tom, I see that you need a robot by April 15. To avoid a lot of customs problems, I would need to cross the border with the unit myself, and mail it in the US. I just don't know if I can swing it. I'd really like to 'pass' on the equipment at this point, and I would hope that either, or both of you could find a way to purchase it, even over a short period of time. This also seems to relate to the contacts in Dublin Bob, so maybe something will come together there. I'm going to get this off now, and hope to hear from you both. Tom, I just will have to see what can be done about your April 15 work date on the robot, keeping in mind that I'm trying to move both units out. In 6 weeks, I'll finally know if I'm to be postmaster. Just hanging on here.....Bill"¹⁷

As the notion of audience interaction took hold as an integral aspect of successful telecommunications projects, and encouraged by an industry discussion of the participation of the audience as evidence of an "art" transmission, what arises is the question of, to what end, and to what degree of personal investment is necessary?

With an almost evangelist verve of coordinating collaboration between an audience and technological telecommunications devices, Bill carried his personal quest to an operational mandate of the Direct Media Association.

"Direct Media Association has been conducting research into the creative applications of telecommunications technology, specializing in two-way interactive systems. Research has included the use and evaluation of slow-scan video, computerized information services, video production and public installations. Each sponsored activity has been designed to provide as much public access and encourage as much public participation as possible. This demystification approach places hardware and technical assistance within reach where it can be used to help make more informed decisions about telecommunications technology, its implications and applications in modern society." ¹⁸

¹⁷ Taken directly from the Open Space paper archives. Open Space Gallery, Victoria, B.C. Canada.

¹⁸ Bartlett, Bill. *Direct Media Association, Spaces by Artists- Parallelogramme Retrospective 3, 1978-79*, Toronto, ANNPAC Publisher, pages 195.

An important question has been generated from the dynamics between Bill Bartlett and his SAT-TEL-COMP, and Direct Media Association collaborators: How does interaction with the devices and mechanisms of telecommunications technology affect the way one comprehends the notion of thinking, feeling, and being human?

Perhaps, this is a question that is better participated in, than fraught with an answer. (Question of how to have the performance sustain a paradoxical situation. Question of what it means to you to engage with these instruments, devices and machines that are often compared to the snake oils and phrenology portraits of other intersections with progressive ideas and economic vehicles.)

Douglas Jarvis
October 2005