

71-822
C.2

Dept. of Communications
Headquarters Library

TELECOMMISSION

Study 6(c)

**Report on the Seminar on
Telecommunications and the Arts**

The Department of Communications

QUEEN
HE
7815
.A52
no. 6c

~~Dept. of Communications
Headquarters Library~~

Queen
HE
7815
. A52
no. 6c

TK
5102.5
. C85
6(4)
1

Report on the Seminar

on

Telecommunications and the Arts

sponsored by

The Department of Communications

The Secretary of State

The Canada Council, and

York University

at

York University

April 30 to May 3, 1970.

Industry Canada
Library Queen
AOUT 27 1998
Industrie Canada
Bibliothèque Queen

© Crown Copyrights reserved
Available by mail from Information Canada, Ottawa,
and at the following Information Canada bookshops:

HALIFAX
1735 Barrington Street

MONTREAL
1182 St. Catherine Street West

OTTAWA
171 Slater Street

TORONTO
221 Yonge Street

WINNIPEG
393 Portage Avenue

VANCOUVER
657 Granville Street

or through your bookseller

Price \$1.00 Catalogue No. Co41-1/6C

Price subject to change without notice

Information Canada
Ottawa, 1971

This is a Report on the Seminar and does not necessarily represent the views of the Department or of the federal Government. No commitment for future action should be inferred from the recommendations of the participants.

This Report is to be considered as a background working paper and no effort has been made to edit it for uniformity of terminology with other studies.

TABLE OF CONTENTS

	<u>Page</u>
Introduction	1
Artist and Scientist	5
The Hardware	9
Computers	10
The Software	27
Two Cultures	35
Bridging the Gap	40
Towards the Kind of Society We Want To Live In	54
Recommendations	56
Seminar Objectives	61

"Technology is not cold and cold controlling; it is merely a tool. The uses to which it is put are decided by men. Technologists are becoming increasingly concerned about the applications of their work; they are fighting the loss of touch with the totality of man's experience that specialization and compartmentalization have brought about. In the past the artist, in his soul-search for a universal, timeless message, has been as far apart from reality as the scientist searching for the laws governing the universe. And yet, though the artist has long rejected the coldness of the manifestations of new technologies, preferring until recently to escape to the country and nature (which is fast being invaded by technological fallout) he is now attempting to come to grips with applied science manifest. When the two work together, the artist learns to stop floating and to work within limitations and the technologist moves away from that limiting narrow direction which he has accepted, to find that poetry has a meaning for him".

Michael Goldberg....
from a position paper
prepared for the seminar.

INTRODUCTION

Society's Navel

As often as those of mice and men, the best-laid schemes of governments go off the track. Every now and then though, as if to demonstrate the occasional supremacy of man over plan, such waywardness results, not in programmed disaster, but in serendipitous accomplishment. So it was with the Seminar on Telecommunications and the Arts, held jointly by the Department of Communications, the Department of the Secretary of State, the Canada Council and York University at York during the first weekend in May, as part of the Telecommission inquiry into communications in Canada.

When the four sponsors planned the conference, and invited some 80 artists, arts administrators, educators, designers, architects, film-makers, broadcasters, sociologists, scientists and engineers, they intended the meeting to span the twin objectives of "evaluating the impact of advanced telecommunications on the arts in Canada", and "making policy recommendations for government and industry to consider".⁽¹⁾ But within a few hours, the assembled company had turned the first objective back to front. Rather than spending three days discussing what telecommunications technology is doing to, and can do for the artist, participants concerned themselves instead with the broader question of what the artist can do for telecommunications. Or, as one participant put it, to see that technology is used "not as a substitute for human inter-action, but as a tool to enhance it".

(1) For full terms of reference, and conference program, see Appendix A.

Mordantly aware that most of the fantastic technical transformations of the last two decades have come as by-products either of the Cold War or the space race, and have been used to extend and solidify the existing power structure, they talked of bringing the artist, and through him all of the humanities, back "into the centre of the decision-making process". As a decision maker, the artist would work to develop an environment in which every individual can participate and indeed contribute, and one which, someone suggested, "is shaped by beauty and creative expression rather than dictated by efficiency and expedience".

In a way, the tersest description of the Seminar was also the most apt. As the report of one workshop put it, "The Group discussed need to put soul in the system". Again and again the Seminar insisted that technology, of telecommunications or indeed of any kind, must be developed and controlled to serve society's needs, instead of society being shaped to fit the requirements of technology. To make this possible, the Seminar called for multi-disciplinary research, encompassing not just the arts but all social sciences, working closely with technology, and, as one workshop put it, conducted "even in advance of hardware capacities".

Specifically, participants proposed the creation of some type of multi-disciplinary research institute or system, perhaps a Council or a think-tank, and perhaps called Creative Communications Centre. But the Proposal was accompanied by deep misgivings about "the almost inevitable beaureaucratization of any institute". In any case, participants agreed that far closer working relationships were needed between artists

and communications engineers and scientists, in government and industry, along with a far more effective system for exchanging information about artistic or technical work in progress. (1)

Yet none of these specific conclusions was as important in the long run as the reassurance the meeting provided, at least, as one journalist saw it, "that Canada has a creative elite less concerned with wielding power than with getting us all to wield it." (2)

Such a concern - coupled with the presence of scientists and engineers at a conference about the arts - marked a new stage in the continuing dialogue between the Canadian arts and Canadian society, which began almost a decade ago at the epochal Canadian Conference of the Arts. At that three day talkathon, held at the O'Keefe Centre in Toronto in May 1961, the week that Alan Shephard became the first American in space, artists in the mass first confronted the public in the mass and, "generated in some odd, dim and lovely way, a little of that miraculous energy that transforms a group of people in a community". (3)

Steadily during the Sixties, through a series of equally productive though less flamboyant gatherings, the dialogue deepened, and the sense of community strengthened. (4) And yet, in the last analysis,

- (1) Conclusions and recommendations of the Seminar are described in the body of the text and are listed in full in the final chapter.
- (2) Doris Giller. "Turning on to the Plug-In", Montreal Star, May 9, 1970.
- (3) Elizabeth Kilbourn. "The Scene". Canadian Art., September-October, 1961.
- (4) At Seminar '65, sponsored by the Department of the Secretary of State and the Canadian Conference of the Arts artists met directly with a Minister of the Crown to suggest the future direction of federal support of the arts. At Seminar '68, arranged by the Canada Council and the Canadian Conference of the Arts, artists and educators discussed the question of arts education in Canadian schools.

these conferences were concerned with defining the contribution - large and long overdue as artists saw it - that Canadian society should make to the Canadian artist. At the first Canadian arts conference of the seventies, however, with man on the moon and 1984 rapidly approaching (at least in time), the artists turned their attention outward and, as one delegate suggested, "looked at society's navel instead of their own".

ARTIST AND SCIENTIST

Dynamic Interdependence

In an important way, the shape of the meeting was ordained by the keynote speaker, Gyorgy Kepes, Director of the Center for Advanced Visual Studies at the Massachusetts Institute of Technology. An artist-philosopher, Kepes has spent a long career in search of what he terms "a symbiosis between the traditional egocentricity of art and the anonymity of science". Time and again in his address, Kepes stressed the principle of "dynamic interdependence" between the arts and technology, which, he suggested, is "a life necessity and a historic necessity" if society, let alone art, is to survive.

Dynamic interdependence, Kepes continued, implies mutual need, mutual respect and, above all, a recognition of common interests. But such recognition is "reflected very little in the work of artists today". Even when art is turned to civic and supposedly community purposes - it reflects the individual ego of the artist. Architects, far from interpreting the needs of the community, have all too often become "design dictators". Even those artists who work with computers and electronic devices are more often interested in using them as toys than as tools directed towards a social cause.

And yet, Kepes went on, common cause between art and technology was once the dominant force of civilization. During the Middle Ages, it produced the great cathedrals of Europe. Refined and rarefied, it resulted in St. Peter's and St. Paul's. Nor was the

alliance confined to architecture alone. As another philosopher of the arts, Kenneth Clark, has remarked, looking at the elegant globes and quadrants produced by the scientists of Newton's day: "Art and science had not yet drawn apart and these instruments are not only means to an end but symbols - symbols of hope that man might learn to master his environment and create a more humane and reasonable society."⁽¹⁾

Since Newton's day, and at a quickening pace during our own, arts and science have gone their separate ways. In Clark's words: "we have begun to feel that the descendants of these beautiful shining objects may be going to destroy us."⁽²⁾

Twentieth-century society has fragmented still further, and in Gyorgy Kepes' opinion, at least part of the blame lies with the artist. Since the Renaissance, he has revelled in the concept of artist as hero, and has surrounded himself with an "ever-widening ego space." More recently, influenced by the 19th century "laissez-faire" ethic, he has buttressed his ego with an arrogant - and overweening - confidence in the individual, a confidence which today has reached its limit.

For the trouble is, Kepes went on, that the laissez-faire philosophy, as well as the pattern of art in the past are completely out of joint with the nature of art today, and the nature of man in the late twentieth century. As our frantic and belated concern for ecological survival illustrates, "man is at a critical state in his evolution; no

(1) Kenneth Clark. Civilisation. British Broadcasting Corporation and John Murray, 1969, Ch. 8, p. 215.

(2) Ibid.

longer can the artist -- or anyone else for that matter -- view himself as an isolated creature." And so a new relationship -- a new equilibrium -- must be developed between man and his environment.

Kepes compares 'equilibrium' to the physical condition of homeostasis -- wherein the organism automatically adjusts itself to this or that excess in order to preserve its physiological balance. This process, which we take for granted in our own bodies, and which engineers have translated into the design of closed, self-regulating systems, must now be developed on the social and cultural levels. For this to happen, artists must learn, however painfully, to think in terms of systems.

On another occasion, Kepes amplified this most important point, in conversation with the critic Douglas Davis:

Technology today does not simply imply a physical implement, a 'machine', mechanical or electronic, but a systematic, disciplined collaborative approach to a chosen objective. There is a new technology that Daniel Bell has called "intellectual technology" -- this is what artists must accept and understand." (1)

By no means everyone at the Seminar agreed with Kepes. Indeed, his remarks triggered what one participant described as "a degree of instant polarization." Some, steeped in radical angst, and doubting the capacity of the technological establishment to respond to humanist pressure, saw his cautious optimism as dangerously, almost insidiously, appealing. Others were convinced that individuality --

(1) Douglas M. Davis. "Art and Technology - Conversations" Art in America, January 1968.

which Kepes saw as destructive - was in fact the artist's most precious attribute; and a few argued that the serious artist, far from seeking a compromise with technology, should retreat from it and seek a Rousseauian ideal through his own instinct and through nature.

And yet, during the first panel discussion, Kepes' plea was restated, and given urgency, by one of the youngest artists present, Michael Goldberg, whose position paper had in a sense presaged Kepes' remarks. "Time was when every artist could be his own Thoreau. But the woods aren't there any more" he told the group. "Let's not have individual ego trips. Let's have shared ego trips. Let's not just move closer to each other. Let's see what we can do for the good of society".

At no time was the shared ego trip a tidy, pre-arranged progress, and none of the passengers wanted it to be. Indeed, it was a measure of the general mood that instead of dividing into specialist workshops to talk futuristic shop about the visual arts, the performing arts, or film and broadcasting, participants almost unanimously chose to remain within the get-acquainted, multi-disciplinary groups to which they had been assigned for the first day. Even so, through a process of natural selection abetted by the scheduling of the panel discussions, certain themes and topics emerged in a semblance of order.

The first of these had to do with technological hardware and its physical implications for the arts.

THE HARDWARE

"I sincerely hope that machines will never replace the creative artist, but in good conscience I cannot say that they never could."

Dennis Gabor. "Inventing the Future"
Encounter, May 1960.

Professor Gabor's article appeared in the same year that the Boeing aircraft company coined the term "computer graphics" and six years before the epochal "Nine Evenings" staged by Robert Rauschenberg and Billy Kluver at the New York Armoury brilliantly established the potential of art plus technology.

In 1970, the notion that the machine could replace the creative artist still seems as far fetched as Herman Kahn's thesis, which the Seminar chairman quoted, that "computers are likely to match, simulate or surpass some of man's most humanlike intellectual abilities, in addition to having some new kinds of capabilities that human beings do not have." Even so, technological developments, pyramiding and interacting upon one another, are producing an environment radically different from that of even 10 years ago. The Seminar explored two integral and interconnected parts of that environment, computers and telecommunications technology. (1)

(1) For a detailed study of techniques for the transfer of data in visual form, see Telecommission study 5 (g).

COMPUTERS

Living Inside a Bach Fugue

"Thinking" machines have come a long way since Charles Babbage's analytical machine of the 1840's which, one authority has noted, "embodied all the fundamental principles of the modern digital computer." Today's largest and fastest machines - and a "fourth" generation is due shortly to appear - can handle more than 100 simultaneous and distant users and have a memory capacity from which some 50 million characters a second can be processed. One of the largest current computerized information systems contains almost one million records on file and on the most active days 40,000 transactions are handled over about 80 terminals.

As the machines increase in capacity, speed, flexibility and complexity, so - encouragingly - do the human being who make them work: the programmers, who as Dr. R.A. Mason of IBM noted in his background paper, "give the computer their personality". And Dr. Mason explained:

"By personality is meant the idiosyncratic quirks and anomalies resulting from programmer initiative in areas of specification, design and implementation. In a very real sense, the user of even complex systems finds himself face to face with the unique personality of an individual programmer at each stage of his interaction with a computer. The implications, if the future brings computer terminals into the home, are profound.

"It might be argued that there is in fact more art than technology in computer programming Richard Todd quotes a young programmer describing his work: 'like living inside a Bach fugue'.⁽¹⁾ Perhaps trying to describe the elegance and art of a computer program is like trying to describe the characteristics of a fine wine. Only another connoisseur can appreciate the description. Or perhaps it is more like trying to describe the taste of a baked potato. At least the wine connoisseur has a standard, accepted vocabulary."

More and more programming is being done in high level languages like PL/1, Mason continued, but at present this means trading off machine efficiency against programmer efficiency:

"The programs for large, terminal oriented, multi-programmed, computers which might enhance our participation in society are going to be very complex and require sensitive design. Present programming technology can build the required programs. But it may be that present programming technology is a larger roadblock to the wide application of such systems than is the electronic technology."

(1) Richard Todd, "You are an Interfacer of Black Boxes". The Atlantic, March 1970.

Computers and the Arts

In terms of the direct application of the computer to the arts, Mason's paper raised two key questions:

If "it is the programmer who gives the computer its personality", then what sort of computer programs have been developed for the arts and who is breathing life into them?

And if present programming technology is "a roadblock standing in the way of computer systems" in general, is it an even bigger obstacle to the application of computer systems to the arts?

The short answer to the first question, the Seminar discovered, is that a number of interesting programs have been developed, but very few have been devised by artists. The answer to the second question is an unequivocal 'yes'. For the arts, ipso facto, require a non-standard, and therefore costly, programming approach. Explaining these answers, however, demands a certain amount of background detail.

Computers can be used to support art, and also to create it.

The support function is easily defined: in essence it means information retrieval systems - central data banks linked to terminals - which can be used (a) as an aid to research in the arts, (b) as an information and communications systems for artists themselves and (c) as a means of disseminating information about the arts to the public.

Over the last half dozen years, artists and arts administrators have made various urgent requests for such a system. The prime recommendation of Seminar 66, for example, was "the

establishment of an information centre for the visual and environmental arts." (1)

The comprehensive feasibility study which followed saw the centre primarily in terms of a computerized service. In 1969, the Report of the Task Force on Government Information called on the federal government to "formulate a clear policy concerning cultural information" and further suggested that "a study be undertaken to report on the most efficient ways of applying future and current technology to collecting and storing, retrieving and distributing certain types of cultural information". (2) And finally, in his own paper for the Seminar, Dr. Mason suggested that: "a computerized service for the artist, providing timely information about events, competitions, scholarships, materials, and literature could be implemented. An artist might express his interests and the computer could select information matching his interests and mail it to him. In time, an on-line service might be provided".

Perhaps because the ground had been covered so many times before, and with so little result, the need for an information system was not the central topic of discussion at this seminar. Perhaps too, participants were conscious of film-maker Jacques Godbout's warning that the organized distribution of information, far from being synonymous with communication "is in fact an aggression against communication, against art, against the artist" and promotes the attitude that 'how to know' is more important than 'how to live'."

(1) Canadian Conference on the Arts. Report of Seminar 66.

(2) To Know and Be Known. Report of the Task Force on Information. Queen's Printer 1969. Vol. 2. p. 321.

If one thinks of an information system only in terms of bombarding the public with printout lists of upcoming arts events, or pre-packaged biographies of artists, Godbout may well be right. But most participants saw it as something quite different - as a means of opening new capacities for awareness and sensitivity and of developing these capacities in the artist himself, in his audience and, last but not least, in the people who make decisions. "Sometimes 'to know' is also 'to live'," one delegate suggested. Another, an architect, gave a practical example of the benefits of a speeded-up information exchange. "Articles of vital interest to me - of interest in fact to anyone who is concerned with the quality of the environment - are often buried in the most obscure of journals. Having these on hand could make an enormous difference to my work". Used like this, a computerized service would, in large measure, fulfill Godbout's own definition of communications: "a pooling of objects, ideas or connotations."

And it was with the concern for sharing uppermost, that the Seminar recommended that "an arts information retrieval system be developed and implemented as soon as possible."

Computer as Creator

As a tool for creating art, the computer remains a source of promise rather than achievement. "Computers can write poetry", Dr. Mason noted, "but not, perhaps, very good poetry."

The most telling illustration so far of what artists plus computers have done - and what they promise - has been Cybernetic Serendipity, a major international exhibition held at the Institute of Contemporary Arts in London in the autumn of 1968. A substantial number of Canadians made important contributions to that show, either as advisors or as exhibitors. (1) In the same year, Gordon Hines, a graduate student at Queen's and George Olshevsky, of the University of Toronto won, respectively, first and third prizes in the "Plotter Art 1968" international competition sponsored by California Computer Products Inc.

As Cybernetic Serendipity demonstrated, the most sophisticated application of computer to art so far has been in the field of music. In fact, the application of electricity to the production of music - as opposed to its reproduction - goes back to the early part of the century. Since the advent of the digital computer, intensive experiments have been conducted, using the computer as an aid to composition, and as a source of musical sound itself. In Canada, such a program has been underway for some time at the National Research Council.

(1) They were all invited to the Seminar. Those attending included:
Arnold Rockman, York University
Leslie Mezei, University of Toronto
Jean A. Baudot, University of Montreal
Petar Milojevic, Science Information Systems, Ottawa
Maurice Constant, University of Waterloo.

Since about 1960, a parallel development has taken place in computer graphics, ranging from static compositions to frames of motion pictures. Broadly speaking, there are two main kinds of graphics: ink drawings produced by a computer-driven plotter or moving pen; and graphics made on a cathode ray tube with an electron beam electrically deflected across the phosphorescent screen to produce a picture which can be automatically transferred onto paper or film. The principal Canadian centre for computer graphics is the Computer Science Department of the University of Toronto, under the direction of Professor Leslie Mezei. Experiments have also been carried out at the University of Waterloo.

In computer-generated film, a seminal development has taken place at the National Film Board. Under Kar Liang's direction, an animation stand has for the first time been linked to a computer, which not only schedules movements, but actually executes them automatically. If widely applied, this process could result in an enormous conserving of creative energy. Its first important product, Birdlings, by Norman McLaren and Kar Liang, appeared in 1967.

At the National Research Council, a general study of man-computer relationships is attempting to find out how computing technology can enhance man's creativity. Musicians and film animators from outside NRC are involved along with Council engineers. As F.V. Cairns, Head of NRC's Data Systems Section, explains:

"The man is creative; he may be an engineer, a scientist or an artist. The computer is a tool. The man communicates with the machine by means of computer-drawn pictures or words on a CRT. The computer is controlled by a set of pre-written, internally stored programs to which the man has access through a graphic presentation on a CRT. He communicates his choices by manipulating devices such as thumbwheels, push buttons or a "light pen". The study began in response to the anticipated needs of engineer and scientist researchers. Its relevance to the arts, however, was soon recognized. But artists alone cannot exploit this technology. At least in the development, participation by engineers is a necessity."

A somewhat more marginal application of computers has been made to choreography and literature. At the University of Montreal, for example, Jean Baudot has experimented extensively with automatic sentence generation, resulting in grammatically correct sentences where word occurrences are purely accidental and sometimes, according to Baudot, have "a stylistic effect which can have aesthetic value." The role of the computer in automated publishing, and as a research tool for literature analysis, was described by Glenn McInnes of Alphatext systems. "We are on the threshold of computerized information ceasing to be archival." Authors will be freed by the machine from the need to make "plodding manipulations."

"What would have been the effect, for example, on the literary output of James Joyce? Joyce's manuscripts, scored with an intricate system of coloured inks and chalks, and referring back to a complicated system of notebooks, suggest the painful pursuit of processes which would no doubt have been expedited by the use of an electronic machine...the mere transposition of Joyce's handwritten manuscripts into a typewritten form suitable for sending to a publisher required a gargantuan effort and the results are not entirely reliable. The contribution which would have been made by a computerized system

might have consisted of the use of intermixed typestyles and one might even plausibly suggest that Joyce's output would have been considerably greater."

Diverse as they are, all the artistically creative uses made of the computer have a common denominator: as Professor Nezei noted while introducing a series of films of computer graphics, "so far, these graphics have been produced almost entirely (1) by scientists - not by artists".

As far as the democratization of the arts is concerned, this no doubt is a good thing. For it has involved people who in the normal course of events would never have put pencil to paper or brush to canvas. Indeed, as the director-playwright Jacques Languirand suggested, "perhaps the scientists are the real creators, the true poets of our era."

But if this is so, Languirand said it is partly because "the new tools alarm the artist whose technical training is generally not sufficiently advanced." Participants agreed with Languirand on the need for education. It is "mandatory for the artist to know exactly what he wants, and to be able to translate his artistic concepts into mathematical abstractions. We have passed the stage of master craftsmanship with which the artist could be content up to now. It is no longer a question of dominating matter, but machinery."

(1) Dr. Mason, in his paper, quotes Jacia Reichardt who collected computer art for Computer Serendipity as saying ~~she~~ she knows of only three artists who have actually produced computer graphics: "the rest have been made by scientists."

Access to computers is a related difficulty. Computer time is cripplingly expensive and, as Leslie Mezei pointed out, "no facility exists anywhere, so far, where artists can work at a regular basis on an art machine. The equipment for computer-assisted interactive design is expensive, and not generally available to the artists; the software programmes are just beginning to be developed." Moreover, artists are likely to be the last ones considered when it comes to the wider distribution of computer facilities. According to F.V. Cairns of the National Research Council, communications facilities will largely be developed for the most economically important sectors of the community. "The relatively small number of artists and composers who want to use computers will impose added pressures on already loaded digital transmission systems which will have been developed for other users."

The Seminar, however, suggested some partial detours round these obstacles. It recommended, as one workshop report put it, "that a massive education program be undertaken in the use and application of the new technology, so that the artist might learn to use the new media with the same ease as the old pen and pencil."

As for access, it was proposed that artists interested in working with computers should join forces in approaching computer companies. This has been done with considerable success in Japan, and, as Leslie Mezei remarked, "Industry is much more likely to respond to a well thought out group request than to an individual daydream."

It was suggested also that government departments and agencies with computers should reserve part of their capacity for experiment by artists. The point was made as well that a number of centres in Canada have the potential for collaborative group efforts between artists and computer scientists. In British Columbia, for instance, cooperation might be possible between the Communications Arts Department at Simon Fraser University, the Computer Science Department at the University of British Columbia, and the interdisciplinary artists' organization, Intermedia.

And finally, it was suggested that the communications centres which each workshop in one way or another envisaged - and which will be discussed in detail later on in this report - would include computer facilities for artists within their frame of reference.

Telecommunications: A New Language

Though artists, by and large, have so far had little contact with computers, over the last decade they have been involved in what almost amounts to a love affair with some aspects of telecommunications. Universities - Loyola and Simon Fraser are instances - have sprouted new Communications Arts Departments. (In fact, a three-day festival "Telecommunications and the Arts", organized by the Communications Arts Department at Simon Fraser, followed hard on the heels of the Seminar). At the same time, the widespread use of new communication techniques has radically altered our concept of existing art forms. "In the field of drama, for example", Jacques Languirand noted "the Italian stage (which corresponds to the concept of a viewpoint) is disappearing and being replaced by theatre-in-the-round, or the U-shaped theatre, etc. (which corresponds to the notion of communion around a narrator or event) or by the circular theatre - "electric circus" where the play is staged around the spectators, (and which corresponds to the concept of participation from the inside)."

More than this, the cross-breeding of artistic disciplines which accompanied the adoption of telecommunications techniques has resulted in a new art form - "multi-media". Werner Aellen of Vancouver's Intermedia, the Canadian nerve centre of multi-disciplinary experiment, sketched its development:

"Ten years ago painters, theatre and lighting people, film-makers and poets began to explore multi image projection, twirling light and liquid die projection - ushering in the age of happenings and light shows. The new medium provided new tools of expression on the quality of their environment - e.g. sound and visual pollution, and the residual effects of the bombardment

of the senses experienced every day in the urban space. The light show happenings phenomenon has been responsible for a tremendous stimulation of the creativity of a large portion of our population.

Today practically every church-basement or school activity offers a multi-media experience. It has become a new language."

End of Innocence

Because multi-media forms demand both a multi-disciplinary approach and close collaboration between artist and engineer, they have produced a number of organizations which make co-operation easier. Vancouver's Intermedia is one Canadian example; another is Montreal's Groupe Création. Predictably, the most complex development has taken place in the United States, where EAT (Experiments in Art and Technology) a New York based organization, claims 35 local chapters, 6,000 members, (including roughly 2,000 engineers and 2,000 artists) and has made about 500 matchings between the two.

And yet, for all the furor - or perhaps because of it - the new movement is beginning to show disturbing signs of burning itself out. According to some critics, practitioners have been so wrapped up in experiment for experiment's sake, so involved in what Kepes calls "the acrobatics of the new technology" that exciting possibility has turned, almost in the twinkling of a light show, to cliché.⁽¹⁾ As Douglas Davis wrote recently, reviewing four recent art-technology exhibitions, including the EAT-arranged Pepsi-Cola pavilion at Expo 70: "These shows, by their tired repetition of themes and devices that had been exploited time and again through the sixties, announced the end of innocence in the risky art-technology marriage. Now even the kids can spot the clinkers among the clanging gears."⁽²⁾

(1) Another factor, Mezei suggests, is "the lack of sufficient flexibility of control of the various devices used in multi-media forms. Small program control computers controlling the various "sensors" and "effectors" will allow these devices to be more responsive to the environment and to the artists who use them."

(2) Douglas M. Davis, "Improbable Marriage". Newsweek, April 20, 1970.

The gears may be changing. The premise of the international Information exhibition which opened at New York's Museum of Modern Art in July, 1970, is that art is no longer concerned with the making of specific objects (i.e. sculpture, music, dance, poetry, etc. as autonomous entities) but with a concept or process in tune with the outside environment. In an age of instant and total communication, art instead becomes "minimal", or "conceptual" or "ecological".

Perhaps because participants realized this (indeed, the representatives from Intermedia said their attention was turning, increasingly, toward basic aesthetic research) the Seminar was concerned only peripherally with the practical logistics of art-technology co-operation. Delegates, it turned out, were much more interested in discussing the role of the artist in the broad context of total communications systems. And the most total of these systems is the "wired city".

Telecommunications: The Wired City

"The future is upon us. Technology has provided us with the coaxial cable, and the old limitations are swept out the window."

So proclaimed producer and film-maker Douglas Leiterman, and no one at the Seminar was inclined to disagree. Cable as yet is only in its infancy, but already it is revolutionizing broadcasting.

As Dr. John de Mercado of the Department of Communications pointed out:

"Nearly a million Canadian homes - and nearly a quarter of all urban households in Canada - subscribe to cable service. The number of subscribers connected to CATV systems in 1969 was 45% higher than in 1968. Existing systems are already capable of being adapted to accommodate 25 to 30 channels. And even though some obstacles continue to block the full utilization of this capability (these principally have to do with cost, and with the fact that Canadian home sets are designed to receive only 12 channels) it's commonly accepted that the 25 channel system will be in common use within five years".

To some observers, this development will mark the end of mass programming aimed at the dead centre of the wasteland. Communications Minister Eric Kierans has suggested that cable will "usher in the era of individual communications," and Leiterman shares this view. "If the new systems are properly managed," he continued, "there will be channels available for artists and scientists, for Women's Liberation and the Royal Bank and the Kiwanis club and maybe even for the Mafia...A real kind of choice will be offered to the viewer - not just a choice between watching Laugh-In on its original quarter of a million dollar production on NBC, or its \$15,000 prior rerun on CBC."

But cable's programming potential is only the tip of the iceberg. For, unlike conventional "on air transmission", coaxial cable is capable (at a cost) of being 'switched'⁽¹⁾. In other words, the

(1) For technical explanation see background paper prepared by John de Mercado.

viewer may eventually be able to talk back to his set. Leiterman went on:

"Within the 1970's, it is probable that more than one cable TV system will be installed in Canada with, say, 27 channels going into your home and 3 or 4 coming out of your home and back down the system.

Several interesting consequences will flow from this piece of technology. For one thing, programs can be originated from any point in that system, without expensive micro-wave relays to transmit them back to the head-end; and without expensive mobile vans to record them on tape. Thus any school, hospital, arts centre or social club can be an origination point and a simple camera (connected to the end of the incoming cable) can send programmes out.

The next interesting possibility - indeed probability - is that one channel can be reserved for feedback. Attached to your TV set will be from 3 to 10 touch-tone type buttons (depending on the sophistication required and the means of sharing the cost). In its simplest form, the buttons will allow the viewer to send back a signal saying yes, no or don't know. This automatically allows using the TV channel for step by step teaching. A simple instantaneous aggregate measurement of the responses will tell the TV instructor whether to repeat the point, or go on to the next step. The same aggregate counting system could be used to measure viewer responses: Did they enjoy the program? Do they want more of the same? Was it too dull? Too complicated?

As if this were not enough, coaxial cable may assume - and what is more, augment - the functions of the telephone system. As it presently exists, that system is marvellously flexible, allowing instantaneous two-way communication between subscribers at any time. For distribution, however, it depends on pairs of copper wires, or "loops" which can transmit only voice signals, or those of low-speed data type, such as telex. Cable, on the other hand, has a transmission capability 300 times as great. If a switched cable system were introduced, it could, conceivably put a computer terminal in every home, provide set-side shopping and banking, a demand broadcasting service, a burglar alarm and fire watch, and facsimile printouts of newspapers and books. It could, in short, be the cornerstone of the "wired city".

THE SOFTWARE

A Quantum Jump

Whether their union is effected by coaxial cable, or by other transmission systems, computers and telecommunications are, if not yet fully married, coming closer. The implications of that union made the British scientific journalist, Nigel Calder, ask us to:

"Think of a system incorporating the computing, publishing, newspaper, broadcasting and library telephone and postal services of the country, together with large slices of teaching, of government, of industrial and commercial operations and of many professional activities. All these each growing in its own right and subsumed in one system will together outstrip in magnitude and importance any industry or collective activity in which human beings have previously been engaged."⁽¹⁾

Whatever one calls such a total communications system (Calder christens it 'Technopolis', industrial designer John Tyson gave it the cosier title, 'Alexander' at the Seminar), its effects will be enormous. Ultimately any individual could share a common total (audio, visual, data) communication space with any other and obtain whatever information he needed, when he needed it.

As a result, the shape of our physical environment will change radically. According to Tyson, "housing will be re-organized; we may have such things as an input room, a study room, a family room (for group participation), an output room, a utility room...the basic system terminal will become the lowest common denominator and will be capable of expanding to meet the needs of the user. It is not excessive

(1) Nigel Calder. Technopolis. Social Control of the Uses of Science MacGibbon and Kee, 1969. p. 208.

to say that Alexander becomes the house and the house becomes Alexander."

And there are scores of other imponderables.

Tyson raised a number of them - and so defined the thrust of the Seminar as it moved into its second phase: "What is the possibility for individual choice within such a system? What, in this new context, is consensus? How long does consensus last? Who will decide -- if anyone -- what information is allowed into Alexander and what is not?"

More specifically within the Seminar's terms of reference, Tyson asked: Does communication become culture and culture communication? How will the artist create for the new medium? How will he be rewarded?" And, perhaps most important, "What is the role and responsibility of the artist within such a system?"

Not surprisingly, there were almost as many points of view as there were participants. The primary split, however, was between optimists and pessimists: between those who saw "Alexander", or "Technopolis", as an enslaver, and a device which, as one delegate suggested, "would separate man from man" and those who looked on it "as a means of setting people free, of giving man's insatiable curiosity free reign - and allowing him to take more things than ever before out of his environment."

Generally, and perhaps predictably, scientists and engineers were optimistic. As Tyson suggested:

"We have the choice of alternate futures: the wrong Alexander could create an implosion, the right Alexander could accelerate us into a future, a quantum jump over anything we know now".

And Donald Chisholm, Vice-President of Northern Electric, backed up this point of view:

"the problems we face are not in the technology, but rather in the wiseness of our choice, in the achievement of a benign technology, rather than a regimental or polluting one."

How to achieve benignity? Chisholm suggested it was up to the artist to help the scientist develop what he termed "social software":

"The technologists are working now on systems for 1980. Generally speaking, their goal is to choose systems that are completely in line with society's goals. This is often altruistic on the part of engineers and scientists but even the most hardnosed "business is business" man knows that his survival depends on his choosing within the range of what society will vote for. He needs and wants all the help society can give."

But what kind of help, and from whom? Chisholm and Tyson, and the other communications engineers and scientists presented a challenge of awesome dimensions: a quantum jump in technology, already underway and irreversibly so, with its concomittant effect upon society; and riding uncertain herd upon that revolution, technologists asking help in deciding what social goals and needs they should seek to serve.

Challenged to be precise in their answers, the artists could not be, for while engineers can predict, artists can only guess, and guess by intuition rather than by objective reasoning. Taking one workshop report as a rough reflection of the general problem, it seems that the artist-as-politician or artist-as-social commentator, doesn't really know what to suggest:

"It was pointed out that in any period, the serious artist wants to present society with a working model of itself. At one time, static art works - portrait painting for instance - served this purpose. Now, new models are needed. But it was not easy, the group found, to say what these were precisely. The artists

present apparently were not helped by the technologist who pointed out that he could build whatever is wanted - and provide it economically - if the demand is sufficient.

The discussion pointed up the irony of not knowing what we want at a time when technology can give us a choice between alternatives. Maybe we need a great project, somebody suggested. Medieval man had his cathedral to build. Maybe the wired city is our cathedral. The essential difference though, is that medieval man could see all the implications of this actions, while we can't."

Another group picked up the same theme:

"The artist must be involved in the design of the system of the wired city. Otherwise a system will be built without the slightest concern for the human ends to which it can be applied. It will be built solely because it is technically feasible."

Art and Alexander

When it came to the direct effects of 'Alexander' on existing art forms, opinions were equally diverse and uncertain. Some participants thought the performing arts in particular could not endure, and saw, Glenn Gould's thesis of the "exploding concert hall" as a clear portent for the future. One of them suggested:

"We're already asking ourselves, why go to hear the Toronto Symphony play, say, Mahler's 5th, when we have the definitive version at home on record. Take this a step further. When demand broadcasting is a reality, when you have say, Olivier's Hamlet or Welles' Falstaff at your beck and call more or less for free, why go to the theatre?"

Others were more cheerful:

"People don't go to a play or a concert just to hear the music or watch the actors. It's a community experience - a kind of way of recreating the community - and people won't lose this instinct."

There was speculation too that the telecommunications-computer marriage may create new forms of communication even as it changes existing ones:

"At present, none of our communications systems involve more than two senses at once. Perhaps because of this, telecommunications has in a way sensitized people to the knowledge that they can't communicate. They're starting to realize that there's a real art to being human in this society. To find a form for itself, the art of being human may demand new systems, which include, say, tactile sensations as well as visual and auditory."

As for the individual artist, the most cogent comments - if scarcely the most optimistic - came from director-playwright Jacques Languirand. Traditionally, he said, it has been the artist's function "to communicate to us the image of the world we live in... But, thanks to telecommunications, the work of art appears suddenly

marginal, out of touch with reality, at least for those artists who are aware of living in a technological revolution."

Faced with this situation, Languirand said artists tend to react in a number of ways.

"For some, protest becomes the major form of expression, I would even say, the major work. At last, the wish of the surrealists is being fulfilled: art no longer exists.

On the other hand, it is evident too, that some artists have decided to express themselves within the system, giving up the idea of art for art's sake...For these artists, the design of a utilitarian object, for instance, is just as important as the creation of a painting or sculpture.

In both cases, it is negation of art, at least in the sense of the traditional definition.

Some artists are ready to undertake any experiment... Like Prometheus, they want to bring fire to mankind: thus they will experiment with LSD and/or political commitment, as well as new materials, and/or the new tools of technology.

Other artists are apprehensive about the new media...they see their role as basically one of preserving some permanent values, or what they consider to be permanent values. This attitude...might explain why, as McLuhan points out, "Artists are always one technology behind."

Few people suggested Languirand, are really aware of the part the computer could eventually play in artistic creation. To begin with, a new medium is generally used as a vehicle for old forms. When talking pictures were first invented, it was reassuring to believe that they would make it possible to screen plays and operas. Certain artistic circles have always hoped that the definition of art would remain the same. So, when we talk about computers and the graphic arts, some artists will ask if this new technology will let them draw "like Al Capp, Beardsley or Disney." Whereas the computer will not only impose a style, but will drastically change the very notion of graphic art.

There are people "who would not dare acknowledge the unbelievable part the computer will be called upon to play in the arts, probably because this will lead to a questioning of all artistic values, and, specifically, of the artist's own role." Nonetheless, the creative process will undergo drastic change.

It is generally recognized, Languirand stated, that "creation proceeds in two stages: addition, followed by subtraction." In the first stage, the artist accumulates information, and gives it rough shape; in the second stage, he selects the various elements he needs, and puts them in order.

"The computer can contribute to the creation in its first stage; it has the faculty of creating almost unlimited sequences, for instance an almost infinite number of variations on a musical theme and every conceivable transposition on the different modes".

The artist does not really intervene until the second, and selective stage of the process. But when a computer is used, the two steps of the creative process become "almost simultaneous," in actual practice.

"Contrary to common belief, this form of creation is very exacting for the artist: it requires a power of abstraction at concept level; it also requires a very strong personality, able to judge the true value of the elements suggested by the computer, and to resist the fascination of change; it requires, too, a non-linear mind, a mind trained in synthesis.

But the computer itself will never be genuinely "creative", even though it proceeds by analogy: bit binary operation (within the philosophical as well as the technological meaning) renders it passive while man proceeds from the ternary (the "yes or no" of the computer, against the "yes and no" of Pythagoras)."

But there is a real problem for the artist, nonetheless, because "man tends to resemble the machines he invents." As fashion testifies,

the "boiler hat" was a by-product of the age of steam. "Like the hero of the younger generation, Mr. Spock in "Star Trek", who is always logical and never emotional, man will tend to become integrated, determined, programmed."

At this point in Languirand's presentation, participants nodded an uneasy assent. One whispered to his neighbour, "It's already happening. Look at the craze for speed-reading, for cramming information into our storage system, without regard for content let alone for style."

TWO CULTURES

Participatory Technocracy

Our real problem lies in the use we make of communications technology, and not in the hardware itself. Both Languirand and Chisholm were agreed on that. But when Chisholm, the engineer, asked for guidance in developing technology to suit social goals, he implied that public participation was possible. Languirand was not at all sure that it was:

"When we talk about democratic participation in relation to telecommunications, it is my impression that we are deluding ourselves. I myself share the opinion Professor Léon Dion expressed recently in a seminar (1): "It seems that telecommunications promote a demago-technocratic type of political system"...Participation is a delusion, unless it is interpreted merely as "feedback".

The process consists of launching an idea, trying it out on the masses, as is often done in politics, not in order to find out whether the idea is worthwhile, but whether the masses are ready to accept it. Thus the function of telecommunications will be to prepare the masses to accept an idea considered valid by the technocrats."

Where does this leave the artist, the "traditional reflector of the society in which he lives"? As Languirand saw it: the artist will have two options: to contest the system, or to promote the "happiness" of the masses.

In either case, the artist really works for the system. If he contests it, the most he can hope for is a modification

(1) Telecommunications and Participation, University of Montreal, April 1970.

of strategy and policies, but never of power. And contestation can be a form of exorcism or catharsis, useful for channelling - and neutralizing - negative forces. "Under the Roman Empire, slaves had the right to make fun of their masters one day a year, which in the final analysis, helped to maintain order."

Contributing to the "happiness" of the masses means conditioning them, Languirand said. Although it appears as "a betrayal of the very vocation of the artist", telecommunications have already helped to define his work in this way. "The system, in fact, can give him access to the "hardware" only insofar as it can count upon the artist to use it for positive aims, on the terms of the system."

Within the system, Languirand said, the artist becomes a tool used to supply "games, distractions, outlets...Aldous Huxley's prediction in his novel "Brave New World" is already coming true. We are no longer very far from the creation of the College of Emotional Engineering."

After Languirand had given his artist's eye-view of the world of total communications, film-maker and novelist Jacques Godbout began almost precisely where Languirand left off, with the effects of total communications on society in general. His paper, The Telecommission is a Diversion Enterprise, constituted a warning and a plea. A warning that telecommunications will almost inevitably become the preserve of a technocratic elite, who will use it to re-inforce their own power. A plea that the management of telecommunications be "entrusted to creators and one day, as soon as possible, open to all."

Communication vs Information

A vital distinction was drawn by Jacques Godbout between communication and the mere distribution of information:

"By communication, I understand the pooling of objects, ideas or connotations. The man who offers a cigarette and a light communicates. The one who sends a telex does not communicate, he informs. The field of information, strictly speaking, is that of technology... it is not that of culture. Now the first danger of the Telecommission lies in this catchall word: tele-communication."

Godbout distinguished between telecommunication, tele-broadcasting and teleinformation. Telecommunication, he said, uses electronic techniques to enlarge man's "spiritual field by pooling human connotations." Telebroadcasting accidentally serves the communication process by transmitting existing art forms; music on radio was an example. Teleinformation means the transmission of data by electronic means.

Information, Godbout declared, is neither communications nor art. It is the people in the information field who would like to see artists "submit to an apprenticeship" in the new technology. "A more rational and more efficient use of artists" would give them control not only of artists but of those minds which are still beyond the reach of "the computer's tentacles".

Already a whole sector of industry - advertizing - has succeeded in making artists invert their art by using "the trappings of humanist communication" to make the consumer react and obey.

In Godbout's opinion, "the economic technological dictatorship" depends on the "concentration, conservation and rational dissemination" of knowledge. "When an information technocrat holds

(1)
between his thumb and forefinger a holographic crystal containing one hundred layers of visual information, his mouth waters like a nymphomaniac in a military college."

But, Godbout continued - and it is an important "but" - culture, cultural institutions and the human sciences do not belong in the world of "knowledge". He forecast that "the magician technician will try to transform the museum into a place of knowledge, forgetting that the very nature of the museum is to favour contemplation and reflection."

To artists, and to others in related fields - "writers, sociologists, anthropologists" - 'how to know' is less important than 'how to live'.

How are the humanists to prevail over the technocrats?
Godbout's solution involved substituting one dictatorship for another:

"The impact of "telecommunications" on cultural organizations or on institutions will depend upon the type of dictatorship in which we shall live. It is obvious that today the sole objective of an intellectual must be to replace the economic-technological dictatorship by a humanist dictatorship, in short, a cultural revolution...The Telecommission cannot propose a cultural revolution: it is a creation of the economic-technological complex. But it could avoid the worst, that is, choose the reformist road and advise the Government to give existing institutions sufficient funds so that they can blossom and transform the human environment, extending the field of consciousness."

(1) Laser-generated crystals can store the equivalent of 1,000 book pages in a crystal the size of a postage stamp.

To avoid "an armed struggle for ownership of the tools of creation, telecommunications included", Godbout advised:

"The only real solution lies in collective ownership, co-managed by artists, as the hospital is a collective ownership, co-managed by doctors and public administrators... It will not be sufficient to plug in artists in front of electronic machines, or to place into orbit satellites with poetic names."

BRIDGING THE GAP

Striking a Balance

Perhaps because the future they sketched was scarcely more cheerful than a canvas by Hieronymous Bosch, the presentations of Languirand and of Godbout acted as a catalyst for the Seminar. To this point discussion had consisted primarily, as Lister Sinclair phrased it, "of a mixture of gossip and psychotherapy."

The artists having had their say, and in the process seemingly arrogated the right to speak for all society, a kind of creative tension now developed. The scientists and engineers, exasperated, lashed back, with comments like these:

"Artists and academics think they're the only ones who are sensitive to the needs of society...they're driven by a compulsion to tell the world what they are doing and thinking. We may work for profit-oriented organizations, but as individuals our day to day objective is to create technology which will meet social needs..."

"Artists are so overwhelmed by the negative aspects that they forget the challenge - the new artistic challenge - to present cohesively and constructively the monumental contemporary scope, life, promise and hazard in both science and technology..."

"I get the feeling that everyone is talking - and no one is listening..."

And out of this tension, came a new sense of purpose. "We took our labels off", one participant explained, "and realized that certain problems in our contemporary, technologically-dominated life are too large for either Science or Art to deal with alone; that the possibility of collaboration between certain artists and scientists was incredibly rich and urgent." Which brought the meeting full circle,

to the point which Kepes had made at the beginning.

This time it was Eister Sinclair who set the mood.

"We need to strike a balance between the romantic point of view, and the classical point of view. The Romantic sees the purpose of art as self-expression - holding a mirror up to nature. The Classic sees art as communication - its prime function to help us enjoy life and to endure it."

In their own way, and at their own pace, each of the six workshop groups set out to strike this balance between the natural sciences and the social sciences, between romance and classicism. Some were kinetic in their approach, engaging as one workshop chairman put it "in the problems of diagnosis"; others were static. Yet - and this became clear during the closing plenary session - each of them dealt with essentially the same problems and came up with broadly similar solutions.

As far as the problems were concerned, two emerged as paramount: the need to open up - or to democratize - both arts and technology ("Bring the outside in - put the inside on", one participant suggested), and the related need to do this, not just in major centres, but all across the country. Properly used, telecommunications was the answer in both cases, it was generally agreed. As one group expressed it:

"Since we are all creators in some sense, if not in the traditional way, the group asserted the need for a telecommunications system that would develop those creative urges moving within the country and give opportunity for creative expression to as many people as possible. The visual contact made possible by telecommunications would allow artists to learn what their colleagues were doing, seeing and experimenting with elsewhere, as well as allowing their exchanges to be shared with the general public.

"Telecommunications might then become the link between artist and audience, thereby alleviating the artificial

distinction between one as producer, and the other as consumer."

And another:

"We believe that the substance of programming, or the telecommunication software, must receive at least equal consideration (and simultaneous consideration) with the hardware. We want study, research, and support for preparation and production of software even in advance of hardware capacities...We want the communications network to be primarily for, by and about Canadian society and this country. We say this not in a chauvinistic sense, but because we believe in developing the resources we already have...We further want the telecommunications system to strive to rectify the cultural and media disparities of this country. This means regional production and regional programming. We believe that the concentration of artists in major centres deprives artists and public alike of fruitful direction..."

Groping for a Structure

How though to bend the telecommunications system to fit these ends? All groups were agreed that existing arts institutions and organizations - national, provincial and private - would play an important part. As one report put it:

"We believe that these institutions will willingly and eagerly co-operate and contribute to the technological development of new forms of art diffusion...thus the importance of developing these institutions must be recognized."

But it was evident at the same time that the Seminar was also "groping for a new kind of structure," to use the phrase of the chairman of the plenary session, James Domville. As one participant explained:

"Existing institutions, set up for another time and another set of circumstances, are not really equipped to cope with the total dimension of total communications. Moreover, many of them are too specialized to allow dynamic interaction between artists, technologists and the public as a whole. In short, scientists and artists have to have a structure in order to get to another."

The prime functions of such a structure were relatively easily defined. Research and Experiment were the operative words, and, as Domville pointed out in his summary of the workshop reports:

"You're thinking in terms of a multi-disciplinary approach, and you want the structure to be as autonomous as possible. You're concerned about the need for access to the new technology, and you relate this to your requests for networks of experimental and research centres. You're concerned about access to information, which relates to the question of data banks and information retrieval systems. You're worried about the waste of existing resources, which has come about as a result of the compartmentalization of existing institutions. Perhaps most of all, you're

concerned about the social impact of total communications. You're in effect asking the government not only to be responsive, but to be responsible - to go out and seek what the citizen really wants and needs."

It was less easy, however, to decide how such a structure should be organized. One group saw it:

"As a continuing consortium made up of representatives from the arts, industry and government to act as a kind of advisory body to government, perhaps structured along the lines of the Hudson Institute, or taking a model closer to home, the Economic Council of Canada."

Another suggested:

"It should be a Crown Corporation Think Tank." But then added "There was, however, marked reluctance to put the new body too close to government...it must be made clear that it is something new and not an extension of any current mandate."

It must not be a rigid, bureaucratic structure:

"We need to construct a floating framework in time. Let's have no 20-year plans, or institutions whose mandates are too narrow to encompass new developments."

Indeed, for some participants, the very word 'institution' sent shivers down the spine. As one young artist expressed it:

"Institutions frighten me. Systems work. Synergistic communities are to be sought after and are possible. Institutions seem to sour as they grow, no longer seeking whatever goal gave course to their being; they seem to function only to maintain their own growth and existence. What we don't need is another purveyor of another segment of our consciousness...What we need instead is a system, a plan, a method of allowing each community to construct a network suitable for its own purposes and needs. Because all communities would use a standard system, inter-communications will be possible... If for some bureaucratic expedience, a god-given guiding hand is requisite to govern the growth pattern of these autonomous yet symbiotic systems, then 'let it be'. Have an organization with all the sundry official paraphernalia ...but place a termination date on each position. In

other words, if a governing body is needed to control some grouping of systems, then form it with all its organizational trappings and the day that it is instated, proclaim the day of its dissolution..."

There were those also who proposed a kind of "anti-system". As Sterling Beckwith, Head of the Music Department of York University suggested:

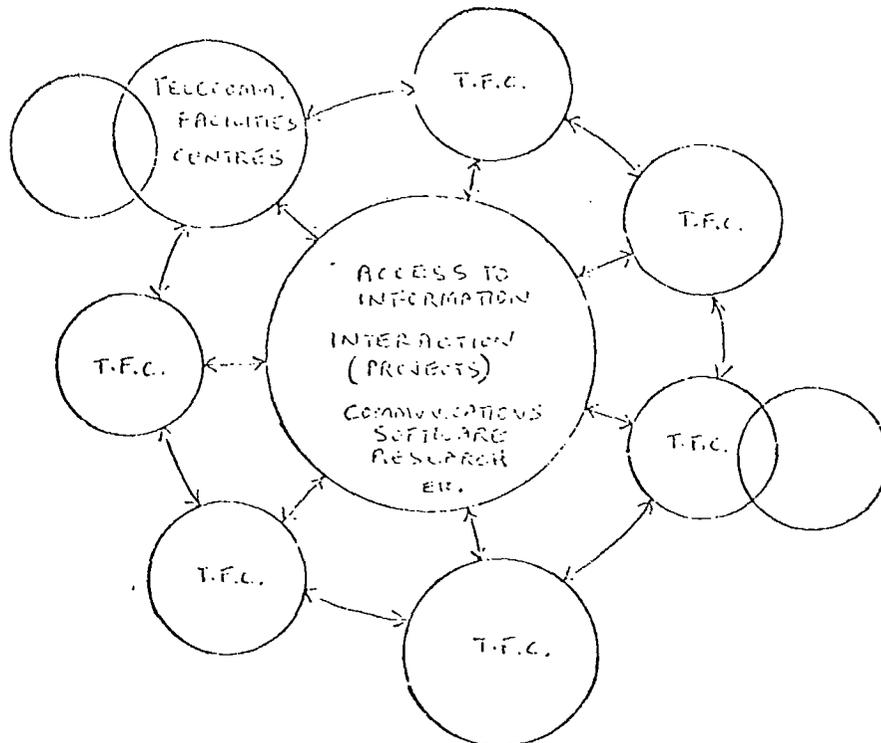
"Artists are still what they always were - specialists in the magical and stimulators of the human imagination. perhaps then the art techno-structure should provide a counterbalance, an alternative system to the technocratic norm...an **open matrix** for the training of artists and para-artists...a place where scientists can begin the task of studying the art process."

In Beckwith's opinion, a university might provide the best foundation. Most participants, however, were more inclined to look, albeit with reservations, to Government.

Creative Communications Centre

One workshop went a good deal further than the others in defining the shape of the new system. Its proposal was for a biomorphic organization combined with a telecommunications network, to be known as a Creative Communications Centre. The description of the centre which follows, and which can perhaps serve as a model for future discussions, is drawn from two sources: the report of the workshop itself and an afterword contributed by one of its members, Michael Goldberg.

"Because cultural development is random, it's impossible for government to apply to it the standard sequential pattern of decision-action-result. At the same time, cultural development requires protective nurturing and support...government might best provide this support by establishing a kind of 'life-systems model' - with a central nucleus, and with feelers, or outer cells, which probe into and retract from society. Management by government, however, would be so minimal as to allow maximum growth without restrictive control. One suggestion was that the model be structured and financed independently, in the same way as the Canada Council."



The first step is to convene a 'critical mass' of people - artists, scientists, sociologists and private citizens - to form the sensory centre of the system.

This central organization must be very flexible, and sensitive to human needs. It might pay artists just to be around as a sensitizing influence, giving them absolute freedom. (1) A prime concern should be the opening up of communications facilities. The organization should encourage the CBC, NFB, etc., to allow their creators more freedom of expression. It should offer particular encouragement to programs like the NFB's "Challenge for Change".

The outer-cells, the life-giving nodes of the model, would comprise easily accessible telecommunications facility centres. They would not serve their purpose if they were used merely to link universities and museums. Ideally, members of the community should be able to use them spontaneously, through groups like artists' associations, performing arts groups and so on.

As well as facilities for individual and collaborative experiment, information storage and retrieval systems should be provided for artists and social scientists, to supplement the systems now available for the applied and pure sciences.

Each centre would be in communication with the others, and with the central nucleus. Telex would be the obvious link. The possibility of using the CBC-Bell link (either off hours, or using the

(1) This method has worked so well at Bell Telephone Laboratories at Murray Hill, New Jersey, that E.A.T. is constantly being asked by U.S. industry to provide artists in residence.

standby system) should be explored. Each centre should also be equipped with several VTR Portaback links.

Administratively, the whole structure of the model should be so loose that obsolete centres could be chopped off - and new ones added. It would, in the last analysis, depend on an acceptance by government that human and social values cannot be served by buildings or by reports.

Other Suggestions

While proposals for some type of creative communications centre or system emerged as the prime recommendation of the Seminar, there were many other, more direct suggestions. Some, of course, have been dealt with earlier in this report. Not surprisingly, others had to do with television broadcasting - for it is in this field, as Leiterman remarked, that "the future is already upon us."

The workshops lamented, unanimously, the paucity of time allotted to programming about arts and science. One suggestion, made by Michael Goldberg, called for a new national arts program devised by artists themselves. "Audio-visual and TV technology experiments, original teleplays, happenings, films made especially for the programme, interviews of special interest to the public, features on artists at work are just a few of the possibilities."

Douglas Leiterman set out a four-point plan for broadcasting which called for an entirely new approach to both management and programming:

- (1) "Install at the top a few key men and women who have demonstrated skill and taste for controversial broadcasting... men and women who believe that a free society works best by encouraging diversity of view-point, even in the most sensitive areas;
- (2) Ensure that a majority of the boards of directors and the backers of the stations are persons who share these fundamental objectives;
- (3) Involve the people of the community...if (they are) educated in what is at stake, and given a real part in the planning, a working majority will identify themselves with the program and use the impetus of TV to innovate or energize community dialogue at every level;

- (4) Seek diversity of staff and give them participation in programming. I have found the tangential pull of staff members of diverse ethnic, philosophical, political, economic and geographic backgrounds a valuable counter-thrust to single-pole programming."

Participatory Broadcasting

Werner Aellen went several steps further than Leiterman when he called for "participatory broadcasting".

"What made the explosive development of multi-media and film possible was the access to equipment and materials by a greater number of people. This kind of development must be encouraged also in the case of video; we have to demystify TV."

Programming today is all but moribund, said Aellen:

"The present system where a person in charge of a certain program is not personally involved in the subject matter but merely assigned to a job, invariably leads to one-dimensional treatment of subject matter. If, on the other hand, people (teachers, scientists, artists, tenants, etc.) were given the opportunity to shape their own expressions and formulate a first-hand presentation on the subject of their involvement rather than having it filtered or produced by another person, a genuine intensity can be conveyed."

Technical expertise and access to equipment will eventually become available to larger numbers of people, Aellen maintained. The new, compact CTR equipment has already changed the form of video recording and will "eventually affect TV content and treatment drastically." At present, such miniaturized equipment is plagued with technical problems. But if it were government policy to encourage cable TV operators to make some of their facilities available for experimental purposes, manufacturers would iron out these bugs in short order.

The Seminar as a whole shared Aellen's view. One workshop related participation to education, where, it said, television could provide "a first-hand source of creative activity. Children and students should use cameras and see artists at work using cameras..."

Once Cable TV - in theory, anyway - frees programming from the Procrustean Bed of the 30 minute time slot, a new approach will be possible, Aellen predicted. Using a series of short films as illustrations, he suggested that before long broadcasters will be able to experiment with different forms of time: compressed time, warped time, expanded time, instead of the dramatic time which television shows us almost exclusively, today. Dramatic time "not only gives us a manipulated and grossly distorted view of our society, but deprives us of the opportunity to re-sensitize ourselves to our environment, be it nature or man-made surroundings."

To explore these new areas, Aellen called for a model demand-broadcasting system: "We should set one up and test it. We must find out whether participatory broadcasting can be effected with personalized radar set systems for house-to-house closed circuit TV...!"

Using the Resources We Already Have

The more visionary proposals at the Seminar were balanced by a general concern with making better use of existing resources. It was suggested, for instance, that institutions such as the Canada Council, the CBC, and the NFB make greater efforts to collaborate.

Taking his own institution as an example, Peter Swan said the Royal Ontario Museum had only "random opportunities" to take advantage of the possibilities of television and film:

"The museum should have its own department doing nothing but TV, which can be used for creating imaginative programs, which integrate all the arts, both visual and performing...Given adequate long-term backing, three or four audiovisual units might be set up across the country. Each could produce programmes for distribution to other centres...a list of 100 programmes should be drawn up and their costs and effective achievement scheduled."

Again in terms of the proper use of existing resources, one participant proposed:

"Technology implies a change, not only in the arts themselves, but in the ways in which artists are rewarded. But as matters stand now, our reward system - our copyright regulations, reproduction rights and so on - are built on the old property law. Existing institutions and government departments have a responsibility to do something about this."

Perhaps the most interesting suggestion had to do with using the artist himself as a resource. One workshop report suggested:

"Government departments should hire artists as consultants. Not in the sense of waiting for the artist to come up with a project, examining it, and giving reluctant agreement. The artist should be hired for his potential - for the ideas he can bring to bear on policy."

TOWARDS THE KIND OF SOCIETY WE WANT TO LIVE IN

The objective of the Telecommunications Environment section of the Telecommission, of which the Telecommunications and the Arts Seminar was part, was, as all participants were informed, "to define the right questions and to suggest ways in which the right answers could be achieved, rather than to recommend precise answers."

First Principles

1. That the Telecommission make a telecommitment to the arts and to what the arts stand for - in their social as well as aesthetic dimensions. We believe that the arts through technology, and the arts of technology will not only describe but will move us towards the kind of society we want to live in. In the process, extraordinary steps must be taken.

2. That unless telecommunications technology is developed and controlled for social purposes it will become, almost inevitably, the preserve of a technocratic elite.
Telecommunications should be opened up to allow all citizens to communicate freely among themselves.

3. That telecommunications software (including both programming and an assessment of the environmental impact of hardware developments) receive as much consideration - and simultaneous consideration - as telecommunications hardware.
This implies study, research and support for the preparation and production of software "even in advance of hardware."

4. That the Communications network be primarily for, by and about Canadian society and this country. This does not imply narrow nationalism; instead it reflects an urgent concern to rectify the cultural and media disparities of this country. And since the concentration of artists in major centre deprives artists and public alike of fruitful direction and collaboration, it implies also regional production and regional programming.

5. That the hardware and software already within the community deserve a higher and more urgent priority than new hardware. Existing intra-community links are not yet fully exploited.

RECOMMENDATIONS

To put these principles into practice, the Seminar recommended:

1. The formation of some type of creative communications centre/system, or network of centres/systems, designed as laboratories for research and experiment by artists and scientists and, equally important, as a means of giving opportunity for creative expression through telecommunications to as many people as possible. (For a detailed discussion of this proposal, see pages 50 - 52).

2. The development of a national information retrieval system for the arts. As a first step, support is needed for the establishment of information service facilities in all major centres. These retrieval systems would make the best possible use of equipment and resources which already exist and, it goes almost without saying, they would depend on the co-operation of universities, museums and galleries, industries, provincial and local governments and related public and private institutions and organizations. In developing such systems, particular attention must be paid to the way information is selected, and to the method and level of access.

3. That, at the same time, government recognize also the importance of developing the existing federal cultural agencies, and cultural organizations and institutions, public and private across the country. And in particular:

- that such federal agencies as the Canada Council, the CBC and NFB make much greater efforts to collaborate, particularly in terms of the development of an integrated and positive programme which anticipates the new technology;
- that these organizations study the possibility of devoting 5 per cent or 6 per cent of their annual budgets to research and experiment in the application of the new technology to the arts. This amount should be matched by the Department of Communications in complementary activities in the field of the arts;
- that the possibility of an inter-museum communications network, primarily designed for practising artists, be studied.

Education

4. That, as a means of democratizing the arts, and developing creative forces within the country, a massive program of education be undertaken in the use and application of the new technology.

Such an education might entail --

- emphasis on the importance of audio-visual and other technological devices at all levels of education, not only as a means of increasing information and appreciation, but also as a first-hand source of creative activity.
- scholarships from the Canada Council and other organizations for artists to experiment with television and other media equipment.
- developing multiple uses for communications software. Software producers should be encouraged to work closely with book publishers, film producers, museums, cinémathèques.

Artists and Computers

Education is especially relevant for artists wishing to work with computers. (For a detailed discussion of this problem see pages 17 - 22). The Seminar recommended:

5. that artists who wish to use computers join forces and make joint proposals to major computer organizations.

6. that government instruct those of its departments and agencies which have computers to reserve part of their computer capacity for experiment by artists.

Television Broadcasting

7. that government policy make access to cable TV facilities a matter of course for artists rather than of competition;
8. that all broadcasters (radio and TV) in Canada include in their current information programs news concerning arts, science, technology, and education rather than assigning such material to artistic and scientific ghettos;
9. that the CRTC study the possibility of compelling all broadcasting systems to provide minimum percentages of experimental programming;
10. that a technical broadcast standards bureau be established, attached to the CRTC. Such a bureau would be responsible for ensuring that the sound and picture quality of artistic programming (e.g. symphony concerts, ballet) meets certain accepted minimum standards;
11. that the CBC be encouraged to plan a new national arts program, to be broadcast in prime time, to be devised by artists themselves;

12. that a much greater number of people be given access to TV equipment, and thereby an opportunity to shape their own expressions and acquire through experiment new competence in the use of telecommunications to deal with today's complex social issues;
13. that the possibility of establishing an experimental demand-broadcasting system be studied.

Other Suggestions

1. that Government departments, as a matter of policy hire artists as consultants;
2. that relevant institutions, and relevant government departments study the present rewards system (e.g. copyright regulations, reproduction rights, etc.) to see how these might be changed to meet changing circumstances;
3. that the NFB, and other relevant agencies, study the possibility of organizing a touring, all-Canadian film festival.

APPENDIX "A"

TELECOMMUNICATIONS AND THE ARTS

Seminar Objectives

The purpose of the Seminar is to evaluate the growing impact of advanced telecommunications technology on the arts in Canada, and to make policy recommendations for consideration by governments, arts administrators, educators, and industry.

The Seminar will examine telecommunications technology as it relates to:

- (a) the creative work of painters, sculptors, stage and museum-display designers, writers, dramatists, composers, choreographers, multi-media artists, and film and television directors;
- (b) the interpretation and projection of the arts by museums and art galleries; theatre, ballet, and opera companies; orchestras and musicians; multi-media arts organizations; and film and television productions;
- (c) the enjoyment of the arts by the public, with special attention to the use of telecommunications to make the arts available to much wider audiences.

The Seminar will take the form of four consecutive panel discussions of distinct but not mutually exclusive aspects of the problem, followed by a concluding plenary session.

Panel 1 - New Forms of Expression and Interpretation

What can artists do, using the new telecommunications technology, that they could not do before? Will multi-media forms of expression supplement, complement, or supersede conventional art forms?

Panel 2 - The Individual Artist

What does the individual artist need to live with and benefit from the new technology? What should be done by governments, grant-giving bodies, arts educators, and industry to provide the necessary tools, training, and access to information?

APPENDIX "A"

Seminar Chairman: R. Gwyn, Department of Communications

Plenary Session Chairman: James Domville,
Théâtre du Nouveau Monde

Panellists:

1. New Forms of Expression

J. Domville, Théâtre du Nouveau Monde (Chairman)
Werner Aellen, Intermedia, Vancouver
Charles Gagnon, Loyola University, Montreal
Pierre Garneau, Radio Canada
Leslie Mezei, University of Toronto

2. The Individual Artist

Joe Green, York University (Chairman)
Don Chisholm, Northern Electric*
François Dallegret, Artist, Montreal*
Mike Goldberg, Artist, Montreal*

3. Arts Organizations

Vincent Tovell, CBC (Chairman)
Jacques Godbout, NFB, Montreal*
Robert Sterling Beckwith, York University
Jacques Languirand, Director-Playwright, Montreal*
Peter Swan, Royal Ontario Museum*

4. The Arts and the Public

Marcel Rioux, University of Montreal (Chairman)
Norman Hay, Interdesign, Toronto
John Tyson, Northern Electric*
Douglas Leiterman, TV Film Producer, Toronto
Glen McInnes, Alphatext, Ottawa*

Technical Briefing: G. Bergeron, Department of Communications
J. De Mercado, Department of Communications
R. Mason, IBM Canada

Workshop Chairmen: Robert Sterling Beckwith, York University
G. Bergeron, Department of Communications
D. Cappon, York University
A. Fortier, Secretary of State
D. Hilton, Department of Communications
D. Silcox, Canada Council

Panel 3 - Arts Organizations

What can be done to ensure that established and new arts organizations (museums, performing companies, film-makers, broadcasters) are intellectually and technically equipped to take advantage of the new technology? What research is needed, and what benefits can they derive from advanced information systems? Are new physical and conceptual structures required, or should new priorities be molded into existing structures?

Panel 4 - The Arts and the Public

How can the new technology be used to project the arts to much wider audiences? What beneficial effects can be induced in relation to the extension services of museums and libraries, and the touring of performing groups? How can telecommunications be used by educators to generate a wider appreciation of the arts by the public in general and by the rising generations in particular?

CACC / CCAC



84213

Dept. of Communications
Headquarters Library

QUEEN HE 7815 .A52 no.6c
Canada. Dept. of Communicati
Report on the Seminar on Tel

TK
5102.5
.C35
6(e)e
c.1

