NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

Reproduction in full or in part of this microform is governed by the Canadian Copyright Act, R S.C. 1970, c C-30, and subsequent amendments.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

La reproduction, même partielle, de cette microforme est soumise à la Loi canadienne sur le droit d'auteur, SRC 1970, c. C-30, et ses amendements subséquents

ISBN 0-315-59171-4

News and Information in Post-Industrial Society: Exploring Canadian ISDN Proactive Policy Issues

Walter Carl Frank Perry

A Thesis

in

The Department

of

Communication Studies

Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts at
Concordia University
Montreal, Quebec, Canada

August 1990

Abstract

News and Information in Post-Industrial Society: Exploring Canadian ISDN Proactive Policy Issues

Walter Carl Frank Perry

Canada depends on the mass media at a rate unparalleled in history. The nation became a post-industrial society in 1983, when white collar workers outnumbered blue collar workers for the first time.

Four generations of media are discussed in this thesis. They are:

1 Show and Tell (gesture and speech)
2 Shoot and Print (photos, film and print)
3 View and Phone (radio, telegraph, telephone and television)
4 Integrate and Interact (computers, hypermedia and Integrated Services Digital Networking -- ISDN)

Canada has no cohesive telecommunications policy.Therefore, this thesis hopes to assist policy makers consider the threats and opportunities (TAOs) of this situation by answering the following three questions:

1) What can be learned from studying the history of mainstream and alternative media in Canada to help develop proactive policies? These policies would be developed to ensure that technological and institutional change can be directed and managed effectively.

2) What can be learned from examining present trends in mainstream and alternative Canadian media to develop proactive policies?

3) What specific proactive recommendations can be made by government policy makers in the following areas -- the media, business, different levels of government, law and education -- to minimize threats and maximize opportunities surrounding ISDN?

The background environment of each area is studied, proactive recommendations are offered and conclusions are drawn.

Dedication: For

Justin Perry
Juliana Perry
James Perry

TABLE OF CONTENTS

FIGURES

INTRODUCTION

Canada is presently dependent on accessing and (tele)communicating spoken, written, pictorial and other data at a level unparalleled in its history. Integrated Services Digital Networking (ISDN) is the infrastructure of the post-industrial society formed by the convergence of computer and telecommunications technologies. It is the basis of McLuhan's long-awaited "global village." Armstrong (1981) has written that:

> Information is an increasingly important product. Today, half of the (North American) Gross National Product is generated by the production, dissemination, and consumption of information in its various forms: the press, books, movies, records and tapes, government and corporate documents, legal briefs, computer print-outs, radio, video disks and tapes, broadcast and cable television. Together, they comprise what the German critic and poet Hans Mangus Enzenberger calls 'the consciousness industry.' (p. 19)

Despite the influence of the consciousness industry, more information does not necessarily translate into better data processing capabilities by human beings or machines. Perry (1988) quotes T.S. Eliot as asking the following questions: "Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?" (p.19)

This thesis hopes to answer the following three questions:

1- What can be learned from studying the history of mainstream and alternative media in Canada to develop proactive policies?

2- What can be learned from examining present trends in mainstream and alternative Canadian media to develop proactive policies?

3- What specific proactive recommendations can be made by government policy makers in areas such as journalism, law, technology, business, and education to maximize opportunities and minimize risks surrounding ISDN?

These queries are especially timely in the 1990s, when ISDN technology could dominate the global telecommunications industry. ISDN is noteworthy because it is expected to merge voice, data, video and other electronic capabilities onto a single, standardized information grid. One of the central themes of this thesis is that planning for ISDN requires proactive decision-making. Proactive decision-making differs from reactive policy in that it plans for unforeseen future considerations and contingencies. Paradoxically, proactive policy is best understood as a reaction to reactive policy. It has been defined by Martin (1983) as follows:

> Proactive Decision-Making is a dynamic process through which organizational policy, technological and institutional change can be governed, directed

> and managed effectively. It helps the user come to grips with future considerations and contingencies. It is not an extrapolation process (which is what most models are). Specifically, Proactive Decision-Making is a sociotechnical process (used) to identify new opportunities, understand perceptions, diagnose controversial issues and manage individual, group and corporate behavior. For all organizations, it is an ongoing personal and collective effort to fully articulate and refine the core mission and actively influence its environment to sustain a continuous optimum sociotechnical success and sound economic performance. (p. 19).

As Gardiner (1987) has written in The Ubiquitous Chip, many social scientists use the prospective approach with proactive planning: "The prospective approach considers the future not as something which is already decided but something which reveals itself over time." (p. 128)

The following three federal agencies would regulate ISDN technology: The Department of Communications, (DOC) The Canadian Radio, Television and Telecommunications Commission (CRTC) and The Department of Consumer And Corporate Affairs (CCA). Proactive planning would be useful to them all because there is no cohesive Canadian policy defining the use of ISDN or any other telecommunications technology. McPhail & McPhail (1989) have studied this situation and written:

> Canadian telecommunications regulators do not operate so as to coordinate their programmes and policies...The Conservative Government of Prime Minister Brian Mulroney began a policy review of telecommunications shortly after assuming office in 1984. Five years later, the country is still without the prom-

> ised policy and its accompanying legislation. (pp. 85-87).

In 1983, Canada entered the post-industrial age. As Perry (1983) has written:

> At this time, white collar office workers outnumbered blue collar industrial workers. Sociologist Daniel Bell believes that the primary wealth gathering activity of the post-industrial era is the production and transmission of information services; not manufactured goods. The post-industrial era could offer Canada unique opportunities. (p. 72)

At the other end of the spectrum, the threatening future that Orwell (1948) has written of in 1984 is a classic example of post-industrial totalitarianism run amok through technology. A recurring theme of Winston Smith's saga is the use of doublethink to reinforce the goals of the state through propaganda. For instance, one part of Smith's mind knows that Big Brother is a total fraud. But another part of his psyche blindly adheres to this much-hated system -- which is made all the more insidious by technologies such as two-way television cameras which enter his house at will.

Gardiner (1990) believes that media studies and communication are central to understanding the ramifications of the post-industrial age. Physics was the basic technology of the industrial revolution, and breakthroughs in this discipline created entire new industries. Radar, X-rays, television, microwaves, and

lasers are technologies that produce as much as twenty-five per cent of the North American gross national product. They all stemmed from discoveries in quantum physics made between 1910 and 1930.

He reasons tnat biology is expected to become the basic technology of the post-industrial era. Many researchers share this supposition A team of computer scientists probing Artificial Intelligence (AI) for Bell Laboratories are using snails and slugs to develop models for future organic computers. Gardiner (1990) has stated that computers will soon be able to learn over time and could play a crucial role in ISDN networks.

On a more global level, McLuhan & McLuhan (1988) postulated that media themselves constitute the new science, providing a means of understanding the post-industrial age. Their belief is articulated ir the following quotation:

> More of the foundation of this New Science consists of proper and systematic procedure. We propose no underlying theory to attack or defend, but rather a heuristic device, a set of four questions, which we call a tetrad. They can be asked (and the answers checked) by anyone, anywhere, at any time about any human artefact. [sic] The tetrad was found by asking, 'What general, verifiable (that is, testable) statements can be made about all media?' We were surprised to find only four, here posed as questions:
>
> - What does it enhance or intensify?
> - What does it render obsolete or displace?
> - What does it retrieve that was previously obsolesced?

- What does it produce or become when pressed to an extreme? (p.7)

These assertions pose the following question. Namely: "What is meant by science?"

Traditionally, the scientific method has included many elements. These elements include:

1- Observing phenomena

2- Classifying data

3- Using logic

4- Conducting experiments

5- Forming hypotheses

6- Expressing conclusions.

Although the roots of science have existed for 3,500 years -- Egyptian geometry being a well-known example -- the philosophy of modern science dates from The Enlightenment of the late 1600s. Francis Bacon is considered the father of modern science, based upon the following quotation by A. and W. Durant (1961):

> We now come to the greatest and proudest intellect of the Age of Reason: Francis Bacon....He repudiated the reliance upon traditions and authorities; he required rational and natural explanations instead of emotional presumptions, supernatural interventions and popular mythology. He raised a banner for all the sciences, and drew it to the most eager minds of the succeeding centuries. Whether he willed it or not, the enterprise that he called for -- the comprehensive organization of scientific research, the ecumenical expansion and dissemination of knowledge -- contained in itself the seeds of the profoundest drama of modern times: Christianity, Catholic and Protestant, fighting for its life against the spread and power of science and philosophy. That drama had now spoken its prologue

to the world. (p. 183)

What becomes of The Enlightenment and the scientific method in the age of ISDN? First, scientists will, it is hoped, begin to assist policy makers by focusing their attention on phenomena that are hard to quantify using techniques and methodologies which are increasingly sophisticated. Proactive policy would therefore reflect palpable trends in media and other so-called soft social phenomena.

Despite the subtlety and sheer complexity of this process, it is one which Gardiner (1987) and McPhail (1989) agree must be undertaken. It must be undertaken, they argue, because of the profound impact of media and other divergent forces discussed in this thesis on the lives of Canadians in the age of ISDN.

The second development that could assist scientists studying media and divergent forces to help them proactively plan for the age of ISDN could be the relatively recent discovery by science of the reality of paradox. A century ago, paradox was equated with error by the scientific mind. Today, with the advent of quantum physics, relativity theory, and the microelectronic hardware and software to study these phenomena, many scientists accept the belief that reality itself is paradoxical at a certain level. As Oppenheimer (1953) wrote:

> To what appear to be the simplest questions, we will tend to give either no answer or an answer which will at first sight be reminiscent more of a strange catechism than of the straightforward affirmatives of physical science. If we ask, for instance, whether the position of the electron remains the same, we must say "no"; if we ask whether the electron is at rest, we must say "no"; if we ask whether it is in motion, we must say "no." The Buddha has given such answers when interrogated as to the conditions of a man's soul after his death; but they are not the familiar answers for the tradition of seventeenth or eighteenth century science. (p. 40)

What is needed, therefore, is a revitalization of the scientific method to study the mass media -- and other forces at work in the shift to post-industrial society -- the age of ISDN. This thesis argues that a proactive/prospective approach examining Canadian media studies is would be appropriate to achieve this goal. Thus, technologies, the marketplace and the regulatory infrastructure would all be operant variables in proactive planning because, as McPhail & McPhail (1989) have written:

> It is necessary to examine, review and anticipate telecommunications technology, its potentialities, and its advantages and disadvantages to ensure that the greatest benefits are provided. Technologies enable changes in the telecommunications infrastructure; however, it is the market, through its support of innovations, and the regulator, by permitting or denying services, that together have significantly greater influence. (p. 199)

TRANSMISSION

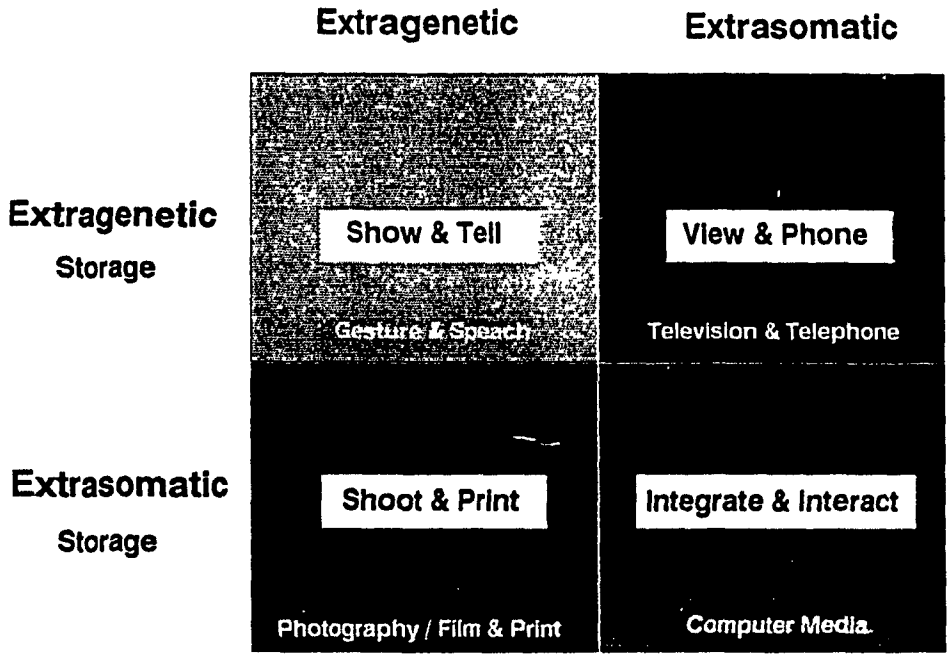

Figure 1. Four generations of media

Media, as defined here, occurs in four distinct generations. This approach allows each of the four generations to be discussed individually or comparatively. These four generations are:

1 Show and Tell
(Consisting of gesture and speech)

2 Shoot and Print
(Consisting of photos, film and print)

3 View and Phone
(Consisting of radio, telegraph, telephone, and television)

4 Integrate and Interact
(Consisting of computers, hypermedia and ISDN)

Generation one is the extragenetic (outside the genetic code) foundation of the following three extrasomatic (outside the body) generations. It is useful to draw a clear distinction between these concepts because, as Sagan (1977) has written:

> Most organisms on earth depend on their genetic information, which is "prewired" into their nervous systems, to a much greater extent than they do on their extragenetic information, which is acquired during their lifetimes. For human beings, and indeed for all mammals, it is the other way around. While our behavior is still controlled by our genet-

> ic inheritance, we have, through our brains, a much richer opportunity to blaze new behavioral and cultural pathways on short time scales. We have made a kind of a bargain with nature: our children will be difficult to raise but, their capacity for new learning will greatly enhance the chances for survival of the human species. In addition, human begins have in the most recent few tenths of a per cent of our existence, invented not only extragenetic but also extrasomatic knowledge: information stored outside our bodies, of which writing is the most notable example. (p. 37)

McLuhan (1964) pointed out that media are extensions of man. (p.1) Humankind has further subdivided the generations into mainstream and alternative media. Mainstream media will therefore be contrasted with alternative media in generations two, three and four. Armstrong (1981) defined alternative media in the following quotation:

> The alternative media and their predecessors, the underground media -- serve as the central nervous system in the body politic of adversary culture. Through that culture's media are transmitted the ideas, values and visions that make up the shared language that radicals and dissidents use to communicate with each other and engage the dominant culture in dialogue....Alternative media, in their most authentic forms, dig to the roots of issues as a means of clarifying problems and offering choices. (p.22)

The key feature of the alternative media is that it offers choices to its audience. These choices are rarely considered by the mainstream media. For instance, an underground newspaper, a community radio station or a computer bulletin board all serve the same purpose: to

offer dynamic tension to its mainstream counterpart.

Dynamic tension is maintained because the alternative media offer these choices. If the audience believes that the purpose of the media is to inform and educate them, then the truth can emerge from this dynamic tension.

Without the alternative media, truth is much more difficult to discern. Without the alternative media, news can easily degenerate into 1984-style propaganda. This is how the alternative media complement the mainstream media.

Thus, several parallels -- and several distinctions -- are recurring themes within this thesis. They include: extragenetic versus extrasomatic storage media, reactive versus proactive policy, second generation versus fourth generation media, and mainstream versus alternative media.

Generation One: Show and Tell (Consisting of Gesture and Speech)

Gesture and speech must be amplified by a second, third, or fourth generation technology if they are to become mass media as defined in this thesis. Paradoxically, without gesture and speech no mass communication is possible.

Many notable theorists including McLuhan believe that the Shannon-Weaver model of communication is the basis of all western theories of media and communication. C. Shannon and W. Weaver (1964) have defined this model in the following quotation:

> The information source selects a desired message out of a set of possible messages....The selected message may consist of spoken words, or of pictures, music, etc.....The transmitter changes this message into a signal which is actually sent over the communication channel to the receiver....The receiver is sort of an inverse transmitter, changing the signal back into a message and handing this message on to the destination....In the process of being transmitted, it is unfortunately characteristic that certain things are added to the signal which were not intended by the information source....All of these changes in the transmitted signal are called noise. (pp. 7-8)

Shannon and Weaver (1964) postulated that perfect, noise-free communication was achievable. This perfect communication could be achieved, they have speculated, if enough time could be allowed for signal transmission between the sender and the receiver. (p. 25)

Generation Two: Shoot and Print (Consisting of Photos, Film and Print)

Background: Understanding the News

News is a basic currency of mainstream and alternative second, third and fourth generation media. These media report news consisting of a relative handful of events which are selected, transmitted and received. The prerequisites for judging events newsworthy are subjective editorial decisions which are frequently determined by the factors examined later in this thesis. These following factors, which influence editorial decisions include:

- Convention, history, policy, laws and timeliness -- all of which can be easily identified as prime ingredients of the selection process.
- Technology, especially in terms of news being a culture-bearer and a social custodian.
- The use of the media as a propaganda tool for personal, special interest or organizational enhancement. This can be double-edged in that the events which an editor refrains from publishing can enhance his or her personal prestige outside the work environment. (This factor runs the gamut from investigative reporting to becoming a gray eminence, or a power behind the throne).
- Arbitrary human decision-making; subjectivity

superimposed upon objectivity, either consciously or unconsciously.

- Audience gratification, base or exalted; real or imaginary.
- Access and funding. This factor becomes increasingly important according to the organizational resources which can be expended to report upon items deemed newsworthy.

Background: The Law and the Press in Canada

Freedom of the press and media responsibility are the two philosophical cornerstones of second, third and fourth generation Canadian journalism. Former Toronto Telegram Syndication Editor Walt McDayter (1971) has written that print, photos and films are unregulated and unchecked in Canada, but radio and television content is regulated by the Canadian Broadcasting Act of 1936. (p. 27)

The framework for determining the exact perimeters of permissibility of print and electronic journalism is determined by the provincial and federal court systems. Thus, the courts have the final say with regard to the nation's media policies.

Although the Canadian government's regulatory infrastructure and legal system determine the ultimate content of the mass media, their present role is far from clear. Due process provided by the 1982 Canadian Constitution and the Charter of Rights and Freedoms could see drastic future revisions in the relationship between the law and print, electronic and computer media.

Traditionally, the relationship between the law and the press in Canada has been adversarial and largely untested. Canadian journalists have the right to obtain information and publish their conclusions.

In general, reporters are more left-wing than editorial managers and publishers. Reporters often argue that any restriction upon published material represents a violation of their civil rights. Management does not usually wish to offend advertisers, nor publish material deemed by government to be not in the public's interest.

Content which is judged not to be in the public's interest can range from journalists revealing their classified sources to blasphemous and seditious libel. Contempt of court is a large issue because as Kesterton (1976) has written that:

> Free press and a fair trial cannot exist as absolutes....In Canada, as in the United Kingdom, considerations of a fair trial prevail over considerations of a free press. In the United States, with its First Amendment, the scales are weighted much more in favor of a free press. (p. 18)

Clearly, freedom of the press in Canada is not absolute. Although prosecutions of individual journalists or their publications are rare, they underscore the need for both policies and guidelines. Kent (1981), suggested a system of self-regulating press councils and codes of ethics. But such an arrangement was seen by many journalists as lacking force. (p. 65) At the time of this writing, for instance, the Quebec Press Council does not have any power to regulate -- merely to recommend. Thus, it appears that infor-

mation critical to the public interest may never be published because print and broadcast journalists have relatively little self-policing capabilities.

Chief Justice Oliver Wendell Holmes observed more than a century ago that jurists spend their lives shoveling smoke. In this vein, policy decisions regarding the Canadian media can be thought of as colored a nebulous gray instead of the absolute shades of black and white. Hopefully, future policy will protect the truth by encouraging a diversity of viewpoints despite the difficulties encountered in pursuing this objective.

Developing a policy that encourages a healthy relationship between the law and the press in Canada is important for the following two reasons:

First, because policy forms the backdrop against which news practices function in democratic societies such as Canada. Second, as policy widens the range of available information, the ability of citizens to discern the truth and become truly informed increases. Chricter, Clarke, Hall, Jefferson & Roberts (1981) addressed this issue when they wrote:

> What, then is the underlying significance of the framing and interpretive function of news presentation? We suggest that it lies in the fact that the media are more often presenting information about events which occur outside the direct experience of the vast majority of society. The media thus represent the pri

> mary, and often the only, source of information about many important events and topics.....The media define for the majority of the population what significant events are taking place, but, also, they offer powerful interpretations of how to understand these events. (p. 20)

The framing and interpretive function of news in relation to the laws and the press becomes an increasingly important issue in generations two, three and four. This thesis hopes to answer the following three questions before making proactive recommendations:

How does the emergence of post-industrial society change the factors comprising what is considered to be news?

How does the emergence of post-industrial society change the law and the press in Canada?

Can any policy (no matter how well-intentioned) help Canada become a high-tech leader?

Canadian Print Journalism in the Prewar Era

Before considering the factors determining how the media select, package, and finally disseminate events which is called news, it is first useful to consider the role of generation two -- consisting of photos, film, and print -- and their impact on this country's development. As Clarke (1981) has written: "....news production....is first and foremost a social construction." (p. 20)

Others, like W. McDayter (personal interview, August 19, 1987) view the media as a business based on the creation and maintenance of cultural mythology. This thesis hopes to generate an eclectic theory of the Canadian media.

The beginning of English language print journalism can be traced to the 1630s, when the corantos made their debut in London. These were printed broadsheets consisting primarily of bland foreign news.

John Milton, the English writer and poet, criticized this practice in a 1644 pamphlet called the Aeropagetica. His work is considered significant because it argues for freedom of the press. More than a century later and a continent away, Spinrad (1979) has noted how Thomas Jefferson wrote in a letter to Colonel Edward Carrington that:

> Were it left for me to decide whether we should have a government without newspapers or newspapers without a government, I should not hesitate a moment to choose the latter. (p. 140)

Canada's first mass communications system was printed newspapers and magazines. Decarie (1985) has stated this system was brought about by the practice of non-partisan Canadian journalism during the 1830's. The creation of this system was enabled by many social, economic, and cultural factors. Two of the most significant were the industrial revolution which produced mass literacy and the widespread migration of human beings from rural areas to cities.

Rutherford (1978) writes that in Canada "nothing, not the pamphlet, the book or the magazine, can compare in its significance to the Canadian newspaper." (p. 4) He quotes Moore (1947) in saying that, by the end of the second quarter of the nineteenth century, "the Canadian could not get along without his newspaper any more than the American could without his tobacco." (p. 166)

The development of national steamship and telegraph technologies by the mid-1840s linked newspapers and their news sources more directly. Parallel developments in printing and papermaking meant that Canadian newspapers were affordable to nearly everyone who wanted to read them. Thus, Rutherford (1978) has written

that the technological base and economic infrastructure necessary to sustain the Canadian mass press was already in place by 1870. (p.9)

This was an age when it took only a few hundred dollars to start a newspaper, according to J. Duff (personal interview, February 29, 1988). By contrast, he claimed that Quebecor accrued start-up costs of more than $20 million before launching the Montreal Daily News in 1988.

In the early days of Canadian journalism, many would-be publishers produced a diverse range of printed materials in hundreds of newspapers and magazines. This dilettante legacy still haunts media professionals and tarnishes the notion of press objectivity in a variety of ways. For example, the previous section of this thesis explained how journalism is still largely an unregulated profession, with its policy stemming from statutory content dictated mainly by libel, sedition and obscenity laws. The journalist is not, by and large, accountable to the party or parties he or she may libel.

Technology tends to outpace legislation and new inventions were changing the form of the printed word during the late 1800s. Alexander Graham Bell sketched the plans the telephone system in Brantford, Ontario, during the summer of 1874. For journalists, the telephone was significant because it provided an

instant voice link between the field and the central office.

However, technical refinements did little to improve the quality of the newspaper at this time. Only the most cursory form of self-regulation was (and still is) practiced. In fact, one of the oddest reasons for regarding Canadian journalism as a profession at all in the 1870s was its connection with the established craft of printing. This belief was, as Rutherford (1978) has written, to remain until the end of the 1890s. (p. 11)

Kesterton (1967) has written that rural and urban newspapers were Canada's first mass communications mode. (p. 93) As such, they were distinct from their European and American counterparts. For instance, these two scholars both note the extent to which Canadian newspapers reflected the middle-class values and ideals of this nation's White Anglo-Saxon Protestant elite.

While this is hardly surprising for the Victorian era, it is extremely important in terms of the development of the Canadian alternative media. Most Canadian immigrants were accustomed only to the ways of their native lands. They were often poorly prepared to adapt to Canadian ways. The ethnic press, crude as its attempts toward fostering an understanding of

the new land were, often served as the only link for immigrants between the old and the new worlds.

Many immigrants arriving in Canada during this era were extremely happy to shed their old ways. For example, paraphrasing Durkheim's "organic model" credo, a Toronto Telegram brochure (1889) acclaimed the press:

> The lungs of (Canadian) civilization, inhaling current history, art, politics, theology, literature, social problems and assimilating them to all the people from the highest to the lowest. (p. 4)

This quotation deals with the following ideas: First, the Canadian newspaper had outgrown its intensely partisan, rural roots and was, in part at least, an agent promoting a unifying set of social mythologies. Even city dwellers who disliked the idea of The Press itself were, in fact, enamored by its romantic images. John Stuart Mill's libertarian philosophy helped to intensify the myth that Canadians lived in an aggressively virile capitalistic society. Surely, ran the prevailing wisdom, to be rich was a just reward -- to be poor showed a lack of moral stability. In this context, so-called journalistic objectivity as it is recognized today became widespread.

Second, and just as important, was the use of the still photograph to exemplify so-called objective reality. John Buell (1985) has written:

> The photograph....has become the exemplar of things...the epistemic authority. To know all is to somehow know pictorially. The best memory is the photographic memory. A photo-opportunity is a belief-opportunity....If you try to walk into the images in Plato's cave, you'll bang your head against the epistemic wall. (p. 62)

McDayter (personal interview, August 19, 1987) noted the transformation of the nineteenth century Canadian media essentially as an attempt to bring the mechanical processes of the industrial revolution into the newsroom. He has stated that:

> Journalism was, for the first time, a process the skills of different kinds of specialists -- from the press rooms to the labs to the accounting department. It is not surprising that newspapers were transformed from small-circulation rural enterprises into business-oriented, mass-circulation communications empires. In fact, the formation of these multimedia empires are inextricably linked with Canada's own emergence as an industrialized nation -- and each is, I believe, a reflection of the other's economic clout."

There was a high price to be paid for this change. Past research by Carey & Lerner (1983) has indicated:

> A high communications policy, in strengthening the long physical lines of transportation and communication, degraded many social relations and aspects of the cultural environment, reduced the choice of lifestyles, involved huge public expenditure, increased social control and led to purely technical processes dictating social relations. (p. 131)

Paraphrasing Innis, who writes that culture is not learned behavior but forms of thought, the authors

continue by saying that the second level of contradiction emerging from the differences between long distance and short distance communication is as follows: each technological refinement centralizes authority (power) as it decentralizes location.

One of the best examples illustrating decentralized location is provided by the newspaper itself. Consider the following fact: As each successive telecommunications refinement such as the telegraph, wireless, telephone, radio was made available to newspaper reporters -- more and more stylistic standardization was dictated by the managerial-editorial staff and the rewrite desk -- who were themselves situated within the newspaper's office away from the action. As time passed, journalists lost more and more control over their own editorial product. Consequently, they became more and more alienated from their work, as demonstrated by the fact that organizations such as The Newspaper Guild and The Periodical Writers' Association of Canada exist even today. Both of these organizations advocate the reporter and the writer and usually treat the editor and the publisher as an adversary.

Decarie (personal interview, September 23, 1985) has argued that a Canadian corporate media structure, located in cities but serving the nation coast to

coast, was fully operational by 1900. The nation was largely literate by this time, he believes. Canada was also ready to accept the press as an attitude leader -- because its content transcended ethnic, cultural, class, and other barriers.

Smith (1980) has written that people who live together in a common structure develop patterned ways of distributing information -- and many other commodities. He also has noted that "these patterns of information flow interact at many points with the patterns of power, wealth, status, and other normative values to form a system in which institutional variation is felt by other social entities." (p. 28)

Almost anyone who has ever watched Hollywood interpret a newspaper reporter in a movie made before 1950 is familiar with the mythology of early twentieth century print journalism, Here, the reporter is depicted as a noble savage -- a swaggering, Menckenesque figure who seeks to afflict the comforted and comfort the afflicted. This was the stereotyped image of a newsman -- a hard-bitten tough guy with a heart of pure gold -- slugging back Jack Daniels while typing a scathing expose at a stenographer's pace -- standing up for what he believes in on blood and guts alone. From The Front Page (1930) to Citizen Kane (1941), this image spoke to

the hearts of generations of Canadians and Americans.

The reality, alas, was much more prosaic. Newspapers, like all the mass media, are big business. The reporter was hardly ever venerated, for he was more likely to be treated by management as cheap, expendable labor -- a link in the chain of people and equipment that produced newspapers. But consider the truly immense cultural value of Canada's first mass media system. It was not only the journalist's individual effort that kept this machine working so well. Instead, it was the entire system supporting the reporters's efforts.

Due to its popularity, MacDayter (personal interview, February 20, 1985) stated that the early twentieth century Canadian newspaper system helped develop and reinforce its own importance by creating an iconography of public service, political activity, and good citizenship. A rich and diverse range of activities such as partisan urban reform, editorial endorsements, local boosterism, and newspaper-sponsored essay contests for schoolchildren spring easily to mind.

It does not matter that by today's standards, these images were largely composed of blatant hype, sanctimony and myth. They merged with the medium itself, and in so doing, entered the realm of

cultural folklore. For example, The Gazette's Christmas fund is today viewed as traditional a holiday activity as carving the Christmas turkey -- only because the corporation has told its readers, largely ex cathedra, that it is a Montreal newspaper with a conscience. Surely hype, sanctimony and myth are ethical propaganda tools when used to help needy individuals. Just as surely, as inadequate as it was and remains the press was often the last resort of abandoned Canadians.

In deference to its new-found role as agent -- often the prime agent -- of urban consensus in an increasingly city-oriented culture, the stature of the press increased. The tone of the editorial copy reflected a desire to increase the emphasis on so-called objectivity while diminishing excessively rhetorical and partisan reporting. In this sense, what modern media consumers have come to regard as balanced and accurate reporting was rooted in simple business ethics: journalists who print inaccurate information destroy their credibility, risk getting fired, and are vulnerable to libel suits.

Rutherford (1978) has written that urban-based print journalism was Canada's first complete mass communications system as the term is recognized today. (p. 38) The enormous popularity of what Berlo would call the

fidelity of Canada's newspapers and magazines during the pre-World War I era united a country divided by distance, age, religion, language, and class. Paradoxically, the content appealed to the base, as well as the exalted, instincts of their readers. Lurid murders shared equal billing with Dr. Einstein's discoveries on the front pages of this era's newspapers. Closer to home, Ernest Hemingway and Gordon Sinclair competed for readers in the Toronto papers. (See Appendix I).

Mainstream Print Journalism in the Postwar Era

The Canadian mass media achieved a hitherto unparalleled level of influence during World War II, as the national identity of English Canada coalesced in a surge of wartime patriotism. From 1938 until 1945, Canadian war correspondents reported events from a Canadian point of view. For example, a review of newspapers during this era proves how emotional and involving the war really was. Critics may dismiss the editorial content as an arcane mixture of hype, sanctimony, and myth. But the newspapers provide absolutely compelling reading, Here is the subjectivity of national rhetoric, the drama of human life and death played out against the dull thuds of heavy guns firing their shells.

The post-war years brought many changes to mainstream Canadian journalism. While the form of the metropolitan daily newspaper had remained virtually unchanged for nearly 125 years, its content altered drastically after the war. Lippmann's followers were running many influential newspapers. As well, returning soldiers entering the journalistic profession were better educated and more experienced than their predecessors.

Generally speaking, mainstream second generation mass media defended the status quo because it was -- and

remains -- good for business. The postwar era was characterized by the rise of consumerism. People bought the tract houses, the jello, the cars, and the widgets of every description. The furnaces belched, the factories bustled, the highways hummed, the yards racketed -- and the result was affluence. World War II had shaken up Canadian industry from the top down and the bottom up. It had been the largest industrial war in history.

In 1938, capitalism was viewed with uncertainty. By 1945, the system was revered. Not only had it left Canada with a greatly expanded industrial base, but it had applied what seemed to be an economic perpetual motion machine: Keynesian philosophy. The concept that consumption rather than thrift leads to prosperity was not new -- but the Allied victory dramatized it as Prime Minister King never could. It also helped to overcome deep-rooted Canadian prejudice left over from the Protestant Work Ethic that wealth was what people saved -- not what they went into debt for.

The psychological shift in perception was crucial, since the idea of the affluent society would only work if a majority of the population believed in it. It was up to the mass media -- especially newspapers and magazines -- to sell Canadians on the idea of the Keynesian industrial complex. It worked far beyond expectations, fueled by postwar aid programs and ever-increasing debt.

It is hard to believe that as recently as 1958 there were no American Express cards for anyone to leave home without. Widespread credit -- at the individual and the organizational level -- helped spread the risk of speculation in all kinds of new business ventures. This process meant no real loss of power or wealth. It did mean that power and wealth were transferred from the individual to the corporation, for the basis of the corporation is concentration of wealth without explicit risk to the individual shareholder.

Although newspaper publishers were willing to help sell the idea of a Keynesian society, they resented government regulation of their product. As Peter Desbarats (1981) has written:

> Newspaper publishers in recent times have, as a rule, been businessmen antagonistic to the interference of government. The state has not licensed or regulated newspapers in Canada, the United States or Britain. By contrast, from the outset, the state has allocated the limited number of radio and television frequencies to the state and private enterprises, and regulated broadcasters' performances. (p. 83)

This is not to imply that the postwar press was merely a well-orchestrated cheerleading squad for capitalism. It doesn't mean there were no large corporations before World War II or that debt had never been used to rescue a capitalist economy.

However, the widespread use of debt to fuel afflu-

ence was unique to the period. It was one of its most profound social innovations.

This was the world into which the baby boomers -- so-called by the headline writers -- were born. Despite its many changes, patriarchal capitalism has remained the prevailing orthodoxy of the world in which they were raised to maturity.

This generation grew up on television, FM radio and the underground press. They became the young adults who later invented and defined Personal Computing and bought video cameras by the millions. They are now middle-aged managers, executives, and professionals who will likely be implementing and using ISDN.

The Rise of the Modern Underground/Alternative Press

Keeping the Keynesian money machine in overdrive -- even with the help of the mass media -- was not going to be easy. Corporations needed a gigantic market to keep wartime profit levels flowing steadily -- and that gigantic market was the government. With the Axis defeated, Canada -- encouraged by the United States -- turned its attention on the new-found enemy: Communism. Once again, a psychological shift in perception was crucial, since the proposition that Communism was the biggest threat to postwar security would only work if a majority of the population believed it. And once again, it was up to the mass media to sell Canadians on the idea of the Red Menace. Newspapers magazines, and politicians transcended expectations in achieving this goal, largely because the Russians acquired the atomic bomb in 1949.

In September, 1973, Dr. Graeme Decarie began his first lecture of the term in a Canadian History survey course at Montreal's Loyola College. "There is one word which characterizes Canadian history since 1945," he began. He wrote the word on the lecture hall blackboard: "ANOMIE." He defined it as: "the norm of normlessness."

Anomie flourished in the postwar era among the baby boomers. The effects of the cold war and the global arms

race upon this generation in terms of stress levels is impossible to calculate. The effect on the baby boomers' ability to believe in governments, corporations, schools, parents, and any other authority figures was similarly impossible to calculate. For instance, skepticism abounded as mo vies such as Dr. Strangelove (1964) and Catch-22 (1970) became symbols of the military and technology run amok which were even more dangerous than the nightmare portrayed in 1984. For the first time in history, technology had made war unwinnable: an atomic exchange would end civilization and probably all human life on earth.

The baby boomers grew up with some reservations about the institutions that were supposedly designed to serve them. As Schudson (1978) has written:

> The leaders of the major institutions of society appeared to deny any substance to their own culture; problems of government were said to be technical, not political; social science was a value-free guide to policy; professionals and managers, coming to prominence in the occupational structure and the power structure were "neutral" or "detached" or "objective" in their decisions. (p. 178)

Conformity, repression, anonymity, sexism, racism, the generation gap, alienation and rock music are recurring themes of the underground press. These are largely the laments of white, middle-class youth who wanted to go for the soft underbellies of those in charge.

Even journalists themselves have been extremely

critical of the domestic concentration of ownership and the overriding profit motive. This point is illustrated by the following quotation from Kent (1981):

> In general, the closer one gets to the business side, the further one is from purely journalistic ideals and principles. Consequently, the owner tends to think more of profit as the criterion for evaluating a newspaper than conformity to intellectual or ethical principles. (p. 27)

Whatever its failings, the underground press sought to restore these journalistic ideals and principles. This is why the medium was able to speak so directly to the baby boomers. The underground press corps were young, irreverent, risk-taking and above all anti-professional.

At its best, the underground press would challenge existing assumptions about news, information, color, design and copy. It was usually more responsible than its traditional competitors because it was accessible to those who wished to volunteer their time and talents. Perhaps the most striking feature of the underground press was that it was frankly and unashamedly partisan -- almost a throwback to the corantos.

The underground press capitalized on audience dissatisfaction with existing mass media for all the reasons mentioned above. From the 1950s on, ever-increasing numbers of Canadians (mostly baby boomers) were disenchanted with the status quo, big corporations,

and the inverted pyramid format of journalism practiced by local newspapers. The 1960s saw the rise of weekly underground tabloids such as Vancouver's Georgia Straight, Toronto's Harbinger, Ottawa's Octopus and the Montreal-based Logos.

Of these papers, only The Georgia Straight has endured. The publication, which was founded in May, 1967 celebrated the publication of its one thousandth issue during February, 1987. This event is particularly noteworthy in view of the fact that The Georgia Straight is the sole survivor of an underground press syndicate which once comprised more than 400 member papers. The other 399 have long since discontinued publication, but in some cities a new breed of alternative newspaper has stepped in to fill the void.

The Senate Commission on the mass media chaired by Davey (1969) described underground newspapers as "house organs for the new consciousness." The Georgia Straight was all this and more. In 1968, the newspaper found itself embroiled in a controversy which lawyer L. Powe Jr. (1970) characterized as "an anachronism in modern law." (p. 410)

The case, entitled R.v. Georgia Straight Publishing Ltd., McLeod and Cummings (1969) 4 D.L.R. (3RD) 383 was, according to Kesterton (1976), one of

the rare cases of defamatory (criminal) libel in Canada. (p. 204)

The sequence of events which led to the criminal proceedings was a bizarre as it was satirical. First, a number of hippie protesters began frequenting the grounds in front of the Vancouver courthouse. In March, 1968, the police arrested two hundred hippies for loitering. One of those arrested was a UBC student named Stanley Persky. Persky was tried and convicted by Magistrate Lawrence Eckhart under a British Columbia order-in-council which even Eckhart agreed was discriminatory. Nonetheless, the Magistrate felt compelled to uphold the law.

Seizing the moment, The Georgia Straight awarded Eckhart a citation which was called the Pontius Pilate Certificate of Justice. It read:

> Eckhart, Magistrate Lawrence -- The Pontius Pilate Certificate of Justice (Unfairly maligned by his critics, Pilate upheld the highest traditions of a Judge by placing law and order above human considerations and by helping to clear the streets of Jerusalem of degenerate non-conformists).....To Lawrence Eckhart, who, by closing his mind to justice, his eyes to fairness, and his ears to equality, has encouraged the belief that the law is not only blind, but also deaf, dumb, and stupid. Let history judge your actions -- then appeal. (p. 7)

Robert Cummings wrote those words. He was prosecuted along with Daniel McLeod, editor and publisher of The Georgia Straight. The two men were convicted of

publishing a defamatory libel, and the case became among the most celebrated actions of its kind involving a Canadian underground newspaper. The outcome was that the paper was fined $1,000 while Cummings and McLeod were fined $250 each.

The Georgia Straight, during its experimental days, attracted a wide spectrum of writers who probably would not even get to the front door of a mainstream newspaper. Milton Acorn, the late people's poet, wrote for the publication. Laurier Lapierre, George Woodcock, and Bob Geldof all had bylines here. The paper was accessible and different from a traditional corporate product. It was bizarre; a characteristic that even extended as far as the X-rated personal advertisements.

Like many other underground papers, The Georgia Straight challenged its mainstream Vancouver competitors. Eventually, even The Sun and The Province adopted some of the new journalism styles which made their debut in The Georgia Straight. Perhaps the following quotation from Davey (1969)) is a fitting epitaph for North America's first wave of 1960s style underground papers, only a handful of which still survive:

> Crass as it may sound, we suspect that many.....failings are attributable to a lack of funds. Underground newspapers are heavily dependent on volunteer labor, which is fine only up to a point.....No underground paper is likely to become

an alternative until it becomes financially sound. (p. 190)

Daniel McLeod told the Davey Commission (1969) that "We are wary of depending on advertising to support the paper, as that could lead to pressure groups or pressure from the advertisers." (p. 14)

Daniel McLeod told The Globe and Mail (1987) that "It's changed as I've changed." The Georgia Straight has survived mainly because it has realized the need for advertisers. (p. 1)

McLeod recognized that print publications -- even alternative newspapers -- are incorporated to make money. This is why his publication has remained in business where 399 others have failed. Clearly, the constraints of money, lack of resources and time pressures are shared by the traditional and alternative media alike. But in the case of the underground press, lack of money meant almost immediate failure.

The decline of the underground press and the emergence of the alternative press was virtually complete by 1975, -- the year that the Vietnam war ended. Marshall McLuhan is quoted by Koppel (1989) as stating that "the next war will be fought with images."

Contrasting a Journalist's Day in 1950 and 1990

The underground and the alternative press unquestionably changed people, places and events. The technology of the railway, the automobile, the radio, the television, the atomic bomb and the computer all changed the news events reported upon. The media became more socially aware after 1945.

In fact, many of today's journalists have been consciously or unconsciously influenced by the social responsibility theory of the mass media. This theory may be viewed as a possible basis for understanding the mainstream and alternative mass media in the postwar era. The social responsibility theory was articulated by Peterson, Schramm, & Seibert (1956) when they wrote that the "major premise" of the social responsibility is that "freedom carries concomitant obligations; and the press, which enjoys a privileged position under our government, is obliged to be responsible to society for carrying out certain essential functions of mass communications in contemporary society." (pp. 74-78)

Peterson in particular (1956) believed that the social responsibility theory replaced the traditional libertarian theory of the press, which was a composite of the ideas expressed by Milton, Jefferson, and John Stuart Mill. The libertarian theory called for a free

marketplace of ideas where truth will surely emerge. "But somewhere along the way, faith diminished in the optimistic notion that a virtually absolute freedom and the nature of man carried a built-in correctiveness for the press," Peterson wrote. (p. 74). Peterson, Schramm & Seibert also found that the social responsibility theory was born out of many changes in the modern world. One of these was the technological, industrial and economic revolution that "changed the (North American) way of living," adding radio, motion pictures, and television and computers to the media system, encouraging concentration of media ownership. (p. 72) Another change noted by Peterson was:

> A new intellectual climate in which some persons looked with suspicion on the basic assumptions of The Enlightenment....And finally there was the development of a professional spirit as journalism attracted (persons) of principle and education, as the communications industries reflected the growing sense of social responsibility assumed by (North American) government and industry generally. (p. 77)

It has been demonstrated how news reduces the complexities and ambiguities of an event to neat, self-contained packages of inverted pyramid text and photos and how this was insufficient for many people. The rise of the underground press was partially due to its belief in the social responsibility theory of the media. But the underground press articulated a parallel stance suggesting that non-specialist individuals as partici-

pants in the policy decision-making process was illusory. Mayer (1988) has stated that these conflicting concepts make it useful to contrast a typical day in the life of an average newsperson in 1950 and 1990.

In 1950, journalists were usually newsmen. (In fact, The Newspaper Guild introduced the term journalist in the mid-1970s as a non-sexist word to accommodate the increasing numbers of women working in the field). Today, as then, the journalist's morning alarm rings and he or she gets out of bed. Shower, breakfasting and dressing usually follow. Then, it's off to the paper, radio or TV station. So far, events are fairly similar.

At work, reports pour in about the latest air crashes, murders, wars, and all-too-forgettable pronouncements from dignitaries and celebrities. The news themes of 1950 are just as likely to be the news themes of 1990. There are still editorial conferences, hirings, firings -- the ebb and flow of the news day. Stories are still routinely killed by editors and publishers because of financial considerations. It takes nine months to have a baby in 1990 -- just as it did in 1950. There are significant differences, too. The present-day journalist probably realizes that information workers have become the majority of the Canadian labor force. Double-income and single parent families are the

norm rather than the exception, putting additional strain on childrearing. The journalist inputs his or her text into a computer terminal. Computer technology, after all, does not always mean better copy.

Like snow on a winter landscape, life in the 1990s is a series of constant changes, obscuring some details while highlighting others. Sometimes, the changes brought about by introducing computer technology into the newsroom can, like snow itself, cover up what is most obvious. The newsroom is an office, albeit a specialized office. The office of 1990 looks much the same as it did in 1950. Executives still dictate letters to their secretaries; receptionists still screen visitors; telephone calls are still made; and paper files are still extracted from upright filing cabinets.

At the end of the day, the journalist goes home and contemplates the future. He or she will probably admit that what constitutes news and the way news is presented is quite similar to its counterpart which flourished forty years ago. However, although many journalists working in 1990 may not be explicitly familiar with the social responsibility theory of the press, their frequent rallying cry has been the public's right to know. This chant has echoed through the corridors of power by journalists since 1945 as they expanded their access of governmental, corporate, technological and other areas

of society actively discouraging media attention. But along with this cry has developed market-oriented mass media which are at least as image conscious as they are socially aware.

Generation Three: View and Phone
(Consisting of Telegraph, Radio, Telephone and Television)

By 1847, according to Perry (1988) the city of Montreal was connected to both Quebec and New York by telegraph. (p. 19) Alexander Graham Bell invented the telephone in Brantford, Ontario in 1874. Less than four years later, one of the world's first long distance telephone calls was placed between Montreal and Ottawa.

In 1901, radio equipment sent code signals between Newfoundland and England. Television as recognized today was developed in the 1920s by Bell Laboratories in New York City. The medium takes it name from the Greek Word tele meaning far and the Latin word videre meaning to see.

Mainstream Media in the Postwar Era

The very concept of mass media underwent a series of dramatic changes in the postwar era. Even the most dedicated print journalists were forced to admit that, because of the premium placed on wartime telecommunications technology, the medium lost the biggest gun in its arsenal -- the scoop -- to radio. The coming of network TV to Canada during the 1950s accelerated a period of decline in the newspaper industry which is still being felt. Many of the best and the brightest Canadian journalists did not want to work in print. They wanted to go where the new glamor was: radio and TV newsrooms.

American television anchorman Ted Koppel (1989) believes that television is a democratized medium that is the nemesis of dictatorial control. He claims that television undermines what every dictatorship needs: silence.

To offer a contrasting view, Postman (1986) has written that television is a medium of entertainment, not a medium of communication. He claims that television tends to convert into an entertainment any material it presents, whether its content is trivial or weighty. Television is therefore insidious precisely to the degree that it purports to communicate what is indeed serious and important information (news and political debate,

for instance). This process occurs not merely because television reduces matters of vital concern to charade or spectacle, but because the audience is convinced that their participation in events is a learning process, that they have actually been communicated with, when in fact they have simply been entertained and actually diverted from the seriousness of the content. (pp. 120-145)

Part of the rage articulated in the underground and alternative press stemmed from the baby boomers' alienation from both Bomb and TV -- which many writers such as Kelly (1981) considered to be symbiotic. They reasoned that prolonged TV viewing narcotizes its audience to the seriousness of the bomb and in so doing may even be paving the way for its use.

The hypnotic effect of watching TV placed images that were not quite fantasy but not quite reality either. Perry (1977) has written that television sets could be found in more than 98 per cent of all Canadian households by the end of the 1960s. (p. 25)

Its content was unstructured and often confusing -- as TV news and real life were directly contradicted by TV drama and comedy. Television was big business and for the most part did not wish to broadcast programs which reflected the growing societal turmoil that the under-

ground press thrived on. As women's liberation began, Bewitched became a top-rated program. After Martin Luther King's death, a bland, forgettable situation comedy starring blacks called Julia made its debut. Perhaps most grotesquely of all, Bob Hope's cheery specials from Vietnam provided a marked contrast to the real tragedy of ever-mounting body counts.

According to Schaef (1987), TV watching became an addiction as powerful as any narcotic in the 1960s and has remained so ever since. She has written:

> In an addictive system the illusion of control starts with an attempt to control the self with a substance or a process....(Addictions are) perceived as ways to avoid what one is thinking, feeling and doing. They quickly expand into attempts to control what others are thinking, feeling and doing. (p. 43)

It is therefore no wonder that television's hidden agenda was audience control. Obviously, a television production cannot be about nothing -- just pictures and sound and lights taking up valuable advertising time. However innocuous programs such as Bewitched might appear to be, they are basically political phenomena answering questions such as: What professions are the characters in? Are they married? How do they treat each other? How are their children supposed to behave? What do their houses look like? How much money do they have? How do they use it?

Most prime time network programming airing before

1970 was full of very distinct messages about economics, family relationships, sexuality, alienation, conformity and social priorities. However non-offensive, wholesome or family-oriented these programs claimed to be, they contained very explicit propaganda messages designed to manipulate the habits of the viewing audience. This process explains the very essence of an addictive system: and TV audiences were addicted.

According to Koppel, (1989) the US has produced the world's most popular TV dramatic and news programming for nearly three decades. He claims that "democratic messages are encoded in these TV programs." He also asks: "Is this the reason for the world's surge for democracy?"

The vast TV audience became what it beheld. TV displayed an endless roll of audio-visual bites -- encapsulating complex issues reduced to sounds and pictures lasting several seconds. Anyone who recalls the 1960s will never forget the killings of John and Robert Kennedy, the Vietnam war and other events coming to them via television. The video cameras rolled live during the 1972 Munich Olympics, where Israeli athletes were slaughtered. The 1974 resignation of US President Richard Nixon was carried as it happened on a global TV hookup.

By the time the space shuttle Challenger exploded in 1985, TV news had mastered the techniques of showing

disaster. Contrasting coverage of this event with President Kennedy's assassination might prompt viewers to ask as T.S. Eliot once did: "Where is the information we have lost in data?"

TV -- even TV news -- has become virtually market-driven and virtually indistinguishable from old-fashioned Hollywood show biz. (A single evening watching Mr. Koppel and Entertainment Tonight should prove this point effectively). The parents of the baby boomers inculcated their sons and daughters with social values through the process of education, the military, the pyramid of corporate reward and their own custodial skills.

For a third time, a psychological shift in perception was crucial, since the idea of the affluent society would only work if a majority of the younger generation believed in it. It was again up to the mass media -- especially television -- to sell the baby boomers the idea that they needed society as it was. The process worked quite well, for the hippies of the 1960s and 1970s became the yuppies (or aspiring yuppies) of the 1980s and 1990s.

Hendra (1987) has written how television used stereotypes to foster its addictive qualities. He elaborates his views in the following quotation:

> The "typical (average) American teenager" or the "typical (average) American college student" are no

> less demeaning and dehumanizing than the ethnic or national stereotypes (displayed on TV). That these stereotypes are presented comedically is of equal significance, because it attests to the central role that "humor," or more properly ridicule, plays in public life. "The typical American teenager," whether portrayed by Mickey Rooney, Ricky Nelson, John Travolta or Lisa Bonet however much the details may shift, always expresses the hostility and the fear felt by parents for their children. Further, stereotypes of teenagers and students (or women or even bankers) expresses what the State wishes that (its addicted) citizens be in order to be properly managed. It reassures those for whom students, teenagers, women or bankers might present a threat. Unlike national and ethnic versions, however, these domestic stereotypes often serve as (role) models for the very people they are aimed at.....And this is the point at which the insidiousness of stereotypes becomes evident. So long as they remain the stuff of entertainment, they remain relatively harmless, albeit demeaning. But when stereotype and reality become confused -- the ultimate aim of an addictive system -- the damage, in human terms, begins. Since by definition a stereotype is a departure from reality, there is no way that it can become reality. (p. 245)

Alternative radio and television programming provided a partial antidote to the stifling stereotypes of mainstream third generation media. Hendra writes that despite its content, alternative radio and television suffered from many of the problems encountered by the underground press such as small audiences and underfunding.

Alternative Media

The coming of cable television, specialty channels, the videocassette recorder (VCR) and hand-held video camera blurred the distinction between mainstream and alternative radio and television from the late 1970s until the present. Community radio emerged as a potent force, mainly in remote locations.

According to Koppel (1989) The first hand-held video camera was introduced in 1972. In 1989, more than 7.5 million of these units were sold. They usually cost less than $2,000 apiece. Very few of these camcorders were sold to professional journalists. Some of those individuals who bought these video cameras sold their pictures as freelance stringers to electronic news gathering (ENG) operations such s network news departments.

Koppel has also claimed that the pictures taken by these video cameras are uncensorable by dictatorial governments, but that using pictures taken by non-professional freelancers has the following two risks:

First, relatively small interest groups can wage extremely effective propaganda wars with a few video cameras and editing boards. He cites the Palestinians as a good case in point. Second, viewers may be totally unaware of the ulterior motives of these interest groups. He cites a whaling film produced by Greenpeace as an

example.

VCRs have also become a mainstay of third generation alternative media. As McPhail & McPhail (1989) discovered:

> One or two per cent of US households had adopted VCRs by 1980, but this figure has risen to about 60 per cent....Originally, it was thought that VCRs would be used for time shifting purposes, that is. recording of off-the-air broadcasts for later viewing. Today, most VCRs are used to play prerecorded materials....A VCR is much cheaper today than in 1980, about $250 instead of $1,200, and the equipment is almost certainly manufactured in Japan or Korea. The net result (of this increase) is program diversity....This greater diversity drains away certain segments of the previous audience for ABC, CBS, and NBC, and, as mentioned earlier, leads to lower audience ratings for these three main TV networks. (pp. 85-87)

The cost of TV-related hardware such as video cameras and VCRs is democratizing the mass media and the news by making it possible for ordinary people to produce rather than merely view events.

The picture used to be an exemplar of reality, but TV audiences are now hitting Buell's epistemic wall. It has been technically possible for a decade to edit video pictures pixel by pixel. Simply stated, video pictures can and do lie. Thus, the issue of the hidden agenda and Walter Lippmann's worries about propaganda and state-sponsored misinformation are more pressing issues than ever. As Moyers (1989) has stated:

> Soon after the camera was invented 150 years ago, the photograph was considered legal reality. Then the power of the picture was used by documentary

photographers at the turn of the century....Throughout our century we have witnessed such a proliferation of photographic images that they seem to overwhelm us. Nowhere is this more potent than in advertising's appropriation of the photograph....Our most prolific visual form is the commercial. The average American sees more than 32,000 per year. Commercials now shape the way or politicians think and the way we get the news. Seeing is believing. A picture is worth a thousand words. The camera never lies. Oliver Wendell Holmes wrote more than a century ago that we were moving into a time when the image would be more important than the object itself, when appearance would be preferred to reality and when it would be even harder to know the truth. He should see us now.

Generation Four: Integrate and Interact (Consisting of Computers, Hypermedia and ISDN)

Computer technologies are so complex that they appear to be totally new. One reassuring fact is that what seems to be modern computer technology uses principles more than 300 years old.

1642 - French mathematician Blaise Pascal invented the world's first known mechanical adding machine. It is not surprising that the history of computers should begin with a mathematician since, as Perry (1983) has written, computers -- originally "number crunchers" -- could not have been invented before mathematics reached a certain level of sophistication. (pp. 67-73).

1694 - Gottfried Leibnitz, the German mathematician credited with developing differential calculus, designed an improved Pascaline called the Stepped Reckoner. This device could add, subtract, multiply, divide and extract square roots by repeating additions.

1821 - The first true computer was developed in England by Charles Babbage in 1821. The Babbage prototype was a complex collection of gears, pulleys and ultra-honed wires designed to calculate logarithmic tables. Much too complex for its time, it was placed in the British Museum in 1835.

1864 - English mathematician George Boole was credited with developing symbolic logic, which is considered the

basis of modern computer theory. By reducing all logical numerical relationships to simple semantic expressions such as AND, OR, and NOT; Boolean algebra enables mathematical functions to be expressed as zero (0) and one (1) by digital computers. This, in turn, facilitates binary switching -- a process through which any amount of digits can be represented as 0 and 1 by the machines' memories. Thus, any alphanumeric character can be represented by these two binary digits.

1890 - From Europe, computer research moved across the Atlantic Ocean to North America. An automatic calculator made by the Tabulating Machine Company of Washington, D.C. helped produce the 1890 census.

1900 - Montreal was Canada's undisputed business capital. The nation's fiscal hub was St. James St. and the financing of technology-related ventures such as telephone and radio systems was decided on mahogany row. Montreal's seaport was fully integrated with its railways by the turn of the century. Pierre Berton has called Canada's railway system <u>The National Dream</u> because the railroad was important to this nation's development in the first half of the 20th century as computers are today. Canadian Pacific's -- and later Canadian National's -- operations were directed from Montreal. The efficiency of these companies largely depended on access to timely and accurate information, and a variety of

pre-computer technologies were used to achieve this goal.

1914 - Northern Electric was established in Montreal to serve as Bell Canada's supplier. The city's current strength as a world-class telecommunications center stems, as Perry (1988) has written, largely from the fact that thousands of jobs were created by these companies throughout the next eight decades. (p.19)

Integrated planning was used extensively by Canada's two largest railways, which also controlled a far-flung telecommunications empire. Although most of the tracks would be laid by 1920, maintaining the railway infrastructure remained a high priority. Again, mechanized telecommunications technologies were invaluable.

1923 - Due to its success in the 1890 census and subsequent contracts, the Washington-based Tabulating Machine Company merged with other time recording firms. All these companies became known this year as the International Business Machine Corporation (IBM).

1940 - Computers were used by Allied military intelligence to crack German codes.

1945 - Primitive computer applications helped develop equations that led to the development of the atomic bomb.

1952 - North America's first computer, UNIVAC, debuted. A prototype is displayed in Washington's Smithsonian Institute.

1956 - The invention of the transistor provided the first post-war technological impetus towards computer development. Computers were now more than mere number crunchers -- they were cost-effective information movers. The most advanced systems were self-contained -- and well within the price range of many Fortune 500 corporations.

Besides offering the obvious benefit of miniaturization, transistors enhanced computers' appeal by providing them with faster processing capabilities. This meant that, like transistor radios, transistorized computers needed virtually no warm-up time. Transistors also provided reliability. Since they do not overheat the way vacuum tubes do, far more electrical energy could be used as processing power than was ever before possible.

1961 - The first Golden Age of Computing begins -- because government and business made computer technology a necessary part of the organizational environment. The military arms build-up, the Vietnam war and the space race all needed extensive administration, precision-designed tools (crafted by computers) and other high-tech equipment built to exacting specifications. The space race in particular needed staggering amounts of computerized calculations for even the most routine flight calculations. Only computers could generate the voluminous amounts of documentation required for every

mission.

The most compelling reason that computer technology came of age during the 1960s was money. The use of transistors, microelectronics and other technologies made computers cost-effective for an increasingly diverse range of organizations.

1964 - IBM developed the magnetic tape Selectric typewriter which stored bits and pieces of selected, repetitive correspondence in its magnetic tape memory. Almost immediately afterwards, the company's German research affiliate came up with another idea to save time and money: the magnetic tape typewriters would be incorporated into a management information system (MIS) that would centralize on-site typists by function, specializing their workload.

This was the world's first word processing system. Specialization not only enhanced the computers' performance, but human productivity soared as well.

The rapidly-expanding capabilities of data communications networks -- especially telephone systems -- were increasingly influenced by computer technologies developed since the 1960s. In the words of Schumate and Weinstein (1989):

> Since the 1960s, telephone operating companies have been integrating digital techniques into their transmission equipment and other equipment. Computer systems and related software packages can be

attached to telephone networks, giving them intelligence and wide-ranging uses and power. (p.9)

1970 - The first telephone system compatible modulator/demodulator (MODEM) appeared. According to Perry, (1988) data communications were now simple and cost-efficient. (p. 19).

1972 - Microprocessor technology dominated the computer industry. Microprocessors are tiny silicon chips, smaller than a snowflake and performing functions analogous to the computer's brain. Each chip contains the processing power of several hundred transistors. They are covered with sand and ultra-thin glaze -- costing less than five dollars apiece to produce. The chips may then be grouped in pre-arranged patterns hand wired together on a printed circuit board (PCB). The PCB performs functions within the computer which are analogous to the heart - giving the computer its unique processing capabilities.

1974 - Dr. John Cocke of IBM created the reduced instruction set computer (RISC) microchip. RISC technology represented a giant leap forwards in computer technology because of its processing power, which is equal to more than 750,000 transistors.

1975 - The world's first home computer was marketed in kit form. It was called the Altair 5000 and was snapped up by hobbyists.

1976 - Steve Wozniak produced the first Apple computer in his California garage. On March 2, 1976, the International Consultative Committee for Telephony and Telegraphy (CCITT) held a historic meeting in Geneva. The organization was established by the United Nations and mandated to implement a world standard for computer network protocols. On this date, the CCITT approved the X.25 protocol as the global standard for connecting computer-based equipment to packet switching networks. Packet switching is one of the most error-free methods of transmitting electronic data ever developed. Information is sent in digitized packets independently to their destinations, where all packets are re-assembled.

1977 - The first personal computer designed for non-technical users -- the Apple II -- was introduced. It weighed twelve pounds and featured an integrated keyboard.

1979 - A Harvard M.BA student named Daniel Bricklin and a programmer named Robert Brankston developed VisiCalc, the world's first electronic spreadsheet software designed for the PC. It was originally written for the Apple II and is credited with helping to sell more than 150,000 units.

1980 - ISDN was developed and approved by the CCITT. ISDN standards will govern the connection of all elec-

tronics-based user equipment to tomorrow's global networks. Personal computers were a billion dollar market in the US and Canada by this time, but less than 10 per cent of all small and medium sized businesses were using either PCs or word processors. Journalists at metropolitan Canadian newspapers were using computers extensively by this time. For instance, The Gazette had even given an unfortunate reporter the title of Systems Editor. (This was an ex-journalist paid to look after the editorial computer system).

1981 - IBM vice-president Donald Estridge unveiled the IBM-PC. A complete terminal and printer sold for more than $5,000 (US). It was a huge success.

1982 - Lotus introduced Lotus 1-2-3 software on the IBM-PC. It improved VisiCalc's design because numbers could be presented in chart and graph formats.

1983 - IBM introduced its home computer called PC-jr. It was a dismal failure.

1984 - IBM unveiled the PC-AT (Advanced Technology). The AT had more processing power than most 1960s-style mainframes and processed information three times faster than the PC model IBM introduced three years before. This was also the year that Apple introduced the Macintosh computer. The Mac featured on-screen icons and a device called a mouse which rolled on a flat surface and would move the screen's cursor correspondingly. At the other end of the

computer spectrum, Cray Research unveiled a supercomputer capable of performing more than a million calculations per second.

1985 - The Cantel cellular network started operations. By this time, more than two million Apple II computers and more than one million IBM-PC units (including the PC, XT and AT) had been sold. IBM clone manufacturers, producing computers with varying degrees of compatibility, were well-established as a hundred million dollar annual industry. Phil Estridge and his wife were killed in an airplane crash. Ironically, on-board computer software was later developed for commercial aircraft to guard against wind shear -- which caused the fatalities.

1986 - IBM introduced its RT PC personal computer, which featured RISC technology. The simplest 20 per cent of its microchip instruction set performed 80 per cent of its functions. By this time, the clone manufacturers sold more IBM-based systems than the company itself did.

1987 - IBM introduced a new line of desktop computers called Personal System/2. They were designed to be as easy to operate as the Macintosh. Everything about the units themselves were hard to duplicate, for IBM did not want to replicate its mistake with the clone manufacturers.

August 11, 1987: HYPERCARD was introduced with selected

Apple Computers -- and HYPERMEDIA became a reality. HYPERMEDIA integrated text and graphics, but could evolve to include text, graphics, audio, video and other media. The advent of HYPERMEDIA meant that computers themselves became, for the first time, a medium in their own right -- not a replication of another medium.

1988 - IBM dominated the corporate personal computing market while Apple dominated home and hobbyist PC use. In October, Apple co-founder Steve Jobs debuted NeXT, which was more than 2,000 times more powerful than the first Apple computer introduced eleven years before. (The NeXT prototype was so late and so over budget that the industry press laughingly referred to it as "EvENTUALLY"). ISDN capabilities began Canadian and US field trials. More than 80 per cent of all Canadian software was produced in Quebec by this time.

1989 - A. Bardach (personal interview, April 1, 1989) estimated that Canada had a $300 million annual deficit in terms of information processed in the US. He noted that the Free Trade agreement expressly provided for the free flow of data through the public transmission networks.

1990 - Kuhl & Labate (1990) wrote that IBM controlled nearly 65 per cent of the global mainframe and PC market. They also stated that (US) long distance telephone rates have fallen by 50 per cent since 1983 and that (interna-

tional) telephone network traffic is expected to increase nearly 20 per cent through the year's fourth quarter. (pp. 58, 62)

Mainstream Media

Computer technology is interactive and dynamic. The preceding history of computing was written to show how computers and telecommunications networks are excellent tools for collecting and processing voluminous quantities of otherwise meaningless data. At this writing, the ability of human beings to ask questions and to use computer technology is infinitely more complex.

Programmers have an old saying: "Garbage in, garbage out." This simply means that collecting facts and data for computer processing is worthless unless this information is used to understand situations, prescribe remedial action, and improve them.

The same problem exists in all communications media. The newspaper journalist, for instance, is presented with a mass of data and information -- meaningless if taken by itself. But, through writing and formatting in terms of a news theme recognizable to the journalist's audience, there emerges a story that will inform the audience. The documentary film maker must choose a subject, a storyboard, camera, lens, perspective, and film stock. Even with all these decisions made, a common film maker's lament is that the best scenes still end up on the cutting room floor. It is only recently that the computer and the computer network

have been viewed as communications media.

Corporate databases are likely to emerge as one of the most hotly debated issues of the 1990s. As Martin (1983) has written:

> A database is a shared collection of interrelated data designed to meet the needs of multiple types of end users. It can be defined as a collection of data from which multiple different end-user views can be derived. The data (files) are stored so that they are independent of the programs that use them. A common and controlled approach is used in adding new data and modifying and retrieving existing data. (p. 3)

The complexity in organizing and maintaining an effective database stems from the fact that different people need different kinds of information for different purposes. A newspaper's database may be used by the editorial, finance, advertising, printing, administration and many other departments. Although the technical processes of the data base -- such as access and security -- can usually be automated, different departments have different names and use different formats for the same data. Technology is only as good as the individuals using it. If the designers of a theoretical newspaper's database could not or would not communicate their views to the users, then the database will probably fail to do what is required of it.

Data Communications is as important as database access in determining the future of ISDN. Perry (1988) cited a study conducted by the Boston-based Yankee Con-

sulting Group concluding that telecommunication costs rank second only to salaries in terms of all business dollars spent in North America. (p. 19)

In 1989, the Canadian government used computer technology to imprint holographic images on $50 bills. The industrial world's information order -- the agenda of the consciousness industry -- is likely to be dominated by computer technology and computer media for the foreseeable future As Moyers (1989) has asked:

> Computers have given us a new power to create images. Through digital technology the elements (of a photograph or video sequence) can be arranged, rearranged, reduced, expanded, colored, and refined to create (a new advertisement)....News organizations change (images) too. Recently, the St. Louis Dispatch ran a photograph of the amateur photographer who won the Pulitzer Prize in photography. The picture editor decided to eliminate a Coca-Cola can from the coffee table, causing a bit of a stir. If one purpose of journalism is to give us a picture of reality, is this journalism once the picture is altered? Just what is reality?

Alternative Media

Computers were not available to most people before Apple mass produced the first PCs in the late 1970s and early 1980s. The major consequences of computers as an alternative medium of communication are therefore too recent to be regarded historically. But the attraction of North American youth to computers was evident, as related by Perry (1984) in a piece about artificial intelligence researcher Hans Moravec of Pittsburgh's Carnegie-Mellon University:

> Moravec tells the story of a recent visit from a Soviet military delegation to his lab. They seemed quite nervous and disinterested and Moravec asked them why. The leader explained that their trip to Carnegie-Mellon University had brought them through the greater Pittsburgh Airport. Here, they spotted American kids playing video games at the terminal arcades. The leader confided to Moravec that he believed this to be a plot designed by President Reagan to create a special military class of tank commanders and missile experts. Moravec laughs at the memory. (p. 7)

Software piracy, computer bulletin boards, on-line alternative news services, the hacker subculture and other trends are all alternative computer media. But as ISDN computer networks blending voice, text, graphics, video and other capabilities expected to become commonplace in the 1990s are realized, a redefinition of fourth generation alternative media is sure to follow.

Hackers, according to Levy (1984) constitute the cutting edge of alternative computer users. The Hacker

Ethic is individualistic, bordering on anarchistic. The author cites a need for balance between independence and control -- stating that between anarchy and fascism lies freedom. (pp. 26-36)

On a more academic level, Seymour Papert defines a generation four alternative future in the education section of this thesis. Here, he articulates his vision of the learning society: an alternative vision in which computers will play a major role.

It has been suggested throughout the analysis of the four generations that the alternative media -- despite their considerable faults and shortcomings -- respected their audiences. To the editor of an underground newspaper, an alternative radio station, or the manager of an electronic bulletin board, the audience was sacred: more than good little consumers waiting, as Moyers (1989) has stated, to be filled with the correct information about what to buy and what image to project.

Integrating Second, Third and Fourth Generation Mainstream and Alternative Media Through Electronic Technology

Most of the postwar Canadian economy is controlled by U.S.-based economic concerns so it is not surprising to discover that a handful of U.S.-based companies affect the presentation of Canadian news coverage. This point is underscored by Bagdikian (1981) in the following quotation:

> There are 360,000 industrial corporations, the nominal base of what is sometimes referred to as "corporate power" in the United States. But in terms of their share of the industrial economy, the vast majority have almost no power. The 500 largest of these, less than 1 percent [sic] of all corporations, have 87 percent [sic] of all sales.....In 1978 when the Department of Justice wanted to use its computer to show the extent of interlocks among major American corporations, business leaders were powerful enough to prevent it. (pp. 21-23)

Most Canadians find the mass media a closed system. In the opinion of News Director Michael Singer quoted by Moyers (1989):

> I think that when the advertising ethic invades the newsroom, the truth becomes that which sells. And it's something which affects the news from start to finish. First of all, the very setting in which the news takes place. You know, the huge banks of monitors which would have a very authoritarian look to them. Sort of stressing the knowledge through technology kind of argument. A command center which suggests high-tech abilities to touch the world and have access to anything you need to know....On the other hand, you have news readers rather than journalists. You have people who are primarily picked because of an authoritative speaking style.
>
> The technology to change this situation now exists,

but it require involvement and effort. For instance, inexpensive videocams, editing boards, studios, broad-band cable and local talent -- as well as ISDN in the near future -- could present the news of any Canadian neighborhood, without the intimidating banks of monitors or the blow-dried newsreaders. Proactive policies could provide these tools for thought.

This, in turn, would fulfill a long-standing dream of the alternative media: democratization. This process -- especially as it applies to computer networks -- would have to be nurtured and developed carefully because, as McPhail (1989) has written:

> Although there have been encouraging reports....a recent (May 18, 1989)....initiative developed by the DOC, it still represents a modest effort....It will be a system designed to enhance and develop a personal productivity network linking universities and industry experts. But it leaves out of the loop not only the general public which must support and will ultimately be affected by any failure to capitalize on opportunities in the information sector but also fails to link other necessary components; particularly the Department of Finance, regulatory agencies, provincial governments, etc. into the overall process....The essential point is that unless we have the equivalent of a Royal Commission on Canada as an information society, it appears unlikely that we are ever going to be able to mount the type of public support, public awareness and commitment of the major players....which will be required in order that Canada can claim third place (behind the US and Japan) in the world rankings of information societies. (p. 21)

But is a Royal Commission on Canada the only answer? The Kent Commission (1981) gave its final report and its conclusions are still noteworthy a decade later. The

following quotation cites some of its major recommendations:

> o Strengthen competition or anti-combines legislation.
>
> o Break up the chains....one newspaper, one owner.
>
> o Prevent cross-media ownership.
>
> o Subsidize newspapers.
>
> o Create a publicly owned newspaper or chain.
>
> o Create a regulatory agency (the CRTC being the most-quoted model), whose powers might run all the way from ownership review, allowing or disallowing the growth of chains, to compulsory press councils, licensing, the regulation of content and even censorship.
>
> o Require private printing plants, or create government printing plants, to print papers on contract for a variety of newspaper publishers. (pp. 227-228)

The balance of world power shifted after the industrial revolution, World War I, World War II and the Arab Oil Embargo of 1973. It is clear that the post-industrial age will generate a structural shift at least as dramatic. L. Gardiner (personal communication, August 21, 1990) believes that -- unfortunately -- the only people empowered to make policy are the authorities. Perhaps policy makers should become like the best writers and journalists -- an annoyance to authority because they prefer an uncomfortable truth to the comfortable lies.

FUTURE RECOMMENDATIONS

The importance of proactive planning in relation to ISDN is illustrated in the following quotation from McPhail (1989):

> Technological change in the telecommunications field is the driving force which is affecting all other aspects (of Canadian society)....There is a necessity for a national telecommunications framework that is designed primarily to affect an orderly pace of change in the telecommunications field....The national telecommunications framework should reflect national public policy priorities which are necessary to attain legitimate government policies and objectives. (p. 21)

The 1990s is likely to be a decade of ISDN innovation. Proactive planning will be necessary to handle the complexity of this innovation. The greater the rate of technological introduction, the greater the need to inform people of its ramifications.

Many computer-based products and technologies -- IBM's PC jr and Bell Canada's ALEX, for instance -- have failed because of their expense, their disruption of established work habits, and their inability to live up to expectations.

An advanced technological system such as ISDN can therefore be expected to cause as many problems as it will solve. One of the problems is international, because, as Lyman (1983) has written:

> Interaction via the common-carrier system (telephone, satellites, etc.) will follow personal communication in becoming progressively more 'border-free.' (p. 145)

As Lyman (1983), McPhail (1989), Gardiner (1990) and others have repeatedly stated, Canada lags in creating a scientific and technical infrastructure on which this nation's economic viability increasingly depends. They agree that municipal, provincial, and federal government initiatives to promote the growth of new high-tech companies should be encouraged. These initiatives, in turn, would, it is hoped, help to make Canada a world leader in ISDN while raising the nation's overall level of technical competence. This competence, in turn, would help close the gap between Canada and the world's most technologically advanced nations. Despite the tendency to talk about a nation's scientific and technological areas of expertise, the foundations of the nation's true wealth -- its children -- are found in elementary and secondary school systems. Here, Canada's deficiencies are particularly telling, according to many educators.

For instance, Perry (1988) has quoted educators Greene and McLean's two-year study of computers in elementary schools. Their main finding: computers arrive in schools, school boards issue commands to use them and there is no time to consider when and why. As a

result Quebec's school system is flooded with machines that are obsolete and out of production less than five years after their introduction. Only minimal funds remain for training, support and software. (p. 18)

Gardiner (1987) has identified the following three possible scenarios for the future of computer use -- including ISDN -- by the Canadian public: First, the telematique scenario envisions centralized, mainframe-like electronic superhighways. Second, the privatique scenario would involve PCs. These electronic devices would champion individual rights rather than multinational corporate profiteering. Finally, the rejection scenario would see Canada reject computing technology and ISDN. (p.54)

Gardiner (1987) himself favors a privatique scenario that would see clusters of telecommuters working from their telecommunications-based intelligent cottages. (p. 58) This phenomenon is an increasingly commonplace occurrence -- for many of today's working journalists input their columns into a PC at home, then transmit the final copy via a MODEM for storage to the publication's mainframe computer. Then, it is electronically typeset and made ready for production and printing with a turn-around time previously unachievable. This is only one instance of how ISDN's potential can revitalize communities at very basic and healthy human (and humane)

levels.

Gardiner believes in a practical side to telecommuting. This is evident in the following quotation written by Perry (1988):

> Both time and money are wasted on commuting time. So much of what we do is based on getting from one specialized place to another. We work at offices and factories. We play in stadiums and parks. We learn in the schools and the universities -- all of which are in different locations. Many of these activities could easily be accomplished at home using computer-based equipment networked to different databases. As (ISDN-like) equipment becomes more and more commonplace, we will see a different kind of society emerging. Imagine what Canada will be like when the same high-quality information now available in world-class centers such as Montreal becomes accessible in our nation's most isolated communities. (p. 19)

Despite its many benefits, telecommuting alone is not enough to make Canada a high-tech leader. Unlike the US and Japan, Canada is extremely limited by its population. The table below is a representation depicting these limitations, It shows which Canadian communities could best respond to a different -- yet essential -- technological challenges based on population size and geographical ability:

TYPE OF SCIENTIFIC AND TECHNICAL COMMUNITY	LOCATION
Self-sustaining	Montreal and Toronto
Threshold	Ottawa, Vancouver
Nascent	Halifax, Quebec, Cambridge,Kitchener,Waterloo, Saskatoon, Winnipeg, Edmonton, Calgary

Clearly, Canada has sparse scientific technological capabilities in terms of intellectual resources, research and development equipment, manufacturing output, educational institutions, financial power, and corporate capabilities. If Canada is to achieve technological superiority, particularly in an area as sophisticated as ISDN technology, then great care must be taken to avoid duplication of effort (see table above).

The federal government has begun a process of decentralization of industrial development initiatives (for instance, establishment of the Western Diversification Office and its Atlantic counterpart). Yet, despite its obvious importance, there is no coherent Federal telecommunications policy.

This absence of proactive (and all other) planning detailing how best to utilize Canada's scientific and technological resources to achieve economic development is not only a federal matter. As McPhail (1989) has

written, municipal and provincial policies are also lacking in these areas. (p. 17)

The result of this lack of planning is a series of unrealistic expectations throughout the public sector; undesirable competition for scarce resources and a fragmented and dispersed national technology development effort.

Therefore, a need exists to determine appropriate lines of communication between federal, provincial, and municipal governments as well as private industry and the academic community.

For instance, it is important to determine an appropriate system for distribution of responsibilities between all these different organizations based on a more complete understanding of the dynamics of those forces driving Canada's readiness for ISDN technology.

As the world is likely to enter the age of ISDN in the 1990s, numerous Canadian opportunities could unfold for hardware and software vendors, local telephone companies and long-distance network providers, as well as information services providers. Hardware vendors will benefit from international marketing of new, intelligent terminals (telephones, terminal phones, facsimile machines, paging devices, computers, videophones, sketch phones and data

terminal phones) for commercial and residential sites. Software vendors will provide new application software for customers and new databases for information services. For instance, Fortune Magazine (Anonymous: 1988) reported that:

> Local and long-distance telephone companies will incur a substantial increase in network usage with data traffic rising from the current 20% of total telephone network content. Also foreseen is the ability to attract new customers now using private data networks. Information services providers will realize an expanded market through directory, database access and data-conversion services. (Pages not numbered)

The Canadian Advanced Technology Association (CATA) reported in 1989 that Organization of Economic Co-operation and Development (OECD) statistics indicate that the advanced technology share of world trade is growing twice as fast as world trade itself. This means that proactively planning ISDN is a key to future wealth.

It is therefore a source of concern to the domestic high-tech community that Canada continues to lag behind other competitor countries in the development of national scientific and technological prowess. Canadian research and development (R&D) expenditures have stagnated at nearly one point three percent of our Gross National Product (GNP). This represents less than half the comparable US figure and less than a

third of the percentage spent per capita by the Japanese. Even Korea surpasses the Canadian commitment with a total of more than two percent of its GNP committed to research and development.

Another area of present concern is the relatively poor performance of Canada's advanced industrial sectors. Collectively, these sectors account for roughly 50 per cent of the equivalent share of their American counterparts. Canadian industry also continues to lose market share across virtually the entire spectrum of microelectronic industrial output.

But the situation is not quite as bleak as it could be. Since 1983, Canadian industry has increased its R&D investment level. Yet, this nation still trails other competitor nations in developing broad-based innovation initiatives. As the Free Trade agreement is implemented, there is strong evidence suggesting a decline in investor interest in Canadian high-tech -- particularly at the earlier stages of the investor chain. For instance, the unpublished Report of the Premier's Council in Ontario (Anonymous: 1988) has identified a significant diversion of venture capital from early stage companies to mature companies. (p. 60)

THREATS AND OPPORTUNITIES OF ISDN PROACTIVE POLICY PLANNING

There may exist some misconceptions about proactive policy planning and ISDN which need clarification. First, merely having access to ISDN does not mean people will use it. There is no direct correlation between these two propositions. As L. Gardiner (personal correspondence, August 21, 1990) has written that: "Fourth generation (media presupposes technologies in which) production and distribution are more intimately interrelated than in (the) second generation."

Second, ISDN will be evolutionary rather than revolutionary. The telephone system still uses equipment which has been in use before the 1930s. Although portions of telephone networks are using advanced media such as fiber-optic cable, copper wiring still dominates in many areas. As Schumate and Weinstein (1989) have written:

> Existing copper cables....can handle the current major thrust in telecommunications: ISDN....(But)....for such a transformation to take hold, (there must be) the installation of fiber-optic cable throughout and interstate transmission networks, particularly to end users such as homes and businesses....For large volume users -- in terms of voice, data and video -- the economics make sense today. (p. 9)

One of the reasons for suggesting proactive planning for ISDN is that it will incorporate a number of considerations including video, mainframe and personal computing, databases, packet switching, CCITT's X.25 protocol, and many other technologies. Some important questions that could be asked right now are: "How are people using these technologies? How will ISDN change them and the technologies they are using?"

Proactively planning ISDN's growth infrastructure should have the following two characteristics: First, the human element (who will really be using it) must be considered whenever possible. Second, the master plan for ISDN introduction and use should evolve in small, incremental steps. Many of these steps could be relatively easy to implement -- such as adopting equipment interface standards based on the CCITT model.

Proactive planning is as dynamic as ISDN technology. It may therefore be most beneficial to begin with general concerns for well-focused purposes than to concentrate on planning for the introduction of hypothetical technical equipment. The final equipment capabilities will arise partially in response to the demands of human beings using ISDN.

In fact, a wide range of user needs and ISDN applications will probably develop because of ISDN's high level of complexity and the limited life cycle of

its hardware, the limited knowledge of its end users, and the limited resources of proactive policy makers. But it is desirable whenever possible that the policy makers share the same master vision of ISDN and its capabilities. This would allow them to share information and tailor the output to the end users more effectively.

Unquestioning adherence to a strict plan for ISDN is a near impossibility, considering the speed at which interactive computer and telecommunications technology evolves. Technology's cutting edge is moved by unpredictable discoveries and events, and their fallout is strong enough to disrupt the original goals of even the most brilliant traditional planning process. This is the time when high-tech Darwinism takes over and the process of proactive planning ought to be dominated by the survival of whatever is the most practical. For better or worse, this uncertainty characterizes the high-tech world of realpolitik.

A hallmark of the proactive planning process is that the output is not rigid and dogmatic, for it is necessary to plan for the uncertainly surrounding ISDN. Different features, functions and technologies within the network must therefore be allowed to evolve independently of each other.

TOWARDS A PROACTIVE POLICY FOR ISDN

Many communications theorists advocating Canada's microelectronics industry such as McPhail (1989) and Gardiner (1990) believe that developing, promoting, and diffusing ISDN requires a concentration of intellectual, material, and economic resources that must be strategically deployed at designated intervals. They believe that policy decisions are key to achieving success, as McPhail (1989) explains in the following quotation:

> Unless Canada gets its telecommunications policies correct, then little else will count in terms of our being an effective and competitive information-based national economy....(as American author) Michael Rubin....states: "Public policy is our tool in this effort. In these pages is a call to undo the nearly complete failure of our government to address the wide array of problems posed by the new technologies that are transforming this nation into an information society." Basically, if the United States is worried about its chances as an information economy, Canada should be petrified. (p. 18)

This view is contrary to the prevailing idea of what a typical smokestack company should be -- moving relentlessly and able to flourish in almost any community. It has been shown that post-industrial businesses do not function the same way that smokestack industries do. Thus, the existence of an appropriate high-tech infrastructure is a necessary precondition to the establishment of a viable advanced technology base.

The rapid growth of California's Silicon Valley and the emergence of more than fifty high-technology clusters throughout the United States illustrates this point. Nor is this success rate uniquely North American. Thus, Canadian cities and even small towns should contain a high-tech hub or cluster, which would exploit the area's expertise attract people with the necessary training and experience to generate prosperity.

As McPhail & McPhail (1989) have written:

> Several research universities in the United States (and overseas) are located near clusters of high-technology companies, which have grown up by spinning-off from the universities' research laboratories. Further generations of high-tech firms have grown up around the original firms....Well-known technopolises exist in Cambridge, England, around Cambridge University and in Tsukuba Science City, just north of Tokyo....Increasingly, competition in economic development among cities, states, and nations is defined in terms of competition in technical innovation in such high-tech industries as microelectronics and biotechnology. Local, state and national governments invest in creating and improving their research universities in order to plan the seed for a technopolis, where the creation of wealth and jobs will eventually repay the original investment. (p. 163)

As the preceding sections of this thesis have indicated, proactive planning for ISDN telecommunications -- and ISDN's pivotal role in determining the nature of Canada's post-industrial economy -- is a central concern. Any meaningful proactive process

should therefore be co-ordinated at the federal, provincial, and municipal levels.

The next five sections of this thesis describe specific areas -- the media, business, different levels of government, the law and education -- which would be directly influenced by proactive planning for ISDN. Each of the five sections is subdivided into two subsections. The first subsection examines and analyzes the present environment, and discusses the major themes identified in the literature and the interviews. The second subsection offers proactive recommendations.

These five areas are so intimately interrelated that they cannot be disentangled. Although this thesis focuses on the mass media and education, post-industrial society involves a structural shift encompassing, and indeed changing, the domains of law, business and government.

The Mass Media

Mencken (1927) took a view of journalism that was surprisingly similar to that expressed by Walter Lippmann. Before the widescale use of the multimedia, he wrote:

> There are managing editors in (North America) and scores of them, who have never heard of Kant or Johannes Muller and never read The Constitution....there are city editors who do not know what a symphony is, or a streptococcus; or the Statute of Frauds; there are reporters by the thousands who could not pass the entrance examination for (college or university)....It is this vast and militant ignorance, this widespread and fathomless prejudice against intelligence, that makes....journalism so pathetically feeble and vulgar, and generally so disreputable. (p. 15)

Unfortunately, the ignorance about which H.L. Mencken wrote about more than six decades ago persists. In 1969, the Davey Commission called for more comprehensive training of journalists and this cry was echoed by the Kent Commission in 1981. Errors in judgment, errors in reporting, minor and serious unchecked errors occur in almost every edition of every newspaper -- in almost every radio and TV broadcast. Some errors are inescapable -- such as those due to deadline or staffing problems. Journalists go to where they are needed and cannot be expected to have in-depth knowledge of every topic they ever cover. Despite these constraints, Canadians depend on the mass media to

help them make decisions in politics, the marketplace, the home -- in virtually all areas of their lives. Garbage in, garbage out.

To paraphrase Mencken, there are managing editors and scores of them who never heard of Wozniak or Papert or Dorsey, there are city editors who don't know what Lotus Symphony is, or AI, or the Charter or Rights; there are still scores of reporters who would not be able to get into any Canadian college or university. It is this vast and militant ignorance, intensified by the power of the electronic media, that underscores the need for proactive planning in the age of ISDN.

As Miller (1989) has stated:

> Newspapers have now dwindled in number. Major cities don't have a lot of dailies anymore. Some of them have none. The newspapers that remain are more and more televisual in their formats. More and more reliance on full-color pictures, shorter and shorter texts. Magazines have been compulsively renovating their formats so that they stand out....More and more people and more and more institutions have begun to internalize the advertising ethic. I think advertising has become the chief mode of public address. In politics it is clear. I think it has to do with television as a commercial medium and as a pervasive image utility that pumps it product directly into people's homes has extended that tendency within politics. But it is a tendency that goes way back and which coincides with the early development of the marketing of nearly everything else within this....society. (p. 93)

If, as Professor Miller suggests, advertising has become the chief mode of public address, then the

coming of ISDN is unlikely to result in any great shift in consciousness or awareness. A prevailing attitude of the 1990s is that which sells is the truth. This belief is also a dominant characteristic of an addicted (or addictive) system, for even the terminology used to describe the hold of the mass media over the individual is dysfunctional. For instance, how many people brag: "I am addicted to watching General Hospital every afternoon." or: "I'm a real news junkie." or: "I can't wait to get my daily fix of Oprah." How many people realize these statements are far more accurate than they realize?

The continued use of many mind-altering substances dulls, obscures and desensitizes perceptions. Obligations are neglected; social relationships fall by the wayside, normative values break down, while history, tradition and culture are forgotten. Denial, dysfunction, delusion, and despair are the inevitable results of long-term addiction. Even electronic media hardware itself may be addictive, as demonstrated in the following quotation from Hendra (1987):

> The normal field of vision for the human eye is about 180 degrees, while in a movie theater is it 45 degrees, one quarter of the norm; for television it varies according to screen size from a maximum of 14 degrees to as little as 7, one twenty-fifth of the norm. (The same is true for computer screens). Saccadic eye movements -- the rapid exploratory back and forth motion the eye

> makes in a normal environment -- are thus restricted when viewing television (or using a computer) to a minute fraction of their normal range of perception, concentrated on an abnormally small area of light. This is clearly akin to a standard method of hypnosis. But hypnosis usually stops there, at least as far as the eye is concerned. With television viewing (and computer using) what happens once this state of receptivity has been induced is that cathode-ray guns powered by 25,000 volts (in the case of a color monitor), shoot electron streams at phosphors on the screen, which in turn project light directly into our eyes. This is not ambient light, however, or even deliberately directed neutral light....All this is being projected directly at us in some sort of order that we cannot control. And moreover, which is not real in any sense, either in that it is random and arbitrary like the real world, or a tangible entity. (p. 448)

News and documentary media are not immune from the effects of this addiction. News Director Michael Singer (1989) has stated that when the advertising ethic invades the newsroom, the truth becomes that which sells. But the selling process by and large consists of telling people what they want to hear. News and documentary media are supposed to be impartial, objective, value-free.

Contrast the function of the underground press and television network news. The underground press interacted with its readership, it was not above continuous self-criticism and self-analysis. It deeply involved its audience because it assumed that its readership consisted of people who were individuals capable of thinking for themselves. The anti-professionals who

wrote and edited underground newspapers believed that biases should be stated up front, they tried to respect differences of opinion to a greater extent than the mainstream media and believed that the widest possible range of information empowered people to make better choices and decisions.

Three decades later, the very essence of television network news (and documentary, to a lesser extent) is market share. With fewer and fewer exceptions, what doesn't sell doesn't get aired. Is a half-hour network newscast featuring anchorpersons and content which appear to be about as distinct from each other as Coca-Cola and Pepsi-Cola truly informative? Are today's print and electronic journalists any better informed than they were in Mencken's era? How can a mass audience watching a network news broadcast or reading a televisual newspaper possibly consider itself informed when news holes of text are inserted among masses of newspaper and magazine advertisements and when major events are scheduled to fit around radio and television commercials?

Many studies were undertaken in the 1980s to determine the nature of Canadian mass media. Some of the more notable include:

Applebaum & Hebert. (1982). Report of the Federal Cultural Policy Review Committee.

Roth & Raymond. (1985). The Canadian Cinema: A Solid Base: Report of the Task Force on the Film Industry.

Gelinas & Siren (1936) The Status of the Artist: Report of the Task Force on the Status of the Artist.

Richard & Winthrow (1986) Report of the Task Force on Broadcasting Policy.

Johnson & Macerola. (1986).The Other Film Industry Report of the Non-Theatrical Film Industry Working Group.

Despite these studies, no cohesive policy has yet emerged. This, despite the fact that the media could play a pivotal role in developing a useful proactive technology policy.

Gardiner (1987) believes Canada is one of the most under-developed nations in the world concerning the realization of its own potential. He believes that the developers and suppliers of computer equipment and software should conduct a means-ends analysis, showing how their products will work. (p. 142)

Gardiner (1987) has also argued in favor of an expanded role for the DOC as the central body responsible for regulating and establishing policies for the telecommunications industry and the informatics industry. He writes in The Ubiquitous Chip (1987) that the CRTC is faced with numerous complexities regarding the integration of technologies and different regulations as seen in videotex (television and telephony) and informatics (telecommunications and computers).

"....videotex is not an extension of either television or telephony but of computer technology. The telecommunications industry is regulated and the computer industry is not." (p. 143)

The mass media are the systems through which most Canadians will be informed of ISDN. Journalists are in a unique position to advocate the needs of ISDN's users.

Professional communicators will be influenced by ISDN applications to a greater extent than most other Canadians because of the nature of their work -- and their dependence on perishable, high-quality information. The scope of this proactive planning would therefore include second, third and fourth generation mass media.

Proactive Recommendations For The Mass Media

1- Educate journalists.

Encourage journalists (the people reading, writing and otherwise compiling the news) to communicate clearly. This may sound arrogant until the newsroom and studio standards of print and broadcast journalism are directly encountered.

Introduce journalists in-depth to specialized subjects such as technology, literature, the law, business, medicine, chemistry, engineering, and history. Whenever possible, send journalists to specialized workshops and conferences. For instance, the Center for Investigative Journalism (CIJ) in Ottawa and ethics seminars would be two good choices.

2- Make specialized media awards more accessible, and less elitist -- and make more of them.

The relative handful of full-time scholarships available to Canadian journalists is not likely to raise the overall standard of the mass media.

3- Establish an ongoing dialogue between the mass media, the academic community and the policy makers.

4- Establish a Royal Commission on the side effects of the new technologies. For instance, the addictive properties of television and video games, the long-term health effects of the mass media and violence, video

screens and radiation, as well as other medical issues could be studied.

5- Allow non-specialists to be involved in the mass media. For instance, members of the community should be allowed to sit on editorial boards and help determine media policy.

6- Subsidize alternative media.

7- Create a comprehensive system to regulate the media. Give Press Councils the power to enforce their rulings.

8- Professionalize freelance journalism by raising the pay.

9- Penalize radio and TV stations not obeying Canadian content regulations. If Canadian Content helped the nation's music industry as much as it did, perhaps it can do the same for the media.

10- Review the recommendations of the Kent Commission, implementing those which are deemed appropriate by a board of professional communicators and academics.

11- Encourage national debates on objectivity, truth and ethics in the media. Admittedly, these are not value-free concepts, but they were at the core of the libertarian and social responsibility theories of the media.

The following quotation from Postman (1986) helps to explain this issue:

> To use a phrase from Bertrand Russell, we need defenses against the seductions of eloquence. Let us take a look at a McDonald's commercial. We see a young father taking his six-year-old daughter into McDonald's and they are eating a cheeseburger and they are ecstatic. Is the picture, is the image, true or false? Words do not seem to apply to that sort of thing....And so now we build up a whole world of imagery, where we are basically out of the realm of logic and perhaps in the realm of aesthetics....You either like McDonald's or you do not. But you cannot talk about the truth or falsity (of the media image)....We now need a different kind of defense against the seductions of eloquence. (p. 393)

12- Widen the scope of reporting to include as many salient aspects of proactive policy as possible.

13- Consider the creation of an apprenticeship system similar to that of England and other European countries. Technology is getting so complex that four years of undergraduate work for a journalism school (J-School) degree is not enough. Training should start sooner, perhaps on the secondary school level.

14- Have the mass media begin to proactively plan for new technologies -- partially by recognizing that certain kinds of information are proprietary, (data-based medical records) while others are changing form and content because of digital technology (still and video photography). By carefully creating and disseminating an awareness of these facts; lawmakers, the judicial system, policy makers, and the media could develop and enforce ethical principals and statutes.

15- Clarify the relationship between the mass media and the pollsters. Moyers (1989) has stated:

> Pollsters want to know everything and they spend over $3 billion (in the US and Canada) to find it out. It is worth all that money to them because it makes money. It even makes (leaders). But does it make a democracy....a government of reflection and choice. Forget it. Fifty years ago, Dale Carnegie wrote a new Bible for....politics and called it <u>How To Win Friends and Influence People.</u> In it he said that when dealing with people, we are dealing with creatures of emotion, creatures bristling with prejudice and motivated by pride and vanity. This famous evangelist of persuasion went on to say that the art of human engineering, as he called it, requires an ongoing appeal to the emotions. The opinion industry lives by this gospel that it is easier to motivate the heart than the mind, easier to stir up feelings than thoughts. Vanity, love, anxiety, hope -- these sell cake mix and toothpicks and foreign policy, too. Tell us how you feel, say the pollsters, politicians, advertisers and journalists. Tell us what you want, wish, value and fear. Tell us how you feel so that we can make you feel better. And tell them we do.

Business

Canada's presently enjoys one of the world's best telecommunications systems, having been spared the agony of events analogous to the AT&T divestiture in 1984. The nation's corporate research and development (R&D)-- especially in telecommunications fields such as ISDN and X.25 communications -- is good owing to the presence of world leading companies such as Northern Telecom, Bell-Northern Research (BNR) and Memotec Data, which has owned Teleglobe since 1985. (Teleglobe, a profitable Crown Corporation before its sale by the Mulroney government, provides Canada's overseas telecommunication links). Other positive factors include Canada's presence on the CCITT and concern for instituting ISDN standards by domestic and international carriers such as Bell Canada and Teleglobe.

As McPhail & McP. ' (1989) have written:

> Northern Telecom recently announced that it will spend more than $100 million to develop a more substantial R&D operation....This research park will not be located (near any Canadian University)....It will be situated in Richardson, Texas. As a result, not only will future employment opportunities in the high-tech sector fall to Texans....but Northern Telecom's important corporate decision-making also will shift to the Texas facility....Had appropriate Canadian federal and provincial initiatives and financial support been in place, one would have anticipated Northern Telecom's establishment of a university research park in Canada. (p. 210)

This event is significant because it is also

likely that Canada's ability to prosper in the next century will depend in no small measure on its commitment to accord a high priority to research and development today. As Lyman (1983) wrote in Canada's Video Revolution:

> A policy outlining incentives for Canadian content, software, or service suppliers not owned by the telephone company or cable operators is essential to stimulate international competitiveness. (p. 144)

The Free Trade Agreement (FTA) will have a dramatic impact on business in the age of ISDN. Since FTA is a government initiative, it is discussed in the next section.

Proactive Recommendations For Business

A. Bardach (personal interview, May 25, 1988) stated that The emergence of profitable high-technology companies was found to be generally encouraged, if not attributable, to the following six factors:

1- A university or another research center with strong ties to business.

2-The existence of technology parks, incubation centers, and dedicated technology transfer-agreements that allow local companies access to university-level resources and provide a base and/or a set of incentives for interaction between industry and research establishments.

3-The existence of venture capital firms and other sources of funding to provide seed money to emerging companies.

4- The existence of 'soft' service industries such as technical writing concerns on which advanced technology companies rely and 'hard' infrastructure links such as trucking companies to link these high-tech firms with their markets.

5-A cultural climate which is conducive to the business needs of the risk-taking entrepreneurs who manage these emerging high-tech companies. (This would include a

wide spectrum of factors from suppliers accepting long-term notes to non-hostile bankers).

6-A proactive public policy environment that understands the role of technology and is supportive of technology-based companies.

A. Bardach (personal interview, May 26, 1988) stated that mutual mistrust exists between business and government. This, he felt, was a major threat inhibiting the development of all six preconditions. He also stated that the diminutive size of the Canadian market forces the industry to be international in its scope. This is different from the United States, Japan, and the European Common Market. Thus, Canadians fear technical domination or subservience since our products are primarily geared to foreign rather than domestic consumption.

Municipal economic development initiatives tend to concentrate on creating a hard infrastructure (such as the trucking services mentioned earlier) as well as the attraction of traditional industries to local industrial parks. However, the soft infrastructure; such as brain power found in the universities, is rarely considered even at the provincial and federal levels.

Government

The core high-technology nations of the world presently include Canada, United States, Japan, France, and the United Kingdom. Among semi-periphery countries are the Soviet Union, Italy, Hong Kong, Singapore, Mexico, Brazil, Yugoslavia, and Nigeria. The third world or underdeveloped nations represent the periphery. It is therefore logical to assume there will be clashes between the have and have-not nations as they attempt to integrate ISDN into their cultural mosaic. As Mosco (1982) has written in Pushbutton Fantasies:

> The conflicts among core powers over the privatization of information resources, the uses of telecommunications, and the control over increasingly lucrative markets in the periphery and semi-periphery may turn out to be the most substantial source of instability in the global information system... Societies outside the core are using their numerical, if not economic, advantage in such traditionally core capitalist-dominated international forces as the International Telecommunications Union and UNESCO at the United Nations to at least voice a call for a New World Information Order to strengthen their effort to build a New Economic Order. (pp. 155-158)

Lyman (1983) added to this theme. As he writes in Canada's Video Revolution:

> The traditional industrial incentive systems of government should be deployed with a greater awareness of the economic and export potential of the rapidly expanding information sector. The interactive media should be recognized as a critical part of the major economic contribution

> that the information sector could make to Canadian society. (p. 146)

The present situation leads to the following conclusions: First, Canada's capacity to develop the capabilities needed for ISDN implementation is fragile by international standards. Second, this capacity is not growing as quickly as international marketing opportunities. Third, investor confidence is declining despite this nation's considerable natural and intellectual resource base.

This regrettable lack of planning is at least partially attributable to decisions made by federal, provincial and municipal governments. CATA (1989) identified the following government decisions as having weakened R&D investment incentives for small and medium-sized businesses developing new technologies:

The introduction of new guidelines for qualifying R&D expenditures for tax purposes, followed by prolonged confusion over the interpretation of these guidelines and delays in processing claims.

Elimination of the share-purchase, tax credit mechanism. This mechanism was designed to enable corporations to flow out tax credits to investors and was used by companies to attract equity financing. Unfortunately, many of the firms for whom this program was designed ended up selling their tax credit at face

value to large multinationals to alleviate short-term liquidity crises. Memotec sold part one such tax credit to Bell-Northern Research before it bought Teleglobe, for instance.

Introduction of new rules on research and development limited partnerships and the 'related to the business' rule that restrict the ability of high-tech companies to provide tax assistance to outside investors who fund R&D activities.

The reduction in the use of R&D investment tax credits from 100 per cent to 75 per cent of federal taxes otherwise payable to high-technology firms at an estimated cost of $50 million per year.

The elimination of building subsidies for structures where R&D is performed. These reductions in financial initiatives have not been offset by corresponding increases in other forms of government support for research and development. In fact, federal government expenditures on R&D appear to have declined in real terms since fiscal year 1984. In this respect, it is increasingly important for business and government leaders to recognize that the level of support for developing research and development in Canada is well below that provided in competitor nations. In terms of actual dollars, the United States spends more than six times as much as Canada does on R&D according to Perry

(1988). If this trend continues, then the Department of Finance could have greater impact on the way ISDN is developed and used in Canada than the DOC, CRTC, or CCA.

Proactive Recommendations for Government

Proactive initiatives on the part of the Canadian government could be many and varied. The most important of these initiatives should be to:

1- Draft a clear statement of government policy regarding ISDN.

This document's purpose would be to provide a coherent and consistent policy framework for increasing present research and development levels as they relate to ISDN. A statement of intent prefacing the document should stress the strategic importance of science and technology education and training (or retraining) at all levels of Canadian society.

This document would also serve as a master plan. It could co-ordinate all government activities between the federal, provincial, and municipal levels.

2- Create a national satellite network that would bring all the benefits of ISDN technology to local and remote communities throughout Canada.

3-Re-establish the full use of earned research and development investment tax credits and requalify research and development building expenses for tax pur-

poses.

4-Strengthen the incentives for early stage investment by improving tax credits.

5-Have the Department of Finance provide ISDN-level computer equipment to every Canadian post-secondary institution.

6-Further offset the weaknesses of smaller companies by expanding the definition of qualifying research and development expenditures to include market research, pre-production, and market development costs. A comprehensive government-sponsored program providing expanded support to the export marketing and distribution by Canadian ISDN-related companies is also necessary.

7-Major domestic telecommunications suppliers and all levels of government -- as well as the universities -- should be encouraged in the creation of more joint ventures with larger, more established firms. (This would also assist innovative, smaller firms that are under-funded).

Here is one example of how this system is working on a small scale as written by Perry (1988). There is no reason to assume it could not be more widely applied:

> A current three-year joint study "Testing of Open Communications Systems" by the University of Ottawa, BNR, Natural Sciences and Engineering Research Council (NSERC) and the Ontario University Research Incentives Fund (URIF) is evaluating the conformity of computers and communications equipment to international standards for communications protocols. The standards for communications protocols are established by joint industry-government organizations, such as the International Standards Organization (ISO) and International Telegraph and Telephone Consultative Committee (CCITT).

8- An additional ten billion dollars from the public and private sectors -- to compensate for underfunding -- should be annually allocated for pure and applied research.

9- Canada's many resource-based industries such as pulp and paper, mining, and petroleum can be only as competitive as their ability to apply the benefits of ISDN within their own fields.

It is recommended that a federal agency be established to act as a clearing house for ISDN applications -- so that the most appropriate hardware and software (such as expert systems) can get to where they are needed in the shortest possible time. ISDN would be an effective productivity tool in this situation because, as J. Lawlor (personal interview, May 4, 1988) has stated:

> ISDN is built on an evolutionary concept. It is not designed to replace existing networks and

> their services immediately, but to integrate them in an ongoing process into ISDN -- not in two or three years, but perhaps in ten years or more. An intelligent integration will require the co-operation of business and government.

10- In many cases where big business and big government co-operate on R&D projects, the two sectors have different agendas. It is not surprising that the results of such projects are often snarled and garbled. Therefore, it is necessary to establish synergies between business and government.

11-Canada should specialize and focus its development of new technologies if it is to succeed in the age of ISDN.

It is a readily-observable fact that Canadian industry is too small to develop as many new technologies as are Japan and the United States. Despite Canada's limited population and resources, ISDN provides great opportunities to innovative Canadian companies. For instance, ISDN provides a perfect generic base to build applications software upon through its use of CCITT standards. Thus, ISDN could build on this nation's existing infrastructure of telecommunications excellence.

12-Use every possible means to protect Canada's interests in the Free Trade Agreement (FTA).

The FTA covers the following seven areas: tariffs, services, investment, energy, the Auto Pact, subsidies and dumping, as well as providing a bilateral (US and Canada) dispute settling mechanism. However, the details and the ramifications of the FTA in these areas remains obscure.

Since implementing the FTA is a decade-long process, it is nearly impossible to predict the long-term impact it will have on the development of proactive ISDN policy. The Canadian Bankers' Association is wary of the impact that the FTA will have on Canada's telecommunications industry. As Schott (1988) has written:

> With the pending Free Trade Agreement Canada must, and should, ensure that telecommunications prices and innovations are in balance. If not, Americans will certainly be able to offer many information-intensive services at reduced rates, and in the long run, Canada's economy will suffer. (pp. 129-133)

The Law

Adam & Martin (1989) have written that the Canadian court system is not designed to investigate crimes or to find the truth in any disputes. It merely determines the validity of charges and counter charges in an adversarial environment. Journalists and other mass communicators are perhaps more aware than other groups of the ways that the legal system places limits on their freedom of expression -- perhaps because their work is so public.

Viewed in this context, law in the age of ISDN, flawed as it may be, would probably continue to embrace elements of criminal, civil, and administrative statutes and proceedings. The following quotation from Adam & Martin (1989) further clarifies this position:

> The division of labour in a complex society makes it inevitable that specialists will appear in the area of communications and culture. In this respect, society's writers -- including those who make their living as journalists -- are on the receiving end of an act of delegation whereby, in a political sense especially, fundamental rights of freedom or expression are handled by journalists on behalf of members of the public who are more distant from the centres of political and public action....To say that it could be arranged and done better with better effect is obvious....(But) the ability of journalists to practice their craft turns on the manner in which these rights and freedoms are secured in law and tradition. (p. 119)

Despite the declarations and principles set forth in the Charter of Rights and Freedoms, there are

lobbies -- religious, business, and political -- which would like to see greater and greater limits placed on what is referred to as freedom of the press. Note: Freedom of the press is a catchall phrase extending to broadcast and computer media.

This pressure exerted by special interest groups on the Canadian legal system to diminish the freedom of the press is not a new phenomenon. It is used by groups at both ends of the political and cultural spectrum. But their ability to exert influence on the media becomes especially important in the age of ISDN for the following two reasons: First, because the Charter of Rights and Freedoms is part of the 1982 Constitutional Package and is largely untested. Again, Adam & Martin (1989):

> Canada's Constitution acquired some of the characteristics of the US Constitution when the scope of the judicial review was expanded so dramatically. The Supreme Court of Canada began to exercise powers long held by the Supreme Court of the United States, this despite the fact that Canada purports to be a parliamentary democracy rather than a republic. Parliamentary democracies are marked by an acceptance of a basic constitutional rule that Parliament is supreme. The Canadian version of that principle, until 1982, was that Parliament was supreme in its domain and the provincial legislatures were supreme in theirs. From another perspective then, the Charter represents another step in the Americanization of our institutions. (p. 73)

Second, because the range of new technologies which will be utilized by ISDN are either covered by

outmoded legislation (such as photography) or not covered at all (ISDN). Therefore, it is suggested that the following proactive recommendations be considered.

Proactive Recommendations for The Law

1- Convene a Federal/Provincial task force to study media law as it relates to the 1982 Charter of Rights as soon as possible.

2- Issues to be discussed by this task force could include:

a- What does freedom of the press mean in the era of ISDN?

b- What is the scope of federal power in regulating new technology in the age of ISDN?

c- What is the scope of the provinces in regulating ISDN-related technologies?

d- What are the limits of courtroom admissibility in view of ISDN-related technologies? (What is legal to present in court)?

e- What constitutes freedom of expression in Canada as a result of new ISDN technologies?

f- What constitutes access to information in Canada as a result of ISDN-related technologies?

g- What aspects of ISDN technologies will be regulated and what aspects of ISDN will not be regulated?

3- Clarify and update media law to protect intellectual rights, but in a manner not to stultify the development of fourth generation media.

Education

The use of computers as a learning tool in the fields of adult and childhood education has generated great controversy. Today, a debate rages within the academic community over the value of Computer-Aided Instruction (CAI) and Computer-Assisted Learning (CAL). The role of computer technology in today's schools is uncertain, a situation that is likely to continue when tomorrow's students learn about and apply ISDN.

Gardiner (personal correspondence, August 21, 1990) has written that education is the process by which the phylogenetic information at the moment of conception is appended during (the) ontogenetic development (of the human species), through the four generations of media. Indeed, it could reduce (these four generations of media) to education: for producer, for consumer, close up, and at a distance (where ISDN is more relevant). In this context, Mason (1989) has written an article entitled ISDN and the Great Conversation. Here, he argues that ISDN enables human beings to continue dialogue, which is basic to civilization, in situations where it is not possible for people to be in the same place at the same time. (pp. 93-108)

Thus, computer literacy appears to be a survival

skill. Computer literacy itself is dependent on the kind of hardware, software, and firmware the human operator is working with. For instance, computer literacy might mean knowing how to use a particular input device such as a keyboard in one instance -- or it might mean being able to write a sophisticated software program in another. Perry (1984) has written that usually, the object of computer literacy is to use the computer to obtain desired results. (p. 19)

McGill University Education Professor Dr. Frank Greene (1988) has spent many years in computer education, He has insisted that:

> Even experts can't agree what computer literacy means. One common myth is that students are 'computer literate' when they write thirty-line programs. This is nonsense: children use today's PC's for many non-technical activities...most children don't want to be programmers. (p. 51)

Greene also stressed that there are many competent high-tech educators in Quebec schools. He stated that the human touch -- not computer equipment -- makes the difference. He also reported that North American PC education is based on the drill and kill approach: Drill the kids; kill their curiosity. Greene dismissed this approach as nothing more than electronic workbooks with no meaning for learners. He concluded that schoolchildren may want to complete

an exercise just to see a little man jump up and down on-screen -- but they can't make sense of what they learned because problem solving is more than getting a simple answer. (pp. 35-45)

One of the reasons for the drill and kill approach to computer education is that new media usually take the form of old media. The first applications of computer-aided instructional materials were merely translations of print media into interactive form. Thus, according to a report issued by High-Technology (1987), it was found that many questions remain with respect to how and when computers can best be used, especially at the primary and secondary school levels. (p. 24)

Computers -- even computers operating in the age of ISDN -- cannot answer the profound questions of human existence. But they are invaluable in learning situations involving the acquisition and long-term retention of specific knowledge -- a process educators call maintenance learning. Concern has been expressed about maintenance learning and the resulting short-term retention of information. A more creative alternative to maintenance learning is offered by the current generation of educational software. If this software and personal computer systems were standardized in classrooms, education itself could perhaps

shift its emphasis away from the drill and kill approach towards the kind of integrated learning described in this section.

For instance, several sophisticated technologies migrating from the mainframe to the personal computer levels show great potential in the classroom. These include: Expert systems, which reproduce specialist knowledge for the computer user to access efficiently. Speech synthesis and voice recognition, which are invaluable technologies for the handicapped and non-typists. Advanced computer graphics are also useful in reproducing conceptual material in pictorial formats.

The learning process is a subtle and sophisticated system where much exploratory work remains to be done. However, the Socratic Method articulated by Plato in The Crito (1938) could probably be incorporated into ISDN-age computer education. (p. 19) This would, however, presuppose a genius on the level of Plato who could also be a programmer. But if the Socratic method could be integrated into a computerized learning system, what Frank Greene calls the "read, recite and regurgitate" behavioristic approach to education would be obsolete. In its place, flexible classroom computers would be able to extend their capabilities to

include read, ask, choose, and review. Whatever role ISDN-era computers will play in education, the need for human teachers, according to Greene (1988), will be as pressing as ever. (p. 72)

Particularly in cases where young children are using computers, the vast potential for high-tech propagandizing and brainwashing with misinformation or incomplete data should be guarded against. Gardiner (1987) cautions against outside-in learning, which he identifies in the following three scenarios: computer-as-source, computer-as-tutor, and computer-as-prosthetic. (pp. 55-58)

Computer-as-source envisions using the computer as an electronic tool, providing the student with instant access to on-line databases. The potential for abuse exists in having misleading or incomplete information in the databases. Computer-as-tutor envisions using the computer as a mechanical testing machine. The potential for abuse exists when drill and kill methods are used. Computer-as-prosthetic is a mechanical electronic replacement for sensory and motor functions used in teaching handicapped individuals. The potential for abuse exists when the teachers of the handicapped are insensitive to the needs of their students.

Gardiner (1987) has stated that Jean Piaget

provides the theoretical basis for the optimal orchestration of the secondary process of outside-in learning (behaviorism) with the primary process of the inside-out growing (humanism). Again, the interaction between human beings is the primary concern for human growth and development. (p. 58)

Seymour Papert was a student of Jean Piaget's who developed the LOGO computer language to facilitate human development and the learning process. LOGO was adapted from the Massachusetts Institute of Technology's (MIT's) mainframe LISP computer language -- itself used for studying artificial intelligence. Papert, quoted by Perry (1984) envisages microworlds that users can enter using LOGO:

> These microworlds allow LOGO users to utilize the learning process the way a baby does -- instinctively. It is an immersion into a specially constructed environment. For example, one would learn physics, or grammar....or whatever by immersing oneself in a microworld relevant to their particular learning activity. (p. 33)

Papert and other LOGO advocates believe that the computer could be utilized in education to as a here-and-now device. According to Perry (1988) they believe that the past could be captured as resource material in the present to free the future from ongoing repetition of error. (p. 33)

Can the computer change the face of education?

Can it help Canada succeed in creating a Papert-style learning society? The answers to these questions could become more evident when the role of education in Canada becomes clearer. As Goodman (1956) has written:

> Education is not life. The existing situation of a grown man is to confront an uninvented and undiscovered present. Unfortunately, at present, he must also try to perfect his unfinished past. (p. 230)

Computer learning in the age of ISDN might provide a means for incomplete humankind to use the lessons of the past to invent and discover the present. As Gardiner (1987) has written, time is our primary non-renewable resource. (p. 181)

It is likely that the computer can help prepare today's students for tomorrow's technological complexities. As Gardiner (1987) has written:

> Many thoughtful people have argued that it is science and technology rather than economics and politics which determine the shape of today and the emerging shape of tomorrow....Just as the printing press democratized the distribution of knowledge, so the new informatics may democratize the production of knowledge....The dichotomy between the haves and have-nots in the industrial society will be replaced by that between the knows and the know-nots in the information society. (p. 83)

Today, educators are faced with problems such as a study of Quebec 11th grade students revealing alarm-

ingly low scores in science subjects. As Aubin (1988) has stated:

> The coming of a 'low-know' generation could, of course, gravely undermine Quebec's future ability to compete in an increasingly competitive world of high-technology and industrial innovation. (p. 3)

Hopefully, today's students will see proactive policy mechanisms put into place while they are young enough to benefit from them. This is not what is happening today, for as McPhail & McPhail (1989) have written:

> Canada....requires a literate, educated and informed workforce to compete effectively internationally, particularly in the information-based industries. But the activities of creating major educational initiatives in this area are sadly lacking. (p. 210)

Proactive Recommendations for Education

1- Standardize the use of computer equipment in schools.

2- Provide funding levels so that every Canadian student will have at least daily access to a computer and software.

3- Audit existing technology to develop a blueprint for computer education.

4- Give boys and girls in the primary schools equal access to computer technology. For instance, as Perry (1988) reported, 14 out of every 15 computers Quebec parents buy for their children are purchased for boys. (p. 18) This is particularly ironic, considering the number of women presently using computers in the work-force.

5- Recognize the parallel realities of the one-parent family, and the double-income family.

These are significant educational imperatives for the 1990s are significant because of the following two reasons: First, because there has been no discernible policy shift to reflect the fact that many Canadian children -- more than 50 per cent on the island of Montreal -- are being brought up by only one parent. The economics of this situation, as stated by Perry (1988) tends to place more and more children below the

poverty line, where getting enough food to eat becomes more important than computer literacy. (p. 18) Second, many parents believe that their daughters will marry breadwinners -- but double income families have been a trend since the early 1970s.

6- Recognize the reality that most jobs today's students will perform will be service-oriented, not manufacturing based.

7- Place increased emphasis on science training for educators.

8- Improve course quality and variety for students.

9- Develop a greater variety of science textbooks reflecting Canada's strengths, such as telecommunications.

10- Update lab equipment.

11- Develop a comprehensive science program featuring such out-of-classroom activities as field trips, science fairs, work-study programs, and after-school activities. (These suggestions reflect the reality of single-parent households).

12- Study computer educational systems that work in countries such as Japan.

Distance Education

Distance education is distinct from classroom education in the following ways. As Perry (1986) has written:

> Traditionally, distance education's main philosophical difference from conventional, on-site education has been that it is considered a "product" rather than a "process." This meant that distance education has evolved to become as operationalized as an industrial production exercise. As such, distance education is distinguished from traditional education by its own perspectives, terminology and approaches. For instance, distance educators speak of "clients" instead of "students," and of "delivery systems" instead of "classes," "schools" and "teachers." Today, distance education programs throughout the world are heavily print-dependent. Most Canadian provinces provide extensive distance education learning in many subject areas, through courses directed at adults who have been out of school for years. The most common goal....is to provide students with a secondary school leaving certificate or its equivalent. (p. 5)

D. Van Houweling (personal interview, April 15, 1984) stated that an ISDN-based telecommunications infrastructure (already partially in place due to of the advanced capabilities of Bell Canada, Northern Telecom and the ANIK satellites) will be as important to the 21st century as the transcontinental railway was to exploiting this nation's potential in the 19th century. He believes along with other academics and planners that education and retraining for such an ambitious venture should therefore begin immediately.

The objective of a proactive, Canadian-designed, ISDN-based training program would be to ensure the appropriate and timely dispersal of educational material and training services to local and remote communities throughout the nation.

This "Federal Express of the Sky", providing the benefits of evolving ISDN-related technologies anywhere in the country, would be labor-intensive. Only highly trained human beings with complex skills are able to identify both opportunities and specific training needs. It is evident that people not only create technologies -- but choose if and how these technologies will be used. Consequently, the success or failure of government and business in adapting to the diffusion rate and application of ISDN-related technologies would depend on the skills, receptivity, and motivation of their audience.

Clearly, a blend of highly educated technical people and generalists would be pivotal to the success of such a monumental undertaking. The planning of community education centers and corporate training facilities to deal with the needs of the ISDN age's person-machine interface would be an ongoing concern.

In 1986, a report on distance education written for the Kativik School Board in Northern Quebec by the

author of this thesis received $10 million in funding from the provincial and federal governments. The conclusion was simple: computer-based technologies linked via satellites and fiber optic cables from Montreal could positively effect tiny Inuit Communities thousands of miles away. (p. 50) For the first time, these native centers were provided with the myriad capabilities of mainframes, personal computers, and fax machines. The crucial elements of the distance education program proved to be tailoring self-paced courses to the Inuit and training facilitators to manage the remotely located community education centers.

In short, the distance education network by design needed to offer more than mere technology infrastructure. Students identified the need for each community center to be staffed by sympathetic professionals who were able to articulate the needs of their clientele and were able to tailor courses to the students. These community-based facilitators were the honest brokers between their northern students and their southern teachers.

The power of distance education is widely recognized by Canadian educators. ISDN will enable the widespread application of advanced technologies such as high-definition electronic blackboards, full-color

holographic faxes and videophones. No greater opportunity for a truly meaningful distance education program has ever existed -- nor has the need for such a program been more pressing. Yet, without universal access and a high rate of usage, the costs of establishing and maintaining this infrastructure are prohibitively expensive. The following proactive recommendations are therefore proposed.

Proactive Recommendations for Distance Education

A viable proactive option to enable the creation of this national distance education network would utilize a two-tiered strategy:

1-Impose federal tax-based incentives similar to present Quebec government research and development credits for corporations seeking to expand their in-house training activities.

2- Provide Canadians with flexible means to pursue knowledge upgrading via distance education when and as they deem it appropriate. For example, the creation of a National Educational Savings Plan based on the Registered Retirement Savings Plan (RRSP) could be developed. In this case, individual contributions would be fully deductible against personal income taxes.

No tax would be charged when an individual withdrew funds for retraining purposes and a government stipend matching corporate contributions dollar for dollar could be beneficial for single parents seeking to upgrade their educational levels.

CONCLUSIONS

Television has inundated us with dramatic visual imagery. This thesis has demonstrated how this imagery -- especially the 32,000 commercials viewed by the average North American each year -- is both addictive and insidious. Perhaps the most profound questions that emerge as Canadians approach the age of ISDN are: Does the nation have the will to examine the effects of the mass media and proactively plan for ensuring the greatest possible benefits to the greatest number of people? Are we as a nation ready to re-evaluate and expand upon the themes of expression presented by the mass media, or will the marketplace mentality triumph?

The addictive potential of television's imagery is staggering -- and this potential is magnified by ISDN. The scientific method articulated by Francis Bacon which emerged from The Enlightenment suggests that once an individual can see the flaws of a closed, addictive system -- such as television -- then he or she can defeat its negative side effects and search out the truth. Despite this well-intentioned belief, reflex skepticism is as much use to a television addict today as it was to Winston Smith in George Orwell's 1984. Television shuts out the real world; it refuses to acknowledge the basic realities shared by its millions

of viewers. This is partially due to the subordinated role of language and literacy when confronted with television's visual imagery. Language and literacy are therefore especially important because, as Schaef (1987) has written:

> This book began with a discussion of the importance of naming. I now return to this idea, which I see as a key to understanding the Addictive System and beginning the process of recovery for the whole system. We cannot recover from an addiction until we first admit that we have it. Naming our reality is essential to recovery. Unless we admit that we are indeed functioning in an addictive system, we shall never have the option of recovery. Once we name something, we own it. Once we own it, it becomes ours, as does the power we formally relinquished to it. Once we reclaim that personal power, we can begin to recover and not until then. To name the system as addictive is not to condemn it: it is to offer it the possibility of recovery. Paradoxically, the only way to reclaim our personal power is by admitting our own powerlessness. (p. 144)

What then are the lessons of second and third generation media that can be applied to the fourth? There appear to be several. First, to recognize how the second and third generation transformed Canada. Second, to recognize the importance of planning fourth generation media. Unless Canadian policy makers are prepared to understand, plan for, and to analyze the effects of ISDN -- others will do their work for them; perhaps to the continuing detriment of the nation. Third, to recognize the value of individual input in this proactive process in the short term and the long

term. The salvation of proactively planning for ISDN is that it can enhance Canada's power to be a cooperative society -- providing Canadians a unique opportunity to profit from the technological capabilities of the post-industrial age.

BIBLIOGRAPHY

Books

Adam, G. & Martin, R. (1989). A Sourcebook of Canadian Media Law. Ottawa: Carleton University Press.

Adam, G. (1976). Journalism, Communication and the Law. Scarborough: Prentice-Hall.

Armstrong, D. (1981). A Trumpet to Arms. Boston: South End Press.

Bagdikian, B. (1981). The Information Machines. New York: Harper and Row.

Bowman, W. The News People. (1976). Urbana: University of Illinois Press.

Carey, J. & Lerner, D. "Canadian Communications Theory: Extensions and Interpretations of Harold Innis." in Schramm, W. ed. (1983). Mass Communications. Toronto: McClelland and Stewart.

Clarke, D. "Second Hand News: Production and Reproduction at a Major Ontario Television Station," in Alter, Leora ed. (1981). Communication Studies in Canada. Toronto: Butterworths.

Durant, A. & Durant, W. (1961). The Story of Civilization: Part VII: (The Age of Reason Begins. New York: Simon and Schuster.

Gardiner, L. (1987). The Ubiquitous Chip: The Human Impact of Electronic Technology. Hudson Heights (Quebec): Scot & Siliclone.

---------- (1990). This Book is about This Book. Hudson Heights: Scot & Siliclone. 1990. (Submitted for Publication).

Gerbner, G. (ed). (1973). Communications Technology and Social Policy. New York: John Wiley And Sons.

Godfrey, D. & Parkhill, D. (1982). Gutenberg Two: The New Electronics and Social Change. Toronto and Victoria: Press Porcepic.

Goodman, Paul (1956). Growing Up Absurd. New York: Vintage Press. 1956.

Halbertstam, D. (1979). The Powers That Be. New York: Albert A. Knopf.

Hall, S., Crichter, C., Jefferson, T., Clarke J., and Roberts; B. (1981). Policing the Crisis: Mugging, The State and Law and Order. London: Mac-Millan.

Hartley, J. (1984). Understanding News. London and New York: Methuen.

Hendra, T. Going Too Far. (1987). New York: Double-day.

Johnston, D. (1980). Journalism and the Media. Barnes and Noble, New York. 1980.

Kesterton, W.(1967). A History of Journalism in Canada. Carleton Library Number 36. Toronto: McClelland and Stewart.

---------- (1976). The Law and the Press in Canada. Toronto: McLelland and Stewart. 1976.

Levy. S. (1984). Hackers: Heroes of the Computer Revolution. New York: Dell.

Lippmann, W. (1922). Public Opinion New York: Har-court, Brace, New York.

---------- (1925). The Phantom Public. New York: Macmillan. New York.

Lyman, P. (1983). Canada's Video Revolution. Toron-to: James Lorimer and Company.

Martin, A. (1983). Think Proactive: New Insights Into Decision-Making. Ottawa: The Professional Devel-opment Institute.

Martin, J. (1983). Managing the Database Environment. Englewood Cliffs, New Jersey: Prentice-Hall.

McDayter, W. (1971). "The Myth of Objectivity," in McDayter, W. A Media Mosaic: Canadian Communi-cations Through a Critical Eye. Toronto, Mont-real: Holt, Rinehart and Winston of Canada.

McLuhan, E. & McLuhan, M. (1988). Laws of Media: The New Science. Toronto: The University of Toronto Press.

McLuhan, M. (1964). Understanding Media: The Extensions of Man. New York: McGraw-Hill.

Mencken, H.L. (1927). Prejudices: Sixth Series. New York: Knopf.

Mosco, V. (1982). Pushbutton Fantasies: Critical Perspectives on Videotex and Information Society. Norwood (New Jersey): Ablex Publishing Corporation.

Oppenheimer, R. (1953). Science and the Common Understanding. New York: Simon and Schuster.

Orwell, G. (1948). 1984. London: Faber & Faber.

Peterson, T., Schramm, W., Siebert, F. (1956). Four Theories of the Press. Urbana: University of Illinois Press. 1956.

Plato. (1938). Crito. The Harvard Classics Edition. New York: P. F. Collier and Son.

Postman, N. (1986). Amusing Ourselves to Death. New York: Viking-Penguin.

Rutherford, P. (1978). The Making of the Canadian Media. Toronto: McGraw-Hill Ryerson.

Rutherford cites: Moodie, S. (1947). The Gold Worshiper. Canadian Historical Review 28.

Sagan, C. (1977). The Dragons of Eden: Speculations on the Origin of Human Intelligence. New York: Random House.

Schaef, A. (1987). When Society Becomes an Addict. San Francisco: Harper and Row.

Schudson, M. (1978). Discovering The News. New York: Basic Books.

Shannon, C. & Weaver, W. (1964). The Mathematical Theory of Communication Urbana, Illinois: University of Illinois Press.

Sinclair, G. (1975). Will the Real Gordon Sinclair Please Sit Down? Toronto: McLelland And Stewart.

Spinrad, L. (1979). Speaker's Lifetime Library New York: Parker Publishing.

Smith, A. (1980). Goodbye Gutenberg: The Newspaper Revolution of the 1980s. Oxford: Oxford University Press.

Steel, R. (1980). Walter Lippmann and the American Century. Boston: The Atlantic Monthly Press.

Young, S. (1987). Gordon Sinclair: A Life....And Then Some. Toronto: Macmillan.

Technical and Research Reports

Applebaum, H., Hebert , J. (1982). Report of the Federal Cultural Policy Review Committee: The Applebaum-Hebert Report. Ottawa: The Queen's Printer.

Buell, J. (1985). "On the Threshold of Metaphysics: Do You Know This Photograph?" Monograph appearing in Humanism in a Technological Age. Montreal: Loyola Jesuit Community.

Davey, K. (1969). The Uncertain Mirror: Report On The Special Senate Committee On The Mass Media. Ottawa: The Queen's Printer.

Desbarats. P. (1981). Newspapers And Computers: An Industry In Transition. Ottawa: The Queen's Printer.

Gelinas, G., Siren, S. (1986). The Status of the Artist: Report of the Task Force on the Status of the Artist.
Ottawa: The Queen's Printer.

Johnson, M., Macerola, F. (1986). The Other Film Industry Report of the Non-Theatrical Film Industry Working Group. Ottawa: The Queen's Printer.

Kent, T. (1981). Royal Commission On Newspapers. Volume I. Ottawa: The Queen's Printer.

Mason, R. "ISDN and the Great Conversation." New York: The Information Society, 6(3).

McPhail, B. & McPhail T. (1989). "The Emerging Telecommunication Environment: Regulation.: Telecom 2001: A Strategic Forecast. Calgary: The University of Calgary.

McPhail, T. (1989, August). "Developing Canada's Informatics Infrastructure." Honolulu, Hawaii: Pacific Telecommunications.

Perry, W. (1988). Funding Canadian High-Tech: Why the Government Fails. Ottawa: Canadian Advanced Technology Association. (Unpublished Consultant's Report).

---------(1986). "Feasibility Study on Distance Education for the North." Montreal: Katavik School Board.

Powe, L. (Jr). (1978). Toronto: Canadian Bar Review. Volume XLVIII.

Raymond, M., Roth, S. (1985). The Canadian Cinema: A Solid Base. Report of the Task Force on the Film Industry. Ottawa: The Queen's Printer.

Richard, C., Winthrow, W. (1986). Report of the Task Force on Broadcasting Policy. Ottawa: The Queen's Printer.

Schott, J. (1987). "The Services Issue. In M.G. Smith and F. Jones (Eds). Assessing the Canada-US Free Trade Agreement. Halifax: Institute for Research on Public Policy.

Unpublished Report: (1989). Canadian Advanced Technology Association.

Unpublished Report: Ontario Premier's Office. Toronto: 1987.

Newspapers and Magazines

Anonymous: (1988, October). ISDN Supplement. New York: Fortune Magazine.

Anonymous: (1987, May). "Georgia Straight Celebrates Twenty Year Anniversary." Toronto: Toronto Globe and Mail.

Aubin, H. (1988, October). "Science Education Lags in Quebec," Montreal: The Gazette,

Kuhl, S. and Labate, J. (1990, July). "The Winners and Losers." New York: Fortune.

Perry, W. (1977, May). "TV: The American Way." Montclair: New Jersey: The Aquarian.

---------- (1983, October). "The Evolution of a Dynamic Technology." Montreal: Montreal Calendar Magazine.

---------- (1984, February). "Microchips Now: The Brains Behind Today's High-Technology Push." Montreal: Airmag Via Nordair.

---------- (1984, April). "Seymour Papert Speaks His Mind." Montreal: Montreal Calendar Magazine.

---------- (1984, July). "High-Tech Meets Higher Education." Montreal:Airmag Via Nordair.

---------- (1988, February). Press release written for Bell-Northern Research.

---------- (1988, April). "As Kids Learn Computers, Drilling's Killing Curiosity." Montreal: Montreal Daily News.

---------- (1988, May). "Finding Facts, Losing Privacy." Montreal: Montreal Daily News.

---------- (1988, May). "Hi-Tech Goes to Work for Native People." Montreal: Montreal Daily News.

--------- (1988, June). "Racing The Machine: Will Artificial Intelligence Triumph Over Humanity?" Montreal: Montreal Daily News.

---------- (1988, June) "ALEX: Everyman's Welcome to the Computer Age." Montreal: Montreal Daily News.

---------- (1988, June). "The Real Computer Age will Arrive Via the Phone." Montreal: Montreal Daily News.

---------- (1988, August) "Montreal Hi-Tech is Nothing New." Montreal: Montreal Daily News.

---------- (1988, August). "Hi-Tech Biz Born Last Century." Montreal: Montreal Daily News.

Schumate, P. and Weinstein, S. (1989, November-December). "Beyond the Telephone." New York: The Futurist.

Toronto Telegram brochure. (1889). Courtesy of Walt McDayter.

Videos

Ted Koppel: TV:Revolution in a Box
Broadcast:1989: December.
Producer: Ted Koppel.
New York.

Bill Moyers: The Public Mind: Consuming Images.
Broadcast: 1989: November.
Producer: Bill Moyers.
New York.

Bill Moyers: The Public Mind: Leading Questions.
Broadcast: 1989: November.
Producer: Bill Moyers.
New York.

Interviews

The following constitutes a partial list of sources interviewed for material discussed in this thesis.

NAME	DATE	POSITION WHEN INTERVIEWED
J. Leng *	September 5, 1982	President, AES Data Inc.
K. Cox *	September 9, 1982	Journalist, Globe And Mail (Toronto)
P. Schmader	June 5, 1983	Editor, Data Communications
R. Sarch	June 5, 1983	Senior Editor, Data Communications
E. Gould*	June 6, 1983	Account Executive, Burson-Marsteller
A. Bailey	June 6, 1983	President, Third Wave Communications Inc.
W. Mackenzie*	June 8, 1983	President, Memotec Data Inc.
J. Lopez*	June 8, 1983	Technical Writer, Memotec Data Inc.
W. Jaworski	June 10, 1983	Associate Professor of Engineering and Computer Science, Concordia University
P. St.Arnaud	September 1,1983	Chairman, SIBEC Computer Show
A. Bardach*	September 23, 1983	VP, Memotec
J. Martin	October 20, 1983	Consultant and Author
P. Desbarats	October 30, 1983	Dean of Journalism UWO
R. Boyd*	November 2, 1983	Business Systems Director Montreal Trust
G. Decarie*	November 5, 1983	Associate Professor of History Concordia University
L. Gardiner*	November 10, 1983	The Gamma Group

F. Harmon*	November 15, 1983	President -- The American Management Association's President's Association
L. LaRouche*	January 7, 1984	Manager of Telecommunications Labatt's Inc.
D. Long	January 15, 1984	Director of Communications, Logo Systems Incorporated
S. Papert	January 15, 1984	Logo Software (MIT Professor)
S. Wozniak*	February 29, 1984	Apple Computer
D. Killins*	February 29, 1984	Apple Canada
W. Hotzman	February 29, 1984	Account Executive, Burson-Marsteller
G. Fierheller*	February 29, 1984	Chief Executive Officer Cantel Inc.
S. Dorsey*	March 15, 1984	President, Micom-Philips
P. Greenberg*	March 20, 1984	Voice and Data Systems
R. Aiello*	March 20, 1984	Voice and Data Systems
Donald Hale	April 15, 1984	Director of Public Relations Carnegie-Mellon University
D. Van Houweling	April 15, 1984	Vice-Provost for Computing and Planning Carnegie-Mellon University
H. Moravec	April 15, 1984	Director, Robotics Laboratory Carnegie-Mellon University
Dr. M.Kryder	April 15, 1984	Professor of Computer and Electrical Engineering Carnegie-Mellon University
Dr. S.Fahlman	April 15, 1984	Research Computer Scientist Carnegie-Mellon University
M.W. Siegel	April 15, 1984	Director, Intelligent Sensors Laboratory (Robotics Institute) Carnegie-Mellon University

Steven Jobs	August 19, 1984	Co-founder, Apple Computer
P. Taylor*	August 20, 1984	Director of Marketing Services, Micom-Philips
Janet Bendon*	August 20, 1984	Public Relations Manager Micom-Philips
R. Henault*	August 25, 1984	Director of Human Resources Consulpro
Hanh Nguyen*	September 23, 1984	4C Technologies Ltd.
Alan Chan*	September 23, 1984	4C Technologies Ltd.
G. Wickrama*	September 23, 1984	4C Technologies Ltd.
Quentin Ball*	September 23, 1984	4C Technologies Ltd.
P. Pharand*	October 15, 1984	President, Datagram Inc.
Dr. J. Bradley	November 15, 1984	Professor McGill University
Dr. D. Huegel	December 8, 1984	President, CitiPak
W. McDayter*	February 20, 1985	Chairman, Journalism Department Humber College
D. Mothersill	February 22, 1985	Assistant Vice-President Bell-Northern Research
Dr. J. Roth*	February 28, 1985	President Bell-Northern Research
John Lawlor*	February 28, 1985	Director of Technical Marketing Bell-Northern Research
P. Gray*	March 12, 1985	Editor, Telesis Magazine, Bell-Northern Research
V. LeBlanc*	March 20, 1985	Ass. Editor, Telesis Magazine, Bell-Northern Research
C. Trepanier	March 20, 1985	Ass. Editor, Telesis Magazine, Bell-Northern Research
S. Homayoon	July 4, 1985	Electrical Engineer Bell-Northern Research
G. Cobley	July 8, 1985	Electrical Engineer Bell-Northern Research

V. Devan	July 10, 1985	Electrical Engineer Bell-Northern Research
C. Laferriere	July 11, 1985	Electrical Engineer Bell-Northern Research
K. Read	July 15, 1985	Electrical Engineer Bell-Northern Research
M. Verrilli	July 15, 1985	Electrical Engineer Bell-Northern Research
E. Eastland	July 25, 1985	Technical Writer Bell-Northern Research
J. Yan*	July 30, 1985	Electrical Engineer Bell-Northern Research
M. Larose*	September 23, 1985	Electrical Engineer Bell-Northern Research
D. Mansfield	September 23, 1985	Electrical Engineer Bell-Northern Research
D. Stanford	September 23, 1985	Electrical Engineer Bell-Northern Research
R. Tipple*	January 3, 1986	Electrical Engineer Bell-Northern Research
Ashok Mather*	February 5, 1986	Electrical Engineer Bell-Northern Research
James Fraser	March 12, 1986	Electrical Engineer Bell-Northern Research
Dr. David Ko*	April 25, 1986	Electrical Engineer Bell-Northern Research
W. Kazimierski	November 25, 1986	Electrical Engineer Bell-Northern Research
Cong Ngo-Trong	February 2, 1987	President, Copie Express
U.Bonaventura	May 25, 1987	Sales Manager Chambly Printing
M.Rathwell	May 25, 1987	President Artwork Creations Inc.

A.Lachance	November 22, 1987	Vice-President Bell + Howell Inc.
B. Simcoe	November 22, 1987	Marketing Manager Bell + Howell Inc.
M.Bookbinder	November 22, 1987	Sales Manager Bell + Howell Inc.
Jean Dore	January 18, 1988	Mayor of Montreal
Robert Brault	January 18, 1988	President Montreal Club of Printing Craftsmen
Claude Payette	January 18, 1988	Vice-President Montreal Club of Printing Craftsmen
Helene Lagadec	January 18, 1988	Directeur-General L'Association des Arts Graphiques de Quebec
Ronald Steele	January 19, 1988	Vice-President Case-Hoyt Corp.
Louis Germain	January 28, 1988	President Caractera
E. Kursteiner	January 28, 1988	President Caractera
James Duff*	February 29, 1988	Managing Editor Montreal Daily News
Ian Mayer*	February 29, 1988	Copy Editor Montreal Daily News
G. Pritchard*	March 17, 1988	Photography Editor Montreal Daily News
Jack Picketts	March 17, 1988	Chief of Picture Service Canadian Press
Dr. F. Greene*	April 1, 1988	Professor of Education McGill University
D. Collins*	April 5, 1988	President, ACADZ Inc.
Jacob Kincler*	April 7, 1988	President, Yamatech Inc.

Irving London	April 30, 1988	President London School of Business
Peter Rice	May 18, 1988	President Seneca Communication
A. Campbell	May 25, 1988	Vice-President, Finance Seneca Communication

* Multiple interviews.

APPENDIX I: GORDON SINCLAIR AND WALTER LIPPMANN

To appreciate the practice and theory of print journalism during the 1920s and the 1930s, it is useful to look at two of the era's leading journalists: First, Gordon Sinclair; whose hard-bitten style epitomized what a reporter should look and sound like for three generations of Canadians. Second, Walter Lippmann; whose scholarly theories elevated the practice of journalism from a craft to a profession. Sinclair was a well-paid soldier on the front lines of journalism while Lippmann's philosophy was profoundly influential in terms of defining what news is and what it should be.

Gordon Sinclair and Canadian Journalism

Gordon Sinclair was one of the bluntest and most interesting characters ever to appear in the plodding world of Canadian journalism. He was also, as Young (1987) has written; the most popular syndicated journalist Canada ever produced. (p. 125) Sinc, as he liked to be called, was born in 1900 and died in 1984. His life spanned the Victorian and the information ages. His journalistic attitudes were firmly rooted in a confident, middle-class value system. The following

passage is offered to illustrate how different this man's era was from our own. The text also provides a vivid example of xenophobic White Anglo-Saxon Protestant attitudes -- the dominant value system referred to earlier in this thesis. Note especially how Gordon Sinclair (1975) described his Toronto boyhood:

> We white Britishers automatically used words like nigger, kike, wop, dago, hunky, and dogan for our neighbours, people from the country were rubes, hayseeds or bumpkins...Prisoners of the jail near my home had to work in parks and to us boys who had been taught to fear them, they were among the friendliest of men. (p. 11)

Sinclair began his career at the Toronto Star in July, 1922. He wrote obituaries, inquests, reports of fires, robberies, trials, plane and train crashes. During this period, he was sued for libel and lost both times. More than a decade later, he would boast that he had his nose broken five times by irate readers complaining about his style. Instead of being discouraged, Sinclair was pleased that his writing evoked such intense reactions.

Although his name became associated with reactionary viewpoints in his twilight years, Sinclair himself was not without a sense of fair play -- of championing the underdog. In the following passage (1975), he described his contempt for fellow Toronto Star reporter Hemingway:

> Hemingway feared Morley Callaghan...he feared him as a writer and as a person...and lacked compassion towards everyone, even (F.Scott) Fitzgerald. His account of the befuddled Fitz unable to cope with the eccentricities of an auto accident in A Movable Feast isn't funny, it's cruel...No, Hemingway made no impression whatever on The Star. A top historian with a microscope could find no Hemingway story worth a damn. His best was about fighting the Austrians in the mountains. That page, published in The Star Weekly, turned up in A Farewell to Arms. (p. 23)

Gordon Sinclair was a product of his Protestant, Victorian upbringing. His prose reflected Kipling's sense of obligation to the demands of keeping a proverbial stiff upper lip, as proper Englishman do. Gordon Sinclair was a complex man, carrying the burdens of guilt, rage and melancholy with him as if they were the three ghastly harpies of Orestes. But Sinclair was readable, personable, and quotable -- so his following grew. To his dying day, however, Gordon Sinclair (1975) had his share of detractors:

> I'd often been accused of faking stories of far-away places, and there was a simple explanation. There was no international mail service during those days (the 1930s), and since my stories were human interest yarns rather than hard news, I sent them home by mail, often getting back before they did!...Many critics were not convinced. Even now...I'm periodically accused that I wrote them in some pub or wine cellar...Like many people, I have a recurring nightmare. In it, I am assigned to some difficult story far away. Makes no difference if it's in

> print, radio or TV. It's a whopper. But I cannot get it transmitted. (p. 106)

Gordon Sinclair was a complicated, often unhappy individual who cared passionately about journalism and freedom of expression. It is ironic that he is best remembered for his appearances on television's Front Page Challenge, (during which he would inevitably ask contestants how much money they made). In his prime, Sinclair was a fresh, original, and creative force. He was anti-technocratic, anti-technology, opinionated -- and very proud of his prejudices, provincialisms, and eccentricities.

As generalists/journalists like Gordon Sinclair would be the first to concede, the depression and the coming of radio technology changed their careers forever. Suddenly, the five W's (Who, What, When, Where and Why) were not enough. Suddenly, a new, exciting, idea-oriented movement dominated Canadian journalism. The age of the professional journalist -- the specialist -- had arrived.

Walter Lippmann and the Profession of Journalism

Walter Lippmann was one of the most influential journalists of the twentieth century. He was a Harvard graduate in an age of less educated reporters whose ideas influence contemporary news theory and production. As Halberstam (1979) wrote:

> By his presence, he made (journalism) infinitely more respectable, infinitely more honorable, and in fact a true profession....(He believed) journalism was not facts and bulletins, journalism must explain things -- journalism must embrace ideas. (pp. 370-372)

Public Opinion (1922) is the best known of all Walter Lippmann's books. Appearing during a time when the phrase itself was still ill-defined, Public Opinion determined that traditional political scientific theory needed substantial revision and suggested the widespread use of empirical socio-scientific entities as public opinion polls, graduate schools in the social sciences, as well as scholarly journals in the following three fields: public affairs, government study, and foreign policy.

The book's main value to its readers seventy years after publication is its ability to focus on, analyze, and debunk the myth of the omnicompetent citizen. It was, and remains, a

theory stating that the average person on the street, being rational, can make intelligent decisions regarding public issues when presented with the facts. The media's job is to present these facts objectively.

Lippmann's work with military intelligence during World War I showed him how easily facts can be distorted and suppressed. Gradually, Lippmann came to the realization that distortion and suppression were embedded, either consciously or unconsciously, within each journalist's mind. Lippmann would later demonstrate his theory by performing an analysis of so-called objective World War I front line reports published in The New York Times. His study showed how the presentation of these events reflected the Foreign Editor's political biases, either consciously or unconsciously.

Simply stated, Lippmann believes that readers see only what they are looking for -- and what their education and experience allow them to see. Projection makes perception, in psychological terminology.

According to Lippmann, the world exists only as pictures in our heads. That explains why one man can look into a Venetian canal and see rainbows, while another views only garbage. (p. 18) Lippmann further stated this pseudo-environment is necessary

because it helps us impose order on an otherwise chaotic world. But, the very stereotypes that determine human perceptions of the world also color the opinions of human beings, making the conclusions only half-truths: "While some men are willing to admit there are two sides to a question," Lippmann wrote in 1922, "they do not believe there are two sides to what they regard as a fact." (p. 24)

Lippmann also believed that the role of the press in democracies "is like the beam of a searchlight that moves restlessly about, bringing one episode out of the darkness into vision." (p. 70)

Moreover, even if the press could provide an adequate picture of the world, the average citizen could not possibly be expected to cope rationally with the amount of information now thrust his or her way. Building upon this thought, Lippmann concludes Public Opinion (1922) by stating that ".....the common interests largely elude public opinion entirely, and can be managed only by a specialized class." (pp. 205-206)

Three years after the publication of Public Opinion, Lippmann published one of his most obscure, and certainly his most depressing, book. Entitled The Phantom Public, it stands today as a text which expounds upon his views of the following two issues:

First, the public in general, and second, the specialized class in particular. In the following scathing passage, Lippmann (1925) declares it is false to assume that voters are even minimally competent to direct public affairs:

> If the voter cannot grasp the problems of the day, because he has not got the time, the interest, or the knowledge, he will not have a better understanding because he is asked to express his opinion more often. (pp. 35-37)

Comparing the public to a tardy dilettante playgoer, Lippmann (1925) presents the following analogy:

> The public will arrive in the middle of the third act and leave before the last curtain, having stayed just long enough to perhaps judge who is the hero, and who is the villain, of the piece. (p. 20)

The Phantom Public takes its title from a prevailing democratic theory of Lippmann's time which argued that the public (vox populi) is the prime force directing the course of democratic events in an egalitarian, pluralistic society. Lippmann, (1925) the other hand, viewed this mythical public as "a mere Phantom," or abstraction. (pp. 70, 77)

The author saw only one solution to the problems generated by the phantom public. Insiders (experts) must make decisions for the public, then carry these decisions forth into law. The crucial factor

to consider in Lippmann's (1925) analysis is the following: a distinction must be made between those who have the necessary information to act (the insiders) and those who do not (the outsiders). The outsiders, Lippmann believes, must not be allowed to meddle within the public domain -- at least in the areas of agenda-setting and public policy formation. (p. 33)

The irony of examining this writing is the life of Lippmann himself Virtually no one realized that the role of benign philosopher king that Lippmann affected (in other words, that of a self-proclaimed outsider) masked a high-powered career plotting strategies for politicians, drafting programs for top government officials, promoting associates for public office, and even negotiating secret agreements for the U.S. State Department. All of these tasks were accomplished, by necessity, as an insider. Steel (1980) has documented the conflicting nature of Lippmann's career extensively. (pp. 201-214)

Do these conflicts detract from Lippmann's stature and accomplishments? Arguably not, because Lippmann's ends justified his means. However, the very fact that Lippmann lived this double life so successfully and for so long explodes the myth

everyone else, are objective only to the extent that objectivity (as they subjectively define the concept) serves their best interests.

In Lippmann's case, it was the basic public innocence and apathy that he articulated and disdained that allowed him the freedom to simultaneously flourish as a power broker and a working journalist.

Therefore, the following may be concluded: that which a journalist does not make public is as crucial to the audience as the 'facts' which he or she chooses to write about. This choice is itself hignly subjective, and may or not be an accurate or objective record of events having true news value.

One of Lippmann's most enduring contributions to contemporary media ethics was best formulated in Public Opinion, and still challenges the working press seven decades later:

> How can democracy survive in a mass society when all its citizens are no longer able to grasp all of the complexities of government and the sophisticated propaganda techniques available to misinform them? (p. 93)