

Jurisdictions and Decision-Making in Canadian Broadcasting

VOLUME 4

Selected Technological, Economic Regulatory Issues in Canadian Broadcasting/Communications

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FINAL REPORT

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Broadcasting: A Review of Present Configurations
and an Analysis of Future Possibilities

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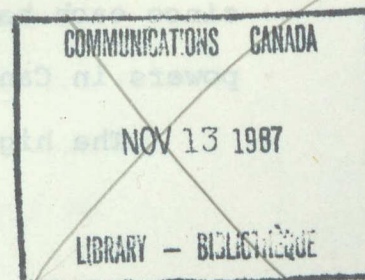
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ABSTRACT

This study presents four scenarios for the distribution of powers over Canadian broadcasting/communications within the existing constitutional framework over the next ten years. These scenarios are the end product of the application of problem-sensing scenario building techniques to: the delineation of pertinent trends; a detailed examination of numerous legal/constitutional, structural, technological, regulatory and economic issues in Canadian broadcasting/communications; and the explication of the assumptions implicit in the four basic policy approaches to such a division of powers.

The four basic policy approaches to the division of powers over broadcasting/communications utilized in the scenario building represent four positions on a continuum of centralization/decentralization of powers in a federal state. The continuum positions utilized include the two end points (highly centralized and highly decentralized) and two intermediate positions (shared and separate) -- all four approaches being valid within the Canadian context since each has held sway as a general method of distributing powers in Canada at some point in time since Confederation.

The highly centralized and highly decentralized approaches

both contemplate exclusive powers over the entire field of broadcasting/communications, but the former would grant all those powers to the federal government while the latter would grant them to the provincial governments. Both the shared and separated approaches involve joint federal-provincial powers over broadcasting/communications, but by different arrangements: the shared policy perspective allocates all such powers to both levels of government, while the separated approach makes each level responsible for different aspects or sub-fields of the overall broadcasting/communications field.

The study also entails some limited follow-up activity to the scenario building itself. This involves the outlining of: the policy issues that the scenarios highlight; the possible choices for each of the issues so identified and their associated risks; and the configuration of choices which each power-sharing scheme would require in order to maintain its integrity.

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reports and various working documents produced during the course of the study.

All of these people, then, made some contribution to the final report; however, the ultimate responsibility for the report, of course, rests with the authors themselves.

JURISDICTIONS AND DECISION-MAKING IN CANADIAN BROADCASTING:

A REVIEW OF PRESENT CONFIGURATIONS AND AN
ANALYSIS OF FUTURE POSSIBILITIES

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IN CANADIAN BROADCASTING/COMMUNICATIONS

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PREFACE

This volume is primarily concerned with the impact of the technological changes in telecommunication delivery systems on the existing structure of broadcasting. In the last decade the rapid proliferation of cable systems enhanced by microwave delivery of foreign signals drastically reduced the consumption of indigenous programs by the Canadian viewer. While no legislative changes were made to the Broadcasting Act during the 70s, obviously the achievement of its objectives were severely mitigated by the seeming inability to control the flood of foreign content made possible through changing technologies.

In 1979, it had become apparent that satellite delivery could become another problem.

The various and somewhat unrelated studies in this volume were provided as reference material to the various scenarios in recognition that some of the dynamic for change lay in perceptions that the existing jurisdictions and legislation had been out-distanced by delivery techniques neither amenable to nor consistent with earlier regulatory rationales. Additionally, the scenarios could not make reasonable projections without some knowledge of the near term consequences of the newer technologies.

The volume therefore consists of monographs which deal with cable and pay television, optic fibre, satellites and

DBS, new services on conventional delivery systems (e.g. cable), conventional services on new delivery systems (e.g. videodisc), etc. Attention is also directed to such questions as the restructuring of the CBC in response to a new multi-channel environment, theories of content/carriage separation, and broadcasting ownership.

While long term futurism is essentially an exercise in thinking the unthinkable, conceiving the inconceivable, the material herein is based on simple extensions of existing operational technologies as they commence to quickly or slowly proliferate due to such forces as consumer demand, investor incentives, and the legislative and regulatory climate. The volume does not contemplate any complete revolution in technological delivery systems or their content in the next five years.

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CHAPTER I
A RESTRUCTURED CBC

A. Introduction

The Canadian Broadcasting Corporation currently accounts for about half of the money expended in the area of over-the-air broadcasting. The relative importance -- in terms of financial expenditures -- of various "sectors" of the broadcast industry are shown as follows:

TABLE 1

BROADCASTING EXPENDITURES, 1977

Canadian Broadcasting Corporation (includes \$69 million received from advertising revenue)	\$457.0 <u>69.0</u>	\$526.0 million
Private Broadcasting		
Radio	\$268.7	
TV	<u>310.3</u>	
Total over-the-air broadcasting		\$579.0 million
Cable television		\$229.6 million

Source: Statistics Canada, Radio and Television Broadcasting, 1977. Cat. 56-204 (November, 1978).

The size of the Corporation's expenditures does not reflect itself very well in terms of audience share, as shown in the following table:

TABLE 2

COMPARISON OF NETWORK AUDIENCE SHARES
IN CANADA IN 1967 AND 1977

<u>Network</u>	<u>Audience Share</u>	
	<u>1967</u>	<u>1977</u>
CBC*	48.47	29.41
CTV	18.93	24.95
TVA	12.32	11.12
Other Canadian networks/stas.	2.53	10.33
U.S. networks	17.74	23.45

*Including Radio-Canada and CBC affiliates.

Source: CRTC, 1979a: Table 4-1

The fact that the CBC's audience share is not proportionate with its spending — a frequent ground for criticism of the corporation — is due to a variety of environmental conditions fundamentally beyond the control of the Corporation:

- a) The CBC is virtually the only Canadian programming source, in television, to provide significant Canadian content (aside from news and public affairs programming);
- b) The CBC is specifically mandated to provide service to remote areas, a costly proposition having little impact on total audience size;
- c) The CBC is specifically mandated to provide "second language" service across Canada. In English

Canada, this implies a (costly) transmission facility with a very low audience;

Currently, the CBC operates only one television channel in each language. This might be compared to the total availability of TV signals across Canada, as follows:

TABLE 3
AVAILABILITY OF TV SIGNALS IN CANADA

	<u>Percentage of Canadian Population</u>	<u>Cumulative Percentage</u>
9 TV signals	7.56	7.56
8 TV signals	7.42	14.98
7 TV signals	12.71	27.69
6 TV signals	16.87	44.56
5 TV signals	13.91	58.47
4 TV signals	9.19	67.66
3 TV signals	6.82	74.48
2 TV signals	17.43	91.91
1 TV signal	4.93	96.84

Source: CRTC, 1979a.

Given the fact that over 50% of the Canadian population has at least 5 TV signals available to it, the CBC's audience share is perhaps not disproportionate with the "competition" which it has available. It might be noted, in passing, that American programming, with which the CBC must compete, involves per program expenditures which are typically in the order of three to four times the amount spent on Canadian productions of a similar nature. But there is also, mitigating against Canadian programming, the problem of the frequent "repetition" of American programs

(i.e., the fact that many American programs are available to Canadian audiences at least twice in a given week).

This problem will be returned to later.

The CBC's objectives, as contained in section 3(g) of the Broadcast Act, are as follows:

- [to]
- (i) be a balanced service of information, enlightenment and entertainment for people of different ages, interests and tastes covering the whole range of programming in fair proportion;
 - (ii) be extended to all parts of Canada as public funds become available;
 - (iii) be in English and French, serving the special needs of geographic regions, and actively contributing to the flow and exchange of cultural and regional information and entertainment;
 - (iv) contribute to the development of national unity and provide for a continuing expression of Canada identity.

It is in some senses ironic that these objectives were applied, in the 1967-68 Broadcast Act, solely to the CBC and not to the "Canadian Broadcasting System" in general. This fact has been noted in the Report of the Consultative Committee on the Implication of Telecommunications for Canadian Sovereignty (Clyne Committee) [1979: 29-35], which recommends, inter alia, that these objectives be extended to the private sector of Canadian broadcasting as well.

But realistically, the CBC is and will likely continue to be the primary mechanism through which the federal government can implement certain policy objectives, some of which are not specifically directed at the CBC in the existing broadcast legislation. These objectives are:

- to provide "second language" service across the country
- to provide programming of "Canadian content and character"
- to extend service to remote areas so that "all Canadians [receive] broadcasting service in both languages as public funds become available"
- to ensure "balance and diversity" in the broadcast (programming) system by providing minority programs not otherwise provided.

Within the existing schema, private broadcasters might be expected to contribute more to the fulfillment of some of the above mentioned objectives. Currently, private sector television broadcasting during prime time is certainly not primarily Canadian in content and character. Given the nature of the private television networks, especially in English Canada, it is unlikely that this situation can be expected to change in any major sense. Stated baldly, Canadian private networks are largely predicated on the importation of (relatively inexpensive) American programming, and are not originators of television programming to a large extent. In a sense, they are merely retransmission facilities, and in this regard bear a striking resemblance to cable television operations. Current CRTC rules provide for 60% Canadian content (50% in the 6 p.m.-12 midnight period), yet as noted by the CRTC itself, prime time Canadian programming on private networks in the 8 - 10 p.m. period is very minimal (CRTC, 1977).

Given the fact that broadcaster rates of return are quite large in major centres, some additional regulatory pressure might be warranted, and this additional pressure could result in a greater output of Canadian programming. But, at most, one might expect an additional 20% of private (TV) broadcaster revenue to be applied to programming, and this would amount to only \$62 million per annum (10%, or \$31 million, is probably a more realistic figure). This does not compare very favourably with the \$263 million spent by the CBC on television programming, even if one wishes to make the presumption that the private sector would be inherently "more efficient." Without diminishing the importance of making sure private broadcasters contribute their "fair share" to the objectives of the Broadcast Act, it is clear that the CBC will continue to be the primary mechanism through which Canadian content objectives can be realized, barring any major structural alteration in the Canadian electronic mass media system.

Additional pressure on private networks from the importation of American off-air programming (through cable) may imply a diminished ability to sustain Canadian program production, although in fairness it must be noted that cable's "damage" to Canadian off-air broadcasters has not precluded the latter from achieving profit levels which are probably quite high in relation to returns on capital achieved in other economic sectors. In 1977, for example, the ratio of profits to original shareholder investments in

the broadcast sector (radio and television) was 58.57% overall, according to Statistics Canada. If one allows for retained earnings, this figure would be lower, but still exceed 20% in all areas of Canada except for Quebec and the Atlantic provinces. Even the Global television network — which has consistently pleaded that financial insolvency has precluded it from meeting Canadian content commitments — recorded a \$3 million profit in the year 1977.

Private broadcasters contribute to the objective of extending service to remote areas to a large extent, although this burden falls disproportionately on remote area broadcasters who, due to a smaller market size, are least able to afford such expenditures. (To some extent, a redistribution is achieved through the costs the CTV network charges to affiliates for programming; larger centres pay a disproportionate amount for their use of programming.) The objective of extending second language service (often to areas where the second language minority constitutes less than 10% of the population), and the objective of extending service to remote areas in general is not likely to be one which can be met any further by private broadcasters given the nature of their operations. So this objective can be met only through the operation of transmission facilities by a public agency (such as the CBC) under the current structure. Later, the possibility that these objectives might be met through some means other than off-air broadcasting (using numerous rebroadcast transmitters)

will be discussed.

B. Public Attitudes Regarding the CBC

Before proceeding any further, it might be useful to briefly examine attitudes the public holds towards the CBC, to assist in ascertaining what sort of needs the public believes are at present unmet in the operation of the CBC (and Canadian broadcasting in general). In 1977, a study was undertaken by the Centre pour Recherche aux Opinions Publiques (CROP) in Montreal; the nation-wide study had a sample size slightly greater than 2,000 (with francophones oversampled).

It is a common conception — certainly one would adjudge predominant if one were to read the sorts of remarks made by some honourable members in the House of Commons debates — that people in the country have a high level of dissatisfaction with the programming of the CBC/Radio-Canada, and that, for the most part, the average Canadian citizen is at best indifferent-as to whether the CBC/RC continues to exist or not. When asked whether they were "satisfied" or "dissatisfied" with (a) the CBC/RC and (b) private networks, a representative sample of Canadians provided the following responses:

TABLE 4

ANGLO- AND FRANCOPHONE SATISFACTION
WITH BROADCASTING NETWORKS IN CANADA

	<u>Francophones</u>		<u>Anglophones</u>	
	<u>Radio-Canada</u>	<u>T.V.A.</u>	<u>CBC</u>	<u>CTV</u>
Satisfied	81%	74%	64%	76%
Dissatisfied	18%	23%	33%	20%

Source: CROP (1977:81)

It is difficult, with the data made available in the study, to ascertain whether an expression of satisfaction is one which is primarily a "satisfaction-with-television-in-general" response, or if instead the referent is a specific TV network. The highest level of dissatisfaction is that which anglophones have with the CBC, although it must be pointed out that a majority nonetheless felt "satisfied" with the Corporation. How does this relate to the importance people attribute to the CBC/RC? Do people feel that the CBC/RC plays a fundamental role in the preservation of "Canadian culture," or is the CBC/RC regarded as "dispensable"? The following data suggest that the majority of individuals feel the CBC is important, although there are some French/English differences. (Francophones are more prone to feel that the CBC is important.)

TABLE 5

FRANCO- AND ANGLOPHONE ASSESSMENT OF CBC/RADIO-CANADA

	<u>% in Agreement With Statement</u>	
	<u>Francophone</u>	<u>Anglophone</u>
Importance of the existence of the CBC	92	79
If the CBC were to disappear, Canadian culture would be poorer	72	57
CBC programs are of higher quality	57	38

Source: CROP (1977:81)

This table demonstrates rather clearly that normative beliefs regarding the existence of the CBC/RC (whether the CBC/RC ought to exist) are distinct from existential beliefs regarding the quality of CBC/RC programming. That is, people may believe the CBC to be important, but that need not imply that they believe the CBC's programming is currently superior. This, in general, seems to indicate a desire for change within the system: while people feel there are problems with the CBC's programming, this feeling is translated into a felt need for change within the context of the continued existence of the CBC/RC.

With respect to television in general, a minority of the population feels that (a) there is not enough Canadian content and (b) there is too much American content. On the other hand, few people feel there is too much Canadian content or that there is not enough American content.

TABLE 6

ANGLO- AND FRANCOPHONE OPINION ABOUT THE
LEVEL OF CANADIAN AND AMERICAN CONTENT

	<u>Canadian Content</u>		<u>American Content</u>	
	<u>Francophone</u>	<u>Anglophone</u>	<u>Francophone</u>	<u>Anglophone</u>
Too much	1%	7%	19%	23%
Enough	56%	50%	43%	50%
Not enough	36%	32%	9%	13%

Source: CROP (1977:70)

While these responses might be taken as an indication of contentment with the current system, the minority feeling that the current levels of Canadian and/or American programming are not appropriate seems to be sufficiently large to warrant attention. It might be noted, as well, that in questions with response categories worded in this fashion, a "neutral" category demonstrating support for the status quo might be expected to attract more respondents by virtue of 'acquiescence response set' (tendency of respondents to want to agree with the interviewer). This implies even more importance might be attributed to the 'too much' or 'not enough' responses.

Regarding the nature of CBC/RC programming, the one criticism which seems to emerge from the CROP study involves regional programming. While a large number of respondents did not answer the question (or responded "don't know"), a majority of those answering the question responded that they felt there was "not enough" regional participation in

the CBC/RC.

TABLE 7

FRANCO- AND ANGLOPHONE ASSESSMENT OF
REGIONAL PARTICIPATION IN CBC/RADIO-CANADA PROGRAMMING

	<u>Francophone</u>	<u>Anglophone</u>
Too much	0%	2%
Enough	37%	30%
Not enough	46%	44%

Source: CROP (1977:70)

With respect to television in general, respondents felt there was not enough educational programming (61% of francophones, 60% of anglophones), or documentaries about Canada (56% of francophones, 59% of anglophones). (It must be remembered here that most provinces do not have an over-the-air educational television network.) For other types of programming, the vast majority indicated satisfaction with the status quo ("enough"), although there was some tendency for people to indicate a desire for more "TV theatre" (44% of francophones and 37% of anglophones felt there was not enough), and public affairs/information programming (35% of francophones and 35% of anglophones). Conversely, there were very few programs of which respondents felt there was "too much," except for soap operas on the part of English Canadians (54%) and sports (45% of francophones and 35% of anglophones felt there was "too much" sports; only 7% and 10% felt there was "not enough").

The data presented above suggest that indeed there are some minority programming needs which are not currently being met through the operation of the CBC, private Canadian networks and available U.S. stations. Perhaps most surprising — in light of the criticism that Canadians do not want Canadian programming — is the strong feeling that there should be more "documentaries about Canada." Clearly, the fact that Canadian programming is deemed inferior has not precluded both the Franco- and Anglo-Canadian viewer from wanting to see more (on television) about his/her own country.

C. A Summary of Structural Possibilities

There have been a number of proposals regarding how the CBC might be restructured to best fulfill its objectives, the federal government's objectives for broadcasting in general and/or other objectives imputed to it. These proposals are:

- 1) That the CBC become a program production agency only, with a separate agency "spun off" for purposes of providing transmission facilities (and perhaps yet another agency to schedule programming).
- 2) That the CBC become more like the Public Broadcasting System in the United States in terms of: (a) minority-oriented content, (b) a diminution in emphasis on regional and/or local production (i.e., what are now regional production centres contribute to national

programming but do not produce programs specific only to the respective regions).

- 3) That a new program channel, CBC-2, be developed, and that this channel be distributed over cable television.
- 3a) That the CBC, in conjunction with a reliance on television for the distribution of CBC-2, use cable distribution to distribute its main signal and, in remote areas, actually construct or acquire such systems (using the revenue from these systems to help defray costs).
- 4) That the CBC continue to function as an over-the-air broadcast system operating a single television channel in each language, but that CBC (and other Canadian network) programs be retransmitted over cable television "complementary channels" to be operated by cable systems (i.e., "repeat channels").

The proposal to separate the transmission and program production facility aspects of the CBC will be dealt with separately under the heading, "Content/Carriage Separation," while the various proposals relating to the CBC and cable have been lumped together in the discussion below.

D. The Establishment of a PBS-style Service

The desire that the CBC transform itself into a 'minority interest' service patterned (at least in terms of program content) along the lines of the American Public Broadcasting Service has some support in the regulatory environment in which Canadian broadcasting operates. Specifically, without explicitly referencing PBS, the CRTC,

in its decision regarding the renewal of CBC's licence (1979b), has advocated such an approach. The CRTC's criticism of the CBC is that it is too concerned with "the marketing and mass programming commercial practices of North American broadcasting" (1979b:6). In a sense, this is a repetition of the arguments which one frequently hears from private broadcasters vis-a-vis the CBC — namely, that it ought not gear itself towards mass-appeal programming.

There can be no doubt that private sector broadcasting in Canada would receive some benefits from any move by the CBC to move away from mass appeal broadcasting. From the CBC's vantage point, the main problem with such a move is that it would leave CBC affiliates in a rather untenable position; the 'mass appeal programming,' with its attendant commercials, is required to provide the latter with sufficient revenue to maintain themselves.

The alternative, then, really amounts to the need to buy-out the various affiliate stations. The estimated cost for such a move would be between \$75 million and \$100 million (CBC, 1978:472); it is not clear that this amount of money could easily be obtained by the CBC, nor is it clear that even very drastic re-organization along the lines of those suggested by the CRTC in its decision (i.e., the deletion of local programming) could make available anything close to this sum of money.

There can be no doubt that, in the long run, the buy-out of CBC television affiliates would be highly

desirable. These affiliates currently tie the CBC to some types of (American) commercial programs, and reduce the scheduling flexibility which is quite imperative in the operation of a single network designed to counteract the "Americanizing" influence of not only 3-4 U.S. networks typically available to the Canadian population, but also the predominantly American programming found on many Canadian stations. But, as a short-term possibility, the suggestion that the CBC simply ignore the existence of the affiliates is almost surreptitious.

Likewise, any attempt to delete mass appeal programming and simply reimburse the affiliates for losses is not likely to be practical given the current budgetary restraints imposed on the CBC. The CBC (1978:462) has estimated that it would take about \$100.2 million per annum to delete all commercials from the network. This comprises \$71 million in advertising revenue the Corporation currently receives, \$20 million to replace the air time filled by commercials, and \$9.2 million to reimburse affiliates for commercial time released to them (probably unsaleable due to small audience size). The latter figure is probably slightly understated.

There are, though, additional problems with the elimination of commercials and the implementation of a 'minority programming' scheduling policy. First, the fact that the CBC receives most of its support from annual parliamentary appropriations makes it extremely reliant

upon the government of the day. It is not clear that, given the desire for some element of autonomy between broadcaster and government, this situation is desirable. The annual budget process makes long-range planning extremely difficult — an issue which both the CBC and the CRTC have raised at the recent licence renewal hearings — and probably impedes the CBC's ability to effectively fulfill its objectives. If long-range planning is difficult, the rationalization and efficient allocation of resources also becomes problematic. During the 1967-1968 Broadcast Act debates, there was originally a draft Broadcast Act which provided the CBC with a five-year appropriation from Parliament. Under criticism from both major parties, (then) Secretary of State Judy LaMarsh withdrew this provision and replaced it with an annual budgetary review.

In England, the issue of the relationship between the BBC and government is settled in a twofold manner: first, there is a fair degree of autonomy between the two in that those in the British Isles pay a 'licence fee' for the use of television, and this licence fee is remitted (through the Post Office) to the BBC. Secondly, at roughly ten-year intervals, there is a thorough review of the BBC and the broadcasting system in general by Royal Commission, which makes long-term policy recommendations. The licence fee concept was originally present in Canada (in the early days of radio broadcasting), but it is unlikely that such a proposal could be effectively implemented now without

severe public opposition.

Advertising revenue provides one of the few means by which the CBC is funded without the direct possibility of government intervention. In this sense, it might be considered important vis-a-vis the autonomy of the Corporation were it not for the fact that it only comprises about 14% of the CBC's total budget. It might be noted, however, that other 'structural' possibilities for attenuating the CBC's economic reliance on the government exist, and these might be worth pursuing. Should this be the case, advertising might, in tandem with some other form of financing, facilitate the development of 'autonomy' which was mentioned above. Of course, within the context of Parliamentary appropriations, a five-year allocation would help serve the same end. It is, of course, beyond the intended scope of this study to examine in detail the issue of Parliamentary appropriations for the CBC. And, an important presumption has been made here: that it is desirable in fact to maintain and strengthen the degree of autonomy the CBC has from the government of the day. Ultimately, this presumption must take the form of a government policy on the issue of autonomy. And, some may feel that, to the contrary, the CBC should be more subject to political control from government (i.e., the cabinet).

The second general issue area raised by the CRTC's proposal regarding the transformation of CBC's programming objectives is that of how a 'minority service' (à la PBS)

fulfills the CBC's objectives and the federal objectives for broadcasting in general. If, as the CRTC suggests, CBC were to revert to a PBS-style service, there would be immediate repercussions in terms of audience. Specifically, the size of the CBC's audience would probably diminish to the proportion of audience the PBS receives in the United States ceteris paribus. This is typically 1-2%. One might expect this proportion to be slightly larger in Canada for the following reasons:

- a) CBC occupies VHF frequencies, which have a greater reach than UHF (and which people tend more to tune into, although this pattern is changing with cable). In the United States, PBS occupies the less desirable UHF frequencies in most centres.
- b) Historical viewing patterns. Some 'carry over' might be expected.
- c) Canadian nationalism on the part of viewers.

On the other hand, mitigating against the CBC's receipt of larger audiences (in proportion to population) than the PBS is the fact that, in three provinces, there is an in-place educational network already providing minority programming of the sort envisaged by the CRTC and of the sort currently programmed by PBS. The implications of this duplication in terms of what might be seen as a federal incursion into an area currently 'occupied' by the provinces are unclear.

Certainly, survey results seem to indicate a felt

need on the part of Canadian audiences for more a) programming about Canada, b) educational programming and c) public affairs and information programming. On the other hand, there are some serious implications to the abandonment of the area of entertainment programming by the CBC. Specifically, the total audience watching Canadian programming can be expected to diminish substantially. In terms of retaining a system "primarily Canadian in content and character," such a move would seem to be counterproductive.

The opposing argument is that, by engaging in entertainment programming, the CBC is abandoning a "Canadian character" and adopting American-style programming formats. The presumption here is that, ipso facto, any mass appeal program made in Canada will be "Americanized" because of its popularity. That is, these programs will be of no value in exploring distinctively Canadian themes and mythologies. While it might be easy to concur with critics that some format elements make Canadian entertainment programs similar to American ones, the idea that programs such as King of Kensington and The Beachcombers are "based" on American concepts cannot be rejected out of hand. Yet, to suggest that these programs do not in some way contribute to the exploration of Canadian themes and issues is in some senses preposterous. The issue of "made in Canada" versus "Canadian" needs to be explored further. But at this point, we would be very reticent to concur with a simplistic presumption that, if a program is popular, it must not be

Canadian. Such an attitude cannot be tolerated if the objective of developing a system which is "primarily Canadian in content and character" is to be retained. A further issue, which shall not be discussed in detail here, is that of whether, in the light of an historical conditioning Canadian audiences have had in regards to American programming, the development of distinctively Canadian themes and formats might best proceed from the standpoint of slowly introducing audiences to variations. We might, as a final note, refer the reader to a brief discussion regarding this issue in Brooker et al (1976:82 et passim.).

E. CBC-2 and the Role of Cable Television

The proposal for the development of a second CBC network is alluded to in the CBC's recent submission to the CRTC regarding the renewal of its network licences (CBC, 1978:449-456). The basic outline of this plan is as follows:

- a) The CBC would negotiate with cable television systems to have a second CBC channel carried. The transmission costs would thus be minimal (\$2 million for each satellite channel; the exact number of channels dependent upon how much one wishes to provide different services for each time zone);
- b) Cable systems carrying CBC-2 would each pay the CBC \$1 per subscriber per month for CBC-2 service; this revenue would finance the second network's

operation;

c) CBC-2 would consist of (i) reruns of CBC programs and (ii) some special programs made possible by the revenue from cable systems;

d) Ownership of "earth stations" to receive CBC-2 would reside with cable operators, although the CBC might provide earth stations to remote area cable operators who could not otherwise afford them or to operators who were unwilling to purchase them.

On the basis of \$1 per subscriber per month, the total revenues which could be generated for a CBC-2 service would be \$41,028,000 (on the basis of 3,419,000 current subscribers at \$12 per annum). These revenues may not be substantial in relation to CBC's annual budget, but they could, conceivably, pay for the marginal costs involved in establishing a second network.

There are, of course, some "problem areas," namely: (a) ownership of earth stations, (b) carriage of the CBC signal on "basic service." The "basic service" issue is problematic. Some cable operators in the country — or at least, in English Canada — seem to be willing, it appears, to carry CBC-2, even if this carriage involved the payment of a fee. But cable systems whose "basic service" is currently filled — i.e., most of Ontario — would be (in general) unwilling to carry this CBC-2 service on 'basic service'; doing so would require them to delete an American network channel, and this would likely meet with

subscriber resistance (i.e., disconnections). On the other hand, the carriage of CBC-2 on "converter" service would have some advantages for cable operators in their sale or rental of converter service. For, while the CRTC has decreed that converter supply shall be an open market phenomenon, in practice the vast majority of sales/rentals are made through the cable company. The provision of CBC-2 would increase the demand for converters, and financial benefits would accrue to cable companies. Under current CRTC rules, "CBC-2" would probably constitute a "priority service" (if carried), and thus would have to replace an American channel on "basic service" in many Canadian centres.

CBC-2 provides a response to a problem for which there appears to be no other immediate short-term solution: how to counteract the impact of an increasing proliferation of American programming channels. The issue of American "super stations" available on satellite will be dealt with separately. Currently, almost all American network programs (serials, etc.) are available twice during any given week to the Canadian audience: once on Canadian networks or stations, and a second time on American stations received (mostly) through cable television. This is not, however, the case for Canadian programming, and a CBC-2 proposal would act to 'equalize' the situation to some extent.

While a voluntary agreement by cable operators with regard to the provision of CBC-2 and to the payment of a fee would be desirable, ultimately the ability of the CBC to

establish a second Canadian public network is related to the possibility of some regulatory mechanism being instituted to compel cable operators to carry the service and remit funds in exchange for it. It is at this point that the issue of provincial control becomes very important. If the federal government gives to the provinces control and authority over cable television in all aspects — including signal carriage — then it has relinquished its direct ability to ensure that the CBC will be able to implement CBC-2. This is not to suggest that all provinces might not voluntarily agree to such a proposal, but insofar as the local carriage of CBC-2 would be solely via cable, the CBC would be dependent upon cable systems to implement its second channel. The alternative — off-air distribution — is not very feasible. The CBC has expended large sums of money in establishing the 450 transmitters necessary to provide service to most (97%) of the Canadian population. Conservatively, one might (using an average transmitter/antenna/site cost of \$150,000) put this transmission facility cost at \$67,000,000, exclusive of satellite/microwave costs. It is not clear that the enormous expenditures on transmitters for English and French CBC TV service can be duplicated within the current economic constraints of the CBC, and in the absence of any "independent" (e.g., cable fee) form of support. Furthermore, in light of the advent of direct-broadcast satellite and the growing use of cable television (universal cable), this means of increasing the

number of Canadian TV channels might be technologically unwise. (On this point, see the discussion on 'universal cable.')

One means by which the federal government might retain its ability to ensure that a CBC-2 could be implemented would be to establish a central agency (the term "gateway" has been employed) through which all U.S. signals are imported. That is, rather than permitting cable to rely on the use of U.S. border TV stations, signals would be either (i) imported directly from the U.S. networks, which might be paid a fee for the service or (ii) imported in the form of the purchase of U.S. program rights, with the programming in Canada of separate "U.S." services. In either case, a gateway agency would either (a) delete all commercials (unlikely), (b) insert Canadian commercials in part (under agreement with U.S. networks), or (c) insert entirely Canadian commercials (if programming a separate service). Some form of agency such as that delineated above has been suggested variously by the Consultative Committee on the Implications of Telecommunications for Canadian Sovereignty (1979), A. Ouimet (1978), and S. Griffiths (1976). Whether this agency would be run by the CBC or separately need not be evaluated in detail here. One proposal would be for the agency to be run in tandem with a national (public) Pay Television agency separate from the CBC.

If American programming can be imported only through

a "gateway" agency under federal control, the federal government could ensure that CBC-2 would be carried by cable systems by instructing the agency not to enter into contracts with cable operators (to carry U.S. programs) except as part of a package deal guaranteeing the carriage of CBC-2. Presumably, some form of payment would be made by cable operators to the central agency for the services (i.e., U.S. programming, CBC-2 and perhaps pay television as an option), and of this payment, a set amount (\$1/month) would be transferred to the CBC.

It is unclear under what form of legislation (a revised Broadcast Act? Some bill enacted under the federal government's power to regulate international and inter-provincial trade?) a gateway agency would be established and cable systems — which might be fundamentally under provincial control — would be prevented from the direct importation of U.S. border stations. This legal issue would, of course, be resolved, but a number of options appear to be possible. This form of arrangement could leave the provinces a fair amount of power regarding local content on cablesystems, but would vest in the federal government the power to ensure that the electronic mass media meet certain standards regarding the overall ratio of Canadian to non-Canadian programming.

A further extension of the CBC-2 concept might be for the CBC to actually acquire cable systems — especially those in remote areas — to replace over-the-air broad-

casting as the primary transmission medium. Thus, instead of having to incur costs related to the maintenance of transmitters, the CBC would maintain a cable system, from which some revenue would be obtained. This sort of configuration could be phased in gradually with the implementation of CBC-2 and as the existing CBC over-the-air transmitters reach an age at which replacement would normally be required (with some overlap between a "cable only" configuration and the current over-the-air system). Direct broadcast satellites might then be used to "fill the gaps" — i.e., provide service to those not within reach of a cable system. (Cable currently "passes" over 70% of the homes in Canada; under a configuration such as that suggested, CBC might well 'wire' additional homes to provide service.) This "buy out" of cable systems might incur additional capital costs for the CBC. However, it might be possible — in some cases — that private financing might not be available. Currently, some remote area cable systems are not economically feasible because they could not readily receive anything more than CBC service — which is already available off-air. This pertains largely to the fact that there are no major services aside from CBC which can be received via satellite (the only economical way to receive signals in remote areas). With additional service available via satellite, this situation might change considerably. In many instances, the CBC already owns receive-station equipment in these communities (for

the redistribution of CBC northern service). Aside from remote areas, there are also major population areas in Canada which, due to geographic peculiarities, are largely uncabled. Windsor, Ontario is an example of such a location.

How would provincial control over cable television affect the CBC's ability to exercise a "cable involvement" option? This question has no obvious answer. Certainly, insofar as provinces might see it as advantageous to extend service, one might suspect there would be very little resistance. On the other hand, provincial regulatory tribunals might be reticent to see a federal agency own any provincially regulated franchise for fear that the provincial government might lose regulatory control (in a jurisdictional sense). There might, therefore, be a pre-existing bias against CBC-cable involvement regardless of the merits of the configuration. At this point, however, we can only be highly speculative. Certainly, the matter could be resolved if, in the division of powers, provincial control was acknowledged even in the case of cable facilities owned or operated by a federal crown agency.

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CHAPTER II

CABLE AND PAY-TV

A. Cable TV

1. Introduction

Cable, or more accurately, coaxial cable is characterized by its capacity to carry a great deal of simultaneous information, i.e., a number of TV channels (broadband), which is distinguished from a telephone wire which can only carry relatively little information (narrowband). A standard coaxial cable is generally capable of delivering about 42 channels of television 2000 feet before re-amplification. This is limited to a total distance of about 80,000 feet; that is, about 40 amplifiers at most from where the signals are introduced into the system (head end) to the furthest home still capable of receiving technically acceptable pictures.

Because the 42 defined channels are all located below the UHF band, a normal TV set can only tune to 12 (Channels 2-13) VHF channels on the cable. The remaining channels or a portion of them require a special tuner. For ease, this tuner is usually designed so that any selected channel is then converted to an unused spot on the VHF dial (Channel 3 or 4). The "basic" service is then those channels (2-13) to which a normal TV set could tune to on the cable and the "augmented" service represents additional channels (A, B, C, D, etc.). The channels are only carriers of the TV signals and for technical, regulatory or other reasons, a signal may be reassigned from one channel to another by the cable company. In Canada a priority is given to Canadian stations for their allocation to the basic service which may be

limited to a total of 7-8 useful (unimpaired) channels.

However, cable technology is not limited to television signals but can also be used for thousands of simultaneous telephone calls, high speed data transmission, linking computers and connecting terminals. In essence, the coaxial cable technology has the capacity to extend the delivery of an ever-greater variety of communication services.

The generality of the above must be tempered by observing that existing cable structures are "tree-like" in design. While coaxial cable itself will carry immensely more information than a telephone wire-pair, in its present cable configuration broadband information is essentially distributed out to the entire system simultaneously. A telephone configuration implies the ability of any end point in the network to communicate with (be switched to) any other end point. This requires a separate wire-pair to/from every subscriber to a local exchange and is termed a local loop. The "wired nation" ideas which pre-supposed using cable loops to/from every dwelling lost all credibility when the costs were determined. It is certain, however, that new technologies (optic fibre) or newer approaches (interactive or two-way cable) will upgrade the informational capabilities of end points to inter-communicate.

2. Regulation of Cable

Initially cable was regulated by the Department of Transport only in terms of the technical standards of signal quality. It rapidly became apparent that the wholesale importation of U.S. channels would have a major effect on fragmenting of Canadian TV audiences to the disadvantage of our own broad-

casters. Since the economic exploitation of the cable technology depended on receiving and distributing broadcast signals the federal government regarded cable TV systems primarily as essential elements in the structure of the Canadian broadcasting system. Incorporated within the Broadcasting Act of 1968 was federal jurisdiction of broadcast receiving undertakings with the CRTC assuming regulatory authority.

Thus the federal policy on cable has been to treat cable as a component of a single federally-regulated broadcasting system. The CRTC treats the cable operator as a broadcaster with the role of developing a unique community service, which is not provided by conventional broadcasting, by inviting active participation by the viewer in his local programming. Furthermore, since the cable industry is profitable, the cable operator is requested to spend 10 per cent of his revenue to develop locally-produced programs of a community nature.

On the other-hand, the provinces have disputed federal control and exclusive jurisdiction over cable. To the provinces, cable is very much a local undertaking, doesn't cross provincial boundaries and is in reality a broadband telecommunications delivery system since it has the capacity to carry many telecommunications services not related to broadcasting. The cable technology may be simultaneously used for many other services which offer attractive economic possibilities such as remote alarms for fire, theft or

ambulance or in-home shopping and learning possibilities. From the provincial standpoint, cable appears to be more of a telecommunications common carrier capable of leasing channel space to a variety of users.

The prairie provinces, in particular Manitoba and Saskatchewan, regard cable as a telecommunications delivery system (local broadband network) and bitterly resent any introduction of new services by cable operators which they feel belong to their telephone companies. To extend local broadband services the revenue from programming services is necessary. Thus the provinces, in particular those who own and regulate their telecommunications services, regard the telecommunications common carrier aspects of cable, with its economic potential, as very significant in meeting the provincial needs of their constituents.

Therefore these provinces see cable as a potential telecommunications carrier, which if not under provincial control, will be a competitor to their own provincial telecommunications systems. They see the potential for "cream skimming" developing with the surplus revenues going to corporate profits in the East or even into programming instead of the extension of services to less economically rewarding areas in their provinces. Finally the provinces question the contribution cable is making to national goals under its present regulatory rationale since it is primarily retransmitting U.S. stations resulting in the importation of a foreign culture at the expense of our own.

The controversy over cable jurisdiction is further heightened with the possible growth of closed-circuit systems offering newer or different content which is becoming viable. Without the introduction of received broadcast signals into the system, the cable technology is clearly outside the scope of the Broadcasting Act and becomes a closed-circuit device outside of federal jurisdiction.

This problem of closed-circuit cable has given rise to a number of very interesting scenarios for future problems. Keeping in mind that existing cable is a conduit for a number of simultaneous services — some originally broadcast, others not (i.e., community channel, alphanumerics, etc.) — then it has been suggested that the cable itself has portions of bandwidth concerned with broadcast signals amenable to federal jurisdiction while other portions of the bandwidth are closed-circuit and not under CRTC control. The CRTC's position has been that if any part of the cable distributes broadcast signals then the whole system is classed a broadcast receiving undertaking — an assumption which would appear to be well founded in the definitions used in the Broadcast Act and in the courts' attitudes to the inseverability of parts of a "system."

However, in the case of Saskatchewan, the pay TV system, CPN (now defunct) was tolerated as a "closed-circuit" service separate from the broadcast retransmission service. While there are instances, e.g. Network One in Toronto, of a completely separated closed-circuit system, i.e., a separate

redundant cable, our present economics dictate that this is only feasible when the density of potential subscribers is very high and therefore cable distances between subscribers are very short, i.e. hotels, high rises, condominiums, etc. Not only does the success of closed-circuit cable depend on exclusively non-broadcast content but on content which must be purchased at a cost of roughly 30 per cent of gross revenue.

But if cable is regarded as separable channels or as portions of bandwidth, two future situations are very possible:

a) Existing cable operators could originate their own pay channels in a completely unregulated fashion and in the present ambivalent situation might feel themselves compelled to do so shortly if:

i) further deals are made with telephone company controlled cable systems which proliferate and permit the internal "closed-circuit" concept.

ii) "pirate" pay-cable operators proliferate in high density cable areas or expand through cost reductions as the economics change - e.g. optic fibre.

iii) spillover of U.S. STV offers a threat to their potential markets.

b) Existing broadcasters might cease over-the-air transmission and opt for total cable "closed-circuit" delivery and avoid all broadcast regulation, i.e. freedom from Canadian content, limits on advertising, etc. A number of broadcasters are already primarily cable delivered and no doubt have

visions of "super station" status. While current regulations prohibit advertising on cable other than as a part of the retransmitted broadcast signal, the CRTC would be ineffectual in aspects of cable removed from its jurisdiction such as a closed-circuit portion. Either or both situations would be obviously detrimental to the objectives of broadcasting in Canada.

One approach to solving this problem has been to redefine the premise for federal regulation on the grounds of "program services" rather than whether the signal is received from over-the-air or originated at the head-end. Without the agreement of the CRTC and without any direction from Parliament, the Department of Communications negotiated a bilateral agreement with the Government of Manitoba which explicitly allowed the contravention of certain CRTC regulations. The effect of this agreement is that the Province of Manitoba, through its agency, the Manitoba Telephone System, is to be responsible for system ownership and services, other than programming services, while program content including pay television on closed circuit systems, remains exclusively under federal jurisdiction. The signing on November 10, 1976 of this bilateral agreement is indicative of an approach to federal/provincial cooperation in communication matters and of a trend to more bilateral agreements between the federal government (DOC) and the other provinces in the future.

The Manitoba situation was unique in so far as the cable operators effectively owned or controlled very little of their

plant and were only leasing it from the MTS through "Full Service Agreements" which were soon to expire. While the CRTC might have wished to compel its ownership requirements (head ends, amplifiers, and drops) the realities wouldn't support this. At present only the local head ends and inside wiring belong to cable operators who now lease channels 2-13 from MTS rather than lease the "system."

While this separation of responsibilities appears to have a certain logic (i.e. program services - federal; hardware and other services - provincial), it raises a number of serious questions in terms of the carrying out of the objectives (or likely objectives) for broadcasting in Canada. This application of the simple (simplistic) message/medium separation rationale acknowledges a basic principle that revenues from a telecommunications monopoly be used to cross subsidize and extend services. It does not, however, satisfactorily deal with the at least equally important premise of broadcasting which holds that some of the revenues from the privilege of holding a licence be directed toward originating content of a local, regional and/or national benefit. This content is most unlikely to be economically profitable or even self-liquidating for all the obvious and often quoted reasons.

As a result of this Manitoba arrangement, in which the former cable operator leases channels from the common carrier (MTS), control of the profit centre and the direction for the application of profits reverts clearly to the carrier or its

regulatory body. For example if the CRTC allowed the cable leasee a rate increase while extracting a promise of performance in community programming, the Manitoba Utilities Board might then feel that the cable leasee was too profitable and raise the rates in order to, say, cross subsidize extension of cable, or cross subsidize new non-broadcast services, or cross subsidize the telephone subscribers, or simply add more money to the general revenue of the provincial government, or all of these. Eventually consumer demand would determine optimum cable rates and provincial objectives would determine the cost of the program services lease. The CRTC or federal priorities with respect to program service objectives would be quite meaningless in the long run. Inexorably the power which determined where the profits go would decide which objectives are to be achieved.

The CRTC policy with respect to cable has been predicated on private ownership which included significant plant and exclusive federal jurisdiction. This policy has probably failed in either extending cable to uneconomic areas or in extracting an originally produced socially beneficial content. Very simply the cable operators have been granted a monopoly to place surrogate U.S. transmitters on Canadian soil and charge for the service with little public accountability. But at least the CRTC policy contained the implicit and explicit power to direct the activities of the cable operator through rate regulation and conditions of licence to the task of achieving national objectives. At the same time, there have

been great concerns over protecting the over-the-air system from unfair fragmentation of audience or foreign inroads into advertising revenues.

No doubt the Canada/Manitoba Agreement does indicate a modus operandi for dividing responsibilities which might lend itself to other Federal/Provincial bilateral agreements, but it fails to demonstrate any capability to ensure national objectives and serves only to provide other provinces with a shopping list of minimum demands to achieve.

3. Content/Carriage Separation

Possibly it would be a useful digression to examine briefly the rhetoric of medium-message separation. (It is a rhetoric which is only raised by the telecommunication common carriers when there is potential competition in communications delivery systems.) When competitive terminal devices with the capability of "new messages" are proposed they violate "system integrity" and the concept of "end to end service." Message services included in data processing and value added network services are certainly not excluded from the domain of the common carriers' interests.

Historically distinctions have existed between voice and record companies, i.e. telephone and telegram. Another distinction has existed between wire and broadcast communications. All these have blurred as telephone and telegram companies use wireless technologies (microwave and satellite) and broadcast programs are often distributed by wire (cable). While a telecommunications channel of sufficient bandwidth (wire or broadcast) can be used for a variety of purposes,

i.e. multiple phone calls, data, TV programs, etc., in fact the channels are optimized for a particular message service and in the first instance arise as a result of a presumed consumer demand. The channels are constrained to best serve particular message uses and the messages are shaped to fit the requirements of the channel, e.g. the far from ideal quality of television sound and picture or the lack of sound fidelity in a phone call. In all of this there are compromises and trade-offs for technical, economic, and regulatory reasons.

The thrust of the presumed medium-message dichotomy argument is that those communications services which are vertically integrated should shift to horizontal integration and that a single monolithic telecommunications enterprise should have the spatial monopoly for the carriage of all non-broadcast electro-magnetic signals with the possibility of the future dissemination of heretofore broadcast signals. Since cable and more particularly its likely successor, optic fibre, can technically carry a full variety of communication services two parallel systems invites wasteful duplication. This suggests that the present local spatial monopolies of the telephone company and the cable operator be merged into a single system as the technology and funds permit. The first steps toward this end where the cable is effectually owned by the cable operator would be to change the regulatory approach from promise of performance to rate-based regulation with some of the requirements of a common carrier. While this more closely patterns telephone company regulation it has little

application to achieving the objectives of broadcasting. The rebuttal is that program originators or program contractors gain access on the basis of social benefit promised. This approach has an appeal where the central government controls the channels (e.g. the U.K.) and the central authority can then develop the requirements and degrees of subsidizations to achieve the national social purposes through a system of program contracting. However, when the regulation of the channel spatial monopolies lies in the provinces then the real power (the flow of money) resides in provinces and is imperative in determining the message content.

The regulation of communications common carriers is a very complex topic. As yet in Canada we haven't even completed a cost separations study or even arrived at any conclusions about the degree of vertical integration in the existing telecommunications industry. We have no real way of determining, for instance; whether the revenues from carriage of broadcast related services would subsidize or be an expense to telephone subscribers, whether they would subsidize long distance rates or be subsidized, whether these revenues would be used to underprice services or terminal devices which are presently competitive. We could only be sure that the return of funds to Canadian program production (to improve their competitive ability to command the viewer's attention) would be overlooked. Obviously a message-medium separation implies no control of (or responsibility toward) the message origination. The revenues derived by the medium would logically be directed toward the

objectives of the medium which of course would vary from province to province through economic determination. The real power over message content would reside with the delivery monopoly and/or its regulator.

The Canada/Manitoba agreement therefore attempts to deal with the problem of the federal interest in program services so that it may further the national objectives and protect the existing broadcasting industry in carrying out its tasks. It correctly aims to define its area of interest not in technological terms, e.g. broadcasting receiving undertakings, but in terms of content designed for the general public without regard to broadcast received or closed-circuit. This then avoids the problems of broadcasters going closed-circuit or cable operators prematurely going into pay TV. It does not deal with the far more complex topics such as fair and reasonable rates, the rights to access and by whom, appeal or arbitration of disputes over definition when the distinctions between "program" and non-program services blur, e.g. fashion shows on tele-shopping, alphanumeric and graphic news and weather, information retrieval that involves film archives, horse races which include in-home betting, EFT, and interactive programming, etc. Possession will be nine-tenths of the law.

4. New Approaches to Cable Regulation

On February 13, 1979 the Minister of Communications, Jeanne Sauvé commented on the draft proposal for constitutional revision of cable distribution systems released that day by the Canadian Intergovernmental Conference Secretariat. She indicated that the proposal had the broad support of the

provinces (Quebec reserved its position) and while accomodating provincial interests it would ensure that "national concerns are respected, particularly with respect to the protection and continued orderly development of the Canadian Broadcasting System."

Under the proposal, the two levels of governments would have concurrent authority over cable distribution systems and each would have paramountcy in areas of their primary interest. In general terms this would mean that the provinces would regulate cable distribution systems within a framework of federal legislation related to such matters as programming content and broadcasting.

The provincial responsibilities would then be: the licensing of cable systems within a province and the permitting of them and other entities to provide program services, including those of a community or instructional nature, and the regulation of intra-provincial telecommunications services on cable such as meter reading, fire alarms, surveillance systems, etc.

The federal government would make general regulations to be observed in the introduction and provision of programming services, such as, signal carriage priorities, commercial advertising, foreign signal carriage, and allocation of revenues to Canadian programs. Technical standards would be a federal matter.

The basic mechanism of the draft proposal is concurrent consultative legislation with areas of paramountcy (as noted above) when inconsistency arises. The following is the text

of the "Draft for Discussion" as released through DOC attributed to CICS.

DRAFT FOR DISCUSSION

- | | |
|---|---|
| Cable
Distribution | 1. In each province the legislature may make laws in relation to cable distribution within the province, including the reception and redistribution of broadcast signals; Parliament may also make laws in relation thereto for each of the provinces. |
| Relationships
between laws
of the
provinces and
laws of
Parliament | 2. Any law enacted by the legislature of a province pursuant to section 1 shall prevail to the extent of the inconsistency over any law of Parliament enacted thereunder except in relation to Canadian content, Canadian broadcast programs and services, and technical standards, in which case any law of Parliament shall prevail to the extent of the inconsistency. |
| Consultations | 3. The Government of Canada shall consult the government of the province concerned before Parliament makes a law in relation to cable distribution within that province pursuant to section 1. |
| Telecommuni-
cations
undertakings | 4. Telecommunications undertakings coming under jurisdiction of Parliament as well as those coming under the jurisdiction of the legislation of a province and engaging in activities coming under section 1 other than as carriers shall be subject, in so far as such activities are concerned, to the laws enacted under section 1. |
| Powers
continued | 5. Except where otherwise expressly provided in sections 1 to 4, nothing therein shall derogate from the legislative powers that Parliament and the legislatures of the provinces had immediately before the coming into force of these sections. |

The jurisdictional approach of concurrency with areas of paramountcy is discussed in detail in other sections of the

report concerned with legal and constitutional matters. It avoids both the "two-tier" approach and the purely divided jurisdiction approach.

In the U.S. the "local" nature of cable is deemed to imply a municipal authority over the medium so that the federal authority (FCC) determines technical standards, signal carriage, etc. and the municipal government grants franchises (licenses) and specifies the areas and rates. The State governments have become very vocal about imposing their authority and in some instances there is a quasi-three tier regulation monster. With deregulation the federal presence may diminish but it is not clear whether cable will become a purely local undertaking (municipal) or a combined state and local concern, probably the latter.

If it is accepted that the "Draft Proposal" designation of areas of concern is realistically the best division of responsibilities for Canada the question is: would this approach actually permit the objectives of each to be achieved?

This brings us immediately to such touchy questions as: who determines the rates? for what services? on what basis? i.e. incremental costs? marginal costs? amount of bandwidth? number of subscribers served? who gets access? provincial nominees? to whom? - the general public (broadcasting) to special clients (point to multi-point)? The list is almost endless. The draft assumes a great deal of good will but in pursuing this implied medium-message division it hardly takes into account the reality that the entity which owns and controls

the medium ultimately controls the message. The most simple expression of this will be in the ability to determine where the profit centres will be and where the profits will be applied. While there may be some recognition of local and provincial needs in program production it will be assumed that the federal government has the responsibility to subsidize national content and failing that, the easy use of cheap or free imported content will satisfy the consumer and maximize profits. It will hardly matter whether cable becomes a function of the telephone common carrier (Manitoba, Saskatchewan) or whether it retains separate status but as a provincially regulated undertaking. Rapidly any focus on servicing national objectives will be lost unless there are any positive incentives to do so.

B. Pay Television

There is no doubt that pay television is inevitable. Pay TV holds some promise for the cultural industries, in general, and for the film and television production industries in particular. Pay television can provide new sources of revenue both for the cultural and program production industries and for the systems providing pay television services. However, the most important question is how pay television might be most appropriately developed in Canada. What kind of structure is needed in order to maximize pay TV's potential benefits for our broadcasting system.

From the federal standpoint, the structure will have to

accomplish three primary objectives:

- (1) provide a range of programming which does not duplicate that now offered by broadcasters;
- (2) ensure the production of high quality Canadian programs that Canadians will watch; and
- (3) ensure that programs are produced in Canada for international sale.

On April 14, 1977 a Federal and Provincial Officials Working Group on Pay TV was agreed to in Toronto. This Communications Officials' Working Group on Pay TV examined "matters pertaining to the possible introduction of pay television into Canada and to the formation and implementation of federal and provincial government policies which meet various public objectives." As well, the Working Group considered "possible organizations and structures whereby pay television services could be delivered" and "governmental roles and responsibilities."

The Working Group established four "common" objectives which constituted an acceptable lowest common denominator of the objectives adhered to by individual governments. These were:

- (1) Pay television should encompass both Federal and Provincial preoccupations, taking into account regional cultures and maximizing regional participation;
- (2) Pay television should be made available to as many Canadians as possible;

- (3) Pay television should foster Canadian cultural expression through Canadian produced programs;
- (4) Pay television should bring about greater choice and diversity of programs in terms of entertainment, education and enlightenment.

In the final report three plans or approaches to the development of a pay television industry were outlined. These were: multiple exhibitors, a national agency and market dominant.

The multiple exhibitors approach was based on the desirability of separating the functions of program exhibition and program delivery, with the objective of permitting competition and diversity among pay television exhibitors. The national agency approach was designed to utilize the medium of pay television to achieve certain cultural objectives. Finally, the third approach emphasized the benefits of an open market approach to the acquisition and distribution of, and payment for, pay television programming. In looking at these three plans the national agency approach seems to conform with the federal government's commitment to control "programming services" which could have an impact on broadcasting.

In its report the Working Group also examined governmental roles and responsibilities in the pay television industry under five subject areas. These were: authorization or licensing of exhibitors; determination and licensing of franchises; regulation of networks and industry development; supervision of programming; and regulation of revenues available for

Canadian program production. The four possible options regarding government roles and responsibilities in these five areas of pay television range from exclusive federal licensing and regulation, or, federal licensing and regulation with provincial guidelines, to exclusive provincial licensing and regulation, or, to provincial licensing and regulation with federal guidelines. What seems to emerge is shared regulatory authority in some aspects of pay television.

The first subject area examined is authorization or licensing of exhibitors which attracts both federal and provincial interests. The provincial interest in authorization or licensing stems from provincial responsibility "for local business and public services." The federal interest in authorization or licensing comes from pay television exhibitors possibly having an impact on the performance and development of the Canadian broadcasting system. Since the federal viewpoint is to retain control over "programming services" evident in the Canada/Manitoba agreement, what may result is federal authorization or licensing according to provincial guidelines or input. Provincial input into the licensing process will be established through participation of members of a provincial regulatory body in the public hearing process at the federal level evident in phase II telecommunications legislation. In the public hearing process the provincial representatives can voice their views concerning the licensing of pay exhibitors which could have an impact on the province. Through bilateral discussion, a negotiated settlement would be reached serving

both federal and provincial concerns in the licensing of Pay TV exhibitors.

The second subject area analyzed is the determination and licensing of franchises. This concerns the disposition of facilities or hardware, the size of the served area as well as the technical standards of delivery systems and rates. If the decision at the policy making level is to sever the exhibition and delivery functions in pay television, then the responsibility for the determination and licensing of franchises is also separate from the authorization of exhibition. This could indicate a type of deregulation. If the exhibition and delivery functions are in the same hands, the pay television industry would need greater regulation since the delivery systems involve the use of public property -- the streets and lanes in the case of hardware systems -- and the public air-waves in the case of broadcasting.

What may likely come into existence is federal determination of franchises according to provincial guidelines. The reason for this is that the federal stance is to obtain complete control over programming services; yet the provincial interests must be considered since a number of provinces own and regulate their delivery systems.

The third area looked at is networking and the development of the pay television industry. Through the regulation of networking governments can influence the structure and balance of pay television program content, the size and direction of intra-industry revenue flows and ultimately the

development of the pay industry. Governments exert their influence through the regulation or supervision of economic and contractual relationships developed within pay television networks.

What may likely occur is federal regulation of networking according to provincial guidelines. The rationale is that control over programming is the highest priority from the federal perspective, yet consideration of provincial interests must be accounted for since a number of provinces own and control their delivery systems. These provinces want to make sure that the revenue generated by pay television over their delivery systems are put into the achievement of provincial needs, i.e. extension of services.

The fourth area examined is the supervision of program material which pay television offers the public. The federal government is committed to obtaining total control in respect of pay TV programming, evident in the Canada/Manitoba agreement. The federal government, through quotas as incentives, could encourage pay television programming to develop so as to stimulate Canadian television production that will achieve the objectives set out in the Broadcasting Act. Nevertheless, the provinces have legitimate concerns in pay television programming especially the application of provincial law "of general application" to pay television enterprises. As well, the provinces have an interest in stimulating video productions in the various regions across Canada in order to contribute to local and regional self-expression.

What may likely come into being is federal regulatory guidelines applied and enforced by both federal and provincial authorities. For example, Saskatchewan officials have recently indicated that a Manitoba-type agreement might be agreeable with "joint" responsibility for closed-circuit pay programming services. How this joint responsibility would be administered is uncertain at this time.

The final area analyzed by the Working Group is the regulation of revenues for Canadian program production. Both federal and provincial governments see the development of the pay industry in terms of assisting Canadian program production both nationally and regionally. Three feasible methods are outlined by the Working Group in its report. These are: (a) to allow the development of pay TV to create new "windows" for Canadian program producers; (b) the collection of a programming levy; and (c) the establishment of a trust fund from which revenues for program production could be drawn.

What may likely occur is a national levy and fund jointly administered by federal and provincial governments. The federal government wants the revenues generated from pay television to result in the stimulation of more Canadian productions. The provinces see the generated revenue from pay television going into regional productions, but also into the extension of services, especially by those provinces owning and regulating their own telecommunications services.

In the final analysis, the Working Group on Pay TV made two very significant findings. The first finding is that the

emergence of pay television has called into "question the traditional distinction between broadcasting and telecommunications" and has forced "a re-evaluation of the traditional concept of free-television." The second finding by the Working Group is that judgements regarding particular issues on Pay TV, such as government roles and responsibilities cannot be made without resolving the larger philosophical question of what role pay television should play within Canadian society as a whole.

As a result of these two findings, particularly the latter, the Working Group was unable to present definite conclusions or recommendations as to the development of pay television in Canada in their final report. However, they did remark that the rational and efficient development of the pay television service to meet basic public goals and objectives demanded full cooperation among federal and provincial governments.

Therefore, defining what role pay television should play within Canadian society that fulfills both federal and provincial objectives and the full cooperation among federal and provincial governments through an effective consultative mechanism, calls for substantive and significant constitutional and legislative change.

Nevertheless, federal and provincial views have been expressed on the issue of pay television. From the federal perspective, the federal position is to obtain total control in respect of pay TV programming evident in the Canada/Manitoba

agreement. From the provincial standpoint, there are varying views.

British Columbia has reserved its opinion on the question of jurisdiction over pay television. Alberta claims that pay television is within provincial jurisdiction probably based on protection of Alberta Government Telephones (AGT), and provincial jurisdiction over closed-circuit programming. Saskatchewan claims jurisdiction over all closed-circuit programming services. Manitoba has recognized federal jurisdiction over pay TV programming in exchange for a policy allowing the Manitoba Telephone System (MTS) to provide the distribution facilities. New Brunswick and Prince Edward Island have expressed no opinion on pay TV yet. Nova Scotia wants an agreement on the appropriate regulatory structure in general to precede the resolution of such issues as jurisdiction, siphoning, delivery methods and the corporate structure of the industry. Newfoundland supports a national distribution system framed by the broadcasters, the public and by the government. Finally, Ontario wants to resolve the question of the provincial role in cable before talking about pay TV. As well, Ontario claims that closed-circuit systems distributing programming fall within provincial jurisdiction. Therefore, diverse viewpoints are expressed by the provinces over the issue of pay TV.

In looking at the question of pay television a number of findings are noteworthy. First, the introduction of pay TV in Canada is inevitable. Both the federal and provincial

governments will have substantial input in defining what role pay television will play within Canadian society. Both levels of government have the responsibility to define the structure of pay television in Canada and the legal framework within which regulatory activity will take place that meets national and provincial objectives.

At the present time the CCM provides a forum to continue the discussions and consultations on the structure and regulatory framework of pay TV in Canada. The CCM allows the provinces the means to voice their concerns about pay television and the objectives they feel should be established. Ultimately, one of the aims of the CCM would be to

ensure that the structure and legal framework that will eventually be defined will reflect the provinces' concerns, preferences, and policies as well as the federal preoccupations regarding satisfactory protections for the broadcasting system.

Specifically, phase II legislation (Bill C-16) entails a complete revision of existing statutes to clarify the relationship between the federal government and the federal regulatory body, to provide for more collaboration with the provinces, and to establish a coherent body of federal law on communications.

Under the proposed phase II telecommunications legislation, section seven provides the federal statutory basis for delegation agreements, on a reciprocal basis if necessary. Such a reciprocal agreement will likely be necessary to effectively implement the Canada/Manitoba agreement.

With a change of government, it is still unclear what will happen either to phase II legislation or a constitutional rewrite. It can be safely assumed, however, that the process

of provincial entry into communication matters will continue.

Within the pay TV debate some federal consensus has emerged to suggest the objective and modus operandi preferred.

There are basically three methods of Pay TV:

- (a) Mandatory - a channel to which all cable using homes would subscribe as part of their raised fee for the basic service. No security or metering would be involved and 75 per cent of revenues to go to Canadian production. In a sense it would be a mini pay channel costing about \$2.00 a month and offering 4 new features a month; 50-50 Canadian/foreign. This is strongly advocated by the workers in the cultural industries as the simplest and most revenue producing method for subsidizing Canadian films and programs. Elsewhere it has been characterized as a "tax" on cable to pay for Canadian content.
- (b) Monthly subscription or pay-per-channel similar to pay cable in the U.S. which would entitle the subscriber for about \$8 - \$10/mo. to view a menu of 8 to 10 new events (feature movies, specials, etc.) plus repeats each month on a channel that is otherwise scrambled or trapped out. Therefore, security is involved but not metering of specific usage. This is the method advocated by the cable operators and is the predominant method used in the U.S.
- (c) Pay-per-program - the consumer pays a fee \$2.50 - \$3.50 for each event (feature movie, special, sports)

viewed. This involves security and metering of consumption. There are variants which allow pay-per-series or pay-per-day. The technological sophistication is high and a considerable portion of the revenue must be directed to amortizing its cost. This is the approach advocated by the Clyne Commission and DOC and easily permits a direct payment to the producer.

While the CRTC as a result of its last public hearing recommended no pay TV at this time, further study by a number of agencies has continued.

The DOC has redefined the principles for the introduction of pay television to stipulate that the service should provide for

- optimum and equal access for Canadian program producers from all regions to a national system
- the extension of pay television in both official languages throughout Canada
- responsiveness to regional interests and concerns
- the public having the widest possible choice of programming
- the exhibition of minority and special interest programs.

These apply to the programming. Other principles apply to the technological, economic, and delivery aspects. The pay TV service should optimize

- adaptability to future technological change, e.g. in data collection and in video delivery. It should

permit such delivery methods as MDS, MATV, STV, video theatres, hotel and motel stand-alones, DBS, and fibre optics. Data collection (billing, audience profiles) should not rely simply on cable but allow for telephone retrieval ~~or~~ other means.

- the public should be able to choose the delivery system, where possible (from the list above) and be able to pay, if the producer wishes, on a pay-per-program, pay-per-series, or pay-per-day basis.
 - the various methods of delivery should be regulated with respect to rates and signal quality to protect the public and pay TV services' interest.
 - preference for Canadian business so that the service is designed to favour Canadian technical manufacturing, program production, and related services.
 - the use of Telesat for primary distribution of signal.
- In addition, the service should recognize two problems:
- (a) fragmentation of audiences for broadcasters and movie theatres.
 - (b) the siphoning of programming from conventional television.

It is suggested that CRTC & CBC studies indicate that a pay-per-program strategy causes the least fragmentation and that sophisticated anti-siphoning measures will have to be developed.

The suggested model involves a national agency which has leased blocks of bandwidth on all the appropriate delivery

systems -- cable, STV, MATV, etc. (and presumably has organized the satellite delivery capability with regionally dispersed uplinks). Producers would lease distribution space (bandwidth, channels) and be compensated on a percentage of the pay-per-program results. This percentage would rise higher as the program's value to Canadian content objectives rises. In a sense, the cheaply procured foreign imports would subsidize the Canadian content.

The agency itself would be non-profit but would ensure that the revenues reward the achievement of the program objectives. This means that the producer is directly concerned with reaching maximum numbers of paying consumers but that the material he/she uses will have a great bearing on final revenue. It, of course, means a sophisticated pay-per-program technology is required.

When this system or model is compared with the draft proposal on constitutional revision, with the Phase II proposed legislation and with the Federal/Provincial consultation, a number of interesting observations emerge:

- It opens the whole question of pay TV to a wide range of delivery options, some of which are obviously under total federal jurisdiction (STV, DBS) and presumably would continue that way.
- The revenue which in terms of provincial aspirations would go to funding of the extension of provincial services or development of a single wire system (fibre optics) now goes largely to producers who

command a national audience.

- It perpetuates and even intensifies the competition in telecommunication delivery services.
- It permits of little purely local or provincial content addressing its own market.
- It places a technological burden on the system which may or may not be beneficial to manufacturing or suppliers of services in that province.
- It assumes that no producer or distributor could enter the system except through the central agency.

From a centralist point of view the model would appear to protect and further national objectives, address the problem of directing money to Canadian program production, minimize fragmentation and prevent unwarranted siphoning. It contains enough clout in the form of alternative delivery systems to possibly be able to negotiate with some strength with cable and/or provincial interests. In its present form it fails to be very sympathetic to present political realities and provincial aspirations; however, it does make an opening federal position which indicates concern for national objectives and the means to realize them.

CHAPTER III

REDUCTIONS IN OVER-THE-AIR BROADCASTING THROUGH THE USE OF UNIVERSAL CABLE

A. The Rise in Cable Television Penetration

In 1977, slightly less than 50 per cent of all households in Canada subscribed to cable television (48.5%).¹ As a proportion of the 71.7 per cent of the Canadian population to whom cable was available, this figure became 67.6 per cent, an increase from the 44.2 per cent figure for 1968.² The increase in the proportion of people subscribing in relation to the number to whom cable was available may be attributed to the following:

- (a) a general increase in the popularity of cable television;
- (b) a possible increase in the proportion of the population living in apartments in urban areas (for these people, rooftop antennae do not constitute an alternative);
- (c) a greater proportion of cable systems operating in 1977 provided the sole means for the reception of some distant TV signals in their respective communities (whereas in 1968, most cable systems merely provided better quality reception for signals already available).

Without any major shift in conditions, the 50 per cent overall penetration figure can be expected to increase as a result of:

- (a) increases in the number of homes passed by cable.

In 1977, Saskatchewan (with 4 per cent of Canada's population) did not have cable systems in its major centres; its total penetration was only 5 per cent. Yet, among those centres in which cable was present, penetration rates were in the order of 70-80 per cent. Cable systems have since been licensed in the major centres of that province.

- (b) In those areas where new systems are being constructed, the alternative of off-air reception of U.S. signals is not as viable, implying even greater penetration rates (among those houses passed).

Certainly, remote communities in provinces such as Newfoundland and the Prairie provinces may not receive cable service under current configurations (i.e., the use of terrestrial microwave systems), but cable will, within a short period of time, be available to the vast majority of the Canadian population. Within English Canada, it is probably reasonable to assume that the 71.2 per cent figure which represents the percentage of houses "passed" by cable will increase to approximately 80-85 per cent (in British Columbia, this figure is already 93.8 per cent).³ Under these circumstances, with a penetration rate of eighty per cent (a modest increase from the current 74 per cent), one might expect a total penetration rate of 65 per cent within English Canada with no major changes in the "circumstances" of the broadcast system (i.e., no developments such as pay television, the continued existence of over-the-air broadcasting, etc.).

This situation might be somewhat different in the province of Quebec, where cable penetration rates have traditionally been lower than those in the rest of Canada (in the order of 50 per cent of houses passed vs. 74 per cent in English Canada). Since cable television systems in Quebec represent the importation of non-French programming, one might also expect some resistance to the development of technological systems (satellite, microwave) which could facilitate the expansion of cable.

While these figures might have some heuristic usefulness, it would be naive to simply plot future predictions on the basis of past trends. Ceteris paribus, one would expect some "levelling" in cable penetration (hence the figure 80-85 per cent as a projected levelling point) and some upper limit in terms of the number of households which can be reasonably served by cable given the nature of traditional terrestrial microwave systems. But the "all things being equal" assumption is indeed tenuous: it in effect presumes no conscious policy-oriented intervention in a system of economic and technological change, and further assumes that existing technologies will become "fixed" in place. Certainly, whether or not cable television becomes "universal" is more dependent upon government policy-making itself than it is upon economic "trends" within a marketplace environment. For this reason, it becomes important to chart those forces which might compel government policy makers to lean either towards or away from a cable-only delivery system.

B. Factors Influencing the Development of
"Universal Cable" Policies

There are a number of developments in the current electronic communications environment in Canada which will tend to push policy-makers towards a policy reducing the reliance of the broadcasting system on over-the-air broadcasting — that is, promoting the use of cable as an alternative to over-the-air broadcasting and not just an adjunct to the latter. These factors are:

- 1) Increasing scarcity of spectrum in the UHF band for additional television services;
- 2) Increasing scarcity of spectrum in the FM band for additional audio services;
- 3) Increased construction of high-rise buildings, exacerbating the problem of "ghosting" in large urban centres;
- 4) Increased use of various land mobile communications devices, including CB radio. While if used properly and according to regulations these devices will not provide interference for regular broadcast signals, the probability that some operators will operate them in such a manner as to cause some interference with regular broadcast reception (at least in a confined neighbourhood) increases;
- 5) In general, increases in "ambient noise" from a variety of sources in the broadcast spectrum, including industrial equipment. While not extremely

critical in terms of frequency modulated transmissions (FM radio), the outcome is likely to be increased "interference" problems for those attempting to receive distant TV stations off-air;

- 6) At the local level, some planning agencies are beginning to consider antennae unsightly and are enacting zoning bylaws banning such devices. While it is likely that this sort of action will continue to be atypical, an increasing minority of newly-built suburbs might conceivably enact such laws;
- 7) Pressure from land-mobile users (notably, the telephone common carriers) to release broadcast spectrum in the UHF band to accommodate expansion in the area of land-mobile service.

Mitigating these pressures are a number of "political" considerations:

- 1) Pressures from the broadcast industry itself to retain its status (i.e., individual operators owning transmission hardware as providing programming);
- 2) The possibility that the use of cable as a local distributing system might result in configurations which are constitutionally beyond the ability of the federal government to control; this would imply a net transfer of power over electronic programming from the federal government to the provinces⁴;
- 3) The development of "circularly polarized" antenna systems by television broadcasters to counteract

ghosting problems;

- 4) The release of additional AM spectrum space for audio services as contemplated by the United States (at the 1979 WARC conference).

C. Spectrum Needs and the Possibility of Expanded Services

In the area of program development, what potential new broadcast-style services might develop in the 1980's and beyond, and could these conceivably be accommodated by the existing over-the-air broadcast system?

In 1977, the Canadian Radio-television and Telecommunications Commission issued a report entitled, UHF Broadcasting Spectrum Requirements for Canada.⁵ This report used an econometric model (presumably based on past circumstances) to project the "needs" of 62 different CMA's in Canada for additional television broadcasting services. It employed what it termed a "correlation method," after consultation with a "jury of experts." (It might be presumed here that a linear regression equation was established using population, and perhaps some other factors, as independent variables.)⁶ The dependent variable was, then, the number of TV services required for a particular community. The important trends which the study identified were as follows:

- 1) An increase of approximately 42 per cent in the Canadian population by the year 2000.
- 2) Increases in the share of the population which Ontario and British Columbia have, but decreases

for all other provinces (including Alberta).

- 3) Changes in the age pyramid; notably, the number of older people to increase. In the words of the study: "This suggests the development of a more 'domiciled' society, older, politically and socially more stable, with a proportionately larger labour force. This in turn indicates larger and steadier demands for broadcasting services as the productive capacity of the nation expands and incomes rise."⁷
- 4) A slow (but inexorable) progress in terms of increases in available leisure time, in turn leading to more demand for television.
- 5) The cessation of commercial activities by the CBC, making more advertising money available; in the words of the report, "conceivably enough revenue could thus be liberated to form the basis for another network centred on the larger urban areas."⁸
- 6) Reduced technology costs making more services feasible.
- 7) The development of over-the-air pay television.
- 8) The development of provincial educational broadcasting.

A number of the "factors" identified above lend themselves to some rather rudimentary criticisms. Basically, the approach taken by the CRTC's study group seems to be a "more the better" approach; that is, without regard to qualitative needs in the broadcasting system, the issue of number of

services has become divorced from the issue of content (what to program these channels with). There appears to be a presumption that additional funds made available through certain developments (population increases, reduced technology costs, etc.) should be channelled into providing more channels rather than improving programming on existing channels. It is the same sort of presumption which, one supposes, triggered the creation of third English-language television services (e.g. Global), the main function of which has been to provide additional American programming to Canada. It is not clear, though, that increases in the number of American programs which are available can continue indefinitely; rather, it would appear that one of the outcomes of a mere quantitative (vs. qualitative) increase in the number of Canadian channels (networks) competing for American programs would be that more and more Canadian money would find its way into the hands of American program producers (both due to the increased quantity of programs produced — although it must be stated in passing that almost all U.S. network programs are already carried on Canadian TV networks — and due to increased per program costs due to bidding wars).

It might also be appropriate to comment on the alleged increases in "passivity" in the Canadian population as time increases, and the equation linking increases in leisure time with increased media (i.e., television) consumption. Current research in the area of the uses of mass communications seems to suggest that television use declines as individuals become

better educated and as incomes and occupational status rise.⁹ In terms of age, the relationship is not linear, but rather curvilinear: television use, high in the 2-16 age group, declines for the 21-40 age group, and increases thereafter. While there might ultimately be increases in TV use as those born in the early 1950's become older, the age factor is likely to continue to be linked with a decrease in TV use until well after the year 2000 unless current patterns do not hold.¹⁰

In general, there is a presumption that disposable leisure time is positively correlated with television use. This assertion may, in fact, be debatable. At a recent international conference,¹¹ George Gerbner from the Annenberg School of Communications spoke about various relationships between television use and available time, and suggested that television use was somewhat "fixed" in time. The implications of this are that television serves as a passive medium for those who are unable to participate in other leisure activities — due to factors such as a lack of time. It also provides a form of leisure activity for those who are unable to afford alternative forms of leisure, and/or those who have not been socialized into the use of inexpensive alternatives (e.g., library books, bicycle riding, etc.). If, as the CRTC report argues, there are going to be increases in aggregate levels of education (let alone income), it is not at all self-evident that per capita TV use will increase.

The CRTC report concludes that there will be a sub-

stantial increase in the need for UHF spectrum in the next 25 years, with 15 of the 34 CMA's in the Windsor-Quebec corridor having insufficient channels to meet projected needs.¹²

Unfortunately, the question of additional TV needs cannot really be addressed separately from the issue of types of services envisaged, and in this regard the CRTC report is quite deficient.

New programming services in Canada might be included in one of the following categories:

- 1) Multilingual broadcasting;
- 2) Additional CTV-style networks;
- 3) Community broadcasting;
- 4) Educational broadcasting (e.g., OECA);
- 5) CBC-2;
- 6) Pay television.

In the critical area of southern Ontario where spectrum pressures (owing to the presence of nearby U.S. allocations) are the greatest, educational broadcasting is already available, and multilingual broadcasting is being implemented in one larger centre (Toronto). Community television broadcasting (public participation or access television) has hitherto been confined mostly to cable due to the problem of securing funding in the face of small audience sizes. Only one community station has undertaken actual TV transmitting (CFVO, in Hull, Quebec), and that station became insolvent and was forced to surrender its licence. It would appear unlikely that, especially in English Canada, community tele-

vision stations using off-air facilities will evolve in the foreseeable future.

With respect to pay television, the current prospects seem to weigh heavily towards the use of cable (even the CRTC's report on Pay Television seems to concede that cable will be the primary delivery mechanism, although it argues for consideration of over-the-air delivery).¹³ While one might not wish to preclude the possibility of an over-the-air system for extrinsic political considerations (e.g., retaining federal control), in terms of system security and the ability to implement per-program technology, it is clear that cable systems constitute a superior delivery system in comparison to off-air transmission.

In terms of the development of the CBC, while it may indeed be unfortunate that the "public/private" mix has been so radically altered by the unfettered licensing of new commercial TV stations (repeating American programming) in Canada, it would appear unlikely in the short term that the CBC will be able to acquire sufficient funds from Parliament to initiate a second over-the-air network in each language (or even in one). Rather, the Corporation's own planning seems to call for the use of cable to distribute CBC-2; this could effectively tie the reception of CBC to cable revenues in terms of a per-subscriber levy for the service, and provide for the development of a second CBC network without the expensive operation of hundreds of broadcast transmitters. (In effect, it could provide a means of expanding CBC service

without the need for additional major Parliamentary appropriations).

Where does this leave the development of additional private television services? Certainly, in many areas of the country, it would not be possible to develop new private services. But, given the lack of development of Canadian production on private Canadian TV networks, one must wonder whether the licensing of new networks or stations will "solve" the problem. This, of course, is a matter for further policy discussion.

D. Other Factors Influencing the Development of Cable Programming Services

While the CRTC's projections regarding UHF spectrum needs might be misplaced on a number of grounds, there exists some truth to the statement that increased pressure on broadcast spectrum might result in some services being provided on cable only. First, by agreement with the United States, Canada will be shortly eliminating the top 12 allocations in the UHF band and releasing them for land-mobile use. Two Ontario broadcasting stations are affected — channel 78 in Windsor and channel 79 in Toronto. While a replacement allocation will likely be available in Toronto, it is unclear where the CBC French service in Windsor will be located, since all of the existing allocated channels in the area have been assigned. Likewise, one might expect that in some Ontario centres, spectrum for multilingual services

might not be available. One cannot state for certain, too, whether or not there will be more pressure to release additional TV channels for land-mobile use. It is difficult to make projections in this regard at this point.

In the area of audio programming, there is a considerable amount of pressure (in terms of current proposals) on an increasingly limited number of FM channels. One might expect to see an increase in the number of cable-only audio services (barring regulatory restraint), but the extent of these services is likely to be limited for some time in the future, due to the fact that cable FM penetration is quite low. This issue is discussed in some detail in the CRTC report, Sound Broadcasting Requirements for Canada (1978). While one might express the same sorts of reservations with respect to this report, as have been levelled at the CRTC's UHF Requirements report, from the standpoint of projected services it would appear that there will be needs for additional channels for services such as all news broadcasting, specialized music services (e.g., jazz radio), student broadcasting, multilingual broadcasting and community broadcasting. Unfortunately, the possibility of the use of cable FM is less than satisfactory due to the "mobile" nature of many FM radio receivers (and their use).

E. The Development of Direct-Broadcast Satellite

The development of direct-broadcast satellite technology (DBS) is discussed in detail elsewhere in this report, and

will not be elaborated upon in depth here. It would be germane, however, to make a number of observations regarding this development. First, the development of such satellite technology in some senses mitigates one of the strongest arguments against a policy aimed at making cable television the primary delivery mechanism. The issue of "how to provide service to rural and remote areas" is thus answered quite inexpensively. While current receiver devices are somewhat expensive, prospects seem to call for the commercial availability of a satellite-receive device for something in the order of \$300. At this price, it would appear unlikely that individuals in urban areas would purchase a "microwave dish" to receive satellite broadcasts if cable were available, but this option is made possible for those unable to subscribe to cable.

There are, of course, many inherent dangers in the development of DBS technology. It is conceivable that Canadians will soon be capable of receiving a proliferation of U.S. "superstations" (some remote areas are reportedly already doing so), and this could have detrimental consequences upon the Canadian/non-Canadian balance of programming available in the country. In the sense that cable television systems can in some ways "contain" this quantitative proliferation of signals, it would appear to be expedient to provide as many satellite services as is feasible (i.e., as will not reasonably upset a Canada/U.S. program balance) on cable to pre-empt a proliferation of home satellite receive stations.

The alternative of requiring licences for such receivers (as a means of limiting their use) might be investigated, but is not likely to prove feasible in a political sense.

F. The Role of Existing Broadcasters in a Cable-Only Environment

It is unlikely that over-the-air broadcasting will disappear overnight. In fact, even if the government were to adopt a policy pointing in the direction of a future "universal cable" system, it does not follow that over-the-air broadcasting will simply disappear. It has been argued above that most of the needs for conventional broadcast channels are being met in the current use of the UHF spectrum, and, by implication, that there is a potential for great qualitative improvements in these services, using Canadian production as one criterion. An in-place technology, representing a tremendous capital investment, currently exists in this country, and it would be in many senses foolish to simply dismantle this technology.

Where cable television will become increasingly important is in areas related to additional services which could not — for economic or other reasons — be reasonably provided over regular broadcast frequencies even if additional spectrum allocations could be made. These constitute services such as CBC-2 and Pay television. One might expect, in response to the provision of these sorts of services on cable, that within serviced areas, cable penetration will increase. There

might, in turn, be pressure on broadcasters to provide "direct feeds" to cable operators; already, in terms of advertising, most major urban stations announce their broadcast frequencies twice (e.g., "Channel 9, cable 8"). But even after DBS transmission facilities are in place, one might expect over-the-air broadcasting to continue at least as long as there are large numbers of conventional TV receive antenna in areas outside those covered by cable, or at least as long as cable penetration rates fall short of 95%. One further consideration — the continuance of over-the-air broadcasting by broadcasters to guarantee in a legal sense priority carriage — also needs to be considered (this is discussed in more detail under the heading "Content/Carriage Separation").

G. Policy Considerations

If cable is to play an increasingly prominent role in the delivery of programming services, there are a number of considerations which need to be made. These will only be summarized briefly at this point.

First, in terms of access, there is the issue of cost of service. While over-the-air broadcasting is "free," from the perspective of an individual viewer, the subscription payment system of cable television suggests that if the objective of universal access to service is to be maintained, some consideration must be given to the sorts of rates charged for this service. In other words, there will be increasing

pressure for rate regulation aimed at minimizing costs for what are now considered broadcasting services. Secondly, as mentioned above, there is the issue of the legal relationship between the program provider and the cable operator: how much of a distinction is made between content and carriage, and are separate licences issued? Thirdly, the issue of restrictions on American satellite programming needs to be carefully considered. Is it desirable — or even possible — to place some limit on the number of American "super stations" which a cable system carries? Perhaps this question might be best addressed in terms of alternative methods for delivering American programs to Canada: are there alternative configurations which could be developed (e.g., a "gateway" approach) which would provide Canadian viewers with American programs but which would not have the detrimental economic implications (in terms of dollars flowing across the border) currently associated with American (border TV station) signals being received in Canada? These issues need to be addressed in far more extensive a manner than is possible within the confines of this report.

ENDNOTES

¹CRTC, Special Report on Broadcasting in Canada, 1968-1978, Vol. 2, Table 2-1.

²Ibid., table 2-1.

³Ibid., table 2-1.

⁴This transfer of power need not, of course, be incompatible with federal objectives.

⁵Supply & Services Canada, 1977.

⁶The term "linear model" does not preclude the inclusion of quadratic or higher-order terms (i.e., curvilinear or exponential relationships).

⁷CRTC, UHF Broadcasting Spectrum Requirements (Supply and Services Canada, 1977), pp. 3-4.

⁸Ibid., p. 7.

⁹The presumption that incomes will continue to rise is, of course, somewhat tenuous in that the net change in per capita incomes in Canada and the United States, after inflation has been accounted for, actually constitutes a decline in the years 1977-1978.

¹⁰One reason for expecting these patterns not to hold would be the fact that studies demonstrating a relationship between age and TV use fail to account for differences in education. Some of the "age factor" could simply be attributable to the fact that people who are currently in the "over 60" group are poorly educated; this would in turn suggest that massive increases in TV use as people become older might be mitigated.

¹¹Cultural Indicators Workshop, Philadelphia, Penn., May 3, 1979.

¹²CRTC, UHF Broadcasting Spectrum Requirements, pp. 43-44.

¹³CRTC, Report on Pay Television, March 1978.

CHAPTER IV

IMPLICATIONS OF DIRECT BROADCAST SATELLITES

Beginning with the "White Paper" (A Domestic Satellite System for Canada, 1968) the objectives for developing our own domestic satellite capability have been reaffirmed in many policy documents. These objectives were:

1. Development of the North
2. Spreading of bilingualism and biculturalism throughout Canada
3. Promotion of research and development in the industries allied to space communication
4. Promotion of national unity
5. Securing an orbital parking slot above the equator
6. Utilization of the economic advantages of the satellite technology.

With the successful launch of Anik I in late 1972, Canada, through its agency, Telesat, became the first Western nation with a commercial domestic satellite, i.e. a satellite that remains in a fixed position relative to the earth's surface because it orbits around the earth at the same speed as the world revolves (geo-stationary or synchronous).

The particular advantage of a satellite in telecommunications is that from a single location in space a microwave signal sent up to the satellite can be amplified and re-transmitted downward to cover a large, even continental, geographic area (footprint) simultaneously with that signal.

Super High Frequency radio signals (microwaves) travel

"line of sight" and will not pass obstacles or bend around the curvature of the earth. The satellite represents the proverbial "sky hook" which acts as a single relay station in space, unlike terrestrial microwave with its repetition of towers strung out on high ground around the circumference of the globe. The satellite signal is therefore "distance insensitive" which means that in the economics of satellite delivery, it is of no consequence whether the two end points of the transmission are 100 miles or 4,000 miles apart. There is, of course, a particular distance (crossover point) at which it would be cheaper to connect two points by terrestrial means than by satellite principally due to the cost of the end point terminals (the earth sending and receiving stations). Currently, this crossover point is said to be about 1,000 miles.

It becomes obvious that it is no more expensive to bring a signal into or out of Inuvik than it is for Vancouver. The factors are the costs of the earth stations and local delivery relative to population served and utilization.

Long distance communication in Canada has evolved with a rate structure considerably determined by the distance served. Satellite technology presents a different economic basis; one that is ideally suited to Canada's huge distances and disparities of local services. It was with much of this vision of binding the country together through cheap, efficient telecommunications to all parts of the nation, in both languages, with particular emphasis on redressing the imbalance of services

the South held over the North, that the Telesat program was conceived. But, in fact, the Telesat Canada Act gave the operating agency no mandate other than to operate an efficient business and through its connecting agreements it was severely circumscribed in its marketing efforts. It was only permitted to lease full channels on long term contracts. Telesat was therefore completely dependent on the few clients who could qualify: namely, CBC, TCTS, and CNCP.

While the above is open to criticism as being opinionated and contentious, there is no question that strong and widely held opinions have objected to the poor achievement of Telesat in terms of the objectives attributed to it. The whole question of Telesat's role vis-a-vis TCTS became highly contentious at the time of the proposed Telesat/TCTS Agreement (merger).

The purpose of alluding to this controversy is that Telesat, in exchange for a guaranteed rate of return and future funding, became a member of TCTS and therefore a common carrier's carrier. The CRTC, as a result of lengthy public hearings, had decided that the new working arrangement was not in the public interest but it was subsequently overruled by cabinet. This controversy demonstrated the difficulty of establishing the "public interest" when so many conflicting interests are involved. Seven provinces and the telephone companies were very strongly in favour of the agreement. Those provinces not provincially regulated, non-member users of Telesat (CNCP), potential users (cable TV, broadcasters, pipeline companies), and consumer and native peoples' associations

(CAC, Inuit Tapirisat) were very much opposed.

Inherent in the controversy was the question of the de facto power to determine telecommunications policy. The CRTC empowered by the CRTC Act to administer those relevant portions of the Railway Act which applied to telecommunications (formerly the telecommunications section of the Canadian Transport Commission) asserted its authority to reject the proposal in its role as an independent regulatory authority. (In effect not setting policy but disallowing a new policy to be established.) While the CRTC didn't have to face up to some difficult problems of where the money would come from which was vital to finance the next generation of satellites (they only last in orbit about seven years), it felt that, with the continued and growing usage by the telecoms, Telesat was potentially quite profitable. The federal government, in exercising through the cabinet the highest authority of the "duly elected representatives" of the people, revoked the CRTC decision when viewed in the larger framework of the whole complexity of telecoms and provincial opposition, the need for capital funds, etc., but did withhold certain of the contemplated requirements of the agreement, e.g. the effective control¹ of all earth receiving stations by the telecoms. This control had stipulated that while only Telesat could own the earth stations, the siting, the land, the first line maintenance, and all backhaul would be the prerogative of other members of TCTS.

The positive accomplishments of Telesat do include securing orbital parking spaces and the promotion of research

and development in the industries allied to space communication. The spreading of B & B throughout Canada has been limited to the transport of Radio Canada. The task of development in the North has included the provision of CBC-TV to a number of Northern communities and improved telephone in some cases. On the whole, this area has been the recipient of much criticism. With regard to the promotion of National Unity, little can be claimed since there has been no dynamic or innovative use of the revolutionary technology beyond what was formerly accomplished by other means. It has certainly not been used to assist in furthering the cultural objectives of the Broadcasting Act and has only had a modest impact in areas of social and political goals in so far as it has made the national service available in previously unserved communities. The economic advantages of the technology have been derived by the carriers and apportioned in accordance with the objectives of the members which do not necessarily correspond to those initially attributed to the system. Quite predictably, the new technology has been married into the conventional distance sensitive telephone rates and TV program carriage is conducted at costs well in excess of comparable U.S. tariffs under the explanation of lack of economies of scale, etc.

More recently the situation has been changing which could permit some flexibility in terms of signal carriage and in rate structure. Once the agreement had been completed, TCTS began entertaining proposals to provide delivery for cable operators at per subscriber rates. That is, TCTS (including

Telesat) would provide uplink to cable head-end service on the basis of a minimum guarantee (costs of leasing earth station service) and a charge for each subscriber who benefits from the delivered signals. Such a scheme has merit in areas of widely scattered small and medium-sized towns, e.g. Southern Manitoba, where costs of inter-connection by terrestrial microwave would exceed individual system TVRO's (Television Receive Only earth stations).

This approach was overtaken by events when the DOC announced in February of 1979 that ownership of earth stations would be broadened to permit broadcasters, cable TV licensees and common carriers to own earth receiving stations. This would be limited to TVRO's on the 14/12 GHz bands.

By way of some technical explanation, domestic satellites in the Western Hemisphere (ITU - Region 2) all originally operated on the 6/4 GHz bands. Anik A-I (now defunct) followed by Anik A-II plus two RCA satellites (Satcoms I & II), two Western Union (Westar I & II), three AT&T/GTE (Comstar I, II & III), and Anik III were placed in orbit over the equator. Since all operated on the same frequencies at least 4° of arc separation was necessary to discriminate between the signals of the different satellites. Hence the limitation of parking space in orbit.

With the launching of the joint Canadian/U.S. Communications Technology Satellite (Hermes), the higher frequencies of 14/12 GHz were used. Also, the size of "footprint" was much reduced which increased greatly the effective power but for a

smaller area. The location of this footprint area could be changed on command of the ground control and was used on alternate days in Canada and the U.S. Hermes experiments showed the practicability of small dish TVRO's when transporting Olympic games signals across Southern Ontario and Quebec.

While the 14/12 GHz bands are more susceptible to interference or losses from weather conditions (rain, water vapour) there were two main advantages. The earth receiving stations could be sited within urban areas and the size of the receiving dish could be reduced. (The 6/4 GHz satellites use the same receive frequencies as terrestrial microwave systems and in large cities are subject to this interference because of the high density of signals, and the 6/4 GHz technology requires a dish of at least 4.5 m to receive signals of a certain minimum strength).

In December of last year, Telesat/TCTS launched Anik B, a hybrid satellite, with full 6/4 GHz capability to take over for Anik A-II and six transponders in the 14/12 GHz bands. (A transponder has the capability of one or two TV signals depending on modulation technique.) The Anik A series has 12 transponders in the 6/4 GHz bands for 12 TV channel width capacity, less station keeping and telemetry. (The U.S. satellites, Westar and Satcom, have 12 transponders for 24 channels.)

Four of the 14/12 GHz transponders on Anik B are leased to DOC for two years with option for a further two. This is the basis for experiments which may be classified as DBS -

Direct Broadcast Satellite, i.e. direct to the home.

With the knowledge gained in Hermes tests, the DOC has recently announced the launching of a DBS experiment to supply 100 isolated homes in Southern Canada with their individual TVRO's in the 14/12 GHz band. Half the dishes will measure 1.8 m and half 1.2 m. This small size allows a total technology cost of \$3,600 each for this first order from SED Systems in Saskatoon with the presumption that mass production will bring the cost down to \$500.00 an installation. It is estimated that 900,000 homes in Canada could be so served. These are homes not likely to be served with cable TV, even with the advent of optic fibre, in the foreseeable future.

All this raises a number of questions of interest in the Canadian context. This recent initiative places Canada as the first nation in the world to embark on a deliberate DBS policy. This obviously has been a thoroughly federal initiative and which, while open to discussion with the provinces, is clearly within the exclusive jurisdiction of the federal government and places satellite transmission of programs within the definition of broadcasting as "radiocommunications directed to the general public." Of course, this policy raises questions of the likelihood of citizens generally tuning to foreign satellites to acquire programming otherwise unavailable in Canada. This is currently a problem in a few instances. Mining communities at Faro and Watson Lake in the Yukon and Cassiar, B.C. through the use of cable distributed earth receiving stations are tuned to Satcom (RCA) and get 20 channels

of various U.S. programming, e.g. Madison Square Gardens, Super stations, Home Box Office, etc. While quite illegal, it is politically and socially very difficult to prohibit this service which is claimed to drastically reduce employment turnover in those remote locations. At present, there is no Canadian alternative. It should be pointed out that this access depends on a fairly sophisticated 4 GHz TVRO. While the signal quality which is acceptable to the home user is much lower than that required by communication companies, the cost of these earth stations is projected to remain at least in the \$1,000.00 plus area. (Radio Shack plans to market a \$1,000.00 US kit, Scientific Atlanta is offering a \$4,000.00 installation for remote homes, ranches, etc. in the U.S.). It is also extremely likely that these commercially valuable signals will shortly be scrambled if pirating in the U.S. becomes of any significance. The present plans in the U.S. do not call for programming on the 14/12 GHz spectrum nor would these footprints be likely to impinge much into Canada.

The issues then are the effects DBS (assuming a significant program content) will have on the existing structure. In the U.S. it is difficult to contemplate a DBS policy because of the great power of the existing institutions, e.g. the entire affiliate structure of conventional broadcasting is based on local markets and their political, social, and economic implications could be seriously threatened, etc. In Canada, fear has already been expressed by the minor broadcasters who already have problems of audience fragmentation

due to cable and of revenue being siphoned to larger markets. These stations are supported by a hinterland which would be most appreciative of more and varied TV fare through DBS. The major commercial broadcasters, particularly Global and TVA, could look upon this as an easy means to extend nation-wide signals. Within the federal/provincial context, a DBS policy is primarily centralist in theme. Certainly, TVO and Access could utilize the technology for program distribution, e.g. the 14/12 GHz footprint could conform neatly to TVO's pattern of transmitters and the signal could be part of a channel package in the Ontario Region so that remote homes and schools could be served with the mix. This is to say that DBS is not inherently contradictory to provincial objectives unless these include the total control of the system. Naturally, satellite delivered TV programs remove revenue from the terrestrial microwave system, but if present rate structures remain as they are currently imposed by TCTS, then the Teleco sharing formulas will pertain, certainly to their satisfaction but with possible detrimental effects on wider utilization and the achieving of the social objectives.

Currently a number of possible program packages are being suggested. The Cable Satellite Network (CSN), a consortium of major cable operators, is negotiating a number of proposals. Essentially these include the House of Commons channels, provincial legislatures, educational and special CATV programs. Also contemplated are repeats of special Canadian programming and, of course, a pay TV distribution channel. Trans Spectrum

Services has proposed six channels -- parliamentary debates, TVA, four U.S. from Detroit, for two maritime cable systems. In all these developments -- DBS, cable feeds, etc., there is a growing awareness that a program package is necessary which provides a Canadian alternative to pirating signals and provides more equitable distribution of TV services across the country while maintaining Canadian control. This leads to conclusions that such a program service can only be accomplished in an orderly fashion through a federal agency which might take the form of system operator and program authority or it might permit program contractors, networks, educational authorities, etc. to lease space (program contractors) and conduct their own activities. The need for a central agency becomes more obvious when it is recognized that certain services are inherently profitable, e.g. Pay TV, but other highly sociably desirable ones such as parliamentary debates would have to be subsidized. How integration into such a system would appeal to Quebec and possibly some other provinces is questionable. Of course, terrestrial delivery remains an option if such delivery becomes more amenable to provincial regulation, but DBS could be quite competitive in certain circumstances. Theoretically, it is capable of, say, 20 channel delivery for the cost of \$500.00 a home which (if amortized) is equal to or less than full cable. If certain services (Pay TV) were only available through DBS, then the competitive advantage would be great. Certainly, picture quality would be improved. Such a scenario borders on fantasy but does indicate the

potency of DBS in restructuring the existing system if negotiations with provinces, CATV, broadcasters, are met with too intractable a stance.

In reality the DBS developments are more in answer to the recognition that there are and will be wide disparities in program services. There is also the recognition that of the many developing and expanding technologies, there are roles for each and that they are not necessarily contradictory. Of compelling importance is the recognition that technological expertise and production are vital to our future. First, to supply our own needs and second, to gain export markets. Major additional public investments in the space program are being made. Additions to the David Florida Laboratory will cost \$20 million, and a further \$20 million will subsidize the difference in cost to Telesat for Anik D satellites built in Canada over foreign purchase. Another approximately \$10 million is allocated in various projects related to space. In view of this, certain social and cultural benefits should accrue to the public as a whole and not just to the common carriers.

While the Anik B capability is rather limited in a full fledged DBS role, it will be joined shortly by the Anik C (Hughes Aircraft) series of three satellites all operating in the 14/12 GHz bands. These are scheduled for launch early 1981 with each having 16 channels for audio, video, and data communications. The only parallel development is the Satellite Business Systems satellite in the U.S. (IBM/Aetna Life & Casualty) which will be a digital technology requiring 7 m

or 5 m dishes depending on location relative to the footprint. Prime users of the Anik C series will be the telecoms for long distance traffic (one TV channel = 960 telephone calls), but the ability to cover Southern Canada with TV in various overlapping footprints will exist. This technology will not be applicable to the North. In 1982, the Anik D series of three 6/4 GHz satellites, of which two are already contracted for with Spar Aerospace, will be raised to replace the remaining Anik A satellites. In both Anik C and Anik D the Space Shuttle is the initial launch vehicle to about 300 miles and from this altitude the satellites will be rocketed to their parking orbit at 22,300 miles (39,000 km).

These developments have an international significance. Orbital space is becoming scarce — certainly for the prime locations. Developing nations are anxious not to be excluded and certain equatorial countries have claimed the airspace above them as sovereign. In this regard, the U.S. and U.S.S.R. are agreed that right of location belongs to the capability to reach the orbit. Region 2 will resume discussions in 1981 and 1982 on frequency and space slot allocations; however, it is firm U.S. policy not to allow the subdivision of frequencies to individual countries such as has been done in Region 1.

At the World Administrative Radio Conference (WARC) in Geneva this September, Canada is proposing an increase in the band width in a number of the spectrum allocations. Significant to this report is the request to extend the down link of the 14/12 GHz technology from 11.7 - 12.2 GHz to 11.7 - 12.5 GHz

which would add a further 300 MHz to the present 500 MHz or another 6 or 7 channels down.

The highly centralized nature of satellites is evolving to more point-to-point services from its present point to multi-point structure. This has to do with developments in digital technology referred to as TDM/TDMA in which the channel spectrum is not divided by frequencies (FDM), i.e. 960 phone calls on separate frequencies but through digitally encoding the information the full channel width is used at any instant but for a series of different tasks (TDM or Time Division Multiplexing). The TDMA aspect refers to Time Division Multiple Access in which a number of users could be simultaneously accessing the channel for particular message or data purposes to another receiver. The service could store the information "on board" and subsequently deliver it according to priority and demand. It would operate in near real time and permit the optimum in flexibility. Canadian work in this technology is operationally well advanced and is considered a leader in the field.

What emerges from this discussion is the necessity for broad co-operation in the development and application of space communication. Many vested interests either demand total control or fear competitive effects. Jurisdictional questions clearly stem from international agreements and the airspace of all provincial boundaries unquestionably is crossed. To achieve the benefits and compete internationally, large funding is necessary and the economies of scale are

meagre even on a nationwide basis and inconceivable provincially. This is not to say that there are not provincial and regional roles. The current neglect of the North is indicative of the more compelling economic reasons for withholding present benefits. But these roles can best be realized through a central national policy which permits easy access at reasonable rates. There is also the capability to reintroduce a cohesive, consistent national program delivery service as was envisaged in the Aird Report but has been thoroughly eroded by recent events.

CHAPTER V

IMPLICATIONS OF FIBRE OPTICS

Of much recent interest has been the emergence of fibre optic technology from the laboratory and into test bed experiments. Canada has taken an active role both in the theoretical and applied uses of this newer technology and is beginning an assessment of the social implications. It is still premature to endorse the whole range of services foreseen by the theorists of the "wired world" who often make projections on the basis of technological capability without regard for political and regulatory restraints, consumer needs, or the processes of industrial exploitation in a capitalist society. However, it is apparent that this new technology will accelerate the pace toward the "information" society and does more sharply draw the lines of confrontation between existing institutionalized communications media.

Essentially the technology offers the capability to transport information (information in the sense of encoded or analogous signals which can reproduce the input content) in greater quantity and quality at less cost than existing media channels (i.e. telephone wire, microwave, etc.). This is accomplished by the capability of introducing a modulated (information applied) light beam either by a laser or a light emitting diode (LED) into a hair thin, exceptionally transparent glass fibre. Because the glass fibre is constructed so that the refractive index is greater away from the fibre axis the light is continually bent back along the direction of the fibre -- in effect, light is bent around

corners. The advantage of using radio frequencies near to or in the range of visible light is the huge bandwidth of frequencies available — and the amount of bandwidth available is directly proportional to the amount of information which can be sent.

Fibre optic transmission systems, therefore, offer significant advantages over conventional coaxial cable and copper wire systems. First, the increased bandwidth offered by optic fibre technology can provide on an integrated basis the full range of telecommunications services including voice, data and video. Second, optical fibres, with transmission losses lower than most coaxial cables, allow systems to be designed with repeaters farther apart than is possible with existing technology. Thus optic fibre technology has the potential ability to deliver signals at lower costs. Third, the low attenuation and small size of fibre cables are expected to reduce duct and manhole congestion. Fourth, the small physical dimensions of fibre cables could also result in smaller and less costly machinery for cable installations. Fifth, since optical fibres are electrically non-conducting, fibre systems are completely immune to electromagnetic interference, line surges, lightning and ground loops. The result is a significant cost and service quality benefit for routes exposed to power lines and high lightning incidence. In addition, optic fibre will not accept the entry of stray light incident on their outside cladding and so fibre cables are immune to crosstalk, providing both security

and low noise operation. Finally, pure silica which is abundant and much lighter in weight than copper is the beginning material most commonly utilized in making low loss optic fibres. Fibres fabricated from this material exhibit the lowest attenuation and highest bandwidth, have high tensile strength, flexibility and low sensitivity to temperature variations. Thus,

this new medium of communications offers significant advantages in low attenuation, high bandwidth, small size, light weight, low noise and, for classified applications, security.¹

It is at this point that the projections of information capability get carried away. While it is theoretically true that a single fibre can carry hundreds of TV channels and trillions of bits of data, the functional fibre optic system of the immediate future will have much more modest yet still impressive capabilities. This, of course, is due to the usual pragmatic restraints of economic realities and operational conditions. There are trade-offs involved. Bandwidth must be sacrificed for distance. There are signal strength losses and dispersion effects. Splices, coupling, and input and output connections all cause loss of signal strength. Repeaters (re-amplifiers) are required after optimum distances to regenerate signal strength. The effects of moisture, temperature, age, etc. on functional cables are still to be completely determined.

What is now clear is that the general application of fibre optics in the typical telephone wire-pair subscriber

loop configuration which permits two-way switched services is still some time away. Although some experiments of this have begun (Elie, Manitoba and HI-OVIS in Japan), the most immediate practical applications are in inter-office telephone trunks and cable main trunks.

In practical systems, optical fibres must be incorporated into rugged cable structures which can be installed in ducts or on poles using conventional pulling techniques and withstand the corrosive conditions and temperature variations encountered in real life.

In order to take advantage of the attractive transmission characteristics of optical fibres, Bell Northern Research (among others) developed a set of compatible components. BNR, together with Bell and Northern Telecom and with DOC support, began a test installation of an experimental fibre optic trunk system in Montreal in the fall of 1977. The purpose of the Montreal field trial was "to evaluate the practicability of light transmission using optical fibres in the real network."² The field trial did demonstrate the practical utility of optical fibre trunk transmission for telephone companies.

Specifically there were seven objectives for the Montreal field trial. These were:

- a) to evaluate the practicability of using optic fibre systems in the telephone network;
- b) to identify the advantages and problems of using optical fibre cables in the field;

- c) to assess the technology for splicing, connecting and pulling optical fibre cables in the field;
- d) to observe the overall behaviour of optical fibre cables under the rigorous Canadian environment;
- e) to gain information on implementation cost and reliability;
- f) to assess the complexity and compatibility of the terminal equipment in an actual central office environment; and
- g) to identify potential maintenance problems.

In the end, the results of the Montreal field trial were most encouraging. One of the significant results of the trial was gaining first-hand experience on cable installation and cost -- principally pulling and splicing operations. Bell Northern Research is now in a "better position to assess the suitability of the tools and techniques used, and to identify the improvements needed for future installations." As well, BNR is also now "more capable of predicting the implementation costs of future standardized systems."³ Thus the Montreal field trial provided hard evidence for both Northern Telecom and Bell Canada that fibre optic systems are practical and can be implemented in the field.

Another significant aspect of the Montreal field trial was that a high quality optical fibre installation was made in a normal telco operating environment and no unusual difficulties were encountered.

Even though tooling for optic fibres is more complex

than for copper conductors, the trial demonstrated that tools and connection devices can be designed to match a crafts-person's skills under field installation conditions. Thus the trial proved that the "connection technology for optical fibres is practical in a normal telephone company environment."⁴

The nature of optical communication systems demands that the attenuation of the cable be closely monitored before, during, and after installation. The trial demonstrated that a field attenuation test set will be utilized both for installation and maintenance of any optical fibre system. Post-ability, ease of operation and maintain-ability will be key requirements of the test set.

Finally, although the advantage of a fibre system is that the signal path is a dielectric (not subject to electrical interference), the connection to the outside world is influenced by power, grounds and so on. The Montreal field trial revealed that the performance of the optical fibre transmission system is essentially determined by its sensitivity to office electrical noise. Nevertheless, the system did perform well, in fact, beyond any specification for inter-office trunking, especially with an average bit error rate of about 4 errors in 10^{11} bits. This amount of error had no effect on telephony and very little or no effect on data traffic.

With respect to problems, the Montreal field trial revealed two difficulties in operating an optical fibre transmission system. They were: the difficulty in accessing

the optical signals for maintenance, and the need to add redundancy to the transmitted digital signals for in-service performance monitoring.

In the end, the significance of the Montreal field trial was that

with proper design and development of the components optical fibre transmission systems can be readily installed, reliably operated and easily maintained without the need for procedures that are much different from those employed in conventional wire transmission facilities.⁵

Besides the Montreal field trial, other experiments have been taking place with optic fibre systems. In the Yorkville area of Toronto in 1978, fibre optic cable placed in a duct alongside new copper cables allowed "about 45 subscribers to become part of the first fibre optic loop transmission trial in Canada."⁶ Initially only voice communications will be carried over the fibres to the telephone subscribers. In the future, suitable interface equipment will be provided which can carry video and data channels over the same fibres. Thus the principal advantage of the fibre optic cable in the Yorkville trial is its ability "to integrate various services — voice, data and video — over a single subscriber line."⁷

The largest subscriber loop experiment being conducted in North America is in Elie, Manitoba, a small town about 40 km. West of Winnipeg. This is a joint undertaking of the Canadian Telecommunications Carriers Association (CTCA), its member carriers, the Manitoba Telephone System and DOC. The \$6.1 million dollar cost is split equally between the

industry and the public to fund a five year experiment which will provide the 150 homes in the town and on surrounding farms with single-party telephone, multiple channel TV, several radio stations and two-way alpha numeric services based on the DOC Telidon system.

This experiment is designed to evaluate the social implications, particularly in terms of up-grading the the rural communications environment, as well as the technical performance of the system.

Other common carrier experiments include a major telephone trunk for AGT to connect Cheadle to Calgary, Alberta; a CN communications cable buried along the tracks; and a electrical utilities communication link carried on high voltage transmission towers.

The cable industry has also shown initiatives in fibre optics. An \$8.5 million experiment is underway in London, Ontario using an 8 fibre supertrunk for 7.8 km. to connect the head end of a television station to the central hub of the system. A number of the major cable companies, e.g. Rogers, Canadian Cable Systems, Premier, etc. and the DOC are participating with the Advanced Systems Division of Canstar. This experiment does not at this time provide services not otherwise available but it does explore new modes of transmission for TV signals.

First of all the TV signals are transmitted in analog form but are encoded digitally in two different forms. Three fibres carry three TV signals each in which the video

information is separately encoded from the audio (reduced to baseband, i.e. 0-4.2 MHz) and sampled at three times the colour subcarrier rate (10.74 MHz). Each sample is encoded in eight bits. Two more bits are used for error checking, audio, some data services and FM stereo so that each TV signal and add-ons consumes 107.4 Mbs for a total bit rate of 322.2 Mbs.

Another three fibres encoded two entire composite TV signals (0-6 MHz) each at a higher sampling rate of 15.75 MHz with a nine bit sample and a tenth bit for error checking, FM stereo, or digital services. Therefore, each TV signal plus add-ons requires 157.5 Mbs or 315 Mbs for the fibre.

In the first case (3 channels a fibre) more TV stations are carried per fibre but the costs of inputting and outputting the signals are much greater than encoding and decoding composite TV signals. However, the second case is limited to two channels. There is obviously a trade-off between terminal costs and cost of the fibre and therefore optimum economy would be a function of distance.

The experiment does demonstrate that information rates in excess of 300 million bits a second are possible in a state-of-the-art system which covers 7-8 km. with just two repeaters and 10 or 11 splices.

Such a system could be extended much further without picture quality loss. It also confirms the high bit rate for all forms of telecommunications.

The more technical data used above is indicative of the

capability of present operational technology. Information rates slightly in excess of 300 Mbs are possible at a bit error rate of 10^{-9} or better. The most typical telephone trunk application requires about 275 Mbs. These figures are far below the "gee whiz" accounts of billions of bits a second and myriads of TV channels. While improvements are possible such as encoding TV in a way that reduces the vast redundancy of information, increases of signal carriage will only be doubled or tripled. It is true that digitized (PCM) TV uses much greater bandwidth than analog techniques. Yet, according to experts, the effects of distance are such that an analog configuration is probably optimal at three channels per fibre plus other home services.

However, certain conclusions may be drawn from the experiments. A single fibre (or fibre-pair) to and from the home is still some considerable time away if it is to replace both the telephone wire and the cable in providing the existing services. Whether the TV signals are in analog or digital form the optimal configuration would appear to be about three channels a fibre. To provide the kind of TV service the cable subscriber now receives plus telephone would imply structures that call for:

- a) multiple fibres to each home or
- b) a central switching office which directed up to three different simultaneous video choices into each (a massive switching problem)
- c) a combination of a fibre loop for home telephone

and digital two-way services plus another carrier for TV.

Some policy concerns have been expressed about the likelihood of fibre optics spawning a number of "pirate" pay-cable operations. The premise has been that cable, to be economic, must provide conventional broadcast signals and is therefore amenable to regulation. A system with only closed-circuit content could not pay its way since the cost of cabling plus the cost of buying content would be too great except in rare cases of very high density of dwellings, i.e. high rises, etc. If fibre optics were to be substantially cheaper than cable, then the situation would be markedly changed. It does not appear that such cost reductions will take place in time to give this threat much reality. Either a pay-TV policy will be in or a revised regulatory approach to "program services" probably will have been settled before fibre optic "pirates" can make significant inroads.

In order to finance a "single wire" (fibre) concept it is assumed that the revenues from all existing services and likely newer ones would have to be channeled into paying for its implementation. On the one hand is the expense of duplication of hardware as the capabilities for the delivery of telecommunications services by cable and telephone companies begin to merge and compete, but on the other hand is the expense of premature obsolescence of the existing plant.

Of course, this whole discussion is constrained by what is currently perceived to be the consumer's wants and expect-

tations. It is also constrained by implicit assumptions about merging into the existing system and all its deficiencies and restraints. A most specific example would be the consumer TV set and what the owner watches. While it is possible to theorize about marvellous improvements to television in technical and program quality the realities are that a whole system of standards and procedures cannot be overthrown with ease (e.g. metrification) and probably not without a massive intrusion by the state. The pressure is then to develop technology that is not "ideal" but compatible and possibly exploitive of the existing investment. Video games depend then on the consumer having made the major investment on a CRT. Videotex services and most home computers are designed to use the home TV set as a monitor with little or no modification. It is quite unrealistic to project policy initiatives purely on "ideal" theoretical or technological capabilities when Canadians have invested about \$3,500,000,000 in their present TV sets.

As was noted in the section on Cable and Pay TV we have no clear idea of the separations of costs between long haul and local services; and between the cost of the network, the switching, and the terminal devices. In effect, we don't know whether the public interest would be best served with a single monolithic telecommunications structure, or by permitting some of the elements to participate in a competitive structure, thus allowing the marketplace to determine rates and services.

The question of the public interest is further clouded

by whose interpretation of the public interest is to be paramount. A federalist national public interest would suggest that allowing CNCP to interconnect into certain local telephone exchanges would reduce the cost of long-haul data transmission and serve to help bind the country through easy economical long distance communications. A number of provinces have protested that their public's interest is threatened since the present long haul transmission structures and rates subsidize local rates, extend services to less economic centres and contribute to provincial revenues. The arguments on both sides are complex and without any solid empirical foundation of economic data with respect to costs.

It is into this political and regulatory climate that the fibre optic technology is emerging. While it is not yet clear that fibre optic technology will become that "single wire" bringing and taking a host of broadband switched two-way services envisioned in the "wired society," it is clear that provisions have to be made for its introduction. To the cable companies and the telephone companies it is a matter of future survival. The Canadian Government (DOC) has recognized that a huge industry is beginning. While it may not for some time have application to the majority of homes, this eventually has to be planned for and the requisite study and field tests must be done, that is, if Canada wishes a role in the technological determination of applications and standards. Immediately, the manufacture of bundled fibre optic cables is certainly about to take over the trunking

requirements. This will amount to a multi-billion dollar enterprise worldwide in the next decade or so. To permit Canada to meet its own requirements and to create an export capability has been the thrust of much present policy of heavily funding R & D followed by field trials.

ENDNOTES

¹The first secure fibre optics communications link, Telesis, Vol. 4, No. 7, 1976/3, p. 222.

²Jack Haney, Editorial, Telesis, June 1978, p. 257.

³Optic fibre systems: a 'real world' demonstration, Telesis, June 1978, p. 277.

⁴Ibid., p. 281.

⁵Ibid., p. 283.

⁶Subscribers 'hear' the light this fall, Telesis, Vol. 5, No. 8, April 1978, p. 254.

⁷Ibid., p. 254.

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CHAPTER VI

IMPACT AND REGULATION OF VIDEO-PLAYERS

The last two years have seen the beginnings of the long prophesized explosive growth in home video recording and playback devices. The first truly successful VCR (Video-Cassette Recorder) was probably Sony's U-matic using a 3/4 inch tape format in cassettes of 30 or 60 minutes duration. This machine was not really the ideal consumer product but found good acceptance in the industrial and educational market. For the home, the duration of the tape was too short and the cost of the machine and more particularly of the cassettes was too high. Sony surprised the market it had itself established by suddenly introducing the Betamax with 1-2 hour cassettes in a 1/2 inch format. Shortly afterward JVC produced a similar but not compatible VCR referred to as the VHS system. Both the Beta and VHS systems have been licensed to a number of manufacturers so that now Sony, Sanyo, Toshiba, Zenith, et al are opposing RCA, Quasar, Panasonic, Hitachi, et al. It would appear that sales of each system have been about equal given the Sony head start but the VHS system is currently in the lead on the basis of institutional recommendations and fewer servicing problems. In Western Europe a third system VCR-SVR (Phillips-Grundig) has half the sales. There are two more non-compatible systems on the market and Russia has developed its own.

This is just the beginning, however, because two other major developments are just entering or about to seriously enter the market. MCA-Phillips introduced Discovision in

Atlanta and Seattle six months ago and will expand shortly. RCA, also, is preparing for a massive promotion of their SelectaVision videodisc to be widely released in about a year. Recently Toshiba has demonstrated a very impressive new technology labelled LVR (Longitudinal Video Recording) which threatens both the VCR and the videodisc. The company expects to be exploiting it commercially in about a year.

These developments have yet to have much impact culturally or economically in Canada. However, the implications of the future onslaught of these devices and the newer technologies to follow which provide in-home delivery of program content will be very great. Initially the VCR was advertised as a "time shift" machine which permitted the recording of TV fare for playback at a more convenient time. It is now very apparent that there is a large market for pre-recorded tapes suggestive that the consumer is not completely satisfied with conventional TV content. A vast number of industrial studies and projections of this whole industry have been done, mostly in the economic area. These suggest that VCRs, Videodisc Players, tapes, and big screens could approach \$4 billion a year toward the end of the decade. The U.S. alone faces a trade deficit with Japan of \$500,000,000 this year on VCRs. For Canada the burden will be somewhat less than a tenth of this; however, Canada must expect a further drain to the U.S. for the purchase of pre-recorded discs and tapes or at least the cost of the tapes and the rights to the programs, assuming the dubbing or pressing was done here.

The cultural problem could be acute. On the one hand consumers would be offered far more freedom of choice in selecting programs which are not amendable to Canadian content regulations and which, at least initially, would be of foreign origin. On the other hand, the competition for the attention of the viewers could weaken our existing broadcasting structure. Very conceivably, the impact of in-home delivery could be more devastating to Canadian cultural objectives than was the proliferation of cable and the resultant demise in viewing Canadian programs. At this time there is no data on the amount of non-broadcast viewing by owners of video-players. Neilsen "guestimates" 1 rating point.

Before exploring in greater detail the social and economic considerations, it would possibly be useful to describe the "state of the art."

The two well-known systems, VCRs and videodiscs, have particular strengths and weaknesses. The VCRs have recently developed a number of features assumed beneficial to the consumer.

- duration - most VHS systems are up to 6 hours on one cassette without too great a loss of quality. The Beta System is up to 4-1/2 and five hours; one VHS has achieved 9 hours. These durations are achieved through combinations of thinner tapes, slower speeds, and multiple heads.
- programmability - while there are many different capabilities, the 7-7-7 is indicative of the trend.

This means that the machine can be preset at one time to record the program of seven different channels, at seven different times over a period of a week.

- features - most can give "browsing," forward or reverse, i.e. a viewable picture while at higher than normal speed, slo-mo, freeze frame, and rapid access to a preset cue or time on the tape.

The basic advantage of the VCR over the videodisc is the record capability. The disadvantages in playback are probably

- poorer picture quality than discs.
- high cost of tapes vs. discs both in manufacture of the medium and in the duplication procedure, i.e. a video-cassette must be recorded in real time and only a certain number can be dubbed at one time -- about 100 maximum. The disc is produced similarly to audio records with all the information transferred to the disc in one "stamping" which is a matter of seconds.

Studies have been made (essentially using Delphi-techniques) by the U.S. Navy and the Electronic Industries Association of Japan (EIAJ) on the relative market penetration of video-cassettes vs. videodiscs. The former concluded if the cassette machine costs more than twice videodisc, the disc would win out; if the disc cost more than two-thirds of the cassette, then the record advantage would succeed. It appears that the disc will stabilize at about half the cost of the cassette machine and the EIAJ predicts a market for both.

It is possible to make a videodisc technology with record capability but for various reasons, mostly cost, this is not being pursued in the market.

The videodisc machines have been developed over a long period of time. The first demonstration of such a device was in 1936 in London. Telefunken and Decca, under the name TeD, marketed the first videodisc playback machines in 1975 in Germany and Sweden with little success. Machines were expensive (about US \$600), the records lasted only ten minutes a side, and the software was very limited and of no consumer interest in N.A. TeD had excellent picture quality and eventually produced a record changer which could be loaded with two hours of discs with only a four second delay between discs. This, of course, further raised the price.

Of the thirty or so videodisc machines developed, two are prime contenders in the N.A. market -- the MCA/Phillips Discovision and the RCA Selectavision.

They are representative of the two main branches of videodisc technology, optical and stylus.

The DiscoVision (Magnavision) uses a beam of laser light which is reflected in a varying pattern from the disc. This modulated reflected light contains the encoded video and audio information and is capable of superb quality. The tracks are extremely fine and the disc revolves rapidly (1800 rpm) and since each revolution imparts the same amount of information regardless of the radius of the track, it is possible to rapidly access any particular picture frame of

the 54,000 frames recorded in a half-hour program. This information retrieval capability could be applied to any video information, e.g. graphics, still pictures, text, etc. Other features are browsing and slo-mo. Introductory cost was US \$695.00 with movies at \$15.95 for a set of discs. This compares to about \$60.00-\$100.00 for a movie in video-cassettes. Demand for the limited number of machines available was very keen and presently machines are "bootlegged" at up to \$1,500. MCA indicates that the price of the machine will have to go up and movies on discs will be raised to \$24.95 with educational features up from \$5.95 to \$9.95. In spite of MCA's (Universal) control of 11,000 titles, only some 200 programs are available in disc form and the shortage of software is recognized as a problem.

The RCA SelectaVision uses a stylus system in which the stylus tracks a groove at 400 rpm from the center outward. At this speed and configuration, it is not possible to freeze frame or slo-mo but recycling of a small section with a stable picture is possible. Therefore, the RCA system does not have the informational storage and retrieval capabilities of the DiscoVision and similarly designed machines (i.e. CSF/Thomson). SelectaVision is very specifically designed for only home playback of entertainment programs. It will retail at about US \$400 and RCA is gearing up for a massive market exploitation. The disadvantages are that unlike the optical systems in which nothing touches the disc both the stylus and disc are subject to wear. Discs which are currently half an hour will probably

be lengthened to one hour and have a life of about 500 plays.

RCA has licensed BSR, Mitsubishi, Sharp, Toshiba, NEC, Clarion, et al. to market the SelectaVision technology and has organized a strong software library.

Of the many disc technologies operational, JVC appears to have a system which is expected shortly (Sony has yet to be heard from but is always a strong contender with a "break-through" technology). JVC VHD/AHD discs (video high density/audio high density) rotate at 900 rpm which does permit freeze frame, slo-mo, advance and reverse screening, and rapid access. The stylus does not follow a groove but does detect varying capacitance from the 54,000 pitted tracks per side. Presently in a one hour format it will shortly come out at 2 hours. Like DiscoVision it has two audio channels which permit stereo or bilingual audio playback. The machine with full features should retail about \$600.00 and discs at about 10 per cent above stereo audio discs. JVC claims the replication process which uses conventional PVC blanks is much cheaper than optical discs. Both the JVC VHD/AHD and SelectaVision require that the record in its jacket be inserted into the machine which then extracts and returns the disc so that it is never touched. Optical discs are so critically focused inside the disc that slight surface dirt has no effect.

A new and largely unreported system of video-players has very recently been demonstrated by BASF and by Toshiba. Called the LVR (longitudinal video recorder), this device, which records and plays back from a series of horizontal tracks on

an endless loop (100 meters), is not much larger than 8 track audio cassettes. The tape holds 220 longitudinal tracks with each track taking about 17 seconds to pass the fixed head, at which point the head moves up 50 microns to the next band. The 100 meter tape gives one hour, but a two hour version is expected shortly.

The Toshiba LVR can random access any track on the tape in about 4 seconds by entering a three digit number. A single track can be constantly repeated giving a useful informational storage and retrieval benefit. The unit uses about a third the parts of typical VCRs. Cassettes are comparable in cost to VCRs.

Possibilities of this technology are very great since it is ideal for portability and remote recording, possibly incorporated right in a CCD camera with further miniaturization. Picture quality of the Toshiba LVR is at least comparable to VCRs and probably better than the BASF LVR. The cost will be in the \$500.00 range which should compete strongly since it has both record and playback.

Other revolutionary systems are rumoured, but the above information is applicable to systems which are currently or imminently to be marketed.

As stated before, no social effect studies have been published. Most of the work so far has been in consumer and market profiles. However, the following conclusions seem reliable:

- a) Sales of video-players will rise to about 2 million

a year by 1985 in N.A. Some forecasts have indicated sales will be inversely proportional to auto sales, i.e. that the current slump in car sales will improve videoplayer sales.

- b) 60 per cent of all prerecorded video-cassettes are in the area of pornography. Supply simply can't keep up with demand.
- c) In spite of the high volume of sales, there is a large oversupply of VCRs being produced. While this might lead to some price discounting, the essential parts of the VCR are mostly mechanical and not given to price reductions. Therefore the push has been to add electronic features using L.S.I. to upgrade the price. It is fairly certain that some manufacturers will fail.

The more indefinite implications are in the area of the mutual impact of two technological approaches. The first being the supply of new consumer choice by means of upgraded communication channels or links, e.g. optic fibre, expanded cable, Pay TV over-the-air and by cable, DBS, etc. which distribute the program, data etc. to the home as opposed to the in-home delivery systems such as video-players, video games. Private computers may also use the conventional TV set as the home terminal but do not interact with or are not accessible to a broadband system except for the possibility of the telephone wire pair. At stake is the possible siphoning of consumer revenue to in-home devices which otherwise would make financially

viable an expanded communications network. While VCRs and pay cable are by no means incompatible (the consumer wants to be able to record the content) there is an inherent conflict in thrust, much like the changes in computer thinking from huge main frames to smarter terminals and distributed processing. Within the video-player technologies is the ability to provide huge information storage (and retrieval) which has many applications. There is also a large move already to program lending and renting of cassettes. (Videocassette of the Month Club type activity.)

All this then brings in the question of copyright and copyright infringement. Home audio recording was settled in the U.S. in 1972 on almost a "fair use" premise that allowed such mechanical and performance reproductions on a personal or for friends basis with no gain. In an action laid two years ago by MCA and Disney against Sony and its Betamax, a complex hearing is underway to settle: first, if copyright has been infringed; second, if so, what should be the remedy; or third, is this action simply a move to retard competition to MCA's DiscoVision and the pirating of their Universal library. While the analogy to audio is very close, the stakes are much greater. The recent Ferguson decision has permitted "personal" and "for friends" use.

Closer to home, there appears to be no great consideration of the impact or social implication of this burgeoning technology. The only guides are present policy toward the audio recording industry. In this regard Canada does have some protection which induces the manufacture (stamping) of records

indigenously but does not prescribe in any way content distribution, or the importation of masters (other than obscene material by Customs). AM and FM regulations and tax incentives have induced the audio recording of Canadian artists and the play of their works. However, it isn't clear that, except for the capital cost allowances assisting works which were originally Canadian feature films, program production for video-players would receive much incentive in Canada. Again, it is much cheaper to replicate than to produce content.

There is some indication that the heaviest selling of VCRs in the U.S. is in areas that are not cabled (major urban markets) which could be interpreted to show consumer demand for product not otherwise available on conventional broadcasting. While Canada is heavily cabled, there is, at present, no alternative to conventional broadcasting other than the community channel.

One interesting trend in video-players is the growing demand for portable units and light, cheap, hand-held colour cameras. It appears that the appeal of electronic "home movies" is very strong. In this regard the LVR might make a large breakthrough.

Whether in fact there is a obstacle here to Canadian broadcast objectives is not certain. It would appear on the surface that, while this technology broadens consumer freedom of choice, it primarily contributes to foreign acculturation, foreign trade imbalance, weakens the ability to expand existing telecommunications channels and services and contributes

little to program production within our borders. It is, however, difficult to suggest the degree of the detriments. There are no compelling alternatives. In all likelihood, we won't know the dimensions of the problem until the technology is well entrenched.

CHAPTER VII

OWNERSHIP PATTERNS IN THE PRIVATE SECTOR

A. Introduction

A concern with the patterns of ownership in any mass medium stems from the concept, somewhat cherished in liberal democratic societies such as Canada, that a plurality of "voices" is necessary for the public to receive a balanced presentation on matters of public concern or (for that matter) for there to be an adequate level of "competition" so that communications services (i.e., entertainment) are provided in the most expedient or efficient manner (to maximize "payoffs" to the audience).

When the Special Senate Committee on Mass Media (Davey Committee) issued its report in 1970, it expressed a concern for the levels of corporate concentration in the communications industry, observing that "a variety of forces have combined to produce a growing concentration of media ownership." (Canada, 1970:3). The observations of the Special Senate Committee are certainly not inappropriate in 1979. Ownership of the mass media in Canada might reasonably be characterized as being somewhat "narrowly held."

Cable television appears to display the highest degree of concentration: in 1975, 10% of the largest cable groups accounted for 80% of the industry revenue (CRTC, 1979a:ii). With the merger of two large Ontario cable systems in 1979, the four largest cable systems in Canada account for almost half (48.5%) of all cable subscribers in the country.¹

While it might be argued that cable's role as a source of programming material is negligible, this industry is likely to play an increasingly large role in providing programming (and exercising some form of control in this area), and should be examined closely. This increasing importance of cable was foreseen in 1970 by the Special Senate Committee (Canada, 1970:28):

One of the elements that need to be taken into consideration in relation to ownership concentration is cable television. At present, the vast majority of these systems are employed in a passive way.' . . . The CRTC has made it clear, however, that it expects cable systems to begin playing an increasingly active role by undertaking an increasing volume of programming of their own.

Concentration in the daily newspaper industry is also quite high: in 1975, 10% of the largest daily newspapers accounted for 55% of the average daily circulation (CRTC, 1979a:iii). In terms of group ownership, three chains — Thompson, Southam and F. P. Publications — account for almost half of the newspaper circulation in Canada.

The levels of concentration in television and radio are not quite as high as those in the newspaper industry, perhaps as a reflection of past CRTC policies to limit mergers. However, "group" ownership is a common phenomenon in radio (even though there may be a reasonably large number of groups), since 81% of all radio stations are owned not by individuals (or individual companies owning only one radio station) but rather by groups. And, in the area of television, there are certainly some groups which

are reasonably large in terms of total circulation (most notably CHUM Ltd., Selkirk, Baton Broadcasting, B.C. Television and Télémedia).

Regarding concentration of media ownership, there are two issue-areas: multiple-system ownership and cross-media ownership. Multiple-system ownership refers to the ownership of media outlets in a number of communities, but not necessarily a monopoly in any one community.² Multiple system ownership need not preclude some element of "competition" at a local level, but it leaves open a number of concerns:

- 1) Multiple ownership tends to imply non-local ownership. Non-local ownership may imply less responsiveness to "local needs";
- 2) Highly centralized control of media undertakings will have some negative implications on the overall level of diversity in the mass media;
- 3) Regulating large entities becomes somewhat more difficult than regulating smaller entities.

These issues are discussed somewhat more extensively in Melody (1978). Some of the "concerns" may be quite debatable; for example, one might argue that non-local owners are in a better position to fairly (and dispassionately) ensure a balanced presentation on matters of local controversy than would local owners (who might have other economic involvements in the community in question). But regulators are quick to point to the "Bell phenomenon" (in reference to the

difficulty experienced in exercising some element of public control over a telecommunications entity the size of Bell Telephone) in defence of the general position that big is not necessarily good. The impact of multiple-system ownership becomes more crucial in the area of cable television, where a single cable television franchise implies a local monopoly.

Cross-media ownership refers to the ownership of different media (outlets) within a single community by one individual or ownership group.³ An example of a cross-media ownership situation would be London, Ontario, in which the London Free Press (the community's only newspaper) is owned by the same entity which owns the community's only TV station (albeit not the only one which can be received off-air), and an AM and FM radio station in the community.

The CRTC's policy is (currently) to discourage cross-ownership between cable television undertakings and television undertakings in the same community,⁴ and cross-ownership between newspapers and television stations in the same community.⁵ Both of these policies are, however, under reconsideration (cf., CRTC, 1979b). Similar (formal) prohibitions do not appear to exist with respect to radio-TV, radio-newspaper or radio-cable television combinations, perhaps on the premise that there is naturally more competition in the radio industry (with a greater number of competitive possibilities due to the nature of spectrum allocations in radio). It might be noted, parenthetically,

that even in the area of newspaper-television and television-cable cross-ownership, there currently exist a number of exceptions to the general rule (i.e., situations in which such cross-ownership does exist).

The question of cross-ownership is related to an important consideration regarding the role of government in the regulation of the mass media: to what extent should government concern itself with the structure of an industry (or element of an industry) which is, strictly speaking, outside its regulatory jurisdiction? In other words, should the government be concerned with diversity in the mass media in general, or simply with diversity within those elements (e.g., over-the-air broadcasting) over which it has formal authority?

Insofar as the CRTC has made policy pronouncements in the area of newspaper-television cross-ownership (or done so implicitly through its ad hoc decisions), it has opted for the first of these two possibilities: concern for overall diversity within the mass media. Otherwise, it would have been compelled to ignore any outside (non-broadcast) media holdings a group or individual had in arriving at its decisions.⁶

Solely within the area of electronic mass media, how much concern should the federal government have for the degree of concentration present? Regarding ownership, participation by non-Canadians and other classes of potential licensees (i.e., provincial governments) is limited (under

the terms of Orders-in-Council 1969-2229 and 1972-1569), but, in the words of the CRTC (1979b):

The Broadcasting Act does not otherwise provide explicit guidance to the Commission respecting ownership and control of broadcasting undertakings. It does, however, in section 3 prescribe certain policy objectives to be implemented by the Commission.

The section of the Broadcast Act which might be most applicable to the issue of ownership — and the one most often cited by the CRTC in its ownership decisions — is section 3(d):

The programming provided by the Canadian Broadcasting System should be varied and comprehensive and should provide reasonable, balanced opportunity for the expression of differing views on matters of public concern and the programming provided by each broadcaster should be of high standard, using predominantly Canadian creative and other resources.

The connection between diversity of ownership and diversity of "views on matters of public concern" is perhaps the most crucial, and will be discussed below. Normally, one would expect that a diversity of views requires some reasonable diversity of ownership. On the other hand, it might be argued that concentrated ownership actually furthers the objective of the promotion of Canadian content ("Canadian creative and other resources"), by making it possible for production units (presumably "in house") to be sufficiently large to effectively compete with American programming. This rationale was alluded to in CRTC decision 78-669.⁷

It is on the basis of the presumed relationship between diversity of ownership and diversity of ideology

that Wallace Clement criticized the structure of the mass media in Canada in his Canadian Corporate Elite (1975:270ff.). In his words, "for diversity to occur in the ideology presented to the public there must be diversity of media sources and some form of ideological competition whereby one position was [is] not capable of totally overwhelming alternative positions" (1975:287). Clement proceeds to attempt to demonstrate that such competition does not exist in Canada.

Clement makes one other important argument in his book, namely that there are strong connections between what he calls the "media elite" — those groups owning disproportionate numbers of media outlets — and what he calls the "corporate elite" (defined as the 103 largest corporations/corporate groups in Canada). This, he argues, has disastrous implications in terms of "diversity of views" in the mass media.

There are a number of criticisms of Clement's work, the most pronounced of which is that of Baldwin (1977). Baldwin argues that, when more consistent criteria are applied, the degree of apparent "overlap" between the corporate elite and the media elite becomes much smaller than Clement would have us convinced.⁸ However, Clement's summarization (essentially, a precise of the work of the Special Senate Committee) leaves quite clear the fact that there are a number of media "groups" which have quite extensive holdings in the electronic mass media.

The connection between concentration of ownership and "ideological diversity" could in our view be the legitimate subject of a separate (and probably lengthy) investigation. Clement's main argument — that ownership concentration implies a lack of diversity — appears to have prima facie merit, but the connection needs to be investigated further. How much autonomy is (in the sense of typical operations or even in the sense of ultimate possibilities) exercised by individual "units" in large ownership chains? Perhaps one remark would be in order before proceeding: while some diversity of ownership is probably a necessary condition for a "diversity of views" in the private sector, it may be by no means a sufficient condition, given the operation of journalistic norms, non-ownership peer connections, etc.⁹

B. Major Ownership Groups

The major ownership groups identified by the Special Senate Committee (1970:75-115) and the holdings of these groups, are shown below. An inspection of this table would appear to indicate: 1) the formal ownership connections between large ("dominant") corporations in the Canadian economy and media interests are minimal, 2) that there are some specialized media companies having very extensive press, TV and/or radio holdings in Canada. These trends do not appear to have been altered in the nine years which have passed since the publication of the Special Senate

<u>Group</u>	<u>Broadcast Holdings</u>	<u>Press Holdings</u>	<u>Connections with Clement's "Dominant" Corporations</u>
Bassett-Eaton*	2 TV stations (inc. Toronto)	-1 daily -no. of weeklies	
Bushnell*	-radio stations in 7 markets -television stations in 6 markets (some are "rebroadcasts") -3 cable systems		
CHUM Ltd.- Allan Waters*	-radio stations in 4 markets -1 TV station		
Crepault Group	-radio stations in 5 markets		
Paul Desmarais, Jean Parisien, Jacques Francoeur*	-radio stations in 2 (small) markets -1 television station	-4 dailies (inc. -Power Corp. Montreal <u>La</u> <u>Presse</u>) -large no. of weekly publica- tions	
Dougall Family	-radio, TV in Thunder Bay, Ont. -some additional (small) radio		
F.P. Publications*		-newspapers in Ottawa, Winnipeg, Toronto, Calgary, Lethbridge, Vanc- ouver, Victoria.	

*Identified by Clement as the "media elite"

<u>Group</u>	<u>Broadcast Holdings</u>	<u>Press Holdings</u>	<u>Connections with Clement's "Dominant" Corporations</u>
Irving*	-1 radio station -2 TV stations	-5 daily news- papers (all N.B.)	Irving Oil
MacLean-Hunter*	-TV stations in 2 markets (inc. Calgary) -16 cable systems	-very large number of business pub- lications and consumer pubs.	
McConnell Family*		-1 daily news- paper -weekend magazines	
Moffat Broadcasting*	-radio stations in 5 markets (inc. Vancouver, Edmonton, Winnipeg) -1 TV station (Winnipeg) - minimum interest in 2 CATV		
Rogers Broadcasting*	-radio stations in 4 markets (inc. Toronto) -cable systems in 3 centres		
Pratee, Baribeau, Lepage Group	-some major form (20%+) with TV stations in 2 markets (Montreal, Quebec) and radio in 3 markets		
Sifton Group*	-radio stations in 4 markets (inc. Winnipeg) -TV stations in 2 Sask. markets	-2 daily newspapers	

*Identified by Clement as the "media elite."

<u>Group</u>	<u>Broadcast Holdings</u>	<u>Press Holdings</u>	<u>Connections with Clement's "Dominant" Corporations</u>
Southam-Selkirk*	-radio stations in 6 markets -TV stations in 3 markets -2 CATV systems -minimum interest in 4 TV stations, 4 CATV & radio	-14 daily news- papers (incl. Vancouver)	
Standard*	-radio stations in 2 markets (Toronto, Montreal)		-Argus Corp.
Télémedia Ltée.	-radio stations in 6 markets -TV stations in 2 markets		
Thompson Group*		-30 dailies (some in smaller markets) - large no. of weeklies	-Woodbridge
Toronto Star Ltd.*		-2 dailies (inc. Toronto) -large no. of weeklies	
Western Broadcasting*	-radio stations in 4 markets -minimum interest in 4 TV stations -1 CATV system		

*Identified by Clement as the "media elite."

Note: Owning a radio station in a "market" often implies the ownership of an AM/FM combination.

Committee report. Major changes which have occurred with respect to the ownership constellations identified above are as follows:¹⁰

- 1) Bushnell Broadcasting was taken over by standard.
- 2) The CHUM Ltd.-Allan Waters group expanded considerably, acquiring one UHF station in a major market (Toronto), and 4 additional AM/FM radio combinations (not counting 5 additional AM stations held in trust by Allan Waters and L. Hudson in Newfoundland).
- 3) Télémedia acquired additional TV holdings in Quebec.
- 4) Moffat acquired one FM radio station.
- 5) The Rogers Group acquired Canadian Cablesystems, giving it considerable cable holdings (especially in Ontario).
- 6) Another group, IWC-Slaight, controlling the Global TV network (in Ontario), 3 AM radio stations and 3 cable systems, emerged.
- 7) MacLean-Hunter (through CKEY) acquired an additional radio AM/FM combination in Ottawa.

A considerable number of further mergers have been denied by the Canadian Radio-television and Telecommunications Commission, including attempts: 1) by Moffat to acquire an additional radio station, 2) on various occasions by MacLean-Hunter to expand its cable operations, 3) by Baton Broadcasting (Bassett) to acquire a TV station in Montreal.

How major, then, have shifts in the ownership of broadcasting undertakings been? The data which are available suggest that there has been considerable pressure towards

further concentration in an already highly-concentrated industry. The tendency towards concentrated ownership has been mitigated only by the reluctance of the CRTC to grant approvals to all mergers, and the licensing of additional FM radio stations and additional (usually UHF) TV stations (often third TV service) where spectrum permits. This, of course, will not continue indefinitely as frequency availabilities are limited.

It is not clear whether this tendency is, in some way, related to the "trafficking" of licenses — that is, the sale of broadcast "properties" more on the basis of future expected profits than on the basis of real asset costs (based on historical costs). Clearly, broadcast frequencies are defined in the Broadcast Act as "public property"; yet, as Babe (1976) has pointed out, such licences are rarely forfeited by licensees involuntarily (i.e., renewals are almost automatic). Under these circumstances, one might expect heavy upward pressure on the "market value" of broadcasting undertakings if profit rates in the industry as a whole are high.

In 1977, the ratio of profit to equity in the broadcast industry¹¹ was about .204 (20.4%). This figure, broken out by province, is as follows:¹²

<u>Province</u>	<u>Overall broadcast Profit ÷ equity*</u>
Newfoundland, P.E.I.	7.06%
Nova Scotia	17.08%
New Brunswick	17.50%
Quebec	18.04%
Ontario	24.02%
Manitoba	14.12%
Saskatchewan	18.16%
Alberta	30.28%
British Columbia	14.58%

*Profit refers to before-tax profits.

Profits in the broadcast industry are not evenly distributed among broadcast licensees, but rather tend to be concentrated in the hands of those owning larger undertakings. Broken into groups based on the size of the broadcast undertaking, the "cost of capital" (interest + profit) in relation to the cost of assets for different broadcast groups is as follows:¹³

<u>Group</u>	<u>(Profit + interest) ÷ Equip. cost</u>
1 (largest)	35.8%
2	22.2%
3	18.6%
4 (smallest)	7.6%

It is clear that the larger undertakings reap a considerable portion of the industry profits, while on the other hand smaller undertakings may not even be capable of

meeting the cost of capital (i.e., investors may be failing to get a "reasonable return" in comparison with other industry sectors or even in comparison with bank savings interest rates). Ironically, one of the arguments in favour of concentration of ownership has been that the cost of capital is less (i.e., large organizations are able to get lower bank rates for debt capital).

Without arguing in detail the merits of the "economies of scale" thesis,¹⁴ it must be suggested that if large media conglomerates holding broadcast licences in major centres are responsible for siphoning large amounts of financial resources from the broadcasting system through profits over and above those required to meet the cost of capital, the aggregate level of "efficiency" in the industry may become unimportant. An industry can be highly efficient yet return very little to Canadian program production. Interestingly, despite lower profit levels, single broadcast stations spent an average of 26% on programming, versus 23% for "group owned" stations (CRTC, 1979d:29).

C. Cable Television Concentration

The following table provides some indication of the overall level of concentration in the cable television industry:¹⁵

<u>Group</u>	<u>Number of Subscribers</u>	<u>% of Canadian CATV</u>	<u>Cumulative %</u>
Rogers-Canadian Cable- systems	572,000	16.75	16.75
Premier Cablevision	449,000	13.15	29.90
Cablevision Nationale.	333,500	9.77	39.67
MacLean-Hunter	300,700	8.81	48.48
CUC Ltd.	130,400	3.91	52.39
Cable TV Ltd.	120,000	3.51	55.90
Cablecasting Ltd.	144,700	4.24	60.14
Moffat Communications	105,500	3.09	63.23
Capital Cable TV	95,500	2.80	66.03
Northwest Community Video	88,600	2.60	68.63
Agra Industries	62,400	1.83	70.46
Selkirk Holdings	54,300	1.59	72.05
Bushnell/Standard	46,200	1.35	73.40

As shown, the largest 13 firms control almost three-quarters of the subscribers in the country. Since cable already "passes" about seventy per cent of the Canadian population, one would not expect this figure to decline much as the availability of cable in the country increases (in contrast, high levels of current concentration in the U.S. industry may not be indicative of the ultimate development as penetration is low and much of the country is "uncabled"). Of the companies identified above, MacLean-Hunter, Moffat, Agra, Selkirk/Southam and Standard/Bushnell have extensive electronic media interests outside cable television. Rogers/CCS has a 49% ownership of Famous Players Theatres and a few radio stations. Western Broadcasting, with extensive over-the-air broadcast interests in British Columbia, owns 26% of Premier, and is currently in the process of applying to the

CRTC to acquire (through a holding company to own both Premier and Western) an additional 24.5%.

Corporations having cable interests are reasonably large, and compare in size (assets, revenue) to other large media corporations. Some comparative asset/revenue figures for cable and non-cable media groups are as follows:¹⁶

<u>Company</u>	<u>Gross Revenue</u> <u>\$,000,000</u>	<u>Assets</u> <u>\$,000,000</u>
Cable Holdings:		
Rogers-CCS	25.3	100.2 *excluding Rogers
Premier	33.4	53.8
Cablevision Nationale	21.9	33.9
MacLean-Hunter	140.4	198.2
Selkirk/Southam	369.0	239.5
Standard/Bushnell	48.6	43.5
Non-Cable:		
Baton (Bassett)	65.7	54.0
CHUM Ltd.	37.8	37.1
F.P. Publications	210.7	154.0
Thompson Newspapers	257.0	297.0
Toronto Star Ltd.	220.9	159.8

The level of concentration in the cable television industry has been exacerbated by the CRTC's policy of not considering concentration in the industry as problematic. This attitude is expressed in CRTC decision 79-9, which approved the takeover of Canadian Cablesystems by Rogers Telecommunications Ltd.:

Cable television undertakings in Canada primarily distribute and exhibit programming produced, acquired and scheduled by others. They do not, apart from the community channel and specially authorized programming

channels, engage in the production, acquisition or selection of programming. . . . Accordingly, the concerns so dominant in [CRTC decision 78-669, in which the CRTC denied Baton Broadcasting permission to acquire a Montreal TV station] do not, in the Commission's opinion, apply to applications such as the present one, which propose increased cable concentration. On the contrary, the Commission is of the view that significant and positive benefits can derive from increased cable concentration.

D. Cable Concentration and Future Industry Structures

The attitude that cable television is and will continue to play a negligible role in the provision of programming may be somewhat shortsighted. Aside from the stated interests of some provinces (most notably, Ontario) to see the wider development of cable services, one might look to the activities of the industry itself to evaluate the likelihood of an involvement in programming. Currently, the cable television industry, through the Cable Satellite Network (CSN) has purchased options on the Telesat Satellite, and has been aggressively promoting certain types of national programming distribution configurations to be controlled by the cable television industry. While immediate plans provide only for the distribution of the House of Commons debates, it is well known that the cable television industry in Canada is actively pursuing a mandate to operate a pay television network (through PTN, an incorporated agency which proposes to run a pay-TV network). That cable will remain an unimportant force in the provision of programming services is, therefore, by no means clear. This issue, and some related questions, will be (or

have been) discussed in greater detail in chapters analysing pay television and the prospects for "universal cable."

E. Trends in Government Attitudes Towards Concentration

There is a clear and growing tendency in some government circles to regard concentration of ownership as unproblematic. This point of view is reflected in the Report of the Royal Commission on Corporate Concentration (Bryce Commission), in which is expressed a concern for the development of economically efficient units to compete internationally (1978:132) and a concern for the "costs" imposed in attempting to exercise any sort of (regulatory) control over an industry (1978:396ff). This sort of anti-interventionist sentiment is echoed in the recent activities of the CRTC. For example, the Commission is currently reconsidering its long-standing policy prohibiting cable television-broadcast television combinations and television-newspaper combinations (CRTC, 1979b). And the Commission's qualified but enthusiastic response to private broadcasters' demands for "deregulation" at the recent Canadian Association of Broadcasters meeting in Toronto (April, 1979) seems consistent with this pattern.

With respect to the issue of "efficiency," it might be pointed out that the same sort of considerations which apply to manufacturing industries may not be germane to the communications sector. Indeed, one of the criticisms of the Canadian Broadcasting Corporation's activities is that it is too centralized, and that it does not "parcel out" enough of its

programming commitments to smaller production organizations (CRTC, 1979e:50 et passim). This sort of consideration — that decentralization of production into smaller "units" is desirable — does not appear to be terribly consistent with the idea that concentration of ownership in the private sector is unproblematic.

F. Cable Concentration and Provincial Regulation

It is not clear how provincial governments would respond to the issue of concentration of ownership. A number of considerations, however, suggest that there might be more scrutiny over levels of concentration in the private sector (especially in cable) under provincial regulation:

- 1) provincial governments (e.g., Ontario) regard cable as the potential source of programming services, and as such would probably not dismiss the importance of cable as the CRTC has done;
- 2) there is a concern, on the part of some provincial governments, for maintaining "competition." While by definition cable franchises are natural monopolies, one might expect either (i) a tendency for provincial governments to be more reluctant to grant mergers or (ii) provincial governments to make serious provisions for the separation of content and carriage (especially in the Prairies, where telephone companies are owned by the provinces);
- 3) The sheer size of corporate mergers relative to an

individual province (as opposed to their size in relation to the whole country) might make mergers appear more problematic to provincial governments. Premier Cablevision controls 13% of all subscribers in Canada, for example. On a provincial level, however, this translates to almost 50% of the subscribers in B.C.

Regarding the CRTC's approval of the Rogers-CCS takeover, it should be noted that the Province of Ontario filed a representation with the Commission expressing its concern over the issue of corporate concentration in the cable television industry.¹⁷ This representation seems not to have been considered or addressed in the CRTC's decision.¹⁸

The levels of cable corporate concentration in individual provinces can be seen in the following table:¹⁹

<u>Province</u>	<u>Company</u>	<u>No. of Subs.</u>	<u>% of Province Largest Co.</u>	<u>Others</u>
British Columbia	Premier	322,500	49.26	
	Northwest Video	73,000		11.16
	Western Cablevision	59,300		9.06
Manitoba	Moffat Communications	105,500	68.29	
	Cablecasting/Selkirk	49,000		31.71
Ontario	CCS-Rogers	520,000	34.62	
	MacLean-Hunter	300,000		19.82
	Premier	126,600		8.34
	CUC	133,400		8.79
Quebec	Cablevision Nationale	330,500	49.18	
	Cable TV Ltd.	120,000		17.69
	Videotron	66,200		9.76
Alberta	3 cable systems in Calgary & Edmonton with 60,000 subs. each		(figures not available)	

It has been suggested earlier that there is a great amount of public concern regarding the size of corporations in the country (cf., Vol. 2, Chap. II on Objectives and Public Opinion). Yet, paradoxically, this concern is matched by an increasing tendency (within the federal government) to regard increasing levels of corporate concentration as unproblematic if not desirable. In the area of communications, we might suggest a review of the issue of how the Canadian mass media system might best be structured (in terms of ownership and control) towards the goal of establishing some overall "structural" priorities (relative size of private versus public sector, desired levels of corporate concentration, etc.). A more detailed analysis is, however, clearly beyond the purview of the current investigation.

ENDNOTES

¹The figure which is cited here excludes a small increase which would be expected if a proposed merger between Western Broadcasting and Premier Cablevision is approved (Rogers Telecomm. Ltd., 1978:166).

²The term "multiple system ownership" (or "multiple system operator" - M.S.O.) is usually employed in conjunction with cable television. Here, it shall be used to denote all types of (mass) media.

³Without any loss of generality, one might extend this concept to rare instances in which one owner controls more than one radio or TV outlet or newspaper in a single community. One might also argue that this problem — control over more than one media outlet in a community — is implicit in the ownership of a single cable system insofar as there is no formal separation of the "carriage" function and control over local origination content (i.e., as cable operators control more than one local origination channel on their systems).

⁴Cf., CRTC decision 74-58.

⁵CF., CRTC decision 74-44.

⁶In one instance, the CRTC actually extended its consideration to non-media holdings. In denying Campeau Corporation permission to acquire Bushnell Broadcasting in Ottawa, it cited the possible conflict of interest involved with a local real estate developer owning a local media property. Cf., Decision 74-390. A concern for the overall influence of a corporation in non-broadcast (economic) areas does not, however, appear very frequently in CRTC decisions and announcements.

⁷Ironically, the CRTC denied a transfer of ownership involving an attempt by Baton Broadcasting Inc. (Toronto CTV licensee) to acquire the assets of Multiple Access Ltd. (Montreal CTV licensee). The CRTC argued that while it might in future accept a "Canadian programming" rationale in support of further concentration, it could not see such benefits in the proposal before it at that time.

⁸Baldwin also raises the issue of the role of the CBC: Clement, in his discussion, omits the Corporation in determining what percentage of mass media outlets are connected with "dominant" corporations.

⁹This issue is raised to some extent by Baldwin (1977).

¹⁰CRTC decisions, 1975-1977, and CRTC (1979c).

¹¹The profit-to-equity ratio may be taken as one measure

of "rate of return." It will, however, understate the ratio between original shareholder investments and current profits, as it excludes 'retained earnings'; in the broadcast industry, a large proportion of 'equity' consists of such retained earnings (whether, and to what extent, these earnings are a legitimate basis for the computation of shareholder equity will not be debated at this point).

¹²Statistics Canada, Radio and Television Broadcasting, 1977 (1978).

¹³This ratio probably understates profit levels as it fails to account for depreciation (considered an allowable cost in the calculation of overall profit). One might alternatively compute $[(\text{profit} + \text{interest}) \div (\text{equip. cost} - \text{accumulated depreciation})]$ or $[(\text{profit} + \text{depreciation} + \text{interest}) \div (\text{equip. cost})]$ for a better measure of "rate of return."

¹⁴Cf., Rogers Telecommunications Ltd., (1978) and Canadian Cablesystems (1978).

¹⁵Rogers Telecomm. Ltd. (1978:166-168). Data acquired from corporate annual reports and Financial Post Corporations Service, August 1977.

¹⁶Rogers (1978:168).

¹⁷The representation did not make a specific recommendation with respect to the merits of the individual case.

¹⁸No doubt, this gives the province a further cause for arguing that representation within the current structure of the CRTC is not workable.

¹⁹Rogers (1978).

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CHAPTER VIII

NON-PROGRAM SERVICES ON CABLE

A. Closed-Circuit Services: An Overview

To date, the cable television industry has consisted of little more than the retransmission of broadcast programmes received over the air (in some cases, using microwave or even satellite as an intermediate link). This reflects a number of factors:

1. The regulatory authorities have afforded some measure of protection to the cable television industry to prevent competition. Neither the CRTC nor the Department of Communications (the latter being the only authority actually issuing licenses for CATV prior to 1968) granted the telephone industry permission to act as a CATV undertaking. In turn, the high level of profitability in the cable industry (often in low-risk circumstances) afforded cable operators little incentive to "expand" (or innovate) in newer (and more risky) service areas.
2. The CRTC has been highly negative in its response to requests of cable television operators to provide any (programming) service which could prejudicially affect over-the-air broadcasting. Effectively, the CRTC has banned cable operators from providing any such services.
3. There appears to have been some considerable uncertainty on the part of the cable television

industry with respect to the CRTC's response (i.e., potential response) to any proposed "non-programming" service. In the face of this uncertainty — if not a presumption that the CRTC would simply ban such services as it appeared to ban programming services which were not "over-the-air" — cable operators appeared to be reluctant to submit applications to the CRTC.

4. In general, the common carriers have always had the ability to cross-subsidize any non-programming service to a much greater degree than could the cable industry. So the threat of a ruthless price-cutting war in the area of competitive services — that is, virtually any non-programming service — always existed. The result of such competition could conceivably be the economic demise of the cable industry.
5. Over and above the telephone utility response suggested above, telephone companies might attempt to retaliate by making moves to reconfigure the entire telecommunications delivery system through the introduction of optic fibre networks which might (ultimately) diminish the role of cable operators under a "rationalized" one-wire delivery system.
6. Prior to the CRTC's recent imposition of "pole lease" arrangements on Bell Canada (and B.C.

Telephone), telephone companies largely owned cable trunk lines and leased them back to cable operators. The nature of these "partial lease agreements" restricted cable operators from offering anything other than a specified set of services. Telephone companies still own considerable proportions of cable trunk line hardware in many provinces.

7. Technological limitations related to the nature of the cable system (e.g., limits on two-way services prior to the development of bi-directional cable trunk amplifiers) restricted non-programming developments.

While in general, closed-circuit services have not been developed on a widespread basis in the cable television industry, following a very pronounced CRTC policy, cable operators have developed the "community channel." Current CRTC regulations require the carriage of such a channel on a priority basis, but are somewhat vague in terms of what, exactly, cable operators must do with respect to such a channel. CRTC policy statements relating to cable television have, however, spelled out in more detail what the CRTC "expects" (but has not formally legislated).¹

In the area of programming services, a number of cable operators have, in the past, proposed the carriage of a special "movie channel" to augment service (and, presumably, attract subscribers). The CRTC has consistently denied applicants permission to carry such services on the grounds

that they would detrimentally affect broadcasters.

In a few special cases, movies in languages other than English or French were permitted on cable closed-circuit channels; this, of course, is consistent with the policy of not allowing competition which could draw audiences from regular broadcast services.

In the late 1960's and early 1970's a number of community organizations negotiated the carriage of special audio services on cable with their respective cable television licensees. These services would be carried on the FM band, and could be received by anyone subscribing to cable FM. For the most part, these groups consisted of student radio clubs, but there were also ethnic and/or community radio organizations involved in some of the larger centres. Examples of such groups would be Radio Waterloo in Waterloo, Ontario and Radio Centreville in Montreal, Quebec. Many of these organizations have since acquired regular FM radio licences for low-power operations (e.g., the Waterloo and Montreal organizations mentioned), but a considerable number still operate solely on cable FM. The increasing scarcity of FM spectrum, even for low-power "drop-in" frequencies, has meant that in some centres it is difficult or impossible to locate a usable FM frequency. In other instances, groups are simply not sufficiently well organized to apply for full-fledged radio (FM) licences. While initially some such services may have developed from a desire (on the part of the groups providing these services) to not have to cope with the plethora of regulations governing

regular over-the-air broadcasting, the CRTC has recently imposed upon such closed-circuit operations some of the requirements which currently apply to regular broadcasters (need to keep on-air log tapes, requirement for "balanced programming") as well as some additional restrictions not normally applicable to over-the-air broadcasters (for example, a ban on commercials).²

For some time, the CRTC appeared to embark on a policy precluding all closed-circuit FM services on cable television undertakings. As part of its cable television regulations and policies, the Commission in late 1975 ruled that "closed circuit audio services not authorized by the Commission for carriage by cable television licensees [would have to] be discontinued."³

Effectively, this meant that, in conjunction with the CRTC's policy that "other means" should be found for the distribution of such services (e.g., carrier current, FM broadcasting), services using only cable were to be discontinued entirely. In March of 1976, the CRTC issued an announcement extending the deadline for the discontinuation of such services until March of 1977, and another "extension" was granted in 1977. Finally, in 1978, the CRTC issued an announcement extending indefinitely the deadline for compliance ("until further notice"); this announcement alluded to the fact that the proposed cessation of closed-circuit only services "affected many existing closed-circuit audio services involving ethnic and student programming services," and to the

fact that "few operators of such services [had] found alternative means to distribute their broadcasts."⁴

The other major development in the area of closed-circuit services has been the "digital information channel." Digital information services typically include weather information, stock market information, airport arrival/departure information, news (e.g., newswire service) and possibly special community information. From the standpoint of the subscriber, a particular channel may be tuned in to provide one of the aforementioned services. Each service consists of a number of printed lines of information which is usually presented in a "rolling" fashion (as the bottom line disappears, all lines move down one and a new top line appears). Each service consists almost entirely of printed words (with the possibility of different solid-colour backgrounds to provide some contrast), although some limited graphics capabilities may be possible.

In some major systems (e.g., Rogers Cable in Toronto), each of these "services" occupies a separate channel (usually a converter channel). On other systems, a number of services (e.g. news and weather) are combined on a single channel. In the case of some companies (e.g., Rogers Cable in Toronto), the provision of these "digital" services has meant that most of the available channels on the cable system have been "used up." Each "service" (news, weather, etc.) is transmitted on a separate channel so that home viewers can receive the service with no special decoding equipment. This, in many senses, is

wasteful of cable spectrum, in that the actual information transmitted need only occupy a very limited bandwidth in contrast to the full TV-channel bandwidth (6 MHz.) actually used. This will be discussed in more detail later.

B. The Development of Non-Programming Services

While the cable television industry has always spoken enthusiastically about the development of non-programming services such as the "digital" services provided to a limited extent already (albeit with some form of additional subscriber payment) and services such as burglar alarm services, there are a number of pragmatic constraints on the development of such services aside from the issues relating to regulatory restraints and competition from the common carriers.

Currently, there are a number of approvals which have been granted by the CRTC.⁵ These are outlined as follows:

1. Grand River Cable TV (Canadian Cablesystems) in Kitchener, Ontario, is providing: (i) news, airport and train schedules, TV listings and entertainment information for consumers; (ii) company reports, business headlines, stock trading data, etc. for professional and institutional users.
2. London Cable TV (Canadian Cablesystems) is providing fire and burglar alarm services.
3. Ottawa Cablevision is providing services similar to Grand River Cable above.

These approvals follow a CRTC policy statement issued

in June of 1978 indicating the CRTC would give "prompt and favourable consideration" to such applications.⁶

Currently, there are a number of practical problems associated with the provision of these services. If such services are to be provided on a subscriber-payment basis (i.e., not included as part of a basic service package), clearly the provisions of such services on regular, unscrambled television channels on cable will not suffice. In addition, such uses might preclude the future availability of services such as pay television and/or CBC-2 and/or the carriage of Parliament in some centres in which the 36-channel capacity of existing cable technology would be fully utilized if a single channel is provided for each "service."⁷

One solution to both problems is to use some form of "frame-grabbing" device (the term "frame-building" is also used) at the home. Thus, "special service" signals can be sent via cable without using a full (regular) TV channel, and spectrum space can be preserved. Approximately 100 digital services could be accommodated on a single television channel. Alternatively — and this is a method currently being employed in the cable industry⁸ — one might on a limited basis insert information in the "vertical blanking" portion of a regular TV channel.

While this does not affect the signal received on the channel itself, it effectively uses the channel as a "carrier" for additional information. In some ways, this usage is analogous to the use of SCMO (auxilliary communications)

channels on FM — an additional signal is broadcast as part of the channel, but only those individuals with special receivers can obtain this signal.

The problem with "frame-grabbing" devices is their expense. Typically, to prevent degradation of quality, it is necessary to connect the decoder device directly to the "guns" of a colour television set. Since most subscribers would be unwilling to submit to cable company alterations to their TV set (there might, additionally, be some legal problems), this implies cable companies must provide a "package" — both the decoder and the TV set (the latter could also be used for regular TV reception). Costs at this point are prohibitive. The wholesale cost of a decoder, in U.S. funds, is approximately \$1,000. An additional \$100 would be required to modify a TV set. It is not clear that, given the cost of the decoder (perhaps \$1,500 all told) and a colour TV set, that rental could be provided for less than \$35 per month.⁹

Much in the same manner that pay TV decoder costs have declined dramatically in the past few years, one might expect some improvements in the costs associated with digital decoders. But for the near future, the prospects are not very favourable for the development of a profitable "supplementary service" package on cable. There is also the issue of technological standards (which frame-grabbing system will develop as the industry standard?) which has created an amount of uncertainty which is, apparently, causing cable

operators to be quite hesitant before committing large amounts of money to such services.

But aside from the economic and technical problems associated with non-programming services, there exists the fundamental question of where these services will originate from, and whether a common-carrier type arrangement will evolve. Currently, the thinking in the cable industry seems to be that, somehow, "free" services can be obtained, and that the providers of these services will not insist on a per-user charge. In some cases — such as newswire service — there might in fact be a charge, but this charge is reasonably unsubstantial and can be easily accommodated within the cable company's operating budget. But what forms of expansion are possible before software providers begin to assess per-user charges on cable system operators? One might speculate, for example, that the newswire services might, if cable operators initiate a special charge for non-programming services, ask for a proportion of revenue far in excess of that currently demanded for the provision of service. More importantly, other specialized information providers might similarly wish to assess "per-user" charges; this development would be analogous to that which is already occurring with respect to software provided for computer systems, and also parallels developments in the area of copyright protection policies in the United States and to a lesser extent in Canada.

There is also some ambiguity in the cable television industry regarding the role cable television operators are

to play in the provision of special non-programming services of a "digital" nature. There is, on one hand, the feeling that cable operators themselves should not get involved in providing content to any major degree (rather, that they should seek out community sources, i.e. groups in the community willing to provide services). On the other hand, there seems to be a presumption that community groups will willingly provide these services gratis to the cable industry. Hence, the issue of charge-back systems is largely ignored. While this may be true in certain limiting cases, it is clear that if there is to be a widespread development of digital services, ultimately some form of payment to the sources of information will be necessary.

Not all non-programming services which have been suggested to date, of course, involve the use of some form of "software." Thus, the considerations which have been mentioned above do not for the most part apply to services such as burglar alarm services. In the case of these sorts of services, one crucial consideration has been the ability of cable television systems to provide "reverse flow" information movements. Traditionally, of course, cable television systems have been one-way systems (feeding from a head end to subscribers). While the tree-like nature of cable systems has created certain technical noise problems (signal-to-noise ratios in reverse direction are higher), the use of bi-directional cable has become common in some Ontario cable systems. Channels below channel 2 on the spectrum (labelled

T-2, T-3 . . . etc.) can be used if bi-directional amplifiers are employed in the system. Many currently available push-pull amplifiers have the capacity to accept "plug-in modules" to handle reverse-direction feeds, although in general the costs for constructing a system based on two-way transmission are somewhat higher than those of a simple, one-way system. (The cost, though, only increases in terms of increased amplifier costs; the physical cable and trunk lines need not be changed.) In terms of services where the information can be transmitted from the home to the cable system in digital form, the problem of "noise" is less bothersome.

A polling system can be established at a cable head end which systematically scans the distribution network. With each home on a different frequency (albeit a very narrow bandwidth), some form of "addressability" is ultimately possible. This basic principle could be used for meter reading, burglar alarm services and/or pay television per-program metering systems. Even reverse-direction video is possible, although the limited bandwidth currently available for reverse-direction feeds puts some constraint on such options.¹⁰

The problem with services involving reverse-direction feeds is that the capital costs related to system construction increase (e.g., with the need to purchase bi-directional amplifiers). The issue of whether or not regular subscribers will end up subsidizing these services thus becomes important.

C. The Problem of Allocation of Costs

The major concern which has been raised by the CRTC with respect to non-programming services is that such services not adversely jeopardize the provision of regular broadcast services.¹¹ On the surface, the suggestion that services such as burglar alarm services or weather information on cable could "harm" broadcasting (or programming) services would appear ludicrous. There are, however, a number of important matters which need to be considered. First, under conditions of limited availability of cable channels, such services might indeed pre-empt potential broadcast services (pay TV, CBC-2, etc.). Cable operators might, unless there is a specific policy to the contrary, simply refuse to carry additional programming services. This possibility is, however, remote, and the regulatory remedies are relatively simple. Given the fact that cable operators will probably move to the use of "frame-grabbing" equipment and other facilities using very narrow bandwidths on cable, the problem is mitigated severely.

The other difficulty arises from the use of revenues generated by cable subscribers in general to cross-subsidize "special services." This might occur under conditions in which cable television is rate regulated; in this situation, since profits are limited, the firm's response to this limitation is to typically attempt to maximize total revenue.

Hence, cable operators would be little concerned about whether a particular service "paid its way," but would be

concerned solely with maximizing total revenue. Non-programming services could, indeed, operate at a loss, but this loss could be offset by increases in rates for regular subscribers unless some method for separating costs were devised. The concern for cost separation has appeared in current CRTC announcements regarding non-programming services.¹² While such a separation might be easy if incremental costs are considered alone, if a reasonable allocation is to be made for costs involving shared facilities (i.e., the cable distribution system itself), a considerable amount of regulatory difficulty might ensue.

D. The Impact on Broadcasting

The provision of non-programming services might have no immediate or even long-term impact on programming (broadcast) services in Canada. If, however, it is deemed desirable to provide what are now over-the-air broadcast services via a combination of "universal cable" for most centres and direct satellite broadcasting for residual remote areas not serviceable via cable, then it would be very important, as a part of a broadcast policy¹³ to ensure that cable (broadcast) services are provided as inexpensively as possible (i.e., are "accessible" to as many people as possible). This in turn would imply (i) that it would be vitally important to prevent cable operators from cross-subsidizing competitive services such as burglar alarm services from general subscriber revenues or even (ii) that it would be desirable to subsidize regular

"broadcast" services on cable from "special services." The ultimate objective would be to provide those cable services which are used to bring broadcast-style services to the subscriber (or, at least Canadian broadcast-style services) at the lowest cost possible.

If, in such an environment, the regulation of cable television rates is left under provincial control, it is not clear that a policy of minimizing costs for broadcast service subscribers would be met; clearly this would depend entirely on the sorts of objectives provincial governments retain. If, for example, a province desires to maximize competition with a telephone utility (this would not be inconsistent with the objectives of Ontario or British Columbia), then it might conceivably follow that the province would develop an incremental pricing policy for "extra" services (i.e., the non-programming services are not required to pay for a proportion of "common" costs), to be ill-concerned with the concept of cost separation, or even to permit cable operators to offer such services at a loss — at least on a temporary basis — to facilitate competition over the long run. There is, of course, no more of an a priori reason for assuming that the provinces would thus consciously defeat a federal policy aimed at the ultimate development of a cable-satellite system than there is such a reason for assuming the CRTC would act in a similar manner. But the federal government would no longer have the power to control the price subscribers ultimately pay for broadcast services via cable, and would have to trust

to inter-governmental negotiation the resolution of any attendant problems.¹⁴

An alternative strategy for the federal government would be, of course, to construct a broadcast system based on the continued dominance of over-the-air broadcasting simply to retain some element of "control" over the degree of universality (universal availability) with which programming ("broadcast") services are provided. It is not clear that such a policy — formulated more in terms of retaining power in the face of inter-governmental exchanges of power than in terms of the development of a system (or systems) which best provides for the needs of the Canadian people in the face of technological and cultural change — would be desirable.

One final consideration might pertain to the fact that even if cable rates (for "basic" programming services) are unreasonably high, the majority of households will nonetheless subscribe due to the high inelasticity of cable services. Currently, subscriber demand in most cable locations seems to be relatively inelastic and even relatively large rate increases have not seemed to have affected the high penetration rates — often in the order of 80 per cent — in most areas of the country. In those centres where off-air signals are not available (i.e., microwave is used) even higher cable rate structures seem to have little impact on subscriber rates, although clearly there might at some extreme point be finite limits on the rates which could be charged. So, in some senses, regardless of the rates charged, cable will be

relatively universal. How much people pay might thus be conceived as a consumer rights issue (i.e., to what degree do individual subscribers get dealt with fairly) which is a matter of local, rather than national concern.

Certainly, if off-air reception is not available and the only alternative to cable is an expensive (\$300-600) satellite receiving antenna, an almost 100 per cent penetration rate for cable might be predicted. Whether the federal government should be concerned with how fairly national services are provided, i.e., at what cost, is rather fundamental to the issue of non-programming services (and also that of content/carriage separation) and must, ultimately, form the basis of one of a series of political decisions which needs to be made vis-a-vis the division of power.

ENDNOTES

¹Cf., "Policies Respecting Broadcasting Receiving Undertakings" (Cable Television), 16 December 1975. The CRTC's emphasis on the community channel, as demonstrated by licence renewal decisions admonishing licensees to put "more effort" into such facilities, seems not to be as pronounced as it was in the earlier 1970's.

²Cf., CRTC, "A Review of Certain Cable Television Programming Issues" (March, 1979), pp. 27-29.

³CRTC, "Policies Respecting Broadcasting Receiving Undertakings," 16 December 1975.

⁴CRTC, "FM-Closed Circuit Audio Services on Cable Television," Public Announcement dated February 18, 1978. Cf., also, announcement of same title dated March 24, 1976.

⁵CRTC, "Non Programming Services by Cable Television Licensees," 25 March 1979.

⁶CRTC, "Non Programming Services by Cable Television Licensees," 6 June 1978.

⁷While cable systems can accommodate as many as 40 channels if the "sub-low" spectrum is included, some channels are normally reserved for bi-directional (reverse direction) signals. Thus, 36 channels probably represents the limit of existing coaxial cable technology. Of course, with fibre optic technology, this situation would change immensely. There are, though, some problems which need to be solved prior to the implementation of fibre-optic technology, and the current practice of cable companies is not to plan on the use of fibre-optics for medium-range (up to 5 years) replacement and upgrading programs.

⁸E.g. with the "Info-Text" system.

⁹If one assumes a \$1,500 cost for decoder + TV set modifications plus a \$500 cost for a TV set, if a 5-year depreciation schedule is used, \$35 would barely cover depreciation costs (including interest), let alone maintenance charges and let alone the cost of providing the actual service. If an RF unit — at approximately \$100-200 — were used the subscriber's TV set could be employed, but with some degradation in quality.

¹⁰In addition, due to the noise problem, reverse direction TV might ultimately use FM modulation to improve signal quality. Unfortunately, such modulation techniques would use 14 MHz. per channel (vs. 6 MHz. for regular TV channels) — displacing 2 regular TV channels.

¹¹Cf., CRTC announcement, "Non-Programming Services by Cable Television Licensees," 25 March 1979.

¹²CRTC, "Non-Programming Services," 26 March 1979, pp. 4-5.

¹³The term is used in a generic sense to refer to mass audience programming.

¹⁴The issue of the cost of cable services is also related to the type of regulation applied to cable rates. As will be discussed in the section dealing with Content/Carriage separation, federal (CRTC) regulation has tended to permit cable operators to operate with profit/equity ratios which are quite high. This in turn has increased costs to the subscriber. Some provinces have, in response, argued for rate-of-return style regulation; in this sense, provincial objectives would be more compatible with a federal policy aimed at making cable "universal" than would existing CRTC policies.

CHAPTER IX

CONTENT/CARRIAGE SEPARATION

A. Content/Carriage as a Mechanism for Dividing Authority

One of the proposed mechanisms for the division of powers between the federal and provincial levels of government in the area of communications is that of splitting the field into two general areas, one concerned with content and the other concerned with carriage in a manner analogous to that applied to telecommunications common carriers. On a pragmatic level, this distinction would give to the level of authority controlling content rule-making, power in areas such as: content quotas (Canadian content), requirements for balance and diversity, programming prohibitions, commercial regulations and so on. The level of authority responsible for carriage would, in the instance of cable television, set rates, determine franchises, provide assent for non-programming services (e.g., burglar alarm systems). Somewhere between these two levels of authority would lie control over areas such as channel allocation priorities (presumably, one level of authority's power could be over-riding). The actual mechanisms by which authority might be distributed are discussed in more depth elsewhere in this report. This section will, therefore, confine itself to some of the social and economic, as opposed to legal issues related to such a potential division of power.

B. Political Acceptability

It should be noted from the onset that, if the federal government were to propose a division of powers in which it

retained full and complete control over content, and in which it did not delegate or otherwise pass on to the provinces some portion of its ability to make rules respecting content,¹ there can be little assurance that such a proposal would be accepted by the provinces as anything more than an interim measure to be implemented pending a future division of powers involving joint (or even sole provincial) occupancy of that portion of the field related to "content."

While Manitoba has signed an agreement which in effect affirms a division of powers giving control over content to the federal government and control over the carriage systems (in cable) to the province, it is by no means clear that other provinces would be willing to accept a similar division. From the standpoint of current policies and objectives,² minimally Saskatchewan and Quebec would not, apparently, be willing to accede to the content/carriage proposal. Arising mostly from stated provincial interests in the area of pay television, one might also reasonably read into the current situation an unwillingness to accept such a situation on the part of other provinces, such as Ontario and British Columbia.

C. Possibilities for the Division of
Responsibility in Cable

Aside from the issue of which level of government controls what, there is some arguable merit to the concept of attempting to make a division in the area of cable television between content and carriage. As has been discussed

elsewhere in this report, there is some possibility that an increasing variety of signals could be carried on a cable-only basis due to a number of factors related to broadcast spectrum shortages, the development of new technologies such as Direct Broadcast Satellite, and the inherent technical advantages of cable in urban areas (vis-a-vis over-the-air broadcasting). Certainly, the conclusion regarding the inevitability of "universal cable" (a cable-only environment with no regular over-the-air broadcasting) was replete with a number of caveats regarding the likelihood that regular over-the-air broadcasting is likely to continue for some time. But this does not mitigate the possibility that a large number of programming services might be provided uniquely on cable. The issue then becomes: how are these to be licensed?

The current CRTC procedures for dealing with the carriage of various broadcast and non-broadcast programming services on cable are quite cumbersome (although admittedly these are currently the subject of a review). A cable licensee holds a licence for the entire system and, as part of that licence, receives specific permissions to carry specified channels or services. Technically, a third party cannot apply to have a programming service carried on cable unless it is otherwise licensed by the CRTC (e.g., owns a broadcast transmitter). In one instance — the early operation of TV station CITY in Toronto — a broadcast transmitter was operated primarily to give the program agency (CITY) complete

control and responsibility over its signal in a manner which would not have been possible if the signal were merely distributed directly to cable companies. Ironically, although the logic of the relationship between broadcasters and cable operators required the signal to first be broadcast through the air (and then received for distribution by cable), under special arrangements TV stations such as CITY feed their signals directly to the cable companies in their community to improve signal quality on cable. While CITY has since acquired more powerful transmission facilities which indeed service a large number of off-air viewers, in the initial operation of the station, the transmitter was more of a "legal fiction" — a device to enable a third party to get licensed on cable systems — than an important means of signal transmission.

This situation was paralleled with the development of closed-circuit services on cable FM. The CRTC has been unable, or unwilling, to provide separate licenses for groups running closed-circuit FM services on cable, thus leaving the cable operator the only party able to apply for a licence, (presumably) holding ultimate responsibility for content. As a means to circumvent this chain of responsibility, some student radio stations actually applied for "carrier current" licences.³ These carrier current licensees would then be carried on cable, much in the same manner as regular FM licensees are. For a short period of time, the CRTC actually attempted to induce closed-circuit cable FM undertakings to

find some manner of getting licensed, and threatened to refuse permission for cable carriage unless they were otherwise licensed (either carrier current or low-power over-the-air FM).⁴

In a future environment oriented towards the use of cable to make up for the deficiencies of the broadcast spectrum, the absence of any provision for separate licensing of content (i.e., individual cable channels) on cable television systems could lead to some rather absurd situations. One might envisage the operation of a larger number of token, low-power TV transmitters which are run for the sole purpose of giving their operators a licence to ensure carriage on cable (without any attendant responsibility falling in the hands of the cable operator).

Thus far, there has been little pressure for a change in the CRTC's policy. The CRTC has more or less indicated that cable-only programming services shall be somewhat limited in nature and shall not, under any circumstances, interfere with or denigrate existing over-the-air broadcast services.⁵ It has, in short, argued against the development of any major programming service thus far on cable. And, pursuant to that decision, the CRTC has deemed the ownership of cable undertakings — or the degree of concentration of ownership in the industry — as unproblematic.⁶ After all, if no major services are to be provided on a cable-only basis (i.e., by cable operators), why need one have the same concerns for "control" as one does in the regular broadcast sector?

The Commission, in confronting the future development of pay television, circumvents the issue of the possible division of licensing between the hardware system and programming channels on that system. In effect, cable operators are to be licensed as "local distributors" for a nationally licensed pay-TV system. Licensing is thus retained by the cable operator, but in the sense that (s)he merely retransmits a national feed, control is limited.

So, with nationally licensed systems, the problem might not really arise until local services develop, and the CRTC has more or less limited such local services to the community channel (which by definition virtually requires economic support by the cable operator). But, ultimately, the question of what to do with respect to third parties and the provision of cable-only programming services will have to be addressed as various factors extrinsic to the CRTC's "field of vision" enter the picture. One may, of course, adopt policies continuing the status quo by simply announcing that cable operators will be left to decide which types of programming services are to be provided and which are not, subject possibly to some regulatory restraint (e.g., balance of programming requirements, certain prohibitions, etc.). But one may, from the standpoint of diversifying the control over the mass media programming industry, find this sort of "hegemony" undesirable when an alternative policy — licensing cable franchises and cable programming channels separately — remains possible.

D. The Tradition of Hardware/Software
Integration in Canada

The notion of hardware ownership has always been tied very closely to responsibility for content in Canadian electronic mass communications. The individual licensee operating a broadcasting undertaking has traditionally been held responsible for content under the various regulatory agencies controlling broadcasting in Canada (the Canadian Radio Broadcasting Commission, the C.B.C., the Board of Broadcast Governors and, most recently, the C.R.T.C.). One brief exception — and this was only a partial exception — occurred during the 1920's when "phantom stations" operated during part of the day. That is, a particular frequency was used by more than one licensee, with each licensee operating the frequency for a portion of the day. Some, but not all, phantom licensees did not actually own their own broadcasting transmitter, but rather leased it (say, from another licensee broadcasting on the same frequency at a different time of day). Phantom stations disappeared early in the history of Canadian radio broadcasting, and since that time there has been little in the way of provision for a separation between control over the transmitting facility and control over content.⁷

The licensee's responsibility over programming — and her/his inability to pass on or delegate that ultimate responsibility to other parties (even with regulatory permission) — is reflected not only in CRTC regulations, but also in other statutes such as libel laws and contempt of court proceedings.⁸ This historical pattern closely linking owner-

ship of a broadcast facility with full legal responsibility for programming has not, of course, been challenged or debated heavily because in many senses it upholds certain property rights accruing to those who hold broadcast licenses. That is, the notion of responsibility has in some senses strengthened the broadcaster's hand in denying individuals or groups other than himself access to his/her broadcast transmitter. Of course, this "denial of access" is not simply or necessarily a conscious (conspiratorial) action, but rather is implicit in the day-to-day functioning of broadcasting undertakings, and in many senses complements the traditional conception relating the holding of a broadcast licence to the ownership of a transmitter or, more generically, the possession of the airwaves as a private (rather than a public) commodity.

Internationally, it is a common practice for countries to divide responsibility over programming from responsibility for transmitting these programs. This occurs in Belgium, Switzerland, France, the Netherlands, and Sweden.⁹ In all instances, the state run transmission company (organization) has a monopoly. In some cases — e.g., Sweden — a single, monopoly programming agency provides all programming. This situation would be more analogous to the division of the CBC into a programming and a hardware corporation than it would be to cable content/carriage distinctions. On the other hand, the transmission companies in France and the Netherlands carry programming provided by a number of different agencies

(state or private) which have control over their programming. In short, a hardware (transmission) monopoly need not imply a monopoly over programming.

E. Cable Television Revenues

Control over the hardware aspect of cable distribution systems is, among other things, control over the flow of revenue in those systems. The CRTC has exercised control over the flow of revenues in two senses: (a) it has put some limits on the rates charged for cable services (and the structure of rates), and (b) it has required that a community channel be operated.

Cable television is, rhetorical pronouncements of the industry in the early 1970s notwithstanding, a monopoly service. Under situations of relatively inelastic demand and an absence of competition to restrain prices, classical public utility rate-of-return economics would demand that an upper limit be placed on profits to protect the consumer and prevent a "net transfer of wealth" from the subscriber into the cable operator's (the investor's) pocket. That is, prices should be "fair and reasonable" (this terminology is employed, in fact, in the revised Broadcast Act), and traditionally this has come to mean that the rate of return should be equivalent to the "cost of capital." In other words, an organization should be allowed profit levels sufficient to attract capital to maintain (and improve as necessary) the operation, but no more (any additional profits would be

undesirable "excess profits"). The classical model assumes, however, that there are no other underlying public interest considerations. Clearly, making cable operators rich would not in itself be an example of an "underlying public interest consideration."

The CRTC has implicitly argued, though, that merely providing existing cable service for the best possible price to subscribers is insufficient. There are, in other words, underlying public interest considerations related to the protection of the existing off-air broadcast system which weight against the "best-price-to-subscribers" model. Unfortunately, the CRTC has done little to specify what these other considerations (which argue against rate-of-return regulation) are, and how they might be met. The CRTC did, for example, attempt to convince cable operators to spend 10 per cent of their revenue on the community channel.¹⁰ But this policy could have been enacted simply on the basis of a regulatory requirement if the CRTC had control over all aspects of cable. The use of cable rate increases as "carrots" to induce cable operators to spend more on the community channel is an inherently inefficient mechanism for directing the flow of revenue in the cable industry towards certain "public" (programming) objectives. Such inducements, though, require the public to bear not only the cost of programming itself (a reasonable burden given the fact that the outcome is presumably of public benefit) but also increases in profits above a reasonable rate of return.

There is, no doubt, a considerable amount of provincial criticism possible with respect to the manner in which the CRTC has set rates. The problem, from the standpoint of the CRTC (aside from an archaic attachment to the notion that in the spirit of free enterprise cable entrepreneurs need not be subject to rate-of-return regulation), is that its influence over cable systems is politically and perhaps legally disputatious. This implies that, for a given action, there is a need to incur additional costs in terms of "payoffs" to certain actors to preclude legal "end-runs" which might in the end be of greater public harm than the short-term excess profits accruing to cable operators.

How well is the cable industry doing with respect to rates of return? Regulated utilities in 1978 made rates of return, before tax, on invested capital in the order of 13 per cent.¹¹ For example, Bell Canada made a rate of return of 13.4 per cent.¹² In terms of after-tax returns to shareholder equity (after-tax profits divided by equity), Bell Canada earned a 12.1 per cent profit.

In the cable industry, figures for 1978 are not available, but in 1977, the industry as a whole across Canada achieved an after-tax profit to equity ratio of 22.17 per cent.¹³ The high proportion of retained earnings in the shareholder equity computations for the cable industry suggest that the 22 per cent figure may understate the effective return investors are achieving. (On the other hand, the ratio

of shareholder investments to after-tax profits —58.57 per cent — clearly overstates the level of effective return). In comparison to other utilities, cable operators seemed to have very low equity/debt ratios, and in effect seemed to have funded system expansion not from increased investment but rather from subscriber revenues (driving up costs somewhat). But aside from this consideration, simply comparing the cable profit/equity ratio with that in other regulated industries suggests that profit levels are indeed above the rate of return needed to secure investment. Across Canada, in 1977, the before-tax rate of return expressed as a proportion of net assets of cable companies (invested capital) was 24.71 per cent, and 28.53 per cent for the 25 largest cable operations (comprising about 50 per cent of the revenue in the industry).

It must be remembered, in discussing these figures, that a number of nascent systems are in temporary "no profit" positions (having only recently completed construction); thus the figure for larger cable systems is probably more indicative of the actual rate of return the industry is experiencing. In British Columbia, where construction is minimal and penetration rates are high, the rate of return (after tax) on shareholder equity was 34 per cent in 1977, with the ratio of before-tax profits to net assets being 28 per cent. Historically, the profit ratios for the cable industry appear in 1977 to be better than previous years, although profits have always been consistently higher than

what would appear to be the cost of capital. The following figures, for the years 1972-1977, provide some indication of how well cable operators have done in the 1970's:¹⁴

<u>Year</u>	<u>(Before tax profits + interest costs)/ net assets</u>	<u>(After tax profit)/ shareholder equity</u>
1972	19.15%	18.56%
1973	(data not available)	
1974	22.93%	17.48%
1975	22.38%	16.20%
1976	23.38%	16.76%
1977	24.71%	22.17%

It must be emphasized that there are alternative methods for computing "rates of return," and the methods chosen above are by no means beyond dispute. But in the case of the 1977 figures, some means of comparison is provided (between telephone utilities and cable), and the data can be compared within the cable industry from year to year. It is interesting to note that, since the CRTC's active involvement in rate-setting (after 1974), there seems to have been little net effect on profit levels, although comparisons are difficult as small increases or decreases might be attributable to the impact of inflation or changes in interest rates (cost of capital).

There might well be, then, an argument for the position that, under provincial control, tighter rate regulation might be achieved. This tighter regulation, if implemented, would

minimally provide some benefits to subscribers (in the form of lower rates). The issue of greater importance, though, is how cable revenues under such a division might be channelled into the development of Canadian programming. Certainly, very little is currently spent by cable operators in the way of contributions to Canadian programming (either directly or indirectly). In 1977, about 7 per cent of all revenue was diverted into "programming," mostly in terms of the community channel. And the impact of such expenditures may indeed be questionable (i.e., it is unclear that the removal of this expenditure would be highly deleterious, although this may be a matter of some controversy).

So the argument for provincial control, restated, is that there is currently very little in the way of "payoffs" from the cable industry which would justify the higher subscriber costs imposed by virtue of extraordinarily high rates of return in the cable industry. Under provincial control, these rates of return could be more effectively controlled (this, though, is a legal question), so there would at least be some net benefits to subscribers in the form of lower rates. And, indeed, if the 19.62 per cent of cable revenues which now takes the form of profit were reduced to give the cable industry a rate of return on equity more in line with other regulated industries (with some allowance for small size), there would be some reduction in cable rates: a \$6.00 cable monthly charge would perhaps drop to \$5.50-5.75. Still, the question of how to channel money into programming

remains more open than ever.

F. Funding Programming: Some Structural Considerations

By giving up control over carriage (and, at least in a direct sense, cable rates), the federal government need not preclude the possibility of using cable to provide funds for programming. One mechanism is suggested by the current arrangements the CBC is attempting to negotiate with cable operators with respect to CBC-2. That is, cable operators are being asked to pay \$1 per month per subscriber for CBC-2 service. Under its responsibility for content, the federal government could insist that CBC-2 be carried; implicit in this would be the transfer of funds to cover the cost of providing the service.

Such a "compulsory carriage" situation may not, of course, be completely acceptable on the part of all provinces. Some provinces may wish to retain control over the types of signals carried — although such arrangements are no longer in the context of a simple content-carriage arrangement. But one could extend the "central programming authority" concept further to incorporate situations in which there is a fair degree of provincial decision-making with respect to what channels are carried.

One option for the federal government would be to exercise control over content, and to some extent revenues devoted to content, from the standpoint of the control over

imported programming.

A central (federal) agency, as a monopoly buyer of U.S. programming (either individual programs or entire network/superstation signals), could, in exchange for providing U.S. programming to cable systems, extract a fee which would cover not only the costs of those programs (plus administrative costs for the agency), but also provide funds for the development of Canadian programming. Programs might, for example, be available only as a package (e.g. to get U.S. programs one must carry CBC-2). It is beyond the intended scope of this report to evaluate the different structural mechanisms which could be employed (Crown corporation? Private/public consortium of broadcasters, artists, etc.? Integrated into a national pay-TV structure, or separate from it?). And, it might be worthwhile to undertake special studies with respect to a number of problem areas:

- (a) How feasible is it for the federal government to prohibit direct reception by cable systems of U.S. direct satellite broadcasts?
- (b) Could regulations be enacted (in much the same manner as one imposes customs duties) restricting the flow of programs across the border (i.e., to make federal control over the inflow of U.S. programming independent of federal control over the systems through which this programming would ultimately be transmitted)?

Again, in light of the large number of existing reports

which discuss the issue of the purchase of American programming and the role of pay television and which make structural recommendations, there is no intent here to add a "proposed model" to those already existing. Rather, it appears at this point as if there might minimally be some options for federal control over the flow of revenue through the cable industry which could be employed irrespective of the degree of authority over carriage (cable rates) or even content (at least on some levels) granted to the provinces.

ENDNOTES

¹For that matter, a content/carriage division giving the federal government full control over content may involve more than just the retention of existing powers. In some senses — certain types of pay TV undertakings — the federal government may be implicitly proposing the removal of powers over intra-provincial undertakings from the provinces. This matter has not, of course, been completely resolved in a constitutional sense, and the reader is referred to the chapters dealing with these matters for an elaboration of these issues (Vol. 3).

²The reader is referred to the chapter concerning federal and provincial objectives (Vol. 2, Chapter II).

³Carrier current technology uses the electrical utility's lines as a "cable" of sorts, and has a limited range of not more than one city block in most instances.

⁴For a fuller discussion of this problem, and a listing of relevant CRTC notices, refer to the section dealing with non-programming services. One of the problems with forcing cable-only audio operations to use carrier current, for example, is that carrier current transmitters can be quite expensive. This problem threatened to force some student and community cable-only operations off the air before the CRTC decided to defer implementation of its policy.

⁵Cf., CRTC, Some Cable Television Programming Issues (1979).

⁶Refer to the section of this report dealing with ownership trends in the private sector (Chapter VII).

⁷The content/carriage separation implied in the operation of phantom stations was not complete. For a discussion of these stations, cf., Frank Peers, The Politics of Canadian Broadcasting (University of Toronto Press, 1969), pp. 17 ff.

⁸Cf., Wilfred Kesterton, The Law and the Press in Canada (McClelland and Stewart, 1976). Also, S. Adam, Journalism, Communication and the Law (McGraw-Hill, 1973).

⁹In the special case of Britain, the IBA both regulates independent television companies and provides the transmission facilities for them. Since the regulation aspect of the IBA's function is not a day-to-day management (or legal responsibility) function, one might add Britain to the list of countries insofar as private broadcasting is concerned.

¹⁰Cf., CRTC, Policies Respecting Broadcasting Receiving Undertakings (Cable Television), 16 December 1975, pp. 3-7.

¹¹Source of all comparative rate of return data for public utilities: The Financial Post 1979 Ranking of Canada's 500 Largest Companies, June 16, 1979.

¹²Ceteris paribus, it might be argued that smaller companies need a higher rate of return to cover higher interest costs. This difference, however, is unlikely to be more than a couple of percentage points.

¹³Source of all cable data: Statistics Canada, Cable Television, 1977, Cat. 56-205.

¹⁴Source: Statistics Canada, Cable Television, 1972; 1974; 1975; 1976; 1977 (Cat. 56-205).



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