SOME SOCIAL AND LEGAL IMPLICATIONS OF NEW TECHNOLOGY: THE IMPACT OF COMMUNICATIONS AND COMPUTERS

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In the period since the end of the second world war, there has probably been no field of technology where change has been more dramatic and pervasive than in the area of communications and computer-related systems. We have in Canada begun, and it is barely more than a beginning, to consider, and to try to get some measure of, that impact of this new technology upon society at large, to predict what the impact might be, beneficial or detrimental and then to work from these findings toward the planning of specific systems. In short, to define the consequences and to take advantage of the challenges created by the technology.

In public institutions, the attempt to define the consequences and to identify ways to exploit the challenges of communications technology began some three years ago with an inquiry called the Telecommission, which resulted in the publication in April 1971 of a report titled *Instant World* and in the publication of some fifty separate detailed studies of all aspects of telecommunications. The event which spurred the creation of the Telecommission was the establishment by Parliament in 1969 of a new public–private corporation, Telesat Canada,[1] to provide communications services by satellite to all parts of Canada. But satellite was not the only new technological device capable of transforming traditional communications. Advanced microwave systems and powerful coaxial cables were combining with the computer to create the potential for automatic data banks or information networks spread across the country and connected to each other, and to individuals in their business environment and their homes. These extraordinary and rapid changes in communications technology made it evident that traditional approaches to the development and regulation of communications services had to be extensively and thoroughly reviewed.

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[1] R.S.C., 1970, c. T-4, as am 1st Supp., cc. 10, 16,

Canadians have a natural familiarity with and understanding of the importance of virtually all aspects of communications. Given our geography which in terms of concentrations of population resembles an elongated sausage,—a 3,000 mile sausage, given our diversity, comprising not only French and English-speaking people, but also regional differences and disparities and given our juxtaposition with the strongest, richest country in the world, it is apparent that as a nation Canada lives or dies by communications. In our early days that communication was physical: people and goods moved by rail along the Canadian Pacific Railway; today that communication is electronic: information and ideas are moved by microwave, by cable, by telephone wires. It was not just an historical accident that the first long-distance telephone call was made in Canada; it is not just contemporary accident that the world's first long-distance telephone call was made in Canada; it is not just contemporary accident that the world's first domestic communications satellite, Anik, was launched in orbit late this year and is now in operation; and that in 1975 we will be launching the experimental Communications Technology Satellite, the first of its kind, a high-power satellite which will be able to transmit and receive signals to and from inexpensive, two-way ground terminals. Three other non-coincidences will make my point: that the great achievement of the 1967 World's Fair in Montreal should have been the splitscreen and multiple image innovations of Expo; that Marshall McLuhan should be one of a limited number of Canadians to make a mark on the world scene; and that, finally, an imaginative, and now widely-copied, technique for using film and video tape as an instrument for social and community development, the Fogo Process, should have been developed in the Canadian province of Newfoundland.

This litany conveys the extent to which communication has always been, and is even more strongly so today, an essential part of the Canadian experience. As the Canadian writer, Neil Compton, has put it:[2] "The characteristic virtues of our native tradition —the recognition of human limitation, the awareness of ambiguity, and the urge to communicate—are those which the age seems to demand." We do not expect communications, however abundant or sophisticated, to remake our society; we do hope that they will widen our range of choices, by widening our knowledge of them; that they will make it easier for individuals and groups to exchange ideas and impressions and hence gain in understanding though not, as an automatic corollary, in amicability; and, finally, that com-

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[2] In Defense of Canadian Culture, in Norman Penlington, ed., On Canada, Essays in Honour of Frank H. Underhill (1971), pp. 95-110, at p. 110.

munications, particularly through the medium of broadcasting, will add to our range of entertainment and education.

All of this adds up to a measured view of what communications, suitably deployed and sensibly regulated, can offer Canadians. But there is another dimension of technological development that begins to loom equally large in the minds of those concerned with Canadian communications systems, and in fact in the minds of all concerned with the impact of technology on our society. We have become aware of and have begun to address ourselves to a problem in communications with which we have no greater familiarity than anyone else. The issue itself is highly ill-defined, in large part little known and in some parts quite unknown, yet its essence can, I think, be expressed quite simply. We fear, or suspect, that communications technology is becoming too powerful for us, that it, rather than ourselves, our institutions and our laws, is dictating the shape of the future.

This concern about who is leading whom is evident in the summary report of the Symposium on Communications held in Ditchely in 1972 which quoted one of the speakers of the Symposium as having stressed the need for institutional innovation to match new developments in communications. That sentence, which flatly declared that institutions should re-organize themselves to meet the needs of communications systems, is reminiscent of the comment of Jacques Ellul:[3] "The judicial regime is simply not adapted to technical civilization. It has not registered the essential transformation of our times." Ellul there stated starkly that our present institutions *had not changed,* and by implication conveyed his doubt that they could *change.* Both Ellul and the symposium speaker took it for granted that it was institutions, not technology, which had to change.

The truth of those observations is borne out by Canadian experience. We have developed, at some considerable expense, national radio and television networks, both English and French, both public and private. The viability of those networks is now being seriously affected by the technological development of cable-television systems which today deliver up to twelve channels to about one-quarter of all Canadian homes and which in the future will deliver twenty, thirty and even more channels to perhaps more than two-thirds of the Canadian population. This multiplication of television channels fragments audiences and, therefore, the economic base of conventional, over-the-air, television. It also brings with it a critical circumstance for Canada, a massive increase in the volume of foreign programming which in turn helps to shape our cultural and social outlook.

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[3] The Technological Society (1964), p. 251.

Cable-television, with its half-sisters, closed-circuit television and Pay-TV (the latter not yet a commercial proposition but likely to be so in the very near future) has imposed or is likely to impose a whole new range of burdens upon those authorities responsible for the regulation and the development of Canadian broadcasting. One need be neither a seer nor a futurist to recognize that those problems will not lessen, but intensify. Direct broadcast satellites, which as a transmission device can obliterate national boundaries, are perhaps less than a decade away. Video cassettes, which will permit each viewer to watch the programmes he has chosen at the times he has chosen—including, inevitably, pornography—are much nearer to hand: video cassettes will become a general consumer item in probably five years or less, assuming that the problems of high cost and compatibility are resolved. And to come down to today, the Port-a-Pack one half inch video-tape revolution, which has brought the price and ease of operation of video cameras and playback machines almost to the level of everyman, has catalyzed, certainly in Canada, the production of vast quantities of programmes. These programmes resemble conventional television programmes in shape and form but are rarely if ever broadcast over the established system to compete with it, at least in terms of viewers' attention, if not in a commercial sense.

From this choice of communications devices and systems, at least in the audio-visual field, two issues seem to push themselves forward for consideration by policy-makers and students of communications. The first is that impending or actual super-abundance of recording, transmission and replay systems constitutes a powerful force in the direction of decentralization. This decentralizing tendency, if valid, itself leads on to the creation of two separate issues. First, control, in order to achieve specified national, social, political and cultural goals, becomes far more difficult if a system comprising, say, a single, publicly-owned broadcasting system is progressively replaced or swamped by a multiplicity of communications devices. The problem of cultural invasion also becomes much more intense, unless compensatory steps are taken, and I will come back to these in a moment. Second, while the concept of each individual watching only the programmes he wishes sounds attractive, some of its implications may not be: too much communication can lead to social fragmentation as the number of shared experiences and the amount of shared information provided by a system common to all, dwindles.

The second issue forced to the surface by the super-abundance of communications channels derives from the fact that this condition has been created by hardware, and because it is this hardware which is dictating the terms for software. Certainly so far as Can-

ada is concerned spending on hardware is beginning to provide the incentive for greatly-increased spending on software. The Anik satellite system, for instance, not only makes possible the delivery, for the first time, of live television in the north but by so doing is making possible the development of plans for northern-originated programming. In Toronto, to give another example, there shortly will be no less than six local television stations, all producing Canadian programming, where only a few years ago there were only two stations.

Nevertheless, what is equally true is that so far society has allowed hardware to take the lead, allowed the technology to establish the rules of the game as it were, and then almost literally awaited a scramble to develop software. Video cassettes, for example, will open up a vast new programme market. So far as Canada is concerned it is quite possible that this market will be dominated by, inundated by, in fact, imported programmes, unless Canada takes steps to take advantage of the opportunities created by these technological developments.

In seeking to draw conclusions from this general analysis, it would seem that the condition of audio-visual channel abundance is going to require of governments a new and flexible response. Over the long term, traditional concepts of administration may have to be modified and reliance placed increasingly upon incentives and encouragement of various kinds in order to promote the production of the particular types of programmes that are necessary for national social and cultural well-being. This could mean subsidization of programmes and production bonuses as well as the encouragement of methods to distribute those programmes. At the same time public authorities will have to develop much more sensitive and effective instruments for predicting and measuring the social implications of all this technology. Governments need to know or to have some idea whether the net impact will be that of homogenization as has so often been predicted as a consequence of satellites and of world inter-connection of communications systems, or whether the impact, particularly of multi-channel cable systems and video cassettes and VTR, may not be the direct opposite, namely that of social fragmentation, not a global village but rather hundreds of thousands of villages, each watching their own programmes, doing their own thing unconnected with or uncommunicating with, each other.

From the standpoint of the law, the legal profession and legal institutions, there is also going to be a need not merely to adjust to the consequences of the social impact of technology but to anticipate them as much as possible so as to respond to the problems imaginatively and not merely in traditional terms. The subject of privacy offers an example of the potentially transcending effect of

technology on law. The federal government began, some two years ago, a major study of privacy and computers, conducted jointly by the departments of Communications and Justice, with a view to identifying the extent to which new highly efficient computerized data banks may invade personal privacy, and whether appropriate safeguards can be developed to protect individuals. This study was completed and published in December 1972.[4] Specific action will depend upon the evaluation by the government of the overall approach taken in the study and the suggestions it contained.

One general line of thinking that has emerged during the inquiry is that the privacy issue consists of several distinct issues. One is that of the classic type of invasion of personal privacy, much like trespass, for instance, transferred to the context of highly efficient computerized information systems. A second issue concerns the accuracy and relevancy of information gathered about the individual, rather than his privacy *per se*. Yet another is that information systems, quite aside from whether or not they invade privacy, concentrate power in the hands of the operators of data banks, both corporate and governmental, and of those who manage the information. There are fears that such data banks may create an imbalance of power in the relationship between individuals and institutions. Privacy here becomes a synonym, a symbol, for a cluster of public grievances which, even if they are poorly articulated, must be listened to by those in authority because they may be symptoms of a social malaise, or unease. As the *Report* stated:[5] "Privacy is too limited a word to encompass all the concerns created by massive and pervasive information systems. Privacy is used in part as a synonym for political grievances about the use of information systems by institutions to enhance their power to the potential detriment of individuals, and for fears that information systems may be used to manipulate individuals or enforce conformity."

The *Report* contains a number of specific suggestions for dealing with privacy and privacy-related problems. It recognizes that:[6] "No single proposal, among the many examined, appears to constitute a comprehensive solution to the problem of invasions of personal privacy. Certain possibilities of particular promise do appear to exist: the utility of some type of surveillance agency combined with an Ombudsman to handle specific complaints by individuals, the important role which could be played by the courts

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[4] Government of Canada, Privacy and Computers, A Report of a Task Force established jointly by the Department of Communications/Department of Justice (1972).

[5] *Ibid*, p. 183.

[6] *Ibid*, p. 184.

if more claims are brought before them. Government, as the principal collector and instigator of the collection of personal information, has a key role to play. Aside from such possible responses as a surveillance agency and an Ombudsman, the government could implement administrative rules, enforced by a central agency, possibly one with control over expenditures, and could also consider developing codes of ethics to govern research conducted with government funds."

When one examines the *Report* from the standpoint of an evaluation of the impact of technology on the law, it is possible to draw several conclusions.

First, the pervasive nature of the influence of technology on all aspects of contemporary life makes it difficult to identify specific or readily-definable grievances or wrongs that the law, whether legislatively created or evolved through the courts, can respond to in terms of clear remedies. The technology changes traditional patterns of dealings, relations between individuals and between individuals and institutions. We may be struggling to cope less with grievances than with a malaise, less with conflicts of interest than the redefinition of roles and relationships, less with rights and wrongs than with undetermined expectations.

Second, the law in such circumstances, whether applied through the courts or administrative tribunals, seems to offer a rather awkward and limited avenue of approach to dealing with the hosts of issues which surface when a specific problem such as privacy is examined. Regulative and administrative remedies often seem and are as complex and inaccessible forms of redress as formal legal proceedings themselves. The route to the enhancement of privacy seems to lie in an approach to law and institutions which opens up as many potential avenues of privacy protection as there are spheres of human activity. Forms of corporate behaviour, the practice of public bodies, the ground rules of a very wide variety of commercial activities, relations between the individuals and public, corporate and commercial bodies, the instruments for enquiry into individual dissatisfaction in a wide variety of contexts—all these areas will probably be affected as privacy and related claims come to be increasingly articulated. Ultimately we may come to look at privacy as a kind of word that signifies a new concept of rights, which, in the totality of measures required to be taken to adjust somewhat the balance between the interest of individuals and the needs of institutions, will become something far different from our current judicial notion of human rights.

Thirdly, studies and analyses of such problems as privacy, which go to the root of the relationship of technology and the individual, may never be conclusive, or even completed, in the sense that one can, gratefully, close a file and move on to another prob-

lem. The privacy study, for example, records and analyses the situation as it was in 1971 when the data was collected. It discusses the possibility of coming to terms with such future problems as those that will be created by the ever-increasing power of computerized systems to store vast quantities of information, to change or manipulate this data, to merge separate files, to decentralize information and therefore to centralize decision-making. Such issues may be susceptible of analyses and sometimes, perhaps, of solutions. But solutions themselves, if we may, at times, call them that, indicate new factors to assess in a process of changing social conditions and relationships between man and society.

It is not only in the field of domestic law and institutions that technology is demanding new solutions. The advent and development of satellite communications systems have introduced a highly innovative factor in the fields of international law and co-operation. The technology of satellites is no respecter of state sovereignty. The technology transcends national boundaries as much as space itself; three satellites can cover the globe. Moreover, the exploitation of systems involves the mastery of extremely costly and sophisticated high technology devices, and their management also requires both technical and commercial expertise. The results have been that when the international community came to seek to harness satellites for international communications purposes, the international organization that was, after great efforts and prolonged negotiations, created for this purpose—Intelsat—was based on a unique blend of the public international legal concept of sovereignty and private commercial notions of consortium and partnership. The special amalgam of public and private, sovereign and non-sovereign, diplomatic and commercial concepts that are blended into Intelsat are proving an effective way of using the new technology for the benefit of most members of the international community, without sacrifice of effective management or commercial benefit. Similar challenges are now facing the international community in utilizing satellites for other purposes: for aeronautical communications and navigation; for maritime communications and positioning, for earth resource sensing. Proposals for special consortia in the aeronautical field—Aerosat, in the maritime field—Marosat, and in the resource sensing field, are being raised in various international organizations and groups. The problems they create are similar to those met in the Intelsat negotiations but there are significant differences which relate to such matters as institutional arrangements for experimental activities, the relationship between limited experimental commercial undertakings and the interests of the international community as a whole, the principle of sovereignty underlying the acquisition of information, and the avoidance of duplicative arrangements for high cost technical

activities. It may be just a short time before new principles guiding such ventures are worked out and institutional structures are agreed on or it may take several years or more. Certainly more time will be required to develop co-operative arrangements for broadcasting directly from satellites for it is in this area that the greatest threat to traditional notions of state sovereignty will arise. But whatever the time span within which arrangements are agreed, these practices and procedures are bound to be innovative and reflect not only the long-standing but increasingly elusive goals of protecting state sovereignty, but the fact that the effects of technology transcend the boundaries of even the largest states and cannot be controlled even by the most powerful. The international law of the future will, I believe, reflect much more the practical *ad hoc* and innovative solutions that states must adopt to harness and control technology than the older but still contemporary concepts of international law and sovereignty.

Another problem area which satellite technology is creating for the development of the law concerns that of the impact of new communications systems upon our laws of copyright and of intellectual rights. In the field of satellites, for example, the international legal community is now taking up the question of the protection of satellite transmissions against their unauthorized interception and possible retransmission—in short, against "poaching". Thus satellite technology will have a revolutionary effect on the problem of illicit interception of the signal and major implications, in particular, for the developing countries who fear cultural invasion; these arise from the single fact that a single satellite in geostationary orbit can "look at" one-third of the total surface of the globe. A very recent conference in Paris sponsored by UNESCO and the World Intellectual Property Organization (WIPO) has proposed a draft international convention on this subject to which Canada will be giving very serious consideration. As regards computers, attention is being given to the entire question of rights—including the possibilities of patents and copyrights—in computer programmes and related software. While the international level is the appropriate one for attempting to adopt acceptable principles, we must not deceive ourselves in thinking that solutions will be easy to find. In areas where new interests arise, old ones remain and all may be transformed by technological changes.

And solutions will continue to change as the problems and challenges change. The idea of continuous monitoring or searching for solutions has a rather strange ring to it. Yet it is, I expect, a concept which public authorities will have to become accustomed to, as will the public which has, to a degree, been conditioned to believe that to every problem there is an immediate solution. The rapid, not to say incessant, pace of technological change is going

to compel us to operate at two quite separate levels. The first level will be the level of the day-to-day and the immediate. The operation of current systems cannot be disrupted by endless theorizing, endless research, endless studies about what might be, and inevitably, about some things that will never be. At the same time we are going to have to develop a capability for continuous research and evaluation, not of studies done in a vacuum and removed from reality, but of studies which when they produce results can be introduced or injected right into the process of decision-making. As Peter Drucker has commented:[7] "Planning is not about future decisions; it is about the futurity of present decisions."

The story of the automobile is familiar to all of us. It has brought us many benefits: mass, cheap transportation; enormous gains in economic efficiency and in personal comfort and enjoyment. The automobile has also brought us pollution, congestion, noise, and the destruction or degradation of the core of many of our cities. None of these effects were intended; were unavoidable. To have avoided them would have required continuous monitoring of the social implications of mass automobile transportation, a capability by public authorities to accept the validity of predictions about some of the social disfunctions of automobiles and the courage to act upon that knowledge. In the past the capability was lacking. The same challenges apply to communications technology. We must hope that the ability to cope will not be lacking again. If it is, our society may become infected with a malaise that will cause institutions to decay and laws to become formal and irrelevant. The challenge of technology will not have been met. The machines will have become our masters.

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[7] The Age of Discontinuity, Guidelines to our Changing Society (1968).