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TELECOMMUNICATIONS AND ECONOMIC GROWTH

An Address by Mr. J.R. Baldwin, Deputy Minister of Transport, to the Radio-Electronics-Television Manufacturers Association of Canada, Bigwin Inn, Lake of Bays, Muskoka, Ontario, June 20, 1958.

Telecommunications is a relatively new word in our vocabulary and although widely used today is not always fully understood by the general public. It covers not only the transfer of intelligence by telegraph and telephone, but also sound and video broadcasting, radio aids to navigation, electronic surveying, remote control, telemetering and a host of other special electronic and electrical services.

The past fifty years have witnessed a tremendous growth in telecommunications in all parts of the world. With the challenge of a large area and a small widely dispersed population, Canada has been in the forefront in this growth and today our telegraph, telephone, broadcasting and radio navigation systems rank with the finest in the world.

Fifty years ago telegraph service in Canada was limited to the handling of messages between the major towns and cities. This service has grown until it covers all developed parts of our country and provides teletype, telephoto, facsimile and other forms of wire communications.

Similarly, our telephone system in 1908 was still in embryonic state. Today all major communities in Canada have telephone service available to them.

In 1908 we had a total of twenty-four radio stations engaged solely in the provision of radiotelegraph service to ships. Today, we have in the neighbourhood of fifty thousand stations performing a multitude of services ranging from simple units to the most complex aeronautical navigational aids.

The first sound broadcasting in Canada took place when the Marconi Wireless Telegraph Company of Canada was authorized

to transmit programmes on an experimental basis during the latter part of 1918. The first television stations in Canada were established in Montreal and Toronto in 1952. Today, in Canada, we have a total of 327 sound and television broadcasting stations. These stations are linked together by wire and microwave facilities provided by the telegraph and telephone companies, making possible the simultaneous broadcast of sound and television programmes in virtually all settled parts of the country.

The development of telecommunications in Canada has been a joint effort by Government and by private industry.

In the field of public communications, for examples the accomplishments of the railways, the member companies of the Telephone Association of Canada and the Canadian Overseas Telecommunication Corporation have been outstanding. The Railways and the Telephone Association, each in their own way, have provided an integrated country-wide system, which has done much to bring our people closer together and to overcome any narrow regionalism.

Both the Railways and the Telephone Association were quick to realize the advantages of microwave for long-haul, high capacity circuits and so today have the Trans-Canada Telephone Microwave System spanning our country from coast to coast and the Joint Railway System serving south-western Ontario and the area between Montreal and the eastern seaboard.

In keeping with Canada's development, the government-owned Canadian Overseas Telecommunication Corporation has reduced our dependence on foreign-owned international communication systems by establishing Canadian-owned facilities such as radiotelephone and radiotelegraph circuits to various countries; and by sharing in the ownership of the Trans-Atlantic Telephone cable and its connecting microwave system.

Canadians have every reason to be proud of their country's progress in the establishment of television services. We have been matched by few countries. If this growth continues, the shortage of VHF channels may soon require us to face up to the problems of ultra high frequency operation in some areas. Because of our vast area and long distances between communities, satellite television stations are finding a useful role.

Although the growth of television in Canada has been spectacular, sound broadcasting has not fallen by the wayside. It continues to enjoy profitable and active role in our society.

In addition to public communications and broadcasting there are a multitude of "special services", made up of a wide variety of operations in military, aviation, marine and industrial fields.

I will not attempt to outline progress in all of these special fields, but there are two in which I know you will be interested--Aviation and Marine, both of which may be classed as safety services.

Recent departmental activity in the field of aeronautical telecommunications includes Airway VOR and radar--improved air traffic control displays and data processing systems, meteorological facsimile and high speed data transfer and computation. We must also work towards improved air/ground communications in Northern Canada and on the longer overseas routes.

In the field of marine telecommunications, the Department is continuing its improvement of marine radio services and is studying the possibility of expanding radio traffic control to include certain canals, locks and other confined waters. The matter of authorizing operation of radiotelephone equipment by ships officers for bridge-to-bridge communication is also under consideration.

So far, I have outlined some comparisons between present day telecommunications and telecommunications of fifty years ago. During that fifty years Canada has come to full nationhood and her industrial growth has been phenomenal. Unquestionably telecommunications played an essential part in this growth and in many ways in the unprecedented expansion of our mining, lumbering, fishing and transportation industries.

Statistics show that the growth of telecommunications in Canada in recent years has exceeded that of most other industries. The designers and manufacturers of telecommunications equipment have reason to be proud of their part in this development and its aid to the growth of Canada.

Throughout this growth it has been necessary to relate the developments within our country with other countries of the world. International co-ordination of telecommunications is accomplished through the medium of the International Telecommunication Union, the United Nations Specialized Agency in the field of telecommunications. The International Telecommunication Union is one of the oldest international organization of governments and dates back to 1865 when it started as the Telegraph Union. Subsequently, its activities were broadened to cover the field of telephone communications and the field of radio.

Basically, the functions of the International Telecommunication Union are founded on the essential need for international co-operation in the field of telecommunications. Ninety-five countries including Canada hold membership in the Union and the decisions adopted by these countries set the pattern for the use of telecommunications throughout the world, while recognizing the sovereign right of each country to regulate its own telecommunications.

Canada is also a member of the International Civil Aviation Organization and subscribes to the Safety of Life at Sea Convention, both of which involve radio usage.

The International Civil Aviation Organization, through a number of Committees, deals with many phases of international aeronautical telecommunications including equipment standards and requirements, operational procedures and radio aids to air navigation, with the goal of standardization of aeronautical telecommunications facilities throughout the world, both airborne and on land.

The Safety of Life at Sea Convention specifies what vessels are required to carry radio equipment for safety purposes and also indicates the type of radio apparatus to be carried by each class of vessel concerned. This also is of vital interest to Canada.

I have outlined the international aspects of telecommunications to emphasize the fact that the Department, in addition to coping with our international telecommunication problems, must also assist in solving world-wide telecommunication problems, yet must at the same time protect our national position with regard to use of radio frequencies.

We will have a heavy burden to carry in the international field during the next year or so. The International Telephone and Telegraph Consultative Committee Study Groups of the International Telecommunication Union will meet in Geneva early in September of this year followed by a Plenary Assembly. The International Radio Consultative Committee of the International Telecommunication Union is expected to meet in Los Angeles commencing in April of 1959.

A Radio Conference of the International Telecommunication Union is schedules to be held in Geneva commencing in August of 1959 to revise regulations and will last approximately four months. A Plenipotentiary Conference of the International Telecommunication Union is to be held in Geneva commencing in October of 1959 and will last approximately two months.

We already have the benefit of advice and co-operation from your member companies and of the Canadian Radio Technical Planning Board in dealing with our domestic radio and radio frequency problems and we need your support and assistance in preparing for these international meetings.

We have established a Committee with several sub-committees for the purpose of reviewing radio frequencies and associated radio problems, for the guidance of delegates to the forthcoming conferences.

It is not always possible for us to assess, in detail, the requirements of industry and so, when our Committee has completed its study, we propose to obtain the views of industry. To

consult each interested company would be impossible. The most appropriate approach to this problem seems to be through the medium of the Canadian Radio Technical Planning Board and I would urge you to review your problems, think of the future of telecommunications in Canada--with particular emphasis on radio frequencies-- and have your representatives present them to the Canadian Radio Technical Planning Board for discussion with the Department so that they may be taken into consideration by our delegates.

These are our immediate problems--but what does the future hold for telecommunications? What more do we need in the line of public communications?

We are bound to see, I believe, the extension of telegraph and telephone service to remote areas as yet unserved, increased capacity on all communication systems to permit expansion of the private wire teletype and data processing services, and increased telephone cable capacity and intercity dialing on our telephone systems which will, of course, necessitate extension and expansion of existing microwave systems.

These things present a challenge not only to the communications companies but also to the telecommunications manufacturers who, in the final analysis, provide the tools of accomplishment.

As for broadcasting, colour television is, without question, the next forward step. Manufacturers have an important job in this field. Techniques must be evolved which will permit lowering colour television equipment costs. Once this is done, a fertile field will undoubtedly be opened up.

Dealing with the "special services", one of the most outstanding needs of aviation and marine users is an "area coverage" position fixing system suitable for short and long range navigation. This, of course, should be related to some international standardization and difficulties are anticipated in this regard.

At home we are approaching a point where the speed and density of air traffic will make it necessary to have faster and more accurate means of aircraft control. This need is already felt at the larger airports and is becoming a problem on most of the heavier travelled air lanes. Possibly, the answer lies in the establishment of some sort of centralized control where data processing equipment can be used to correlate information essential to the control of aircraft in flight. This could involve continuous position finding for all aircraft in a given area as well as their height, speed and direction of flight.

Strategically located radar stations might obtain this information and pass it by coaxial cable or microwave to computors at control centers for analysis and any necessary instruction to the aircraft.

There are many possible solutions to the problem but we have to make up our minds what to do. Industry and users can help by letting us have the benefit of their advice. Unrelated advice from multiple sources can be as bad as no advice at all and here again the Canadian Radio Technical Planning Board has already helped us by sorting out the advice of its members and by advising the Department in decisions of this kind.

The Department is not alone in facing problems of the future involving telecommunications. You, as manufacturers of the essential equipment, must also have an eye to the future, both short-term and long-term. The future health of the telecommunications industry depends on research, not only in the true and conventional sense, but equally in direct operational research to determine what the operational needs will be a few years from now and what techniques can be available to meet these needs. The faster the development in the telecommunications field, the further ahead we must look--in short, I suggest you look not only at what you can build and sell today, but also at what you may be called upon to do a few years from now,

The abilities of the telecommunications industry are continually improving. It does not seem to matter much what one tries to decide on today; someone cries, "hold, I have something better coming up"--and they always will have. Yet we cannot spend our time thinking where we would go if we ever got started, We must from time to time determine "turning points" and set up sign posts at which we must change direction. These sign posts are the decisions of the future. Decisions which we must ask you to help us to make.

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