SEA TO SEA BY MICROWAVE

Canadians from coast to coast will be brought closer together on July 1, when the world's longest single microwave system comes into full service.

Stretching from Sydney, N.S. to Victoria, B.C., this modern communications miracle will flash television programmes and telephone calls across the breadth of Canada in the twinkling of an eye.

The continent-spanning microwave network, built and operated by the Trans-Canada Telephone System, will be officially inaugurated with a historic hour-long CBC Dominion Day production featuring live pickups from many parts of Canada.

In itself the programme will demonstrate how the CBC's network television service linking both CBC and private stations across the country will now be able to knit the people of Canada more closely together through the "picture-window" of television.

"A unique vehicle for telling the story of Canada both past and contemporary, the CBC's television service will now become -- even more than previously -- the eyes of Canadians upon their nation," J.A. Ouimet, CBC general manager believes. "It is thus singularly appropriate that the opening of this network should be on Dominion Day, the day dedicated to Canadian unity."

Seven of Canada's major telephone systems -- three of them government-operated and the others privately-owned -- pooled their efforts to construct the coast-to-coast backbone microwave network. The scores of long-haul telephone circuits the system provides will play an important role in Canada's business progress and prosperity. Hundreds and even thousands more circuits can be carried on the same basic system as the need for them arises.

The microwave network, in the words of Thomas W. Eadie, Bell Telephone president and chairman of the Trans-Canada Telephone System, "constitutes one of the most significant advances in the history of Canadian communications; it will augment tremendously Canada's communications resources, so necessary for the continuing growth and expansion of a country with such vast dimensions."

The Trans-Canada Telephone System's "skyway" comprises 139 relay stations spread over the 3,900 miles from Atlantic to Pacific, with spur lines adding several hundred additional miles, and over 30 more relay points. Canadian Pacific Communications and Canadian National Telegraphs jointly provide television transmission to French network points in Quebec and to cities in southwestern Ontario.

Newfoundland will be linked to the microwave network next year when Canadian National Telegraphs completes the difficult 70-mile hop across storm-tossed Cabot Strait.

"Video tape" will be used for the first time in Canada in the CBC's Video Tape Relay Centre at Calgary, also opening on July 1. Complete programmes can be recorded on the two-inch magnetic tape for retelecast an hour later or whenever most appropriate, to all network television stations west of Winnipeg.

This means that regular network programmes can be scheduled to appear at more convenient local times everywhere in the country, despite the six time zones (compared with four in the United States). Up to now TV stations west of Winnipeg have been served by kinerecordings (television film) which might be delayed a week or more. The Video Tape Relay Centre will allow retelecast of programmes on the same day and at times more convenient to western viewers.

Video tape is the latest development in television recording technique and the finished product is almost exactly like the original live programme.

Decision to build the Trans-Canada Telephone System's coast-to-coast microwave chain was first taken in order to provide the vital cross-country voiceways required to keep pace with and spur on the growth of Canada. Thus, when the CBC, early in 1955, awarded the contract for providing coast-to-coast television facilities, the huge project got rapidly under way.

Canada's first microwave inter-city chain -- the Bell Telephone Company of Canada's Toronto-Ottawa-Montreal system opened in May 1953 -- and then-existing shorter microwave links in Ontario and Quebec became part of the overall "skyway".

The $50,000,000 project was a major engineering and construction undertaking that involved pioneering in a real sense. Pushing the chain of microwave towers across Canada meant struggling through some of the roughest terrain and the severest weather this immense country can offer.

Worst of all was the last link now going into service -- the section through the mountains of western Alberta and British Columbia. Here, 10 of the 13 relay stations are on mountain-tops, the highest 6,700 feet above sea level. Two aerial tramways had to be built, the two-mile tramway at Dog Mountain in B.C. being one of the biggest in the world.

The microwave stations are spaced an average of 30 miles apart. The massive steel towers range in height from 50 feet to a 350-foot giant at Olive, 40 miles north of North Bay in Ontario. This tower weighs 120 tons and has concrete footings together containing 170 cubic yards of concrete. The towers are so sturdy that 100-mile-an-hour winds are unable to make them sway enough to affect service.