

A Fibre Optics Network Across the Canadian Prairie

In 1980, the Saskatchewan telephone company, Sask Tel, began a 3 200 kilometre optical fibre system which will be the longest digital, integrated telecommunications network in the world. When completed, this year, this digital network will link 52 of Saskatchewan's largest communities and provide voice, data and video services to over half the province's residents and will form the basis for a province-wide digital broadband network. Plans for additional fibre routes will increase the total length to 3 400 kilometres.

The contract to supply the Sask Tel fibre optic transmission system was won by Northern Telecom, which, in 1982 opened a manufacturing facility for the production of optical fibre communications systems in Saskatoon, Saskatchewan. This is the only facility in Canada that designs and produces complete optical fibre systems, including manufacture of the basic fibre and the electronic components. Phillips Cables Ltd./Digital Telecommunications Ltd. was selected to supply the video coding/decoding equipment for the projects.

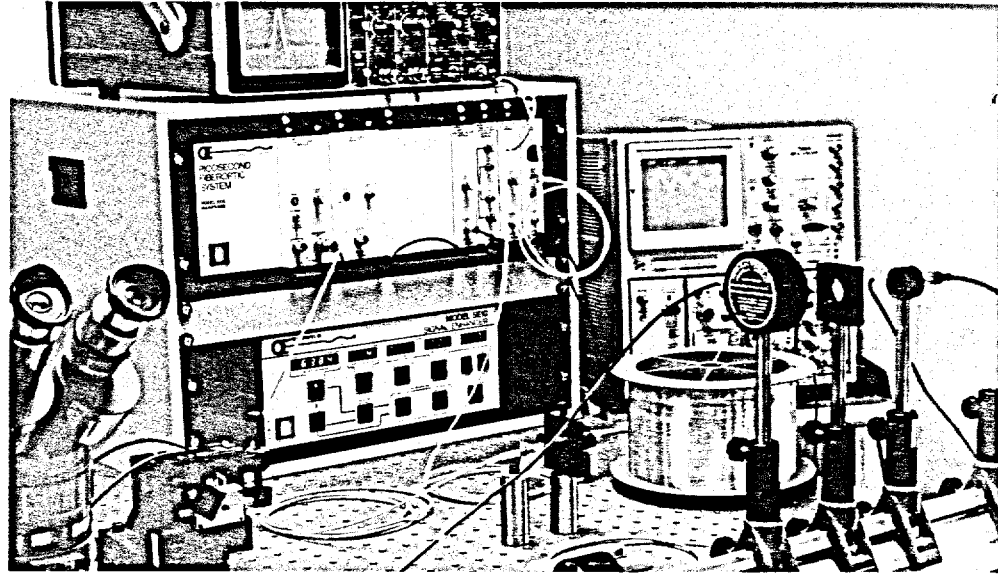
Bell Canada

Bell Canada, the country's largest telecommunications supplier, plans to replace, as required, all copper trunking cable with optical fibre. Bell will also use fibre exclusively for all new inter office trunk cables. Currently, Bell has some 40 systems, representing 16 000 kilometres of fibre optics cable in use in Ontario and Quebec. Other Canadian telephone companies are also implementing fibre optics technology in many areas to enhance network capabilities.

Fibre optics systems are also being considered as an alternative to digital radio for long-distance communication in certain situations. Telecom Canada network planners are exploring the idea of installing underwater optical cable through Canada's large inland lakes, and using it as well for other water crossings that are unfavourable to digital radio.

Cable Television

A number of Canadian cable companies are also interested in the potential of fibre optics to transmit their services. BCN Fibre Optic Inc. is a consortium of CATV companies formed to research, develop and test optical cable transmission technology. Its first project was installation of a fibre-optic supertrunk cable, 7.8 kilometres long, employing digital transmission techniques in London, Ontario.



The eight-fibre optical cable used in the BCN project was supplied by Canstar Communications, a subsidiary of Canada Wire and Cable Ltd., and one of Canada's leading fibre optics manufacturers. Canstar specializes in designing optical transmission systems and manufactures, among other things, bi-directional couplers which permit two-way traffic through a single fibre.

Hubnet

University of Toronto researchers in conjunction with Canstar Communications have developed a unique fibre-optics based local area network (LAN). A local area network is a private communications network within a building or buildings of an organization. The new system, called Hubnet, is capable of carrying information five times faster than conventional coaxial cable-based LANs. Canstar plans a field test of Hubnet at the federal Department of National Defence base in Winnipeg, Manitoba. A fibre optics communications system is particularly well-suited for military security needs because it can become virtually impossible to tap.

Automated Traffic Management

Another innovative use of fibre optics is in an automated traffic management system being planned by the Ontario Ministry of Transportation and Communications. The aim is to improve the flow of traffic

The Picosecond Fibre Optic System, seen here, made by Opto-Electronics of Oshawa, Ontario, tests the high frequency performance of optical communication fibres. The company says that the pulsed lasers and photo-detectors it makes are the latest available in the world.