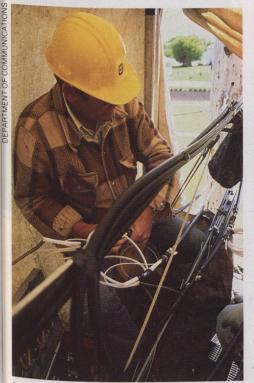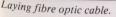*At the network control centre of Teleglobe Canada, the country's international telecommunications carrier, a complete range of telecommunications services is monitored.*

Laying fibre optic cable.

and remote monitoring applications, provide emergency communications at disaster sites, and extend telephone service to some 150 000 households beyond the economic reach of today's systems.

Fibre optics provide highways of light

Another advanced technology, fibre optics, promises to further improve service to hundreds of thousands of households in rural Canada which receive only two or three television channels and now share party-line telephone service with up to three neighbours.

In fibre optic communications, information is transmitted through glass fibres in the form of rapid pulses of light. Very pure glass is heated to high temperatures, then stretched into hair thin strands that bend like plastic yet are strong as steel. Each fibre can handle thousands of telephone calls and still have room left over for television, FM radio and computer data.

Canadian firms are at the leading edge of this new technology. Following intensive research and development starting in 1972, a number of companies began manufacturing commercial volumes of optical fibre and optical communications hardware. By 1983, optical fibre was replacing coaxial cable in major communication arteries.

The province of Saskatchewan in western Canada has an optical fibre network carrying voice, data and video between 12 cities and 40 of its largest towns. Completed in 1985, the network stretches a distance of 3 200 kilometres.

Meanwhile, a small-scale service to 150 households in two farming communities in Manitoba, another western Canadian province, is proving that optical fibre can withstand the Prairie climate including winter frost to a depth of two metres and temperatures ranging from 40°C in summer to −40°C in winter.

It is also demonstrating that fibre optics can bring rural residents the same high level of communications available in urban areas.

Started in 1981, the Manitoba project was the world's first multimedia test of fibre optics in a rural setting, delivering single-party digital telephone service, FM radio and several television channels, and offering videotex access to various data banks.

Setting a standard with Telidon

A major achievement of Canadian research is the sophisticated videotex system, Telidon. Essentially a high-quality computer graphics communication scheme, Telidon was developed by government scientists in 1978. It formed the basis for the North American videotex standard, which has been officially endorsed as one of three recognized international standards.