

Untappable telephones

Some military personnel at National Defence headquarters in Ottawa are talking at the speed of light these days, their words flashing through hair-thin glass fibres of an evolutionary communications system called "fibre optics".

The system, switched on in June, provides certain key sections of NDHQ with internally "secure", virtually untappable telephone and closed-circuit television communications.

It was designed jointly by military and commercial engineers to overcome limitations in the Canadian Forces' new headquarters building, which was originally intended to house the Department of Transport.

The multi-towered structure was already five storeys high when it was assigned to the military in 1972, and structural changes to include a "guarded" communications system could not have been made without drastic — and expensive — alterations.

"We had to be able to pass secure closed-circuit television and voice communications," said Major Robert Jenkins, an engineer on staff of the Director of Communications Security at NDHQ.

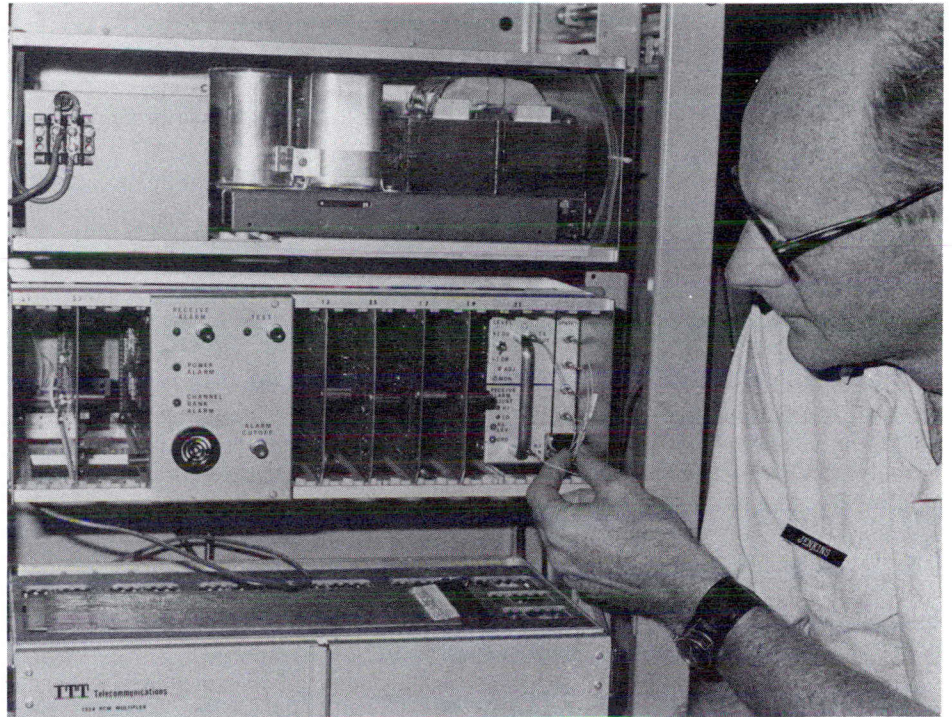
So, in the summer of 1974, the military's Chief of Research and Development (CRAD) contracted with Bell-Northern Research to adapt existing fibre-optics technology, still in the testing stage in Canada, into an operational and "secure" communications system for key sections of NDHQ.

They succeeded, and today the Department of National Defence (DND) owns and operates the first fully operational fibre-optics communications system in the country.

Major Jenkins, who worked with Bell engineers in designing the system, said recently it was "working very well", and added that in the field of fibre-optical telephone technology, DND "is about two or three years ahead of the industry in Canada".

Fibre optics, also under development in Japan, the United States and Britain, promises to revolutionize today's communications industry as much or more than did the invention of the telephone a century ago.

In a conventional telephone system, sound waves are converted into elec-



Major Robert Jenkins examines tiny "glass" wires of National Defence headquarters' new fibre-optical telephone and closed-circuit television

trical pulses, which travel along a copper wire to another phone, where they are reconverted to sound waves.

In fibre optics, light speeding along a glass wire replaces the electrical pulse. For security, fibres have enormous advantages over copper wires because they do not "leak" light as wires "leak" electricity, the source of modern-day tapping.

So far NDHQ's attempts to tap its own light-filled lines have failed. Even if they did, interruption of light flow

system. Designed jointly by military and civilian engineers, it is the first fully operational fibre-optical telephone hook-up in Canada.

would set off an alarm. Fibres also eliminate cross talk and static that occurs when one telephone wire "spills" some of its signal into a neighbouring line.

Major Jenkins and other military personnel have high hopes for the future of their fibre-optics system.

For example, he pointed out, "the fibre cable weighs just 17 pounds per thousand feet", which has the potential to get "rid of a truck carrying spools of wire".



Canadian Indian appointed to senior federal post

Fred Kelly (left), an Ojibway Indian from the Sabaskong Indian Reserve in northwestern Ontario, has been appointed Director General of Indian and Eskimo Affairs for the Ontario Region.

Mr. Kelly, President of Grand Council Treaty No. 3 Ontario and former special assistant to the President of the National Indian Brotherhood, becomes the first Indian to assume the position of Director General for the Ontario Region.