

The CTCA is active in affairs of the Geneva-based International Telecommunication Union and attempts to secure, along with the federal communications department, the compatibility of the Canadian telecommunications system with those of other countries. Among the matters studied there have been numbering plans for telephone, telex, new data networks and maritime mobile services, as well as tariff procedures, revenue settlement methods, human factor aspects of equipment design, and international arrangements for radio and television program transmission, new data networks and new services. One new service discussed was two-way TV.

Voice communications

16.2.1

Telephony. In 1978, there were some 15 million telephones and 23 million kilometres of circuits owned and operated by the more than 300 telephone companies in Canada. Each company is responsible for service in its own territory and for integrating its facilities with those of all other telephone organizations. Collectively, these companies operate the world's longest microwave system and have access to Canada's satellite system for the transmission of long-distance calls.

For a basic monthly charge most telephone users can place as many calls as they wish in a defined area and talk as long as they like. With the expansion of major cities and the merging of small towns into larger communities, most telephone companies have introduced extended area service which enables customers to place calls in a much wider area without paying long-distance rates. For this service, the customer pays a slightly higher fee, based on the number of telephones within his extended area.

For long-distance calls the telephone network operates automatically, providing switching and alternative routing. If the most direct line is busy or out of order, automatic equipment instantly tries several alternative routes until a free or operating one is found.

The Canadian telephone system can also reach nearly all the world's 400 million telephones through the integrated North American telephone network and Teleglobe Canada, a federal Crown corporation charged with providing Canadians with the full range of international telecommunications services. During 1977-78, Canadians spent 88.4 million minutes (more than 1.47 million hours) on the phone to other countries, an increase of 21% over the previous year.

In co-operation with the TransCanada Telephone System (TCTS), a consortium of the nine major Canadian telephone companies and Telesat Canada, in September 1976 Teleglobe Canada introduced direct dialing to a host of countries outside North America. By 1980-81, the Crown corporation expects that 85% of Canadian subscribers will be able to dial direct to the United Kingdom, continental Europe, the Caribbean, Japan, Australia and New Zealand.

The new information technologies are already affecting the Canadian telephone network. For example, thanks to advances in integrated-circuit technology, electronic telephone sets have been introduced in many Canadian homes and offices, representing one of the most radical changes in design since the telephone was invented.

The original step-by-step switching equipment which uses a number of separate switches to complete each call is gradually being supplanted by the new computer technology. New crossbar and stored program control electronic switching systems can handle calls faster and more economically. Digital multiplex switching is a relatively new technology expected to play an important part in future network development.

The revolutionary new fibre optics transmission technology is already being tested in the field. In February 1979, DOC and CTCA signed an agreement to conduct a joint \$6.1 million field trial over the following five years in the small Manitoba town of Elie. The first Canadian test in actual field conditions began in October 1977 when Bell Canada and its subsidiary, Bell Northern Research, installed underground a 1.42-km fibre optics line between two switching centres in Montreal. In December 1978, Bell Canada inaugurated a second field trial in Yorkville, Toronto, the first in which fibre optics was used for residence telephones. Between 1980 and 1982, Bell Canada expects the technological development and systems economics of fibre optics will justify its widespread use in transmission systems within metropolitan areas.