Digital switch sale to Japan

Northern Telecom Limited of Mississauga, Ontario has received a contract to install an *SL-1* business private branch exchange (PBX) in the Hanamaki Hotel complex in Hanamaki, Japan.

The $375 000 (Cdn) contract represents the first sale of a digital telephone switch to Japan.

Northern Telecom's *SL-1* sale follows an agreement with Nippon Telegraph and Telephone Public Corp. (NTT) of Tokyo and it is believed to be the first sale of a digital switch to the company by a foreign telecommunications manufacturer.

A spokesman for Northern Telecom International said the Hanamaki contract is "the first of a series of similar contracts with NTT", which ranks as the world's largest telephone company. Northern Telecom has also won a contract to provide an *SL-1* switch that will be installed in the Chiakikaku Hotel which was completed last month.

Edmund Fitzgerald, president of Northern Telecom; A. Jean de Grandpré, chairman of parent company Bell Canada Enterprises Inc. (BCE) of Montreal; and Robert Richardson, BCE president, were in Japan recently to discuss further opportunities with NTT and Japanese officials. Through BCE's international contract arm, Northern Telecom is also hoping to win a major telephone system contract in Thailand.

'People meter' measure

Toronto has been selected as the North American testing ground for a new concept in consumer research by A.C. Nielsen Company of Canada Limited in Markham, Ontario.

Single source data collection, a concept that marries "people metering" — the measurement of what people are watching on television — with consumer purchase data, or what they are buying as a result, will begin several months of initial testing starting this month.

The basis for the exploration will be Nielsen's NEDS consumer panel, a panel of 2 000 Toronto households for which all purchases will be recorded electronically by means of identification cards at supermarket checkouts. Data from this source will be merged with Nielsen's "people meter".

According to Nielsen vice-president Everett Holmes: "The joining together of these two measurements will enable marketers to measure the entire sequence of consumer behaviour — from what people view to what they do."

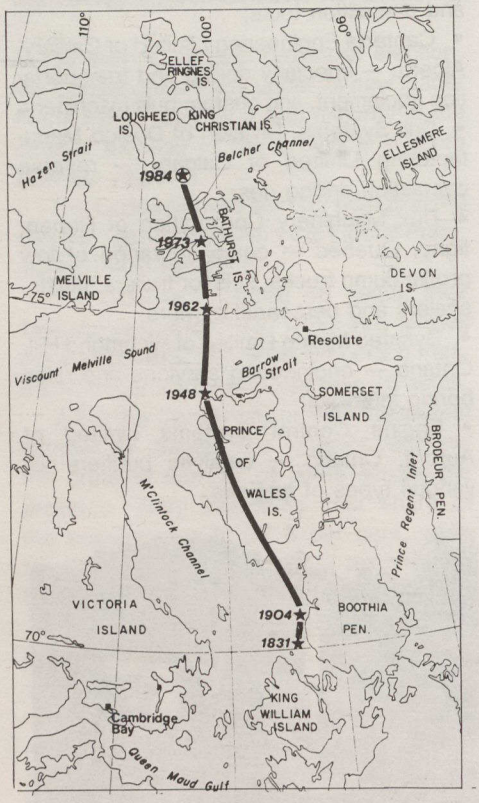
Magnetic pole rediscovered in Canadian north

A team of geophysicists with the earth physics branch of the Department of Energy, Mines and Resources (EMR) have located the North Magnetic Pole some 350 kilometres northwest of Resolute Bay, in the Northwest Territories.

Establishing a temporary magnetic observatory on King Christian Island, the scientists determined that the average position of the magnetic north pole in 1984 was located off the southeast tip of Lougheed Island at 77.0°N, 102.3°W.

Unique to Canada

The North Magnetic Pole is a feature unique to Canada. It is responsible for the most complex pattern of magnetic declination of any country in the world. Monitoring its position and motion is of prime importance to Canadian cartography.



Map shows how the North Magnetic Pole has moved since first located in 1831.

A map showing the magnetic declination in Canada is published every five years and a new chart is now being prepared with the most recent information. It will show contour lines along which the magnetic declination is equal. As all the lines converge on the magnetic pole, if the position assigned to the pole is wrong, the whole pattern of lines in northern Canada would be wrong.

The location of magnetic north is very important in navigation. The angle between true north and magnetic north, which is actually 1 500 kilometres to the south of the geographic North Pole, must be considered in any calculation of bearing using a compass.

Secular variation

Magnetic north is the result of electrical currents produced in the semi-liquid core of the earth. Just as electricity passing through a coil of wire produces a magnetic field, so the earth's electrical fields produce north and south magnetic poles. But the complex natural forces of the earth vary over time and the magnetic poles move slowly. The North Magnetic Pole is presently heading north about 10 kilometres a year. It has moved some 250 kilometres northwest since 1904.

Even more rapid changes of the precise magnetic pole can occur through the day as charged particles emitted from the sun cross the earth's magnetic field. Under the influence of a strong solar disturbance, the magnetic pole can wander temporarily in a roughly elliptical path from the average position, as much as 80 kilometres during a single day.

Techniques of study

In the most recent effort, the location of the magnetic pole was determined by the EMR scientists using two types of magnetometer. They are instruments that look like surveyors' transits but which use wire coils attached to electronic devices to measure the strength and direction of magnetic fields.

At the precise magnetic pole, the earth's magnetic field makes a magnetized needle stand at a 90-degree angle to the earth's surface. Therefore, a compass needle will not indicate direction. In polar regions, pilots must use non-magnetic clues, including stars and signals from satellites and beacons, to get their bearings.

Polar magnetic research dates back to the early nineteenth century when Sir John Ross and his crew became trapped in ice while trying to discover the Northwest Passage. During the four years that it took for the ice to clear enough so that the ship could sail again, James Clark Ross, a nephew of Sir John, began measuring Arctic magnetic fields. He found the magnetic pole in 1831 on the coast of the Boothia Peninsula, about 600 kilometres south of its present location.

Seventy years later, the magnetic pole was located by Norwegian explorer Roald Amundsen. Since 1948, the Canadian government has located the magnetic pole about once a decade to update its charts. The last determination was made in 1973.