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## Her eyes may write volumes

Chantal Bedard, a 16-year-old cerebral palsy victim, is learning to use a specially designed pair of glasses to type with her eyes.

The new, high-tech glasses have a display of 60 letters, numbers and control functions and a sensor that picks up and registers the slightest eye movement.

To type out a message, Miss Bedard looks at each letter or character, one by one, until her eye position is measured and the selection is recorded by the computer. To verify the choice, she must continue looking at the letter until a red light comes on behind it.

Each letter can be typed by the printer as it is chosen, or stored in the computer memory and printed when Miss Bedard has completed a sentence.

The glasses were designed and developed by Dave Kahn and Jan Heynen, two Bell Northern Research engineers (See *Canada Weekly*, July 11, 1984).

Miss Bedard, a special education student in Ottawa, has learned to read in English and French to the grade six level, but she can't talk and has only been able to communicate through eye movement and facial expression by visually selecting symbols that represent words or phrases from cards.

While the process of learning to com-



Chantal Bedard is learning how to type using her specially-designed high-tech glasses.

municate with the glasses is slow, Jan Heynen said Miss Bedard should eventually be able to type 20 words a minute or more. He said she'll also be able to hook up to a home computer.

Mr. Heynen said the device will be manufactured under the name Eye Link in the near future and will cost about \$2 000, not including the printer.

## White-water rafters raise river economy



Cascading through rapids on daily, two-day or more white-water rafting excursions has become a highly popular form of entertainment and it has boosted the economies of a number of communities along the Ottawa River. Until 1981, Wilderness Tours was the only whitewater rafting business along the river, but it has since been joined by a number of firms that offer various types of adventure tours.

## Satellite station for SPOT

A new Canadian satellite receiving station, built to receive data from France's SPOT (Système pour l'observation de la Terre) remote sensing satellite, was officially opened on May 16.

This new station, located in the Gatineau Hills in Quebec, and Canada's other satellite receiving station in Prince Albert, Saskatchewan, will provide complete SPOT coverage of Canada and the United States. Both stations are operated by the Canada Centre for Remote Sensing.

The SPOT satellite, which was placed in orbit February 22, 1986, recorded its first images of Canada on February 26.

SPOT sensors give very high-resolution images of the earth's surface, similar to aerial photography. Black-and-white images are provided for detected objects as small as 10 metres in diameter and colour images for those as small as 20 metres. This compares with a resolution of 30 metres obtained from the US satellite, LANDSAT.

"Canadians will now be able to exploit a wide range of new remote sensing applications with SPOT images," said Minister of State for Mines Robert E.J. Layton, "particularly in mapping, geology and agricultural monitoring. SPOT can tilt its sensors on command, providing a unique stereo coverage for topographic surveying and mineral exploration."

The new station consists of a large parabolic antenna 10 metres in diameter, set on a concrete base, and a prefabricated building to house the reception and recording facilities. "Quicklook" real-time images are developed at the site, but data are sent to the production facilities at Prince Albert for processing into high-quality computer tapes and photographic products.

The Gatineau satellite station is expected to be upgraded in 1987 to receive experimental imagery from the European Space Agency's ERS-1 remote sensing satellite, scheduled for launch in 1989. With microwave sensors, this satellite will be used primarily for experiments in ice, ocean and weather surveillance.

Mr. Layton said the station could also be expanded to receive and process SAR (synthetic aperture radar) data from Canada<sup>s</sup> own remote sensing satellite, currently being considered for a launch into near-polar orbit in the early 1990s.

The pole-orbiting platform, RADARSAT, with its SAR sensor, would provide an operational all-weather surveillance service for land and ocean resource management in Canada and around the world.