

Radio astronomy breakthrough for Canadian/U.S. scientists

A team of Canadian and United States radio astronomers has successfully used a geostationary satellite to effect a major improvement in techniques for precision measurement of cosmic radio sources.

Canada's Communications Technology Satellite (CTS) was used in November to transmit data from the National Radio Astronomy Observatory in West Virginia, U.S., to the Algonquin Radio Observatory in Ontario.

At Algonquin the signals were combined to provide the resolving power of a single telescope over 500 miles in diameter. With this amount of resolving power the size and shape of distant galaxies and quasars can be measured to a precision better than a thousandth of an arcsecond.

Although, the use of two or more smaller telescopes to synthesize a much larger instrument is an old technique in radio astronomy, it was not until 1967 that Canadian and U.S. scientists developed methods for using telescopes separated by continental or intercontinental distances to simulate a telescope nearly as large as the earth.

This "very-long-baseline interferometer" method requires that the signals from each telescope be recorded on a tape recorder, together with time signals accurate to a millionth of a second. Later, the tapes from each telescope are taken to a special computing facility where they are processed together to yield the desired astronomical information.

The CTS, a Canadian satellite launched by the National Aeronautical and Space Administration in the U.S. late in 1975, eliminates the tape recorders and provides immediate indication that the rather complex electronic equipment involved in an experiment is functioning correctly. Furthermore, the high capacity of the satellite results in a significant increase in sensitivity, permitting the study of very faint cosmic objects.

Past experience using the tape recorder method, has shown that several telescopes at various locations on the earth's surface are necessary to obtain a reasonably complete picture of a radio source.

The new experiment has demonstrated

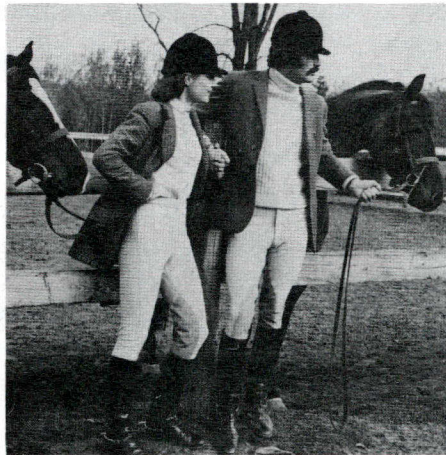
a way of using a satellite to link several telescopes in real time, thereby eliminating much of the post-experiment processing and the logistical problems associated with the shipment of large quantities of magnetic tape.

Federal-provincial conference

Canada's ten provincial premiers expressed general disappointment at the close of a federal-provincial conference last month over a new arrangement for sharing taxation and revenue.

Prime Minister Pierre Trudeau, however, said the conference was "a major step forward in achieving greater decentralization in our fiscal arrangements."

Mr. Trudeau added up new cash payments for health and social care programs, together with additional income tax points, to a figure of \$680 million more annually for the provinces, than they had before the conference began.



A new Canadian fabric that is attracting increasing interest from international manufacturers of riding breeches has been developed by United Elastic Limited of Bridgetown, Nova Scotia. The material, described as "two-way stretch, non-run", made from nylon and lycra, also lends itself to ski pants, football pants, gymnast pants "where comfort, hard wear and flexibility are prime requisites." The company also produces narrow woven and wide knitted elastic fabrics for outer wear, swim wear, etc., and exports to such countries as Australia, Mexico, Belgium and the United States. The firm has agents in Oslo, Stockholm, Hong Kong and Australia.

A town called Flin Flon

Canada's rich heritage of place-names has a multitude of sources, says Marcus Van Steen in another article on this subject in a recent issue of *Canadian Scene*. Many names of rivers, lakes and towns come from original Indian names. Others were imported from the British Isles, France and the other homelands of the white settlers. Some come from animals, or from an early postmaster or surveyor. The town of Flin Flon in northwestern Manitoba, even took the name of a fictional character in a novel.

In autumn 1914, when central Manitoba was mainly an empty wilderness, five prospectors working their way north of Lake Winnipegosis found a deserted camp and decided it was a good place to wait for spring. The camp was 300 miles from the nearest railway station with no settlement of any kind nearby. One of the prospectors found a tattered book among the rubbish left by their predecessors at the campsite. The book, a cheap adventure story called *The Sunless City*, held out the promise of something to do during the long winter evenings and as it turned out, many an hour was passed with one of the men reading the story to the others.

The main character was Professor Flintabbaty Flonatin, a considerable mouthful which the reader understandably shortened to Flin Flon. The five men grew to rather like this Flin Flon who was helping to brighten their bleak winter evenings, so when they found gold in the spring they called their claim Flin Flon. And the town that grew up alongside took the name of the mine.

In 1931 when the Hudson Bay Mining and Smelting Company was operating the Flin Flon mine, it started to wonder about the mysterious Professor Flin Flon. The company found that *The Sunless City* was published in 1905 and was long out of print. After an extensive search, four copies of the book were found. One is in the British Museum. Another is owned by a descendant of one of the original prospectors. The other two were bought by Hudson Bay Mining and are preserved in the company's archives.

The mystery that remains is that no one knows who left the book at the campsite in the first place.