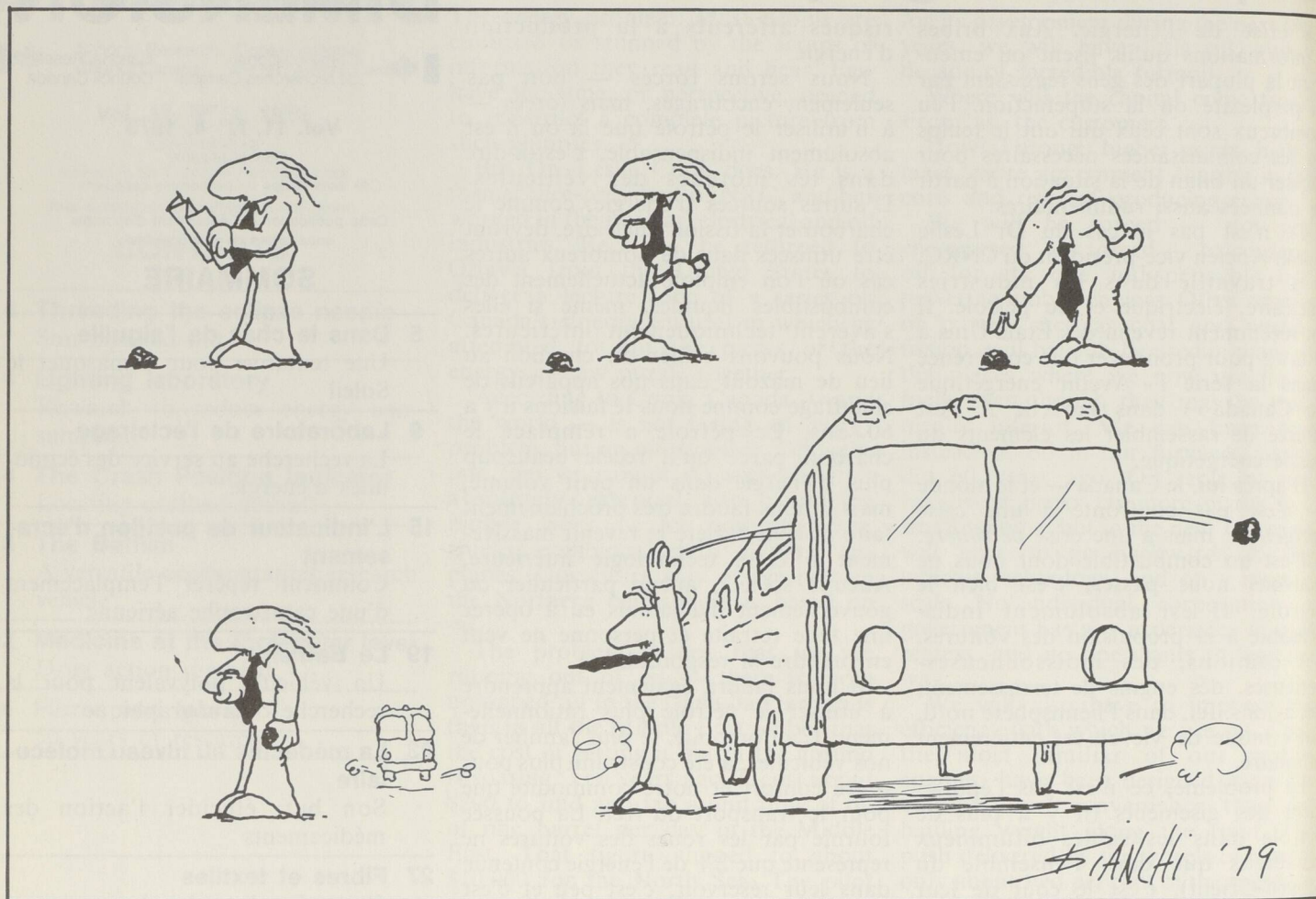


# Threading the eclipse needle Rockets reach for closer look



Imagine you are standing by the side of a road with a bus timetable in one hand and a small stone in the other. A bus, with one open window on each side, will pass by soon. Your task is to check your watch against the timetable and, at the proper moment, without looking, throw the stone through the bus as it passes by. Be careful not to hit any of the bystanders watching your feat, and whatever happens, you can't afford to miss the open windows. After all, you won't have another chance for 45 years.

In essence, this was the challenge facing NRC's Space Research Facilities Branch during the total eclipse of the sun which passed over central Canada last February. SRFB is the agency responsible for all scientific rocket and balloon launches in Canada. For the past two decades the team has provided the launch and recovery operations for Canadian and American experimenters performing research in the upper atmosphere. When the U.S. space agency NASA determined there was no suitable site for launches to investigate the eclipse in the U.S., they

turned to SRFB for assistance. All that was known at the time was the path of total eclipse across Canada ("the road"), and the time when the shadow ("the bus") passed.

Finding a suitable site along the path was not an easy task. Rocket launch sites are largely determined by logistics. They must be remote enough to avoid congested urban centres ("the bystanders"), yet accessible to roads or other transportation means to facilitate the movement of personnel and equipment. For the 1979 eclipse, these criteria were met by the Northern Ontario community of Red Lake.

Red Lake may not be a congested urban complex, but more than 5000 people live and work in the five communities of the site. They are miners, housewives, trappers, bush pilots, schoolchildren, and lumbermen and all were concerned with the effects of a rocket launch program on their lives. To allay anxieties, SRFB staff spent many months touring the area and explaining the program, its limited hazards, and its benefits to the people and to science. The enthusiastic

response of the local population during the exercise is no small tribute to this effort. Bush pilots went so far as to enact a self-imposed radio silence for the duration of the launches in order not to interfere with the telemetry signals.

"Remote launch sites are not new to SRFB," says Jack Tarzwell, Head of Operations. "A permanent rocket range exists at Churchill, Manitoba, for a continuing program of studies of the aurora borealis. Changes in the research program coupled with the rising costs of the launches has led the Branch over the past few years to 'expeditionary' sites. These more flexible arrangements began in 1966 with launches at Resolute Bay, N.W.T., and were followed by the two launches to observe eclipses at East Quoddy, Nova Scotia, in 1970 and 1972. The following year the new techniques were put to a real test with launches into the magnetosphere from Cape Parry, N.W.T."

Almost 2 000 km north of Edmonton, Cape Parry was the launch site for two Black Brant rockets carrying 18 experi-