Space Aces:
Canada's First Astronauts

Travelling through space is a dream that has captivated civilization for centuries. For some, it has been a lifelong personal dream. Five Canadians are now in line to realize their hopes and one has already ventured into space. Like all pioneers, these first six astronauts have faced unexpected twists in quest of their dream.

First there was the excitement of the unexpected chance to fly an early space shuttle mission, and then the devastation of the 1986 Challenger accident which grounded the U.S. space program. Today, the astronauts are training, planning and preparing for future shuttle flights. And they are also actively involved in space-related research and educational activities.

The six astronauts were chosen in December 1983 from among thousands of applicants who had responded to a National Research Council of Canada (NRC) newspaper ad seeking "Canadian men and women to fly as astronauts on future space shuttle missions." At the time, the NRC was planning two missions — one for improvements to the Canadarm, the shuttle's remote manipulator system, and the second for a study of space physiology (particularly motion sickness), a field in which Canadian researchers had been active for more than two decades.

Expecting about 1 000 responses, NRC officials were dumbfounded when 4 400 people, ranging in age from 6 to 73, applied for the job. After an intensive five-month selection process involving four rounds of elimination, six were chosen:

- **Marc Garneau**, a naval officer and electronics expert based in Ottawa, who holds a doctorate in electrical engineering;
- **Roberta Bondar**, a medical doctor and neurobiologist with a life-long interest in flying and the space program, who is Canada's first and only woman astronaut;
- **Ken Money**, a Canadian Forces physiologist, an accomplished pilot, and an expert on space motion sickness with 25 years' experience in space physiology research;
- **Bob Thirsk**, a medical doctor with an interest in biomedical engineering who was then completing his residency in Montreal;
- **Steve MacLean**, a postdoctoral student doing laser research at Stanford University; and
- **Bjarni Tryggvason**, a researcher in aerodynamics at the NRC and a skilled pilot and flying instructor.

After their selection, the astronauts were scheduled for about 18 months' training before their first shuttle flight. But Canada accepted a surprise invitation from the U.S. National Aeronautics and Space Administration (NASA) to fly an extra mission, barely nine months away. In March 1984, Garneau was selected to fly the mission, backed up by Thirsk, and the two underwent intensive training in Canada and the United States through the summer and fall of 1984.

Garneau was only the second non-American scientist to fly on the shuttle and the first with less than a year of preparation. When his eight-day flight took off in early October, Canada became the 14th nation to put a person in space.

Steve MacLean has been chosen to fly the second mission, during which he will test the space vision system (SVS), a computerized machine "eye" that will help astronauts operate the Canadarm more quickly and safely. MacLean, Tryggvason and Garneau are currently assisting in the design and testing of the SVS, which operates both inside the cockpit and outside in the cargo bay. "We have to test it to death," said Garneau, who designed the system's

Canada's space team: Parachute jumping and zero-gravity research are among their preparations for future space missions.