



MEDIA ARTICLE - Roberta Bondar
Canada's Best Explorers
Time Magazine - November 3, 2003
- Dr. Betty Roots

Defying Gravity

To explore has many facets to its meaning. To explore is to push beyond the limits, to challenge, to delve into the minutest details, to investigate – to find out how and why – to try out new approaches to reveal new insights. Dr. Roberta Bondar – scientist, physician, pilot, photographer and astronaut – is a high achiever in all these aspects of exploration. In her early scientific career, she studied in microscopic detail the changes taking place in brain cells in response to environmental changes. Even before her space flight, Bondar's medical curiosity led her to investigate the physiological basis of an astronaut's ability to adapt to the loss of gravity in space and then readapt to Earth's pull. As a neurologist, she observed that some of the clinical symptoms of astronauts returning from microgravity were similar to the symptoms of a variety of neurological conditions, including spinal cord injuries, multiple sclerosis, stroke and Parkinson's disease.

The world's first neurologist to become an astronaut, she is globally recognized for her contributions to space medicine. In 1992, aboard Discovery, she conducted experiments in the shuttle's first International Microgravity Laboratory. For more than a decade she headed a medical research team studying the effects of short- and long-term space flight on cerebral blood flow. Bondar is a passionate advocate of using space medical research to provide insight into diseases encountered on Earth. She and her team examined data from 24 missions to better understand the mechanisms underlying the ability of the body to recover from exposure to microgravity and, by extension, from the symptoms of neurological illnesses. Her space-developed technology has been used in clinical studies at Harvard Medical School.

Seeing Earth from space gave Bondar a profound appreciation of our planet, and she now explores it through photography, capturing images that embody a unique combination of art, science and history. Her stunning images of the remote parts of national parks in the U.S. and Canada reveal both the parks' grandeur and subtle beauty. Through her books (*Passionate Vision* and *Canada ~ Landscape of Dreams*) and exhibitions, she has made it possible for all of us to be courageous explorers, albeit vicariously, and thereby to love and cherish our environment.

Dr. Betty Roots is a Fellow of the Royal Society of Canada and former Chair of the Department of Zoology at the University of Toronto.