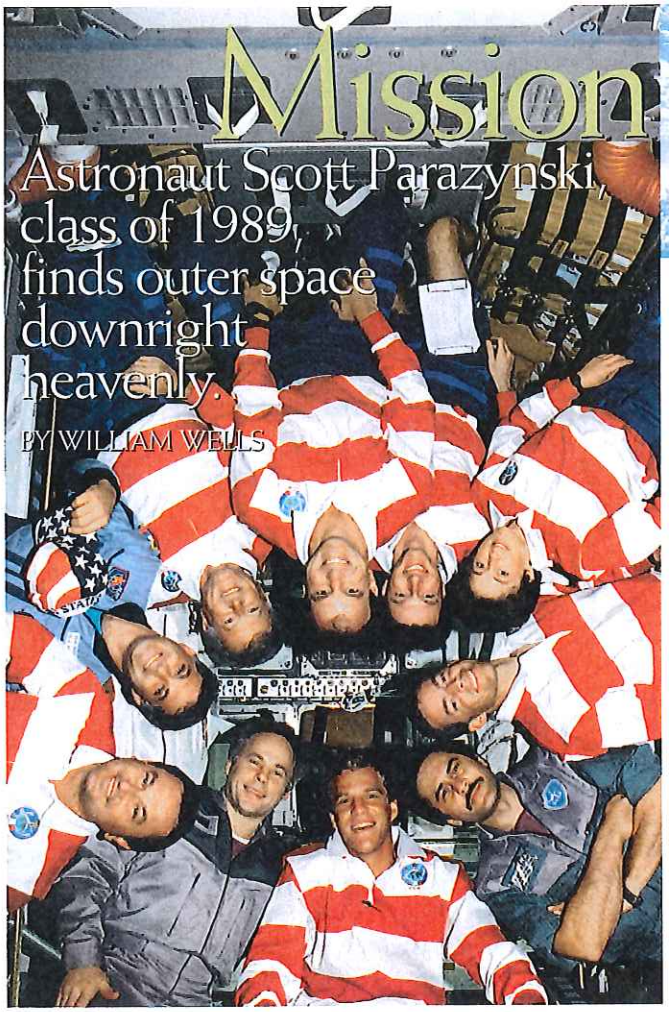
BELOW, PARAZYNSKI (RIGHT SIDE UP, CENTER) POSES IN ATLANTIS WITH SHUTTLE AND MIR CREW MEMBERS. RIGHT, PARAZYNSKI AT WORK, OUTSIDE ATLANTIS.



Mission to Cloud Nine

Astronaut Scott Parazynski, class of 1989, finds outer space downright heavenly.

BY WILLIAM WELLS

AN ADRENALINE RUSH IS NOTHING NEW TO THOSE WHO, LIKE Scott Parazynski, MD, have worked in an emergency room. For sheer intensity, however, Parazynski says it is hard to beat blasting into outer space. In November 1994 and again in September 1997, he found himself seated on seven million pounds of thrust provided by the space shuttle Atlantis — hurtling from Earth to space in just 8.5 minutes.

"This last mission was about as exciting as space flight can ever be," says Parazynski, class of 1989, and now a mission specialist with NASA. "It was almost like living out science fiction." After Atlantis docked with the Russian space station Mir, Parazynski took a spacewalk — his first — with Russian cosmonaut Vladimir Titov.

Training for the spacewalk is done in a huge swimming pool with a mock-up of the shuttle loading bay. "The experience on the real day is for the most part very similar," says Parazynski, "although the view is a whole lot better. When you are outside the shuttle, everywhere you look is space. You can see, with crystal clarity, trillions and trillions of stars."

After a quick look around, Parazynski and Titov got to work on their three tasks: starting repairs on the Spektr module of Mir, testing a jet-pack that could be used by a spacewalker accidentally adrift, and retrieving experimental pallets set up 18 months ago. The pallets will give scientists an indication of how different materials age in space, allowing the design of satellites and deep-space probes that better resist the impact of micrometeoroids.

The walk was five hours of slow, deliberate movements. "If you aren't careful, you can go head over heels," says Parazynski. "And due to the suit pressure of 4.3 pounds per square inch, working in a space suit can seem like trying to do brain surgery with hockey gloves on."

Inside the shuttle-Mir complex, the crew was involved in attempts to grow protein crystals. "In the absence of gravity there is no convection," explains Parazynski, "so you can grow much larger, more perfect crystals." Pharmaceutical companies use the crystals to determine the shape of a protein, which helps researchers design drugs to jam the protein's works.

Lack of gravity also allows cells to grow in unusual ways. "On the ground you are limited to growing things in two dimensions, on the bottom of a petri dish," says Parazynski. In space, however, cells can be grown in bioreactors in three dimensions, more closely mimicking their organization in the human body. "The hope is that you will be able to grow three-dimensional tumors," says Parazynski. This would give researchers insight into what truly happens as a tumor grows and how it might be stopped, he says.

Parazynski is already looking forward to his next mission, slated for launch on Oct. 29. One of the mission's highlights will be flying with Senator John Glenn, he says. Glenn was tbe first American to orbit the earth, completing three orbits in a five-hour flight in 1962.

Multiple space flights are certainly not dulling Parazynski's enthusiasm. "I feel I am one of the luckiest people ever to live," he says. "I tell people I have the best job in the universe."

One of the benefits of that job is an outlook on life that the rest of us can only imagine. "After the first mission I had a better appreciation of the fragility of life and our place in the universe. The little things in life didn't seem to bother me as much — taking out the trash, getting stuck in traffic. Unfortunately, that universal perspective decreased over time."

The solution? "I've told my superiors I just need to fly more often." **SMD**