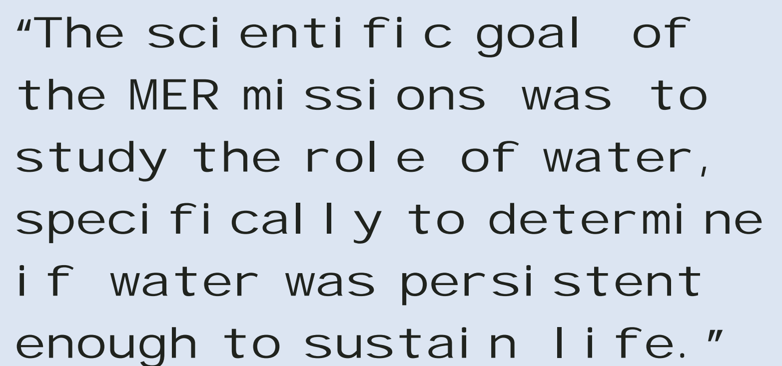
To garner public interest, NASA held a contest to name the rovers, which were eventually dubbed Spirit and Opportunity by a 10-year-old. The science team thought these names were uninspired (our choices were Lewis and Clark), so with a quiet sense of rebellion any cadet can appreciate, we continued to call them MER-A and MER-B, their monikers before launch.

The MER landings, spaced three weeks apart in January, garnered a lot of media and public attention, perhaps heightened by the earlier loss of a British Mars lander (most Mars spacecraft over the past several decades have been unsuccessful). Landing is a euphemism for what the MERs did. After entering the atmosphere at 12,000 mph, each lander decelerated using a complex sequence of maneuvers: first slowed by air friction, then by parachute deployment and finally by retrorockets. Cushioned by inflated airbags, it slammed into the ground, bounced high into the air and eventually rolled to a stop a quarter of a mile from touchdown. Television crews called the entry, descent and landing sequence (EDL in NASA-speak) "six minutes of hell," a fairly apt description of its effect on my nervous system. Each landing sequence was executed flawlessly, despite a tense period of silence after touchdown before radio contact was re-established. Having ringside seats for the landings in mission ops was among my life's defining moments.

The scientific goal of the MER missions was to study the role of water, specifically to determine if water was persistent enough to sustain life. The MER-A landing site was in Gusev Crater, a Connecticut-sized bowl excavated long ago by some massive meteor impact. Meandering across the terrain south of Gusev is a 500 mile-long trough once carved by flowing water. Called Ma'adim (the Hebrew name for Mars) Vallis, this gutter sliced through the crater rim. Any water carried by Ma'adim must have emptied into Gusev. Lakes commonly fill impact craters on the Earth, and it's plausible that Gusev, too, was once filled with water. MER-B landed on a plain located near the planet's meridian, or line of zero longitude. An orbiting spacecraft found that Meridiani Planum is covered with sediments containing hematite, an iron oxide that forms when rocks interact with water.

The power for the rovers was electricity generated by solar panels. Consequently, we operated each rover only during Mars daylight. This often meant working through the night in the Jet Propulsion Laboratory in Pasadena, Calif. To make matters worse, the martian day (called a sol) is 40 minutes longer than a day on Earth, so each day's shift began 40 minutes later than the previous day. Not surprisingly, this nightmarish schedule took its toll on the MER team. Returning home after one three-week stint in operations, I slept for 12 straight hours.

I had two jobs during MER operations. One job, shared by all members of the science team, was to examine and interpret the data sent back to Earth. My other responsibility was as a lead for strategic planning. Decisions about what each rover should do during the next sol had to be made quickly every day, leaving little time for reflection



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