

# Mars Exploration Rover Mission

**Spirit  
and  
Opportunity**



**Week in Review  
August 21 - August 27**

**Spirit completed its investigation of the Clovis outcrop by scrubbing a “brush flower” on its surface and drilling the deepest hole in a rock on Mars so far.**



*Approximate true-color panoramic camera image, August 21, 2004. The hole is 0.35 inches (9 millimeters) deep.*



**After taking readings of Clovis' chemical composition for scientists to study later on, Spirit drove 26 feet (8 meters) from Clovis to a rock dubbed "Ebenezer."**

*Navigation camera image, August 21, 2004.*

**On August 25, Spirit brushed the surface dust  
off of Ebenezer.**



*Panoramic camera image taken on August 25, 2004.*

**Spirit then moved its arm to switch instruments in order to study the newly brushed surface with the alpha particle X-ray spectrometer.**



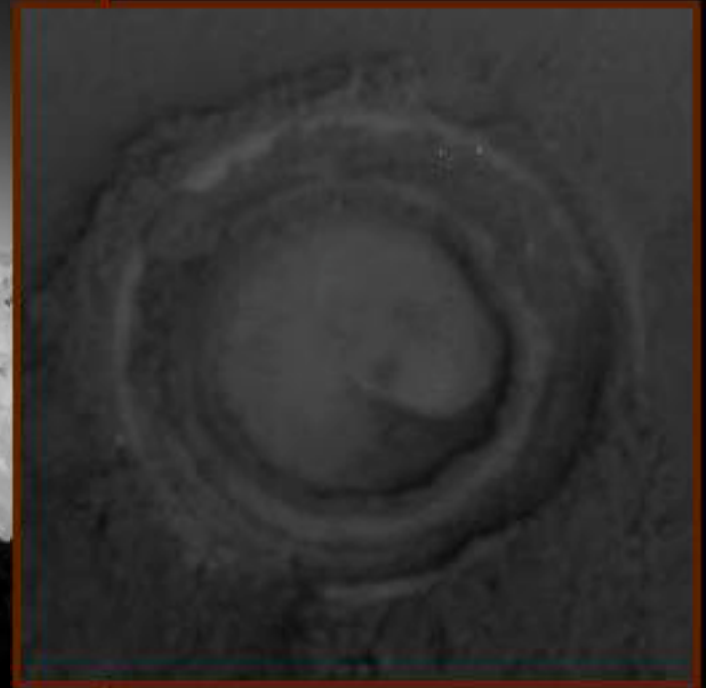
*Front hazard-avoidance camera image taken on Spirit's sol 230, August 25, 2004.*

**Spirit ground into the same spot with the rock abrasion tool for two hours on August 26.**



*Front hazard-avoidance camera image, August 26, 2004.*

*Panoramic camera image, August 26, 2004.*



**On August 27, Spirit began analyzing the hole to learn about the rock's chemical composition.**

**Meanwhile, Opportunity was busy slipping on the surface deep inside Endurance Crater.**



*Navigation camera image,  
August 21, 2004.*

**Steep slopes and lack of traction when driving in this terrain caused the rover to experience up to 50% slippage as it attempted to drive to targets near the crater floor.**

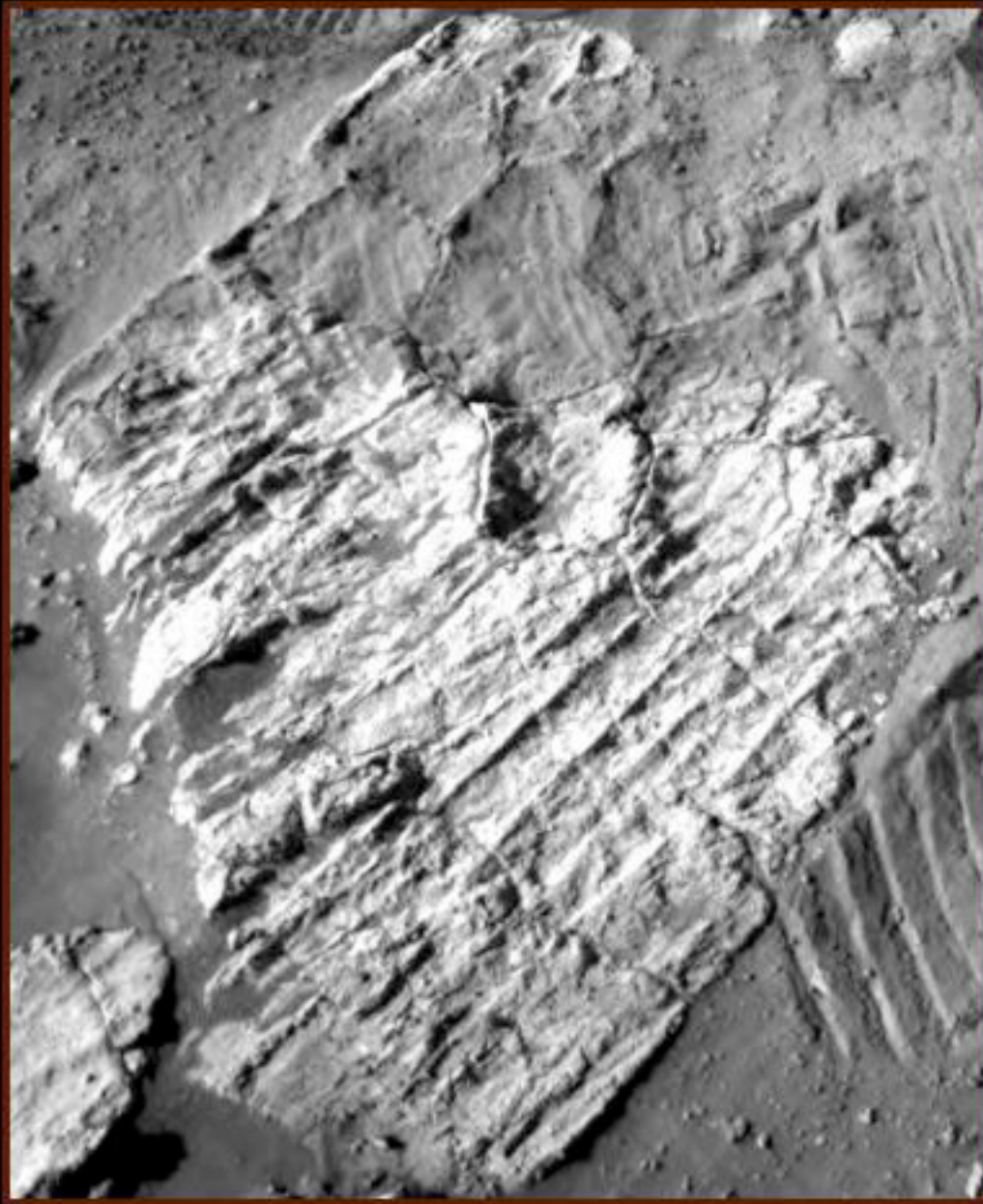
**Eventually Opportunity found good traction to deliver the rover more than a meter (3 feet) upslope.**



*Front hazard-avoidance camera, August 22, 2004*

**As luck would have it, the rover stopped directly in front of a rock that the science team found interesting because of its unusual patterns.**

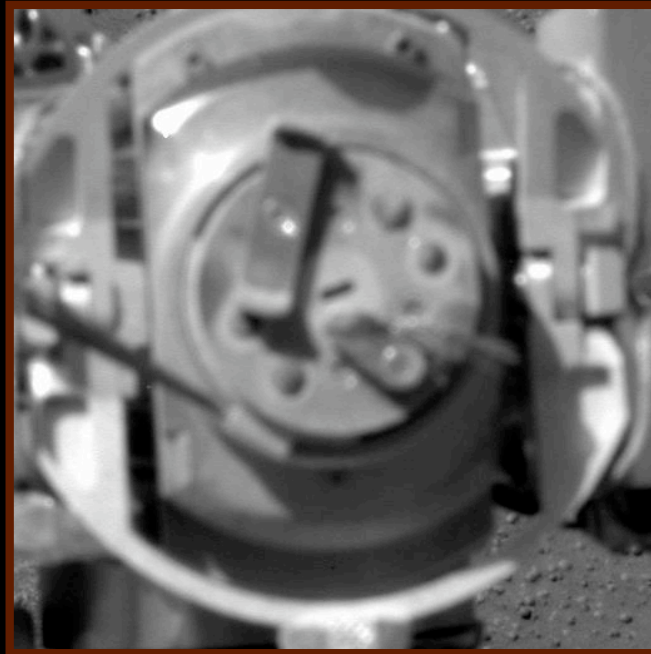




**The science team quickly named the rock “Escher” after the Dutch graphic artist known for his creative “mathematical” artwork and repeating geometric patterns.**

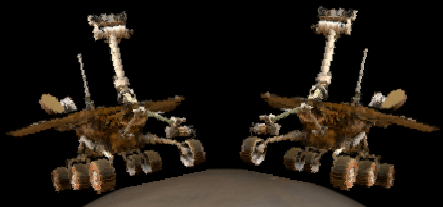
*Navigation camera image, August 22, 2004.*

**Before Opportunity grinds into Escher, engineers will test the rock abrasion tool to ensure that it's functioning properly.**



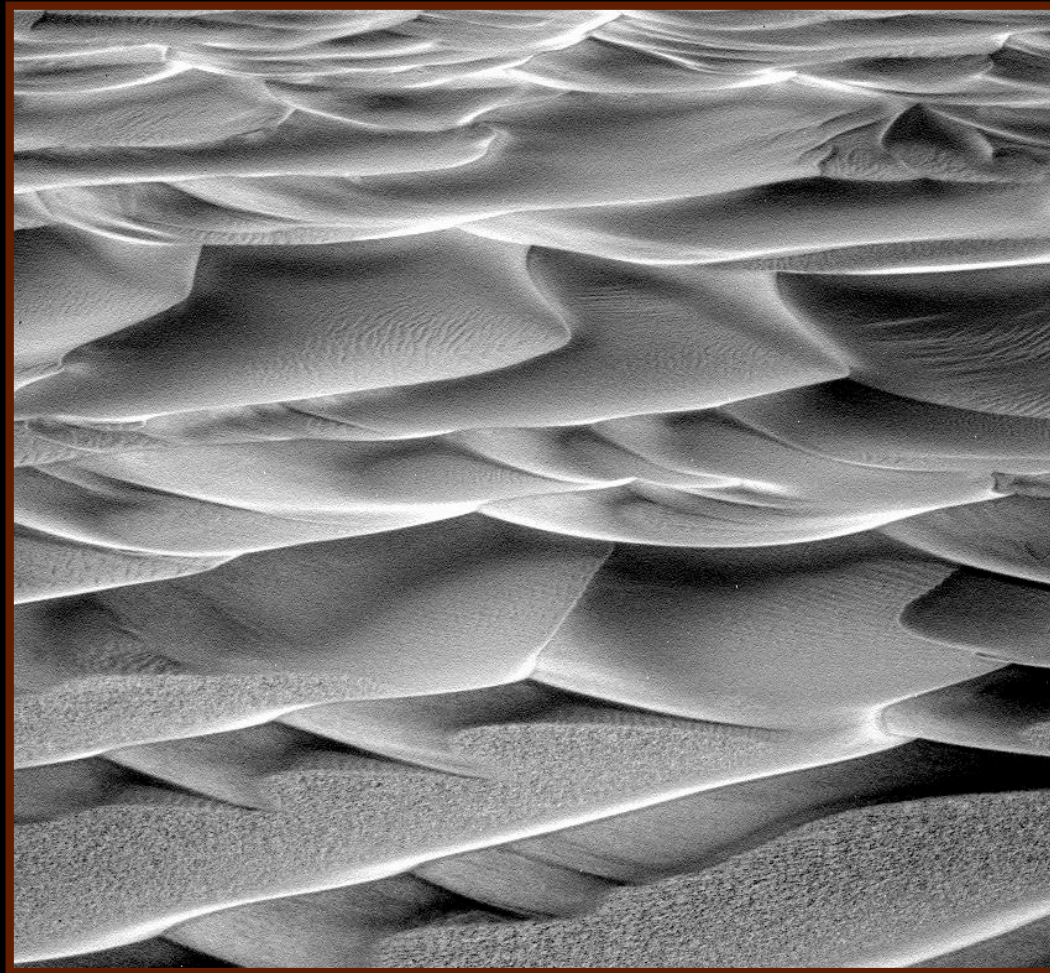
*Panoramic camera, taken August 26, 2004.  
The RAT was too close to the camera for sharp focus.*

**A pebble that was accidentally trapped between the cutting blade and wire-brush rotors has apparently “escaped” due to thermal cycling or vehicle movement.**



**COMING UP!**

**Spirit will drive to a new region of the Columbia Hills after it finishes its investigation of Ebenezer.**



**Scientists have decided that it is too risky to send Opportunity into the sand dunes of Endurance Crater.**

**Opportunity may use the rock abrasion tool on Escher next.**

*Panoramic camera image, August 24, 2004.*