

# EXPERIENCE MARS:

## Touch a piece of the Red Planet!

### How do we know that this meteorite came from Mars?

A mysterious class of meteorites exists called Shergottites (after Shergotty, India where this type first fell in 1865). Some scientists suggested that these objects were the result of material blown off of the surface of other planets by large asteroid or comet impacts. Other scientists were skeptical.

The mystery of their origin was finally solved in 1985 after the discovery of trapped gas inclusions inside the shergottite EETA 7900. Based on data obtained by the Viking probes, which landed on Mars in 1976, we have learned that the composition of this trapped gas is identical to the Martian atmosphere, suggesting that they originated on Mars. Meteorite researchers and collectors generally refer to the Martian rocks as the SNC meteorites - the shergottites, the nakhlites, and the chassignites.

Most identified Martian rocks are the shergottites. Today, after more Mars missions, and comparisons, it has been proven beyond doubt that the SNC meteorites are indeed genuine samples of our cosmic neighbor, the planet Mars, and consequently they are also known as Mars meteorites.

### Why are Martian and lunar meteorites important?

Martian and lunar meteorites are of major scientific importance because they represent the only known samples of the interiors of other planets available for research. For example, the lunar samples returned by the Apollo program are all surface materials since these expeditions were only able to drill a few feet into the lunar soil. Scientists (including our colleagues at Washington University) are studying lunar meteorites which appear to provide samples from places not yet visited by humans including the lunar farside and deep lunar interior.

Martian meteorites may contain clues about the possibility of life on other planets. Most Martian meteorites contain minerals that have been altered by the presence of water, and there are other types of meteorites that also contain traces of amino acids, the fundamental building blocks of life.

### Where was this meteorite found?

This meteorite was recovered in Morocco. The North West Africa desert is one of the best places on earth to find meteorites. The sand and the lack of vegetation make it easy to detect the meteorites which contrast with the local terrain. The dry environment helps to preserve the meteorites.

### Who found it?

There have been thousands of meteorites found in the deserts of Libya, Algeria and Morocco by Nomads who retrieve these unusual "black rocks" from the sand. More recently meteorites have been discovered on the surface of ice fields in Antarctica.

Nomads travel through the areas and these unusual black rocks are then retrieved in the sand. There have been thousands of meteorites that have been found in the deserts of Libya, Algeria and Morocco.

This meteorite is displayed at the Saint Louis Science Center on generous loan from the collection of Tim Heitz

