



## Arizona Rocks 2

Text and photos by Ray Grant

Keeping with volcanic rocks, the next most common volcanic rock in Arizona after basalt is felsite. The term felsite is used here for a fine-grained light colored volcanic rock. The main minerals present in felsite in varying amounts are quartz, potassium feldspar and plagioclase. In the geological literature names such as latite, quartz latite, dacite, rhyodacite, and rhyolite, will be found. These rock names depend on the quantity of the minerals present and/or the rock chemistry, since this usually can't be told visually, the name felsite is used as a more general term. Rhyolite is also sometimes used as a general term for these light colored volcanic rocks. When the rocks are composed mainly of ash from explosive eruptions, they are referred to as tuff, and sometimes more specifically as felsite tuff or rhyolite tuff.



Superstition volcanic rocks at Picket Post Mountain, Superior, AZ

The Superstition, Chiricahua, Kofa, Galiuro and many other mountain ranges in Southern Arizona are composed of felsite or tuff. These volcanoes were active from about 30 to 15 million years ago, and unlike the fluid basalt eruptions, these volcanoes had very violent eruptions.



Typical explosive tuff showing ash and rock fragments, Superstition Mountains

The magma came from melting of the crust or from melting of subducted sedimentary rocks and was very viscous. Some eruptions occurred as lava flows, but the magma was often rich in gas and would explode violently on reaching the surface; erupting as ash flows that formed the tuff we see today.

The Superstition volcanic field covers 3,000 square miles. Tuff is the common volcanic rock here and because it is resistant to erosion it forms the cliffs seen all around the Superstitions. The volcanic eruptions that formed the Superstitions must have been something to see, from far enough away! When this silica rich magma cools quickly such as under water, obsidian would form like the Apache tears from Superior.



Obsidian Apache tears from Superior



Spires of eroded tuff, Chiricahua National Monument

