



## Arizona Rocks 3

Text and photos by Ray Grant

Another common rock in Arizona is granite. Granite is an intrusive igneous rock, which means the magma cooled slowly underground rather than erupting out on the surface. The slow cooling allows larger crystals to grow, so for rocks like granite we can see the individual minerals. The common minerals in granite are quartz and microcline (potassium feldspar) with some plagioclase and sometimes biotite or muscovite. Granite is often used as a general term for other light colored coarse-grained igneous rocks including granodiorite, quartz monzonite, and monzonite that have a slightly different mineralogy or chemistry.

At many locations in Arizona, granite shows spheroidal weathering, such as along the Beeline Highway and at Texas Canyon near Wilcox. The large rounded boulders make a spectacular landscape. These rounded boulders form under the ground, perhaps when the climate was wetter, and erosion during the drier times exposes them.

There are five major times when granite intrusions occurred in Arizona. They are: Early Proterozoic (1.6 to 1.8 billion years ago), Middle Proterozoic (around 1.45 billion years ago), Jurassic (150 to 180 million years ago), Early Tertiary to Late Cretaceous (50 to 82 million years ago), and mid-Tertiary (20 to 25 million years ago). In the Phoenix area mid-Tertiary granite makes up the eastern half of South Mountain; Early Proterozoic granites are found at Utey Mountain Park and on the Beeline highway; and Middle Proterozoic granite is present at Pinnacle Peak, the Carefree area, the back of Camelback Mountain and in Papago Park near Hole-in-the-Rock. The Jurassic granites are present in the

southern part of Arizona for example at Kitt Peak. The mid-Tertiary granites are associated with Arizona's copper deposits. You can go to the Arizona Geological Survey website ([www.azgs.az.gov](http://www.azgs.az.gov)) go down to geologic map of Arizona and you can find the locations of the different granites and other rocks.



Granite from the Walker Butte Granite Quarry near Florence, gray is quartz, pink is microcline, white is plagioclase, and black is biotite.



Spheroidal weathering of granite at Texas Canyon near Wilcox



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