“Landmark”

Camelback Mountain rises high above metropolitan Phoenix, Arizona.

Ask yourself which natural rock formation has come to symbolize Phoenix? Which one actually represents our city?

Most people would say Camelback Mountain. Everyone here knows Camelback. Tourists from afar know of Camelback. And even those who have never been to Phoenix have somewhere heard that name, or read it. Rising almost out of the middle of the metropolitan area, it gives personality to our city. Like an actor who works best when able to “play off” of a certain other character, Phoenix has that statuesque mountain. More than just a prop, it is, many would say, the centerpiece of our stage in the world.

If you are new to the Valley, or have just never noticed, when viewed from the south, the mountain’s profile does bear a resemblance to a reclining camel. You can see the head and neck on the west end, and the higher “hump” of the camel is the eastern part of the peak. Now since we *are* in the American Southwest, a camel would seem to be a figure unlikely envisioned in anything local. But there were camels in Arizona in the 1850’s—they were imported by the US Army, and used briefly for transport. That experiment didn’t work out very well, but since a camel's association with the desert is almost a primeval thing, a sort of camel's “essence” remains here.

Few other cities in the world have such prominent, singular, natural monuments within easy reach. Rio de Janeiro, with its “Sugarloaf”, is one contender; or Capetown, South Africa, with its captivating Table Mountain. The “Rock of Gibraltar” certainly comes to mind, but it sits at the gate of the Mediterranean Sea, and is not really in a large city. And Ayers Rock, Australia? Well, it’s out in the middle of nowhere.

Identity is a key factor in one’s psyche, and identification with landscape goes way back to when humans were just figuring out the world. For ancient Native Americans, the association with landscape was a given—for most of us in the modern-day world it is just a distant memory. But it *is* lodged deep in our minds somewhere, and without it we might as well live in underground bunkers, or windowless, modular structures without end. I feel sorry for space-station colonizers of the future, for they will never know the wonder of gazing up at a big, beautiful rock that can be seen for miles and miles, knowing that it is right in their own back-yard, and that they can walk right on up it if they like.

Although many don’t know it as such, Camelback Mountain is just one of the peaks in what are called the Phoenix Mountains. They cut our city roughly in half, and run from Moon Hill, on the northwest end (near I-17), to Camelback itself on the southeast end. North Mountain, Shaw Butte, Squaw Peak, and Mummy Mountain are some of the other well-known prominences in the series.

The whole group is what is known as a *fault-block* range. The Valley of the Sun owes most of its general appearance to a particular episode of geologic activity called the *Basin and Range Disturbance*, which ran from around 15 million years to about 8 million years ago.

That span of time is a very recent part of Earth’s history, and so our setting is really one of geologic youth. The rocks which make up many of the mountains and features around us are very, very old, but they have just been recycled into the shapes we see now, that’s all.

During that episode, the crust of our planet here stretched out and broke into pieces which run for miles and miles in more-or-less parallel orientations. With that activity, and because of gravity, some of those slabs started to settle down, alternating in a fashion with blocks left standing in-between—the Phoenix Mountains are one such block. Millions of years of erosion then sculpted that high ground into the picturesque shapes we see now, one of which looks like a very tired camel.

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The Valley's "look" is very much due to "fault-block" mountains, like the Phoenix Mountains. The McDowell Mountains and the Sierra Estrella are also such ranges. But, there is another significant piece of the story of our setting, though, and that has to do with why our Valley floors appear to be so flat. In this case, I will also use Camelback Mountain to illustrate the point.

The second picture here was taken from the near the summit of Squaw Peak, looking to the southeast. In it, Camelback Mountain has a shape very different from that in the first photo, where the "reclining camel" can be seen. In the forefront of this image is a ridge of the ancient metamorphic rocks of the Phoenix Mountains, on Squaw Peak.

But behind it, you can see a small, level valley filled with the growth of civilization—a patchwork of cross-streets lined with houses, buildings, landscaping, light poles and wires, and other signatures of humanity. On a mammoth scale, it looks here so much how like a colony of mold might appear in an old, forgotten bowl of Jell-O still open in your refrigerator, a dish with an uneaten piece of fruit left sticking out of the dessert's firm surface. The mold relentlessly multiplies against the chunk's base, ever struggling to breed its way up the sides of the lump.

Similarly, Camelback rises out of that swale—its profile now a rugged, majestic pyramid—accenting the flatness all around it. The vast Sonoran Desert stretches out in back, for many, many miles.

This view of Camelback Mountain alone, in my mind, makes the "workout" trek up Squaw Peak worth it. Just drive to the Phoenix Mountains Preserve, north of Lincoln Drive, park in the massive parking lot, and start up. For most, it will be slow going, but you will have lots of company. I have read that this hiking route is the busiest trail in North America, and it will indeed seem that way as you make your way up and down along with hundreds of other people, some young, some old; a few running, most walking, taking in the view.

Camelback Mountain, from the summit of Squaw Peak.

So why then, given that Earth's crust is so broken up by the faults that delineated the Phoenix Mountains, is the surrounding landscape so flat? Shouldn't we see a wilderness of canyons and gorges, and not the gentle valley floor that so readily harbors life and our comfortable, enviable world of greenery and strip-malls?

It's that old, never-ending story of "what is up, must come down". Over the past ten or fifteen million years that our friend Camelback has been looming above the down-dropped blocks of rock once attached to its flanks, its slopes have also been eroding on a less exaggerated scale—a little bit here, a little bit there, day by day.

All that sand, gravel, and clay has had to go somewhere, and where it ended up is simply down-slope in the deep basins surrounding Camelback Mountain, the Phoenix Mountains, and all the other ranges in our scenic part of the world.

Over those millions of years, all of that eroded material—which geologists loosely call *alluvium*—has accumulated greatly in the Valley of the Sun and many other valleys of southern Arizona. Between all of the mountain ranges around here are deep, deep trenches. The actual bedrock surfaces of many of these basins are way below sea-level, and many are thousands of feet below the surrounding landscape.

That is why the land, out of which rises Camelback Mountain and the other peaks of the Phoenix area, is so flat. It is like a calm ocean of sand and gravel, barely rippling against the ranges, not revealing what lies beneath. What we see above it are simply the very tips of the mountains, in the same way that icebergs only show a small part of their true mass above the water's surface, belying the real nature of what is unseen.

In the case of our Camelback, it looks in my picture like it is separated from the rest of the Phoenix Mountains by the flat area, but “below the deck”, it is not. Down there, and here not *too* far down, underneath those houses, roadways, and trees, is the bedrock that connects all of the Phoenix Range together. Off to its south, and to its north, the fill material is much, much deeper.

Thankfully, there is lots and lots of that alluvial fill, and those filled-in basins are wide and voluminous, for they hold vast amounts of groundwater—enough to keep that “growth” of civilization going for decades to come.

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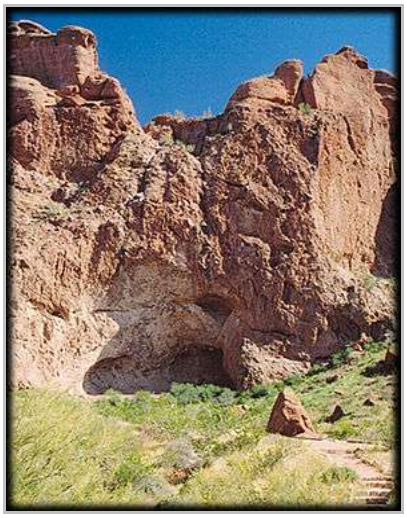
There is yet one more part of Camelback’s story—one missed by even the many hundreds of hikers who ascend its slopes daily: that of its role as an ancient sacred spot, where for centuries humans came to *connect* with their surroundings, or perhaps *disconnect* from them.

Tucked low into the northern side of the rugged and strangely-shaped rocks of its western end, is a large cavity—a shady, cool cave that looks like it might have been designed as a band shell—a prehistoric amphitheater which even way back then was recognized as prime real estate.

From inside it, the view to the north expands to include the Phoenix Mountains and Squaw Peak. Yet, there is a sense of enclosure, security, and especially of harmony. It’s not just because you are mostly surrounded by solid rock, offering safe haven from any attacker that might want to sneak up on you. No, it’s the *feel* of the setting that you notice. It feels *rejuvenating*.



The Camelback Grotto.

Many people are under the impression that primitive peoples thought of caves like this one simply as shelter. I would argue the opposite. The Hohokam people who lived in our valley up until around 1450 CE (current era) didn’t need shelter. They already had well-developed pueblos all over the area, as well as vast farm fields, extensive trade routes, and an elaborate culture. Indeed, they had other uses for such special places—what some would call *magical* places.

The Camelback Grotto is one such spot. While standing in it, with the rocky, orange-brown, half-dome shaped ceiling some forty or fifty feet overhead, I couldn’t help but notice a close ridge of similar reddish sandstone and conglomerate a hundred yards or so out in front of the opening. The more distant mountains are off to the left—the ridge itself interrupts that background range as a natural sculpture of rounded and cave-riddled rock that looks organic, like a growth blooming up from the flat valley floor just below. That arrangement of rock not only adds to the feeling of the place—it is integral to it.

The Grotto in the rocks of Camelback Mountain was formed by weathering and erosion. Those relatively soft sedimentary layers on Camelback’s west end have all been shaped by the same processes that also formed the scenic red-rock buttes in nearby Papago Park, and in fact, they are part of the same geological formation. (The first photograph above was taken from the Papago Park area, near McDowell Road, looking north towards Camelback Mountain. The red rocks and buttes of Papago Park also stick out of the Valley’s alluvial fill—only they are lower in elevation and therefore less imposing. When such smaller formations poke up through the surrounding alluvium, they are called *inselbergs*.)

It is possible that some of the opening’s shape has been modified by humans, but if so, not in noticeable fashion. As elsewhere on the mountain, the conglomerate unit contains small to massive chunks of much older, angular granite—evidence that these rocks resulted from very violent forces some twenty-five or thirty million years ago. It is serendipitous that such chaotic stone has evolved into the serene site it is.

Why above do I say “connect”? Because that means *changing a state-of-mind*. Why do I say “disconnect”? Same thing: that means *changing state-of-mind*. It’s the *change* of mind that counts. The alteration of state-of-mind creates a sense of *just being there*, being absorbed in the present.

Ancient Indian peoples looked at the landscape as *part* of their being, not just as something to utilize economically. It was not outside of them—*it was part of them*. Landscape exerted force on their daily lives, and influenced them in ways most of us just do not get or understand. Some places had the ability to amplify or modify those forces and influences, and the Grotto is one of those sites.

The Camelback Mountain Grotto has been known to Phoenicians since around the time our city was established. People then visiting the cavern found and noted artifacts such as decorated, short, cane reeds. There were also lumps of salt, shell beads, small bones, arrowheads, and sky-blue turquoise. But the reeds were particularly intriguing. They appear to have been ceremonial or ritual objects containing plant material, and were embellished with inked-in figures or marks. Wrapped around the outside of many of them was cloth fabric, and they were often found in bundles of four. Incense? Cigarettes? Who knows? Besides being a spiritual setting, maybe the Grotto was a party place, too.

More than just a landmark, Camelback Mountain has been *a special place* for at least a thousand years. We are fortunate that it still is.

To learn more about Camelback Mountain, visit **www.gemland.com**, go to the "GeoScenery" section, and click on “Camelback Mountain” on the map. Or you can click on any other name on the map to begin a series of images about other features of the Phoenix area’s engaging rock formations and prehistory. All have geologic explanations available in pop-up windows, and you can send any picture to your friends as an E-postcard for FREE!

--- *Richard Allen*