

“Growth Spurts”



Arizona's Roosevelt Dam in 1994, under renovation. You can see the stone blocks within.

It was eleven or twelve years ago, during my first drive on the Superstition Mountains' *Apache Trail* (SR88), that I took note of sculpted bands of rock in the eastern Salt River Canyon there. Blocky, tilted steeply, and definitely different from the other rocks in the area, they gave way to red and yellow volcanic stone spires and mesas further downstream. These gray, layered formations create the wall on the other side of the gorge at that point, a narrow in the rocks in which rises the great man-made barrier of *Roosevelt Dam*.

On that day, it was raining, and I remember how green the desert was and how alive it smelled. There was lots of construction mayhem going on then – I could look down and see the innards of the dam, and its stone masonry face – it was in the process of transformation.

I went back there specifically, recently, on one of my trips through the Superstitions. The dam today looks all new, as it has since its renovation was completed in 1996. It is bigger, higher, and more efficient. Although its face is now all smooth concrete, those big stone blocks that I saw before are still there, invisible inside – now just another layer in the massive, hydraulic impediment. The gray rock bands in the cliffs alongside also remain, and their ancient story, the object of my newer pursuit, is one of growth, too. They are a rock called *limestone*, and limestone is a rock that is very connected to, and symbolic of, life.

There is no real limestone around Phoenix. But in the Roosevelt Lake area you can see it in the vicinity of the dam, and in other nearby places as well. There it is very old – around a billion years old, give or take a few hundred million years.

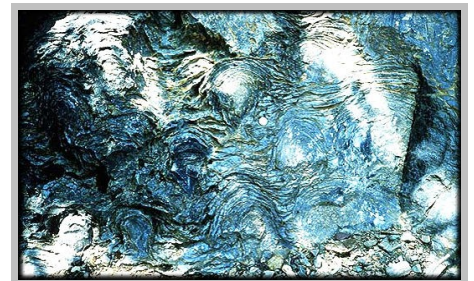
Limestone is formed as precipitation from seawater by chemical activity, and by living things. Massive layers of it indicate a marine environment, and indeed, long ago this part of Arizona was underwater, although the coastline was near.

Life then was very primitive, and in fact there was no known land life of any significance. Tiny, one-celled organisms predominated, and it would be a long, long time before anything would crawl out of that ocean onto a barren beach, and take a breath.

Beaches, however, there were, and where there were beaches, there were shallows, lagoons, and tidal basins. Imagine tidal flats, shallow and murky, with splotches of algae growing like moss amongst the lapping and interceding sea tides.

Warm, and constantly moist, these communities of blue-green algae (also called *cyanobacteria*) built themselves up in gentle dome-shaped structures, layered with mucus and muck of their own device, trapping calcium carbonate from the seawater, causing it to form ever more thin laminae. The laminations were *barriers*, which slowed down and trapped chemicals, but which ultimately allowed for life to *increase*.

Such mounds are called *stromatolites*, and they still grow in a few places in the world. They are so delicate, however, that human and animal activity easily destroys them, and where they can be found, like in certain lagoons of the Baja Peninsula, they are coveted and protected. Once upon a time, though, they were very plentiful.



A stromatolite, with its wavy growth patterns. This one is about two feet (.6 meter) across.

The limestone next to Roosevelt Dam, and yes, some of the limestone carved up to form those very blocks that made up the original face of the dam, is called the *Mescal Limestone*, and it contains stromatolite fossils.

They are one of the best indicators of the environment back when the limestone was deposited, back during what geologists call Precambrian time.

Cyanobacteria thrived on the carbon dioxide of the early atmosphere, and created oxygen as a by-product. Some biologists think that the immense quantities of stromatolites and algal colonies present in the Precambrian world were instrumental in making way for life that needed and used oxygen to survive – eventually, us.

Stromatolites, with their internal obstructions, were transformational things for the world. Their presence as a part of the modern-day Roosevelt Dam is fitting. The dam forms an obstacle, too, standing in the path of the Salt River, but it gives us a regular water supply, enabling agriculture, and energy in the form of electricity.

Roosevelt Dam was instrumental in the development and evolution of Phoenix itself, in many ways responsible for the city's rapid growth that took place following the dam's initial construction, completed in 1911.

I once heard a certain motivational speaker talk about a major turning point in his life – he described it as what turned out to be “a magnificent opportunity, at first brilliantly disguised as an impossible situation.”

Indeed, life advances in spurts, and sometimes barriers are the cause.



The “new” Roosevelt Dam, looking upstream from the Salt River bed, along the Apache Trail (SR88), in the Superstition Mountains of Arizona.

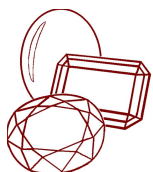
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----- *Richard Allen*

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*At right: natural Arizona Peridot and 22K Gold
gent's ring by GemLand © 2006*



by Richard Allen

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