

“Air Brush”



It looks more like a *dessert*, than a *desert*, in northern Arizona.

Picture this: you are working for a Hollywood director. The film on which he is working is a science-fiction feature, and your job is to find a filming location that is other-worldly. He wants it to be an extraordinary scene – the countryside of a planet devoid of life, with a forlorn and desolate feel, and with colors like nowhere familiar. Where would you send him and the film crew?

I know just the site. Every time I drive through it I imagine for a moment that I am there, on that other world, and it wouldn't surprise me at all to see some Martian-like creatures topping one of the rolling hills, coming to check me out, for good or for worse.

Where is this spot? You might have guessed already. It is Arizona's *Painted Desert*, and it is one of the strangest landscapes anywhere. It's almost as barren as a place can be, and it looks like it was spray-painted with a variety of hues – colors which have come to symbolize the Southwest. The gently smoothed hills even have a fractal sense to them, as they scale down into smaller, similar forms of themselves. Unless there is something familiar standing next to one, it is difficult to tell a hill's size from a distance.

How did our famous scenic desert get that way? The “paint” was volcanic ash; the “canvas” was the coastal plain of earliest North America. And the “brush”? A series of massive eruptions, which blanketed the area with layer after layer of fine-grained dust.

The *Chinle Formation* is the name geologists give to the group of these particularly colorful layers of soft, crumbly rock. During *Triassic* time, around 200 million years ago, vast amounts of ash spewed forth from volcanic ranges far to the west. Carried by the winds, that ash fell in what is now northern Arizona, which was then a lowland area of mud flats and gentle plains.

Sluggish rivers also carried fine sediments into the basins there, and these mixed with the various ash falls. Varying amounts of organic debris accumulated, and added to the mixture of color. The name of the formation is taken from the town of Chinle, farther east in the Navajo Nation.

The Triassic Period is responsible for some of the best of the red-rock scenery of the Southwest, as its rocks contain a high proportion of iron compounds. Those minerals have oxidized – basically rusted – giving the land its signature color-scheme. It is the first period of the Mesozoic (“middle life”) Era, the huge span of time that is also commonly called the “Age of Dinosaurs”.

You would have had mainly reptilian neighbors back then, but may have noticed an occasional little critter scurrying about that looked a bit mammalian. The forests around would have contained stands of cycads, conifers, and ferns. Not many flowers, though, as true flowering plants evolved later.

And if you had listened intently, you would have noted the missing chirping and singing of birds, as they had yet to make their appearance on the world stage. (You can see what is left of some of the occupants of those prehistoric woods in the eastern end of the Painted Desert, at *Petrified Forest National Park*.)

Over time, in that alien panorama, the strata built up, eventually giving way to the great deserts of the Jurassic Period, some 50 million years later. The layers of fine powder that fell from the sky weathered and altered into clay minerals, which are very delicate, and when wet, behave plastically and can even be molded. Geologists call the type of clay found in the Painted Desert *bentonite* , and the nature of that mineral contributes to the “badlands” found there.



It is hard to find a landscape more colorful than that of the *Painted Desert*.

Bentonite swells when wet, and shrinks when the wetness dries out. That varying consistency makes it hard for plants to take root, and additionally, since the clay erodes rather quickly when it rains and during windstorms, it makes it difficult for them to stay rooted.

The impurities within different layers make for the variety of hues and tones in the tinted landscape. Combine those with the easily eroded shapes of the soft rock, and the resulting deposits of slaked-off soil, and you have a first class work of art – one that covers a good deal of northern Arizona. It is perhaps the best place I can think of in which to grasp one of the least appreciated agents of geologic deposition: the air around us.

Go see for yourself! One of the best viewpoints from which to see a vast expanse of the colorful Chinle Formation is at *Painted Desert County Park*, just off SR87, about 15 miles north of Winslow.

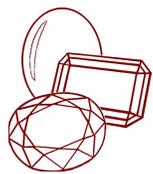
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----- *Richard Allen*

January 2007

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*At right: natural Arizona Peridot and 22K Gold
gent's ring by GemLand © 2007*



by Richard Allen

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info@gemland.com

Phone/FAX 602-294-6775

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