

16. The Entrada Sandstone's Rounded Cliffs: Layers Built by Wind and Water

A few thick sandstone layers, or beds, make up most of the Entrada Sandstone's cliff.

The lower, mostly pink beds are marked in places with sloping lines: long sweeping cross-beds are traces of the long slopes of ancient sand dunes. They prove the beds were deposited by wind.

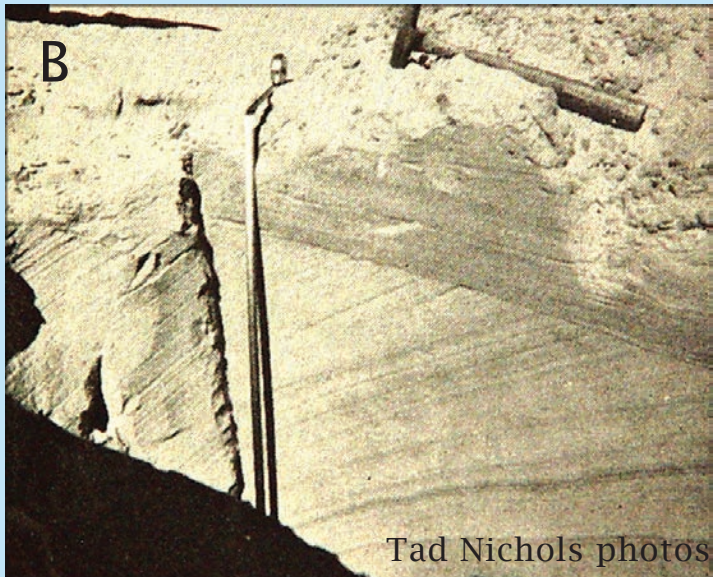
The upper, whiter beds have more thin horizontal layers. These are beds of water-washed sand. They tell of a change of environment from layers below them: a rise in the water table, more streams, or both. The sand is still mostly wind-borne. Thin layers of silt and clay brought in by water separate some horizontal beds.



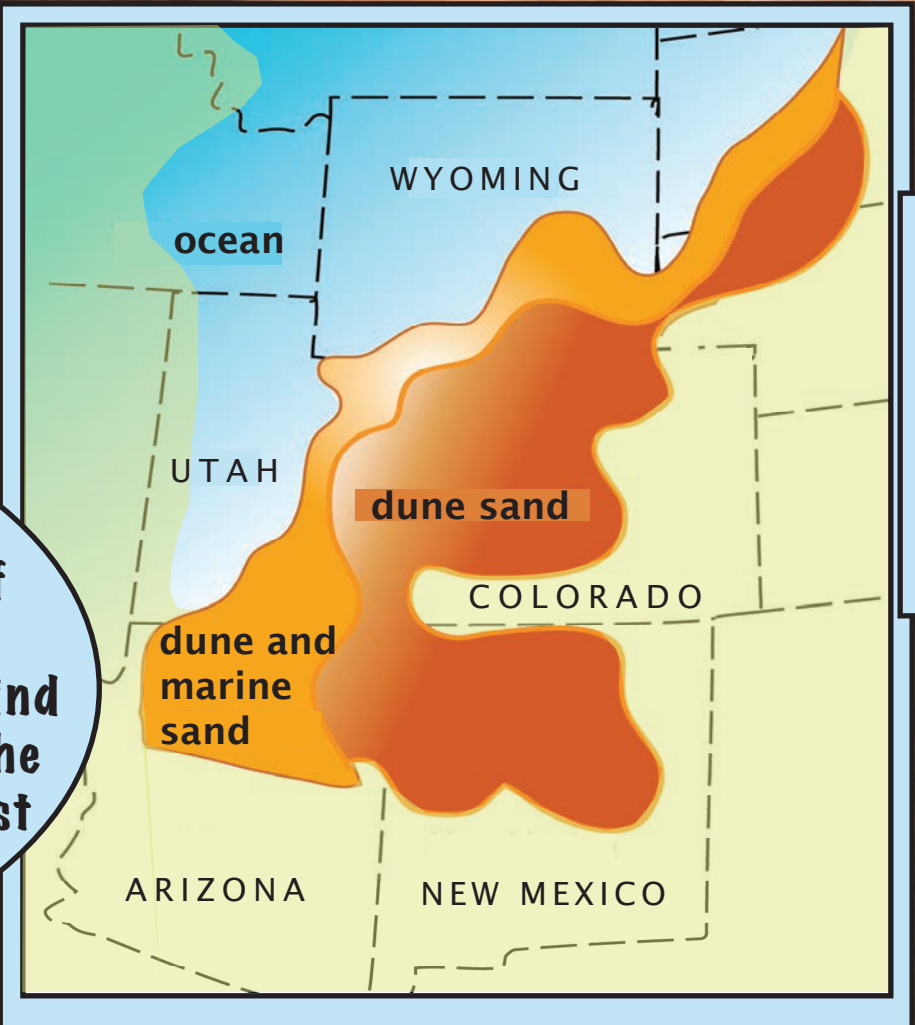
The very top surface of the Entrada Sandstone is often bumpy, as if trampled by large animals. Around Arches National Park in Utah, a great number of clear dinosaur tracks have been found on the same surface, enough that geologists have coined it a “megatracksite”! The photo here is from the top of the light tan layer in front of you. It looks trampled, but there are no clear footprints.



In these two photos, from 1963, geologists in the Sahara Desert are learning what the inside of an active sand dune looks like. At A they are pouring water on the sand to hold it together. At B, they have sliced through it. Notice how the cross-beds look like the ones in the Entrada Sandstone?



If you magnify a piece of the Entrada Sandstone, you see very well-rounded grains, all of similar size. These two clues tell us how the rock formed because only wind can round and sort sand this well. The rock's pink color comes from a crust of iron oxide minerals around the sand grains.



The Entrada Sandstone was a sea of sand 400 miles (640 km) across. It covered a large plain near the western shore of the continent during Middle Jurassic time, around 165 to 161 million years ago.

