



Limestone, with calcite veins. Penny shown for scale.

near Panther Creek; US 183 south of Roosevelt; Meers area.

Good exposures: *Mt. Sheridan Gabbro*
OK 115 crossing Medicine Creek.

Limestone – gray rock that can be scratched with a knife and reacts to acid; calcite crystals mostly too fine to be seen with naked eye.

Part of stratigraphic *Arbuckle Group*.

Good exposures: Along OK 58 through the Slick Hills; Dolese Brothers Porter Hill Quarry.

PALEOTOPOGRAPHY

Most of the topographic forms seen in the Wichitas, whether underlain by igneous rocks or limestones, were carved in the Early Permian 290–280 million years ago then buried in later Permian red shales and conglomerates.

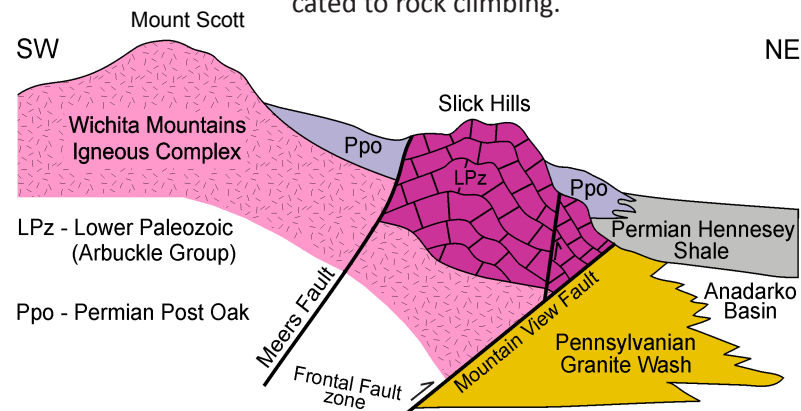
All the igneous hills and limestone hills seen are sticking up out of the shale (see figure at right), showing that the hilly and mountainous topography extends beneath the shales and is therefore older than the shales. Because this can be seen everywhere, only a few illustrative locations are highlighted.

Good exposures:

- Along OK 58 in the Slick Hills, just north of the Kimbell Ranch headquarters, a knob of Permian red conglomerate sits on top of older limestone at the floor of Blue Creek Canyon, showing the valley existed before the conglomerate.
- On OK 49 extended, in the Refuge, 1 mile past the Mount Scott turnoff, near Quetone

Point, looking south one can see a pre-existing drainage network of small, previously carved in granite, tributary canyons that disappear to the south under a layer of younger Permian conglomerate. These features are currently being uncovered.

- Along US 62 west of Lawton, and around the intersection with OK 54, small granitic knobs stick up through Permian shale on the south side of the highway. They connect with the larger granitic topography, as shown in the photo on the reverse.
- Particularly striking is the SW corner of Quartz Mountain State Park, which is dedicated to rock climbing.



Diagrammatic earth cross-section showing the rock structures of the eastern Wichitas.

MEERS FAULT

This is a great example of a Holocene (modern) geologic fault apparently tracing out the location of a much larger, older Pennsylvanian fault. During the Pennsylvanian uplift, the Meers Fault acted as a thrust lifting the area south of the fault 1 ½ miles higher than the Slick Hills side. However, about 1100 years ago, part of this fault moved up about 10–15 feet on the north side, creating a small scarp in the present topography and probably generating a large earthquake. For this reason, the Meers is famous to



Trace of the Meers Fault as it cuts NW across the Slick Hills.

neotectonic scientists. Now this fault seems to be relatively quiet, but it is being monitored by the Oklahoma Geological Survey.

Good exposures: A good public exposure is on OK 58 where an E–W section line road crosses OK 58, one mile north of the road to Meers and the location of Ann's Diner. Here, the modern Meers Fault scarp makes a small upward WNW–ESE bump in the present topography. At this intersection, if one stops on the section line road and looks northwest, one can see a notch on the skyline formed by the fault. This scarp was well studied in the 1980s by the OGS and USGS.

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Cover photo: Mount Scott

For more information on the Wichitas, visit:

<http://www.ogs.ou.edu>

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