

## Mesas in California?

### Chapter 6: What Table Mountains tell us about the Sierra Nevada Orogeny

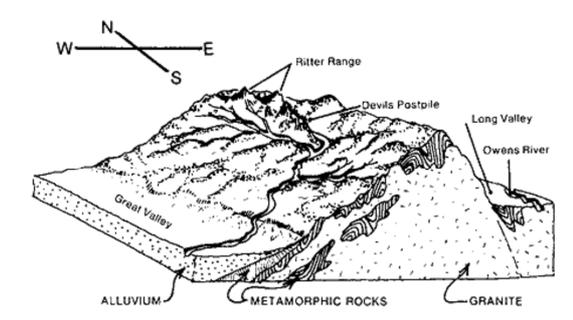
By Larry Schemel: Retired USGS scientist

The Sierra Nevada Range is a fairly recent geologic feature in California and Nevada. The previous range eroded and now forms the deep soils of the Sacramento-San Joaquin (Central) Valley. That valley was an inland sea over 50M years ago, and parts of the sea bed (the Lone Formation) are still identifiable as small mountains in the Central Valley, some of which have the original flat tops. When driving HWY145 from Madera to HWY41, there are a few rocky remnants and then Little Table Mountain on the other side of HWY41. Little Table Mountain is flat, but it is not capped with lava and it is not part of the Kennedy Table Mountain complex, which is visible in the distance below the Sierra crest on a clear day.



Although Little Table Mtn looks fairly level in the picture, it is tilted toward the Sierra Crest, as is the Kennedy TM complex. However, the tilt of Little Table Mtn is greater than that of the Kennedy TM complex, which might be expected because of the Kennedy TM complex is only 10MY old. When comparing the amount of tilt of

the two table mountains, it is clear that the rate of uplift of the Sierra Nevada range in the last 10MY was greater than that during the first 40MY after Little Table Mountain was formed. There is also supporting information showing that the rate of uplift might be increasing in recent years. Much of this information was presented by N. King Huber (1981, references below), but there appears to be more recent data in press. You can obtain his papers online. The figure below from his 1981 paper shows the San Joaquin River drainage, the Great (Central) Valley and the Ritter Range and Devil's Postpile at the Sierra crest. If you haven't visited Reds Meadow and the Devil's Postpile, you should add it to your bucket list. You will need to take a bus down the mountain from Mammoth Lodge. It is well worth the day to explore and hike the trail down to Rainbow Falls. Enjoy.



Huber, N.K. 1981. Amount and Timing of Late Cenozoic Uplift and Tilt of the Central Sierra Nevada, California – Evidence from the Upper San Joaquin River Basin. U.S. Geological Survey Professional Paper 1197.

Below is one of my favorite papers by King, as he was known by us USGS scientists.

Huber, N.K. 1987. The Geologic Story of Yosemite National Park. U.S. Geological Survey Bulletin 1595.