

# NORTHERN CALIFORNIA GEOLOGICAL SOCIETY



## ***KEY SITES OF UPLIFT AND GLACIAL CONSTRAINTS, CENTRAL SIERRA NEVADA***

**Saturday / Sunday September 20 & 21, 2008**

**Leader: Jeffrey Schaffer; Napa Valley College**

The first significant Sierran geologists were Josiah Dwight Whitney, William H. Brewer, Clarence King, and James T. Gardner, members of the California State Geological Survey. All had been trained in geology under Yale University's Prof. James Dwight Dana, who had embraced and taught a logical, if false, 1840s assumption on the origin of the Ice Age, proposed by Harvard University's Prof. Louis Agassiz. Agassiz and Dana, both devout Christians, biased their views with Genesis, and saw mountain ranges and their glaciated canyons as young. In 1862 Brewer described some Sierran uplift evidence that "validated" Agassiz and Dana, but this was a miner's tale that fit the "young Earth" view; he never visited his described type locality. Brewer's lava table mountain in Tuolumne County does exist; what does not exist are the bouldery river gravels and canyon bottom that Brewer had drawn beneath the lava. To this day, no one has found any site as described in the official state report, and yet virtually every Sierran geoscientist *knows* that the elusive bouldery canyon bottom, as depicted, must exist. With the new millennium, more imaginary uplift evidence has been published, substantiating what we "know" to be true.

On this field trip we will discuss the uplift and glacial history of the Sierra Nevada from Late Cretaceous through Neogene (Quaternary) time. We will visit several localities that constrain Sierran uplift, glacier extents, and glacial erosion. Collectively, these sites provide hard constraints against significant Sierran uplift in the last 30 million years and no significant canyon widening and/or deepening by glaciers, all publications to the contrary. We will also visit one of Waldemar Lindgren's Tertiary gravel sites to test the credibility of his nearly universally accepted paleo-rivers map. Specifically, over **two days** we will observe:

- (1) The North Fork American River gorge and adjacent uplands ("peneplain"), just northeast of Auburn, that appear to argue for a low early Tertiary (Paleogene) Sierra Nevada and youthfully incised canyons.
- (2) Tertiary gravels along Interstate 80 roadcut near the Gold Run Roadside Rest.
- (3) Volcanic and glacial deposits along Interstate 80 near Emigrant Gap, above Bear Valley. The area's highest glacial deposits constrain the thickness of the Bear Valley glaciers.
- (4) Andesitic remnants along Bear Valley's floor, which were not removed by glaciers. Minor pre-volcanic falls near the Sierra Discovery Trail demonstrate that the Bear River already had its stepped ("glacial") profile and the valley had its modern dimensions by at least 18.5 Ma.
- (5) Alpha Diggings above the gold-mining town of Washington: could Lindgren's 11-mile-long paleo-river really transport this deposit's 8 m long megaboulders?
- (6) Donner Pass rhyolites and andesites: no significant (> 10 m) incision by the once enormous South Yuba River and its ensuing 300 m thick glaciers. We will also examine a major, mapped fault just east of the pass.
- (7) Southwestern Lake Tahoe's Emerald Bay and Fallen Leaf Lake: how thick were past glaciers and how much

did they erode?

(8) West Fork Carson River: thicknesses and lengths of past glaciers and changing glacial-valley topography (Hope Valley vs. Carson Canyon).

(9) From the Green Creek trailhead we will make a 2-mile round trip hike (200 feet elevation gain) to examine intact basalt on the floor of a glaciated canyon.

(10) West Walker River moraines. How long were its Tioga and Tahoe glaciers?

(11) Middle Fork Stanislaus River's Columns of the Giants, on the floor of a deep, glaciated canyon: how does this canyon-bottom lava flow evolve into a ridge-top lava flow, and why does this transformation leave no evidence of the 60-mile-long canyon it descended?

(12) The Dardanelles. Two-mile round-trip hike (300 feet elevation gain) to examine the volcanic strata that comprise The Dardanelles. Ransome mapped them correctly, then, ignoring his mapping, reached uplift conclusions that negated his mapping. Why did he do this?

(13) Donnell Vista: greatly variable glacial-valley topography in the same plutonic rock and with nearly constant glacial thickness: why the variations?

(14) Table Mountain near Jamestown: no pre-volcanic canyon here.

(15) Westernmost Table Mountain latite near Knights Ferry: why is the latite flow at the bottom of the stratigraphic column when it is atop The Dardanelles?

\*\*\*\*\***Field Trip Logistics**\*\*\*\*\*

**THIS FIELD TRIP WILL BE LIMITED TO 30 PEOPLE.**

**Time & Departure: Meeting Time and Place: 9:00 A.M. on September 19 at Masonic Lodge in Orinda**

**Directions to Masonic Lodge:** Take Highway 24 to Orinda/Moraga Exit (Camino Pablo). Go northwest on Camino Pablo Way ¼ mile. Go slight right to Santa Maria Way. Turn right on Santa Maria Way. Go straight, Santa Maria Way becomes Altarinda Road. Go ¼ mile to Masonic Lodge on left (9 Altarinda Road).

**Alternate Meeting Place:** McDonald's in Auburn. Take the Auburn Ravine/ Forestville exit and drive briefly to McDonald's. Park in back, in the upper lot. Be there at 11:00 Sharp.

**Camping/Motels:** We will be staying in Mono Village, about 13 miles up Twin lakes Road from Bridgeport (Highway 395). Mono Village has campground, cabins, and bar. Contact them at [www.monovillage.com](http://www.monovillage.com) or 760-932-7071. If no cabins are available, you can try nearby Twin Lakes Resort at [www.twinlakesresort.com](http://www.twinlakesresort.com) or 760-932-7751. (Bridgeport also has lodging.) Also, at the lower end of the Twin Lakes are two USFS campgrounds, Twin Lakes Campground and Crags Campground.

**You will be responsible for your own meals, so either bring your own food or buy it at various opportunities along the way.**

**Cost: \$60                      Limit: 30 People**

**\*\*\*REGISTRATION FORM (Uplift and Glacial Constraints, Central Sierra Nevada Field Trip)\*\*\***

Name: \_\_\_\_\_ E-mail: \_\_\_\_\_

Address: \_\_\_\_\_ Phone (day): \_\_\_\_\_ Phone (evening): \_\_\_\_\_

Cell Phone: \_\_\_\_\_ Will meet in Orinda \_\_\_\_\_ Will meet in Auburn \_\_\_\_\_

Please mail a check made out to **NCGS** and this form to: Rob Nelson, 269 College View Drive, Rohnert Park, CA 94928. Carpooling is suggested for this fieldtrip. Please let us know if you can provide a van and NCGS can reimburse your gasoline expenses. Before the trip I will email a list of attendee's email addresses and home towns so that you may arrange carpools.

Questions: e-mail: [rlngeology@sbcglobal.net](mailto:rlngeology@sbcglobal.net) Cell: (707) 548-3268; Home: (707) 795-8090