



February 11, 1989

Re: RED ROCK CANYON

SDSU Geology Department
3rd Annual Alumni Field Trip

Dear Friends of Rocks, Dirt and Fossils:

The San Diego State University Department of Geology Alumni Association will be holding their 3rd annual field trip on February 24, 25, and 26, 1989, at the Red Rock Canyon Recreation Area Campground, located on the west side of Highway 14 in eastern Kern County, about 25 miles northeast of Mojave, CA. The \$6.00 per night campground fee includes pit toilets, running water, tables and fire-rings. Bring the family, all of your own camping (or trailering) gear, food and drink - the nearest store is in Mojave.

With the recent blast of arctic air, we could have snow!?! At any rate, please bring warm clothing and warm sleeping gear. Also, please bring fire wood. Dogs are permitted on a leash if you have the papers to verify shots etc.

If you can get there on Friday - early - please try to hold some space in the No. 40 to 50 area of the campground. I won't be able to get there till late afternoon or early evening on Friday.

On Saturday, I hope to be able to lead a casual drive through the area to see the non-marine Tertiary Ricardo and Goler formation clastic and volcanic deposits, pre-Cenozoic granitic and metamorphic rocks, folded and faulted rx n dirt(?), and God willing (roads being passable), a peek at the only marine Paleogene immediately east of the Sierra Nevada. For the non-rocks n dirt n fossils persons, the scenery is spectacular - lots of red rocks to peer at.

I expect Sunday will be one of those "lets go exploring" days with various folks going off in search of some of the more esoteric aspects of earth science - understood only by others so smitten by the lure of the outdoors!

Hope to see y'all there!

Cheers,

William J. Elliott
Field Trip Chairman 1988-89

OVER PLEASE

RED ROCK CANYON FIELD TRIP February 24, 25, and 26, 1989

Red Rock Canyon State Recreation Area is located in eastern Kern County, about half way between Mojave and Inyokern, along State Highway 14. This high desert area, at the western edge of the Mojave Block, can be expected to have warm days and cool to cold nights. Come prepared to experience possible weather extremes, some spectacular geology, and beautiful scenery! This area is tectonically active, and the climate is arid, so you can plan on seeing some excellent exposures (no poison oak to fight here).

The following has been excerpted from Whistler, D. P., 1987, Field Guide to the Geology of Red Rock Canyon and the Southern El Paso Mountains, Mojave Desert, California, NACT-FWS, p. 1-5.

The geology of Red Rock Canyon and the southern El Paso Mountains spans an interval of time from Late Precambrian to Holocene. Major depositional episodes occurred in the later Paleozoic, Paleocene, Miocene, and Quaternary time. Plutonic intrusion occurred during the latest Permian and Mesozoic. The bulk of exposures in Red Rock Canyon document the later Miocene through Holocene history of the area, which is under major structural control by the Garlock and El Paso faults.

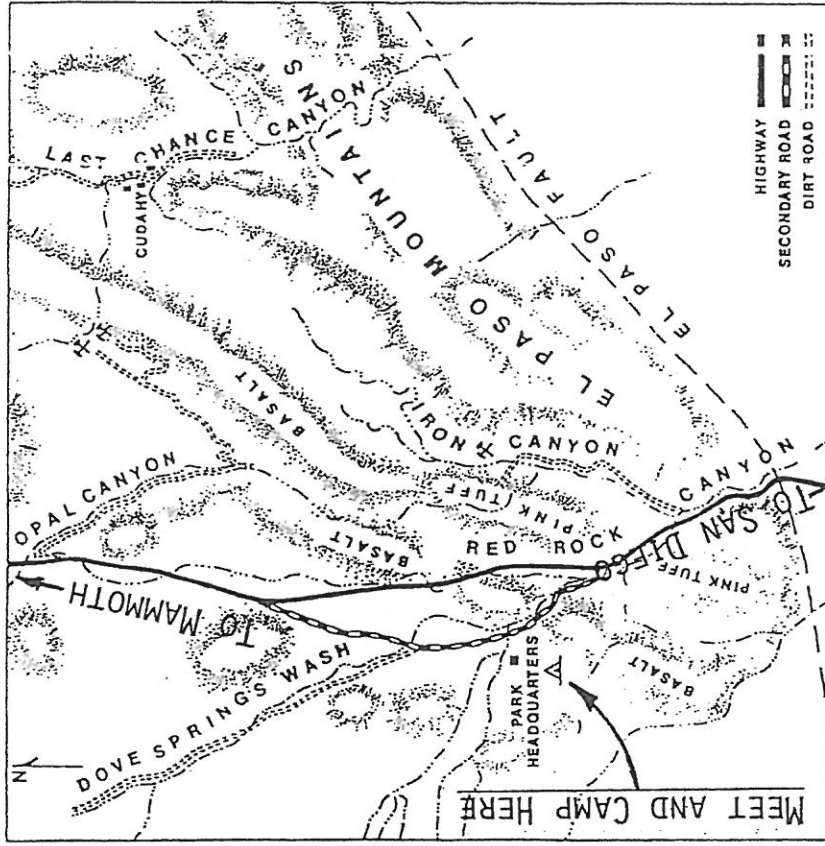
The oldest rocks exposed in the El Paso Mountains are the highly metamorphosed Precambrian chlorite-quartz-albite-sericite Mesquite Schist which forms the basement upon which the slightly metamorphosed, Late Paleozoic, marine Garlock Formation has been deposited.

The Garlock Formation and the Mesquite Schist have been intruded by a complex of plutonic rocks ranging in composition from hornblende-quartz diorite to granite. One of these intrusive units, a highly fractured and jointed granophyre plug, surrounds the gorge at the entrance to Red Rock Canyon.

The Paleozoic and Mesozoic rocks are deeply eroded, and are unconformably overlain by the Paleocene continental Coler Formation, a thick succession composed primarily of conglomerates and sandstones. Occasional finer-grained rocks in the Coler Formation have produced sparse, but diagnostic, vertebrate fossils.

The dominant exposures in Red Rock Canyon are Middle and Late Miocene volcanics and clastics lumped together as the Ricardo Formation. The Ricardo Formation is overlain by several episodes of Quaternary alluvial deposition derived primarily from the emerging Sierra Nevada. These deposits demonstrate a complex history of down-cutting, terrace, and pediment development.

The dominant structural feature of the area is the Garlock fault and its major splay, the El Paso fault. The Garlock fault is a major transform fault which separates the relatively stable Mojave Block to the south from the major crustal extensional area of the Basin and Range Province to the north. A cumulative left-lateral displacement of 48 to 64 kilometers has been demonstrated for the Garlock fault zone. Alluvial fans that are offset from their source canyons along the front of the El Paso Mountains indicate at least 18 kilometers, or roughly 1/3 of the cumulative displacement, has occurred during the past 1.5 million years.



Index map of the Red Rock Canyon area (After Whistler, 1987)

S D S U GEOLOGY DEPARTMENT ALUMNI 3RD ANNUAL FIELD TRIP

RED ROCK CANYON - EASTERN KERN COUNTY
FEBRUARY 24, 25, 26, 1989

Y'ALL COME !!!

QUESTIONS ??? - CALL BILL ELLIOTT @ 586-0070