

October 2007: The California Desert

When we started the TOW-RF project, to replace the command wire link with a radio control link, the Army said, "Don't make any effort to make it work on helicopters." The Army doesn't use TOW on helicopters; however, the Marines do, and most of the foreign TOW users do, so we tried to not *prevent* TOW-RF from working with helicopters. So now that we're almost done, someone decided we ought to see if it *would* work on helicopters. Before (and maybe instead of) shooting actual missiles off helicopters, we wanted to see if the radio set would work adequately at long ranges, as the helicopter moves around, and under the severe Cobra (two-blade rotor) vibration.

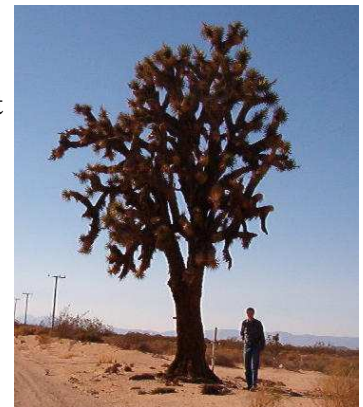
The "best" place to do this was at the China Lake Naval Air Weapons Center, in the high desert of southeast California. Unfortunately, with the restrictions that the Range put on us (among several others that we would learn bit-by-bit during this trip), we had to stay over the weekend. So I took my camera - even though cameras are not allowed on military facilities, I figured I would have opportunities to take pictures of where I used to live when Dad was posted to Edwards Air Force Base, when I was 12 to 14 years old.

Edwards



The problem with working at China Lake is, there is no airport nearby. The Tomahawk people (who went to China Lake frequently) would fly into Las Vegas and drive west 2-3 hours. We decided to fly into Ontario (northwest Los Angeles area) and drive north 2.5 hours. We also all arrived at different times on different days, and all had our own rental cars. So I decided to take a detour on the way to Ridgecrest and see some of the places near where I lived.

The Mojave Desert is a real arid desert, very empty, with a severe beauty of its own. There's not a lot of plants here, unlike our beautiful Sonoran Desert in Tucson, but one interesting plant is the Joshua Tree. Which isn't a tree at all, but a form of the Yucca plant. Most Joshua Trees are fairly small, maybe 8-10 feet tops, but some get pretty big. Here I am under a pretty good size specimen.



I drove past North Edwards, where we used to go to the North Edwards Baptist Church. It was a dinky church, because North Edwards is a dinky town, and I had no clue where to find it, and I didn't have a lot of time, so I didn't try. Of course, Edwards AFB is an active military base, so I didn't figure I could just go on (some bases have museums and such, and you can get on base by going through the visitors' center, but I

didn't know if Edwards AFB had any such thing, and I didn't have time to find out). I *did* see evidence of Edwards' mission as a flight test facility for the Air Force. Here's a tracking station.



Boron, and the Borax Mine

Obviously, there's not much near a flight test base, out in the middle of the Mojave Desert, so we didn't do a whole lot when we lived here. One place we went a few times was the borax mine. Borax is a boron compound, so they named the mining town "Boron". It's pretty dinky, too, but more colorful than the other (non-mining town) dinky towns in the area, so I visited the museum in the town. It was a pretty good little museum, but I distinctly recall having seen the giant ore wagon that the original miners used. The museum director gave me a tip: I should go to the mine itself, and see the visitor's center. So I did, and there it was. The "20 Mule Team" heritage is still in the company logo, and much of the product artwork. This is one of the original wagons that carted several (20? 50?) tons of borax 160 miles across the desert from the mine to the railhead at Mojave.

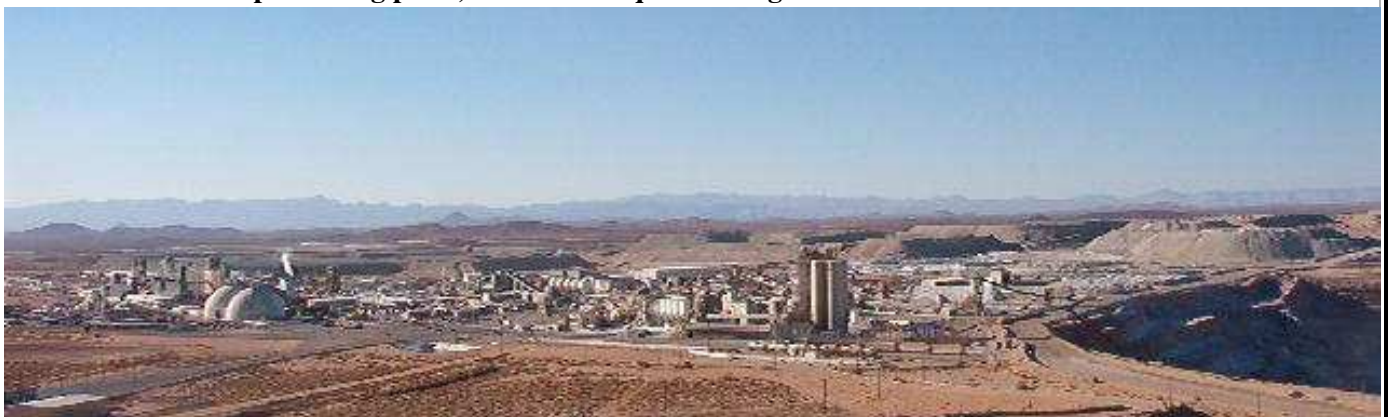


This is not one of the original mule teams.



From the roof of the visitors' center, you can see the mine. It's not anything as huge as the Clifton/Morenci copper mine. In fact, on the flight home, we flew over the Pima mine southwest of Tucson, and *it* looked bigger than the borax mine.

You can also see the processing plant, which looks quite as large as the Morenci or San Manuel smelters.



When our family visited the borax mine (more than once) several years ago, we had picked up some ore. Someone had suggested that, since borax crystals ("colemanite" or "kernite") would oxidize, that we needed to keep them in bottles of mineral oil. We still have those bottles somewhere in the family. But the crystals they had at the mine museum were not preserved in any special way I could tell, and *they* weren't oxidizing. Neither was the little double-refracting "TV Rock" sample that the museum director gave me (she had tended

a large school field trip earlier that day, and had leftover goodies). Odd.

I was amazed at how much stuff borax is used in. Not just "Borateem" cleaning powder, but apparently "Tide" and other standard cleaning products. It's also elementary for fibreglass and Pyrex heat-resistant glassware. I love going on these side-trips; I always learn stuff - that I didn't learn when I was here last at age 14!

Death Valley

That was Wednesday. Thursday was spent unpacking our stuff and making sure it still worked, and going over the test plan together, and meeting with the helicopter test office, who proceeded to radically change our flying test plan. Friday was spent successfully performing the ground test part, and getting exemptions from the changed flying test plan. Saturday was free! So Glen Francis and I went to Death Valley! All the time we lived at Edwards, we went camping at Sequoia several times, and apple-picking at Tehachapi once, but we never went to Death Valley! Ridgecrest is pretty much the gateway to Death Valley, being about an hour's



drive from the western entrance via US395 and an hour's drive from the southern entrance via State 178. Going in from the west requires crossing two mountain ranges. This tremendous gorge was on the flanks of the first of those ranges.

It takes about another hour from the western park entrance to Stovepipe Wells, which is one of three inhabited areas in Death Valley, and the location of the park fee station and the central crossroads. If you go straight, you end up in Beatty, Nevada. If you go right, you head towards Furnace Creek and Badwater. We started by going left/north to Scotty's Castle, dodging motorcyclists and bicyclists (the two groups had chosen to do rallies today, of course).



Death Valley Scotty was a character who lived at the turn of the century (that's the *20th* century, for you young 'uns too green to understand that expression) who ran away from home to work on ranches in Nevada, rode for Buffalo Bill's Wild West Show, and conned some eastern banker types into investing in his non-existent gold mine in Death Valley. One of those eastern millionaires was Al Johnson, who subsequently



insisted on visiting to inspect the gold mine, fell in love with Death Valley, forgave and became friends with Scotty, and decided to build a (third? fourth?) house in this spring-fed canyon.

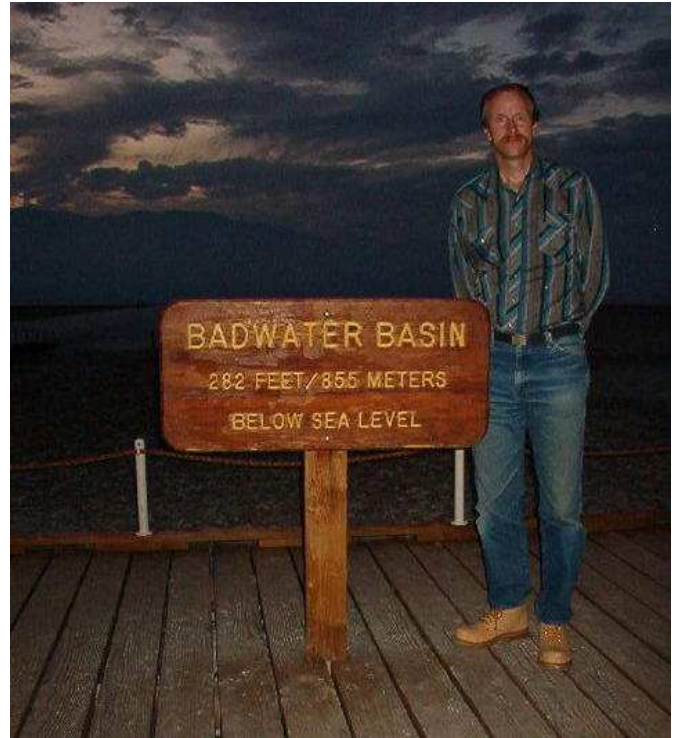
The house is really magnificent, by 1920s upper class standards. Every room is thick with carved redwood ceilings, window shutters, and furniture. There were two indoor waterfalls or fountains (not running anymore). The tour guide was dressed in '30s clothing* and explained the relationship between Scotty and Al and Bessie Johnson, how Al and Bessie were Quakers with strict moral rules to which Scotty subjected himself only when necessary, and how guests like Herbert Hoover came to visit in their home. We ended the house tour in the music room, in which Johnson had installed a theatre pipe organ which now plays under computer control.



In addition to the house tour, there is an underground tour of the basement and service tunnels under the house. The guide explained features such as the wood (and coal) (and oil) furnace for heating the house in the cold winters, and how evaporative cooling made the house comfortable in the hot times. We saw how Johnson had utilized the spring water to drive his laundry equipment and powered his house with this DC generator (this was back when Edison had convinced many that DC was the way to go over AC power).

* The tour guides were very straightforward about how the Park Service doesn't think very highly of the Castle as an important landmark, and doesn't fund needed repairs and restorations. After the Service acquired the mansion, it was operated, as many such attractions are, with all the income going into the Service funds and budget requests made to the Service but never fully provided. When the Death Valley superintendent discovered that "historical re-creations" get to keep all the income they generate, the guides put on period clothes and whammo, they bring in enough from fees to keep the place going!

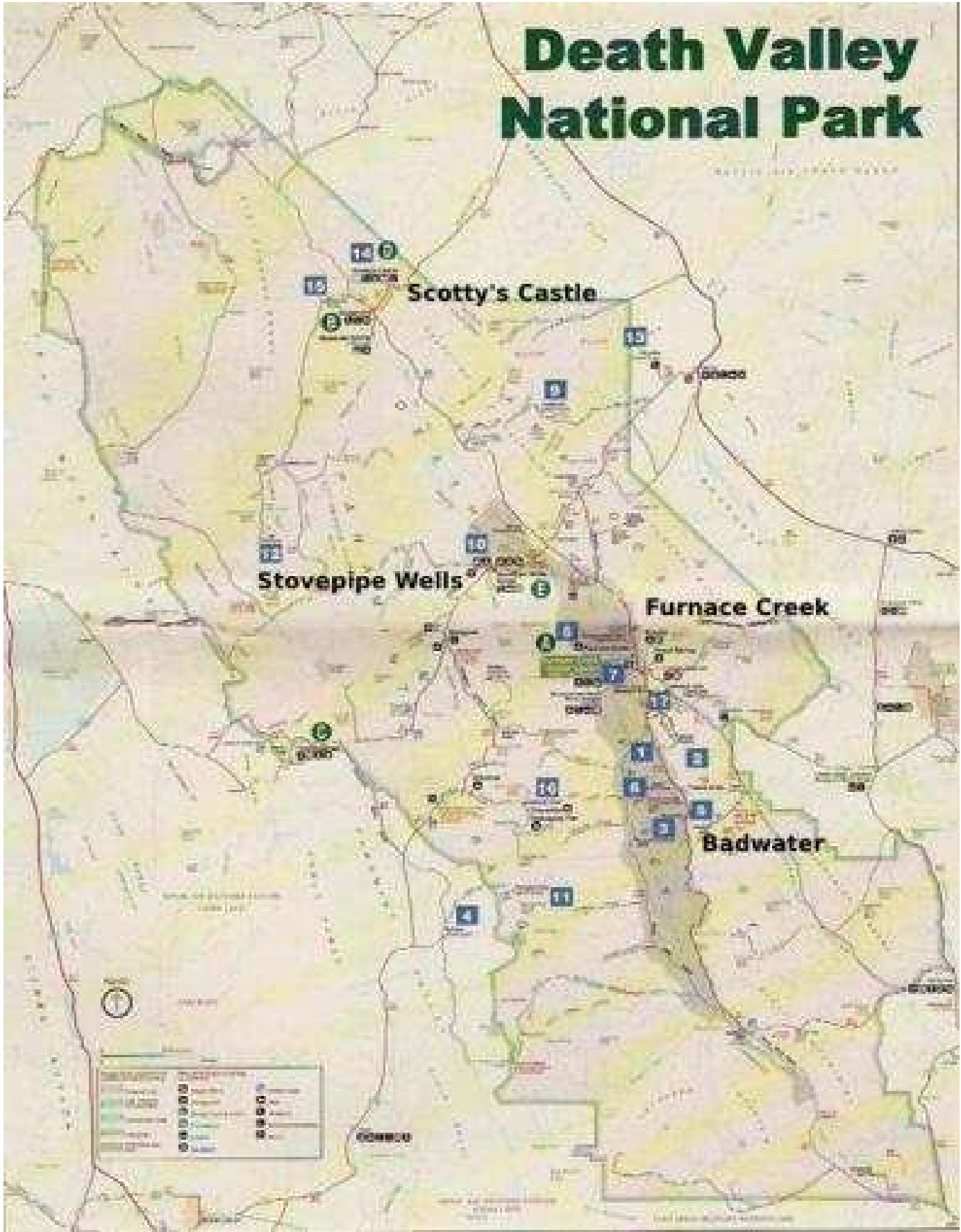
It took a while for both these tours, and by the time we left (ahead of the large motorcycle group) and made it back to the crossroads (dodging bicycles all the way down), dusk was coming on. I was thinking we better just go home, but Glen said, "It would be a shame for us to have come all this way and not seen the lowest point in North America!" So south we went, past Furnace Creek (the Park headquarters and primary visitor site) and got to Badwater just as the sun was vanishing over the 11,000 ft Panamint mountains westward across the Valley. Here we are, 282 feet below sea level:



We then returned to Furnace Creek and had our (company paid for) meal at one of the restaurants there. Did you know there is a resort hotel down there? I was surprised at how many people were staying in Death Valley, even camping. It is the most desolate and empty place I've ever seen - aptly named "Death Valley".

Death Valley National Park

MAP OF THE DEATH VALLEY NATIONAL PARK



Owen's Peak



The next day was Sunday. The original plan was for us to go up north to Whitney Portal, which leads to the trail up the highest peak in the contiguous 48 states, or maybe go as far as Yosemite, which would have been a four-hour drive each way. Glen wasn't up to any more adventures today, and Keith didn't want to spend the day on the road. Instead, he produced a hike plan (available in the hotel lobby) for Owen's Peak, the highest point in the southern Sierras. I was game, so we stopped at a grocery store (not very many in Ridgecrest) and got some bottled water and granola bars, and then proceeded to locate Indian Wells Canyon. Fortunately, Keith had rented

a four wheel drive Toyota RAV4. We followed the directions as well as we could, and found ourselves on a *terrible* road. We finally found the trailhead of what the hiking plan said was a 1.8 mile trek with a steep 3000 feet climb. The trail started off very obvious (albeit unmarked; we couldn't quite tell whether it was the *right* path, going up to the Peak). It *was* steep. Many times we had to pause to catch our breath. Many times, it was impossible to tell where the path was, but other hikers had marked the trail for us, like this one.



After almost three hours, we still hadn't reached the top. No way this path was only 1.8 miles long! As we looked across at the adjacent peak (which was supposed to be lower than Owen's Peak), our doubts that we were on the right path increased. Finally, Keith conked out (he has a few years on me), and suggested that I do a stupid thing - go on ahead, alone. The next bit was a stiff creep up a treacherously smooth granite slope. Having passed this obstacle, it was just a bit further til I was up on the saddle. The path we were on, marked by the little piles of stones, now intersected a path running along the ridge, going up to a rocky point that I was certain was Owen's Peak. On this saddle point, I was now pretty much even with the peak opposite. So I took some pictures and turned around to go back down.

The opposite peak, looking south-east.



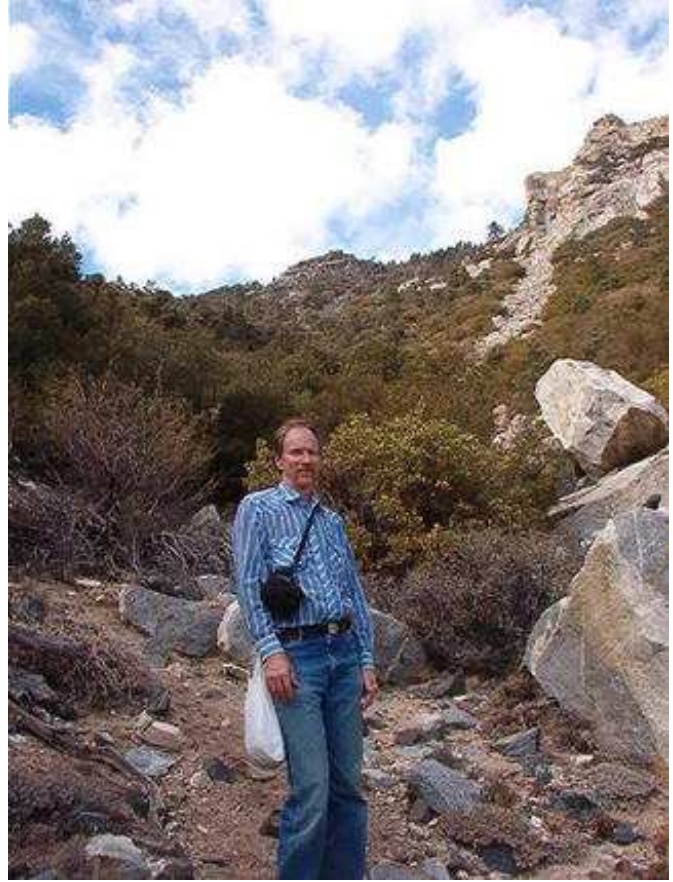
The valley to the north-east. There was a sail-plane flitting up to the cliffs on this side, a beautiful sight!



This huge rock loomed over us most of the trip up (when we could see it through the trees and brush). I am now above it!

We didn't want to try to take that road back out after dark, and it was already after 3:00, so Keith decided we better head back down. At the end, what took us 3 hours to climb was descended in half that time. I couldn't believe we *ran* down bits of that trail. We paused about halfway down for pictures. Here's Keith and me with

the peak above us (marked by the red arrow).



My legs were hardly working by the time we made it back to the car. I was walking with my hips rather than my leg muscles! On the way out, we discovered that the *right* road - clearly marked by California Bureau of Land Management Wilderness Area signs (the hiking guide left a *lot* to be desired) - was really quite good. We made it back to Ridgcrest around six, and met Glen for dinner. Afterwards, we fired up Keith's laptop and logged into Google Earth, and satisfied ourselves that, indeed, that *was* Owen's Peak we were climbing!

Monday was when the flying part of the test was supposed to happen, but it turned out that the helicopter broke down over the weekend! So the day was started with a briefing with the helicopter pilot, who debunked most of what the test people had been telling us of what could and could not be done (yes, the helicopter *can* land out on the range; they do it all the time!), so we revised the test plan yet again to get pretty much what we had wanted in the first place. The rest of the day was spent dry-running the test procedure on the ground - the radio link works very well (and Wednesday, when the flying part was actually performed, came out fine!). Then, at five o'clock, I had to leave, back to Ontario, since I had to be back in Tucson for the Chris Tomlin concert on Tuesday evening. Gosh, my legs were sore, especially dealing with the airports the next day! I'm just now getting over it!