Date: Thursday, March 5, 1998 3:56:12 AM
From: HTHALLJR
Subj: home safe
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Dear HT, Dean & Zina, Rob, Mary, Alex, Lili, Andy, Spen, Mom & Dad,

I'm home safe from Tijauna. This time it took me only an hour to cross from the $6 parking lot on the U.S. side into Tijuana, find my medication, and return. That included15 minutes waiting in line at the U.S. border crossing and another 15 minutes of delay while a U.S. border guard looked up my medication in Merck and decided I could keep it (I'd forgotten my prescription, but it wasn't a narcotic or even addictive and had no street value). In theory he could have confiscated it w/o my prescription, but he didn't. Just scolded me. I was appropriately humble. That's the first time I've even been asked to show my packages.

I'm amazed at the elaborate effort the U.S. Border Patrol makes to keep poor people from sneaking into the U.S. The Mexicans have no equivalent effort on their side. Wonder why?

On my way down I stopped in Toquerville and visited the Jackson graves in the cemetery there. (The line is: Ida-Rose Langord & Howard Tracy Hall, Ernest Fountain Langford & Zina Charlotte Chlarson, James Harvey Langford Jr. & Rose-Ellen Jackson, James Jackson, Jr. and Annis Bedford, and James Jackson, Sr. & [I forget].) The cemetery is immediately south of town, and the Jackson graves are in the center of the cemetery, just to the east of the road, starting at an arbor vitae bush. I didn't have any flowers, so I copied the Jewish tradition and left a pebble on each headstone. Some cousin had placed a "faith in every footstep" sesquicentenial marker on the graves of Annis Bedford and James Jackson Jr, who crossed the plains before the railroad came. I think I counted 4-5 graves of children under the age of 8 in the group -- evidence of the hard life in pioneer Utah.

Mother, immediately south of the Jackson graves is a sizeable red sandstone headstone with "M. B." 1876 crudely carved on it. Could that possibly be the grave of Mary Bedford, Annis's mother? I thought she stayed in England.

Toquerville has seen a lot of growth in recent years -- a spillover from the boom in St. George. There are several new homes in town, some of them very fancy. But many of the older homes are well preserved. I understand James Jackson's house is still there, but I don't know which it is. I stopped by the old church, got a drink from its fountain, and drove up the dirt road past the end of Spring Drive, which is immediately on the east, just south of the bridge over Ash Creek. Just past the end of the pavement there's a pump house and a swimming hole in Ash Creek with a rope hanging over it that looked pretty inviting. I can imagine that Mary Lydia and Rose Ellen Jackson might have swum in that hole when they were growing up.

I then drove 5.8 miles to the falls in Ash Creek. I might not have needed 4-wheel drive, but it was reassuring to have it. There are some amazing vistas of the gorge carved by the creek. It's just outside Zion National Park and is as beautiful as the formations inside the

park. The falls are pretty impressive -- two main drops, each probably 20 feet or so, in a sizeable stream (at least this time of year). The falls are over sandstone ledges, and the top ledge is so flat that the road just crosses it right through the stream -- you can drive right acrosss the top of the falls (I didn't, as the road on the other side went across a steep mountain side and there wasn't a place to turn around in sight). I can imagine this was also a favorite horse-back picnicking destination of our ancestors.

I spent two nights sleeping in the back of my car. It's not bad with my self-inflating air mattress. The first night, heading down, I spent in a quiet spot on a bluff overlooking the Virgin River between Mesquite, NV and Las Vegas. I just drove straight through Las Vegas going both ways. No money to spend -- or to lose. I bought all my food for the trip at Storehouse market before I left and kept it in a cooler -- all the trip cost me was about $80 in gas. There are cheap buffets available in Las Vegas, but I just didn't want to fight the traffic or the crowds. I-15 in Las Vegas now is under construction, and it's almost as bad as in Salt Lake.

After getting my medication late Monday afternoon I drove to Imperial Beach in Sand Diego -- the southernmost beach on the west coast. I waded in the Pacific and combed the beach for shells. It was 68 F at the beach. There's an estuary that separates the U.S. beach from the Tijuana beach by at least a mile, and there's a wildlive preserve in the estuary. I walked out on a pier that extends about 400 yards into the ocean and watched people fishing (mostly just catching small perch) and about a dozen surfers. I finally figured out how that sport works. It sure takes strength and balance! I was amazed to see how the surfers avoided a wave they didn't want to ride -- they'd just dive under it so that it wouldn't wash them toward shore. Some of them paddled out about 300 yards into the surf. The water wasn't cold, but neither was it really warm -- they were all wearing wet suits. There was a 100 ft x 50 ft "two home" building lot for sale right on the beach -- $500,000.

On the way back I drove over the San Diego-Coranodo bridge, a very high arch under which deep ocean-going vessels pass. Pedestrians aren't allowed on the bridge, and there are signs posting the number of a suicide hot line at several places on the bridge (come to think of it, I don't remember seeing any telephones!). I guess there must be historical reasons for the signs. Sad. I tried to get close to see the big U.S. Navy ships in the harbor, but couldn't get past the gate. Dad was stationed there, I believe, when I was born.

I found a quiet spot in the hills north of San Diego to spend Tuesday night. Those hills are so beautiful this time of year: green, blue, yellow, and buff. The blue comes from some bush with tiny blue flowers and almost no odor. The leaves are tiny dark green. The flowers remind me of alfalfa. The freeway margins are well tended -- they have groups who volunteer to weed and plant them, in addition to picking up trash, and the yellow and orange ice plant (?) were very beautiful. The hills around San Diego are covered with huge buff-colored sandstone boulders that are reminiscent of Utah's Navajo Sandstone. I wonder if it's the same formation. In the Cajon pass that all the traffic (and all the power lines) must pass through to get from San Bernadino to Las Vegas, there's a huge sandstone fla-tiron tipped at a crazy angle that must be a mile across.

I spent a couple of hours at the Marsh Air Force base museum south of San Bernadino -- my sole non-gas expediture on the trip: $3 "donation." While there I watched two F-4 fighters

land. I spent quite a bit of time studying the various jet engines they had in the museum. It's an amazing technology that's been developed since the mid 40-s. The prop engine technology that preceeded the jet engine was pretty amazing, too. I got to see several dozen planes, from the earliest bi-planes to the SR-70 "blackbird" -- the all-titanium spy plane that goes at least 2,300 miles per hour (more than 3 times the speed of sound), flies at 80,000 feet, and has skin temperatures of 1100F. It was an amazing thing to walk around. The SR-70 was originally designated the RS-70, but Lindon Johnson mixed up the letters when he announced its existence, and rather than contradict him, they just changed its name. Reminds me of the story of the English king (Henry VIII?) who "Spoonerized' "flutter-by", and it's been butterfly ever since. I learned that the enormous B-52, one of which was also there, and which is the oldest plane still in service, has manual control surfaces -- the pilot really has to wrestle with them.

I also studied a cluster bomb and finally understood how it works. It's about two feet in diameter and about 12 feet long, packed with about 200 individual bomblets, each a cylinder about 3 inches in diameter by about 9 inches long, arrayed on the circumferance of a spinning cylindrical frame. It spins up to 3,000 rpm as it falls, then shaped charges split the the casing and the bomblets fly out in all directions. Each has an explosive charge, tiny fins that spin it and cause a tiny balloon-like parachute to deploy, a conical, armor-penetrating tip and zirconium metal to start fires. It made me shudder.

I've passed a big mining operation right next to I-15 at Mountain Pass, just south of the Nevada border, several times, and this time I stopped at the gate and asked what was being mined there. The guard gave me some literature. It's Union-Molycorp's Mountain Pass rare earth mine -- the worlds largest and principle source of rare earth minerals. It started life as the Sulphide queen gold mine, discovered in 1936, but it never produced much gold. The rare earth minerals weren't noticed until 1949, by Herbert Woodward and Clarence Watkins. The ore is called bastnasite, a fluo-carbonate of the cerium group of rare earth (lanthanide) metals. The ore is a pre-cambrian (that's about as old as geological dating goes) intrusion associated with potash-rich igneous rocks. These metals are very similar in their chemical properties, and it's taken a lot of sophisticated chemistry to learn how to separate them. The ore is 40% calcite, 25% barite, 10% strontianite, 12% bastnasite, 8% silica, and minor amounts of other minerals. The deposit is half a mile long, and much of it is over 200 ft in thickness, making for an abundant supply. The "rare" earths aren't really all that rare. They're cheap enough that cerium is a key ingredient in the throw-away bic lighter -- it is the source of the spark in the wheel.

Chances are pretty good that the europium and yttrium oxides in the red phospor in your monior screen (and your TV) came from this mine. Europium, yttrium, cerium and terbium-containing phosphors are also found in "daylight" type flourescent lamps.

Cerium is a key ingredient in automotive exhaust catalysts ceramic supports, and the non-toxic bright yellog glaze on ceramic tile and dishes is from praseodymium oxide mixed with zirconium oxide.

Samarium and and praseodynium are a key ingredient in the high coercive-force permanent magnets used in "walkman" headsets and in the tiny motors in miniature tape players and CD-rom players.

I have used lanthanum, cerium, and "mish metal" alloys in "cold fusion" experiments -- the rare earths retain hydrogen interstitially at high temperature. (It used to be that the most common form of rare earth was "mish" or "mixed" metal, because they were so difficult to separate. But nowadays the metals are all readily available in pure form.)

It was 60 degrees F when I awakened in this morning in the hills north of San Diego. It was 50 in the high desert of California (Joshua Tree country), 45 in St. George, 32 in Cedar City, 19 at the highest point on the pass on I-15, 24 in Orem, 14 at Wildwood, and 7 degrees at my place. A 53 degree change in one day's driving. The only fresh snow I saw on the whole trip was in my driveway -- two inches. There were two sets of fresh moose tracks -- a large adult and a juvenile, going all the way down my driveway, part way toward my garage, and then turning around and heading down the creek.

I have no slides or videos to inflict on you. Just this travelogue. That's all, folks.

Love,

Tracy/Dad