In Search of Eldorado

Day 39
Tuesday

February 12th

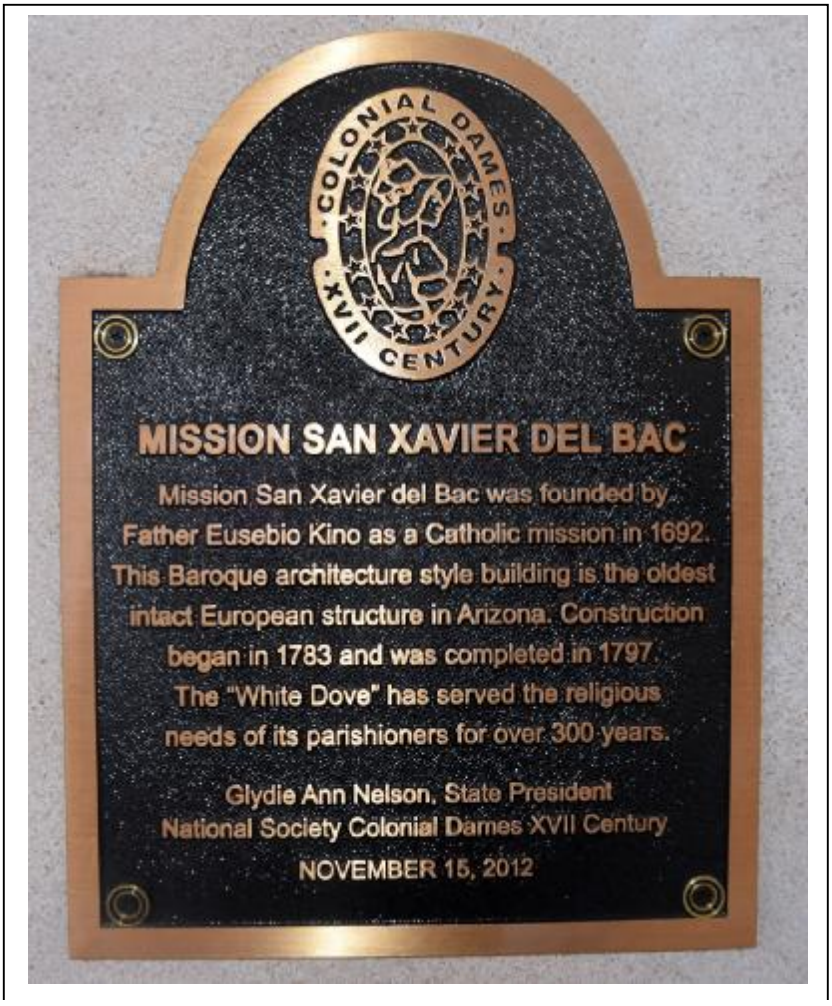
South of Tucson

Weather
60's and Sunny

Hello to Family & Friends

WOW!! Another great day. I only drove south about 20 miles from the overnight casino, but I visited three excellent sites.

Let's get right to it



Eldorado

By Edgar Allen Poe

Gaily bedight,
A gallant knight,
In sunshine and in shadow,
Had journeyed long,
Singing a song,
In search of Eldorado.

But he grew old—
This knight so bold—
And o'er his heart a shadow—
Fell as he found
No spot of ground
That looked like Eldorado.

And, as his strength
Failed him at length,
He met a pilgrim shadow—
'Shadow,' said he,
'Where can it be—
This land of Eldorado?'

'Over the Mountains
Of the Moon,
Down the Valley of the Shadow,
Ride, boldly ride,'
The shade replied,—
'If you seek for Eldorado!'

Above is the impressive façade of the mission. It can be seen from quite far away.

Left is the intricately carved center section. According to legend - When the cat catches the rat, the world will end.

Below is a floorplan of the mission.

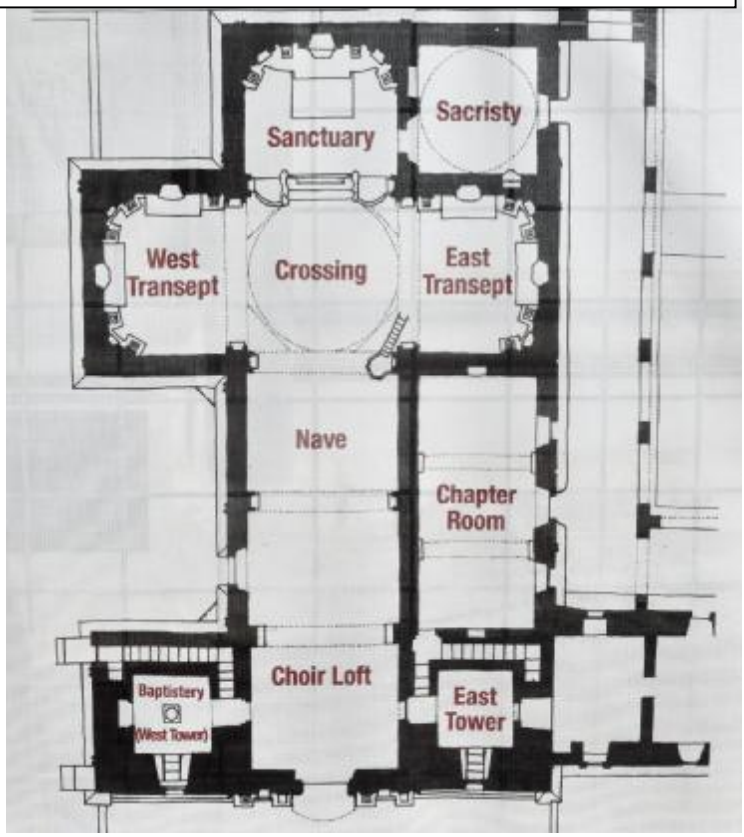
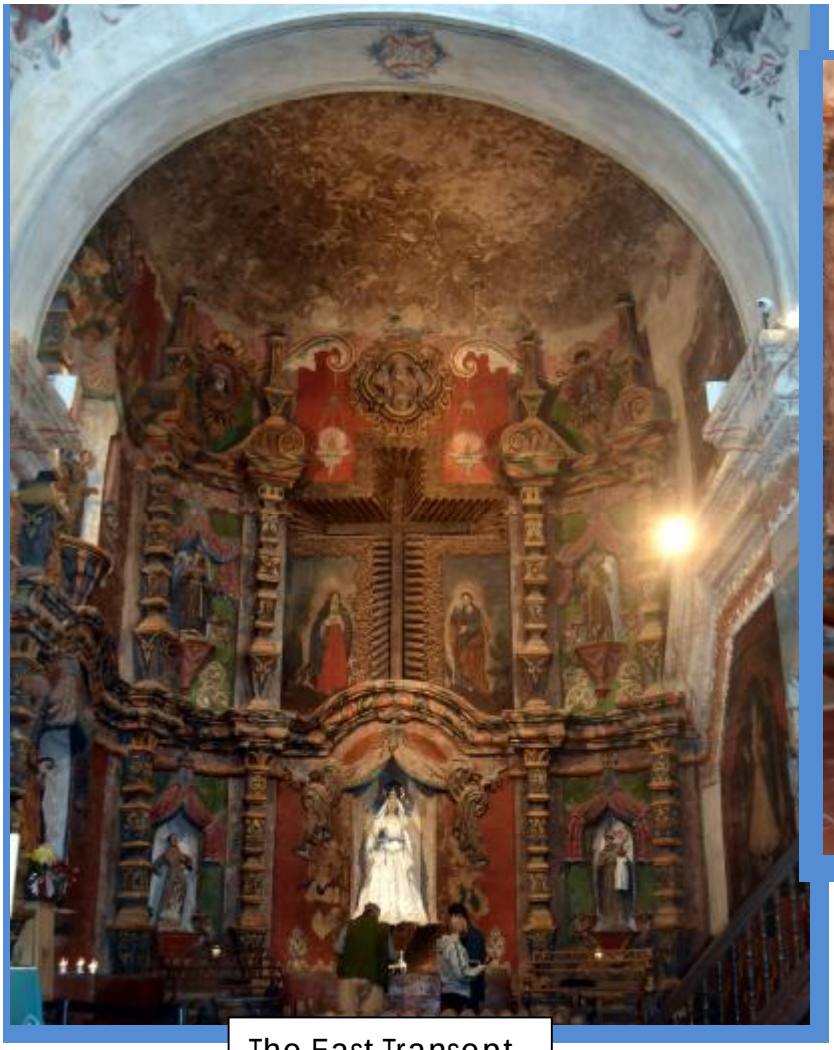


Photo from the front door to the Sanctuary. The Mission is still an active church. Speak quietly and with reverence.

The Sanctuary

The West Transept



The East Transept

The Pulpit

All the stone carvings are quite elaborate

The dome ceiling of The Crossing

A model of the mission grounds

Father Kino received his first mission assignment in 1681. He had hoped to be sent to the Orient but was instead sent to New Spain. He was assigned to be missionary and Royal Cartographer for an expedition into Baja California. Kino worked with native groups in Baja until he was reassigned to Sonora in 1686.

Kino was a traveler and an explorer and during the 24 years he spent in residence at the mission of Dolores (1687 to 1711), he made more than 50 journeys inland. These journeys varied from 100 miles to more than a thousand miles in length, all made on horseback. Kino kept close track of his journeys in journals and maps that he painstakingly produced.

Father Kino will forever be remembered as a great missionary, ranchman, mathematician, explorer, historian, and geographer of the Pimeria Alta.

You know I had to get the movie angle in. Ricardo Montalban, great actor, very versatile.

This little chapel was off to the left. I could find no information about it. Very popular with prayer candles. The Twelve Stations of the Cross run along the walls bordering the garden.

From the brochure – As a national historic landmark and the only remaining intact mission in Arizona, Mission San Xavier del Bac is considered the finest example of Mexican Baroque architecture in the United States. The Mission remains a working parish for the Tohono O'odham people, many of whom still live nearby.

The flags of four nations have hung over the Mission: It fell under the jurisdiction of Spain until Mexico won independence in 1821. The Gadsden Purchase brought San Xavier into the United States in 1854. Today, following the creation of the Tohono O'odham reservations, the flag of the Tohono O'odham Nation now flies over the Mission

Next on the list is a tour of an open pit copper mine. But when I arrived I could only get on the 2:00 or 3:30 tour. If I waited for either of those I would probably miss the Titan Missile Museum. I decided to see the missile and come back for the pit.

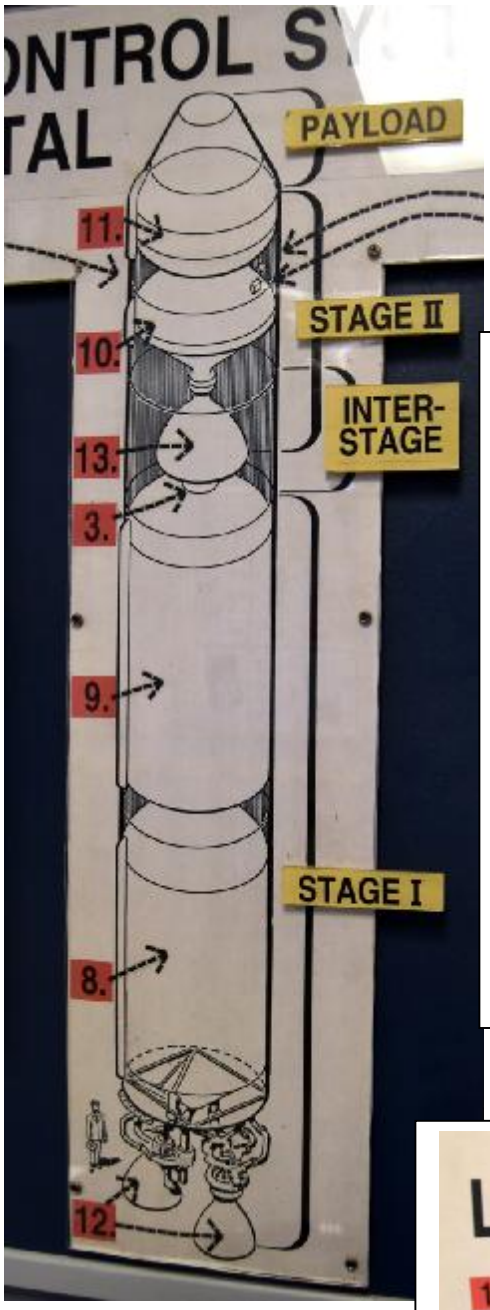
For you youngsters out there who were born the same decade that the wall came down and may not be familiar with the Cold War, I will give you a crash course.

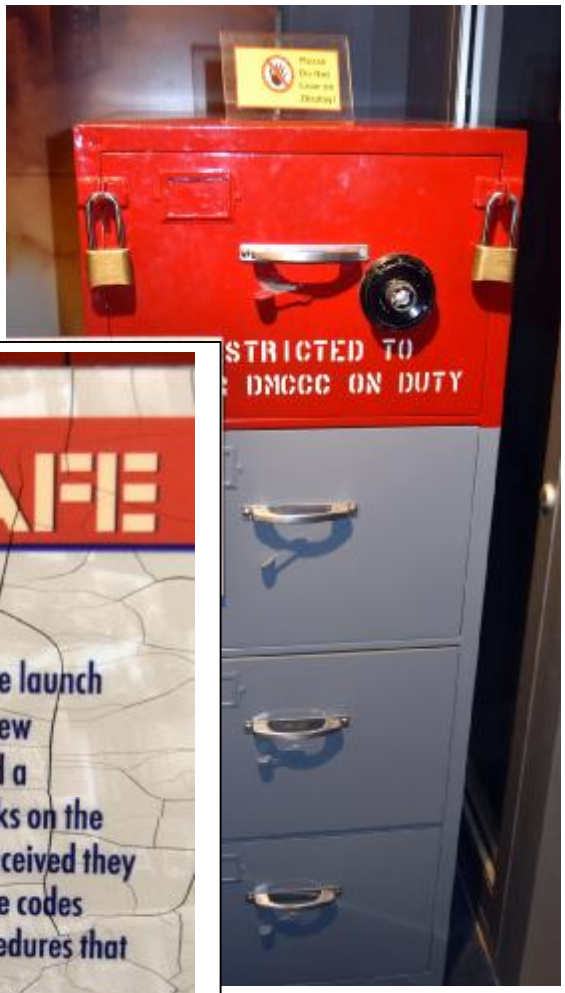
For over forty years the United States and the Soviet Union defined international relations. Most other countries were pushed into choosing one side or the other, Capitalism or Communism. The normal conflicts between countries were redefined as the US and USSR provided support to one side or the other. This low-level war in which the proxies of the major powers fought each other while the larger nations remained in the background quickly came to be called the Cold War.

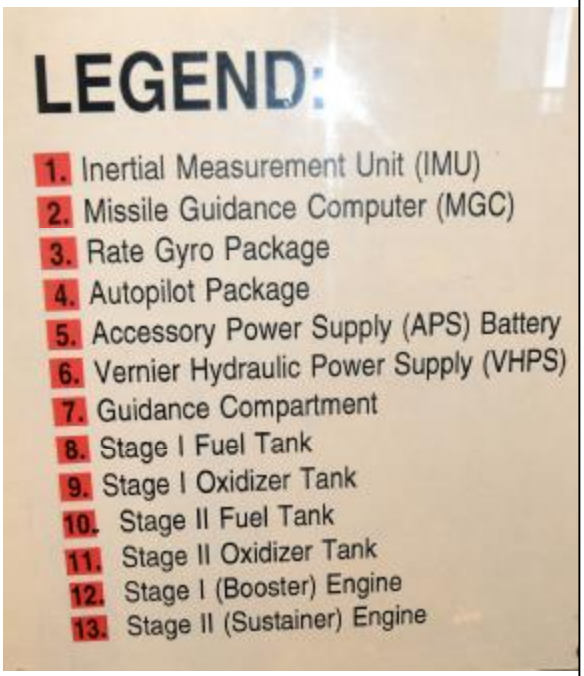
The new element that prevented a full-blown conflict was the development of nuclear weapons at the end of WWII. Once both sides had the ability to exterminate not only each other, but the entire human race, a direct conflict between the two became virtually unthinkable.

The Titan II is the largest ballistic missile developed by the United States. It can carry a warhead, (pictured below), of over nine megatons, or the equivalent of nine million tons of TNT, and deliver it anywhere within 6000 miles in less than 30 minutes. One Titan II missile exploded at ground level would create a 600 foot deep hole, twice the size of Los Angeles. If detonated at an altitude of 1400 feet, the EMP (electro-magnetic pulse) would knock out all electrical components of the United States, Canada and most of Mexico.

Since the United States and the Soviet Union both had this capability, these missiles were to be used as a retaliatory strike only, once the other side had fired their missiles first. This stand-off is known as MAD – Mutually Assured Destruction. You can fire your missiles, but if you do we can still fire ours and we all die. (alright I had a little help with this)







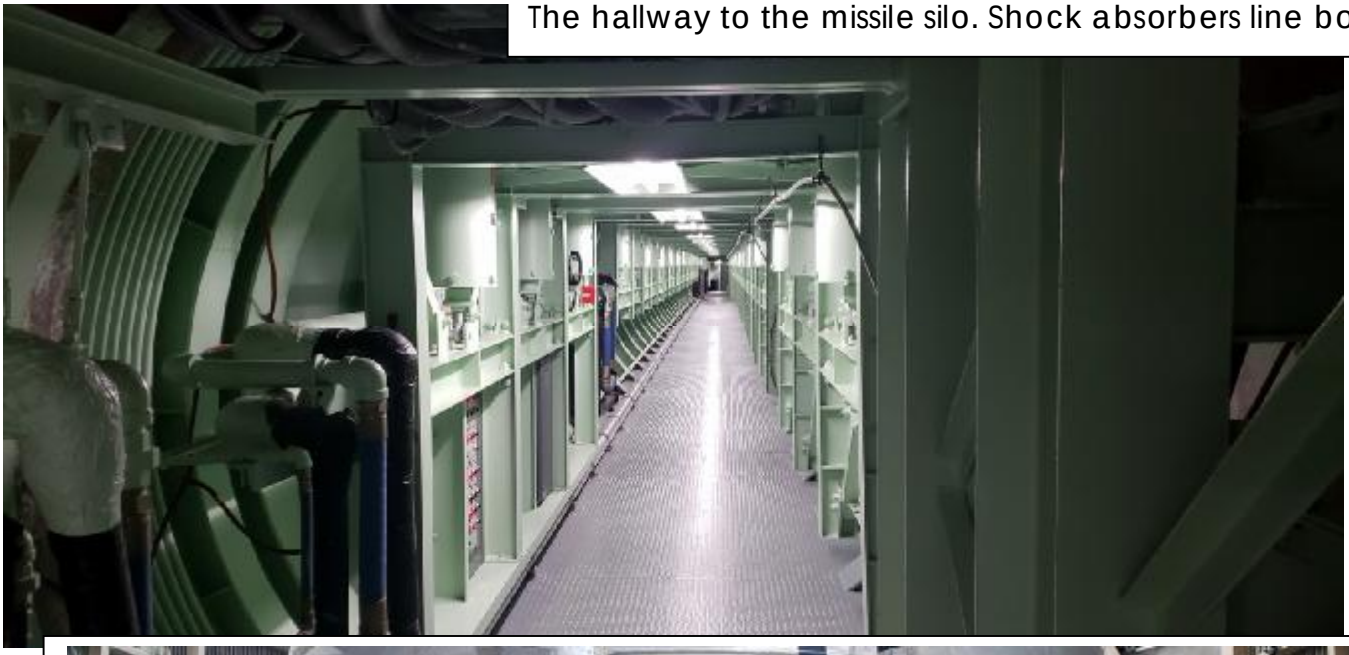
It turned out I had to wait for the 12:30 missile silo tour, so I had time for lunch and to wander the museum before watching a short film and then descending 55 steps into the command center of the missile silo.

There were four military personnel that work a 24 hour shift, two officers and two enlisted personnel. They have to make a phone call from each of four phones before they are inside the facility. They keep busy by performing checks on equipment, fluids, etc every 12 hours. Our docent was kind of cool, ex-Air Force and he spoke very fast, as if time was of the essence and we had to fire the missile as quickly as possible.

This is the actual command center and the very same equipment that was used until the Cold War ended in the 80's. The missile is fired right from that console.

Check out the large spring. The floor of this room is not attached to the walls or ceiling. It floats independently for the purpose of counter-acting the shock wave of an enemy missile strike outside of a one mile radius. Inside that radius is considered a direct hit, Bye bye.

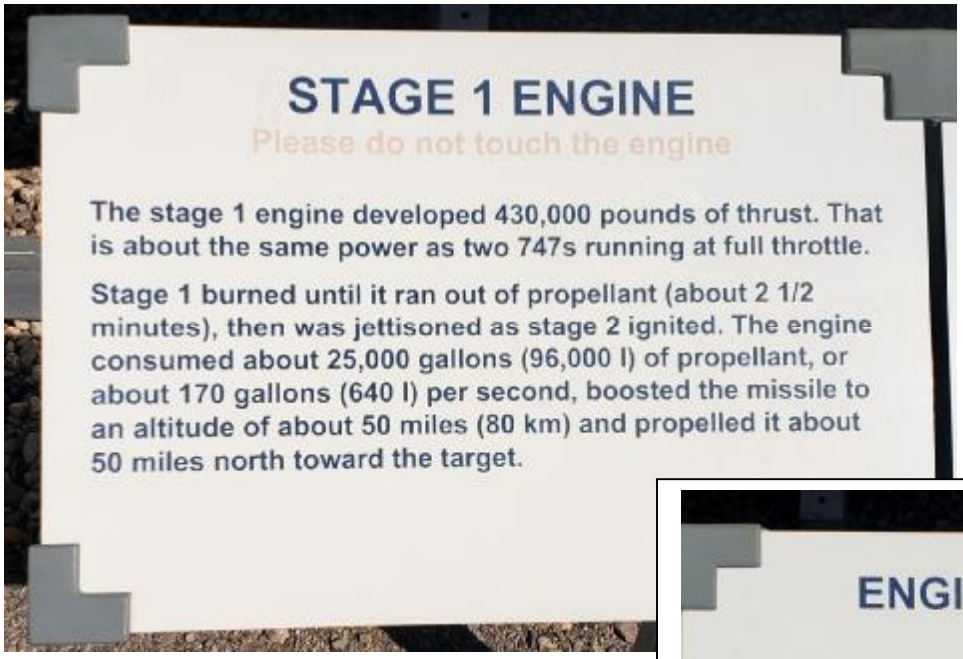
The hallway to the missile silo. Shock absorbers line both sides

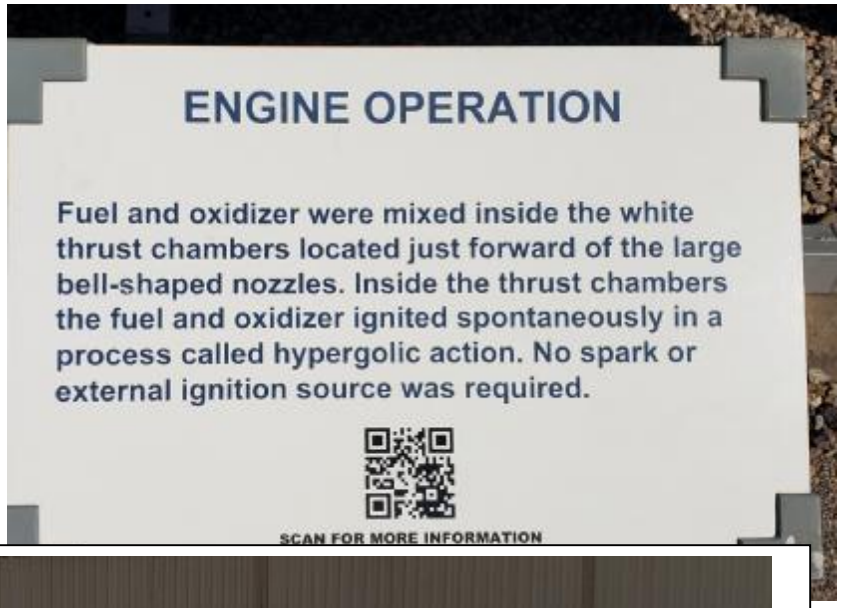


Above - The Titan II missile in the silo. The missile is 103 feet tall, so this is only about eight feet of it.
Below – These are the protective suits worn when working with the fuel

Another view of the missile

The command center entry door


STAGE 1 ENGINE
Please do not touch the engine
The stage 1 engine developed 430,000 pounds of thrust. That is about the same power as two 747s running at full throttle.
Stage 1 burned until it ran out of propellant (about 2 1/2 minutes), then was jettisoned as stage 2 ignited. The engine consumed about 25,000 gallons (96,000 l) of propellant, or about 170 gallons (640 l) per second, boosted the missile to an altitude of about 50 miles (80 km) and propelled it about 50 miles north toward the target.


ENGINE OPERATION
Fuel and oxidizer were mixed inside the white thrust chambers located just forward of the large bell-shaped nozzles. Inside the thrust chambers the fuel and oxidizer ignited spontaneously in a process called hypergolic action. No spark or external ignition source was required.
SCAN FOR MORE INFORMATION

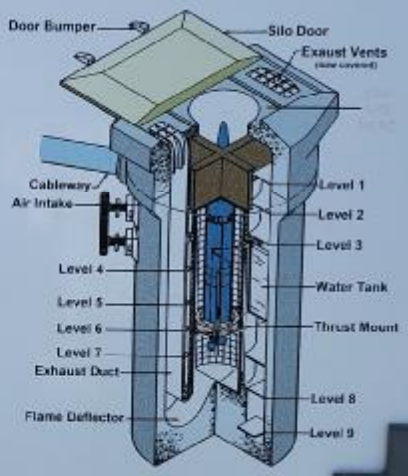

ENGINE OPERATION

SILO and LAUNCH DUCT

The silo was built as two concentric cylinders. The larger cylinder is about 150 feet (46 m) deep and 55 feet (17 m) in diameter. The smaller cylinder, called the launch duct, is about 26 feet (8 m) in diameter, and is what you see as you look through the windows. The walls of the silo are 8 feet (2.4 m) thick from the surface to a depth of about 30 feet (9 m), then they taper to four feet (1.2 m) thick.

The launch duct is lined with special sound absorbing modules to help damp the roar of Titan's powerful engine. The modules, and a water spray system, protected Titan from damage caused by high-intensity sound and vibration.

Retractable work platforms can be seen at several levels of the launch duct. These platforms could be lowered to create a floor around the missile for maintenance operations.



SILO CLOSURE DOOR

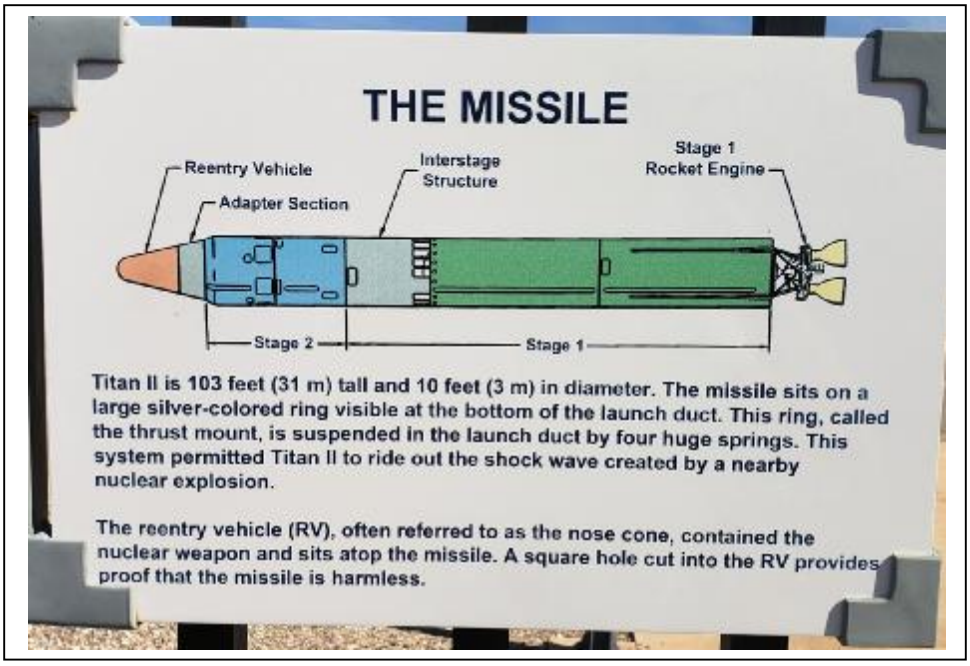
This massive door protected Titan II in the silo. The door weighs about 760 tons (700 metric tons) and could be fully opened in about 20 seconds. It was pulled open by a hydraulic winch located underground and rides on rails like a train.

The door is now locked in the half-open position to demonstrate that the complex is no longer operational.

SCAN FOR MORE INFORMATION

Here come the money shots

I know, I know, awesome right?



This was super interesting. Another tour which takes you right down to the bottom and into the crew quarters runs the 1st and 3rd weekends of the month.

Okay, back to the mine tour.

As in the mirror lab tour, I cannot outline the entire process, but here is the gist of it. Oddly enough I am using the mirror lab newsletter as a template for this one.

The ore that copper comes from is formed at the top of a lava tube. The minerals leach upwards through the rock and after being infused with sulfuric acid, form the minerals necessary to make copper.

Below is the open pit. It's about one mile across and 1000 feet deep.

Below are the drilled blast holes for tomorrow's blasting. They only blast one time per day, five days a week.

Keep in mind the size of that shovel for later, and the capacity of the trucks is 320 tons. This is the only shovel working today. I mentioned to our tour guide, Jerry, that during my families visit to an open pit copper mine back in the mid-sixties, there were many trucks, many shovels, and ore cars along every level of the pit. Jerry informed me that they don't use trains anymore because they take too long to deliver the ore to the processing plant.

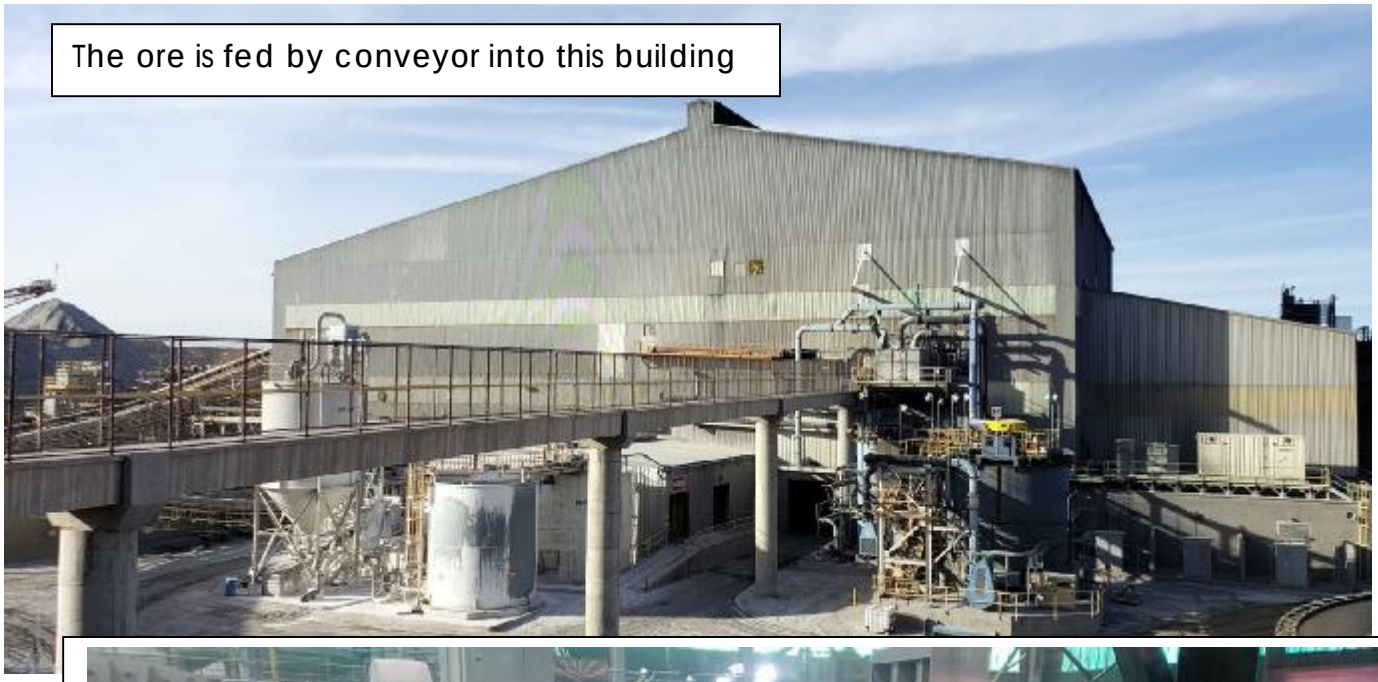
The shovel is taking a big scoop. The camera is on super zoom for theses shots, almost a half mile away. I was again amazed at the ability of this phone camera.

Here they are emptying the shovel into the truck.

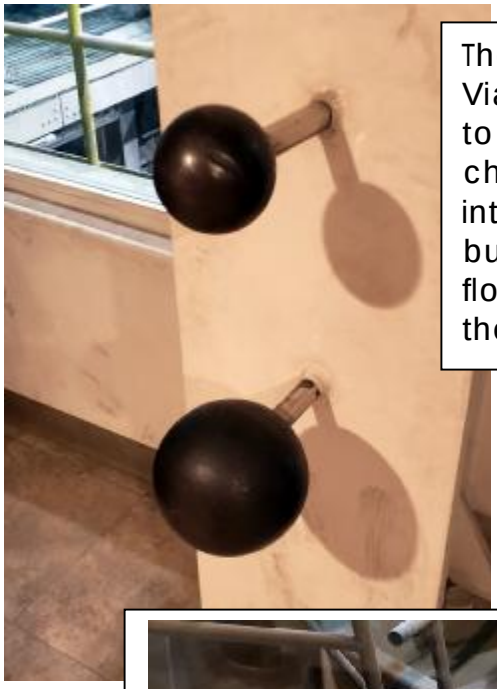
Six tires per truck, $50,000 per tire, and they only last 6 months.

The ore gets dumped at this building

The ore is fed by conveyor into this building



You can't tell, but these drums are all spinning. One pair has the larger steel balls pictured below and the other pair has the smaller steel balls. The larger drums make the ore smaller.

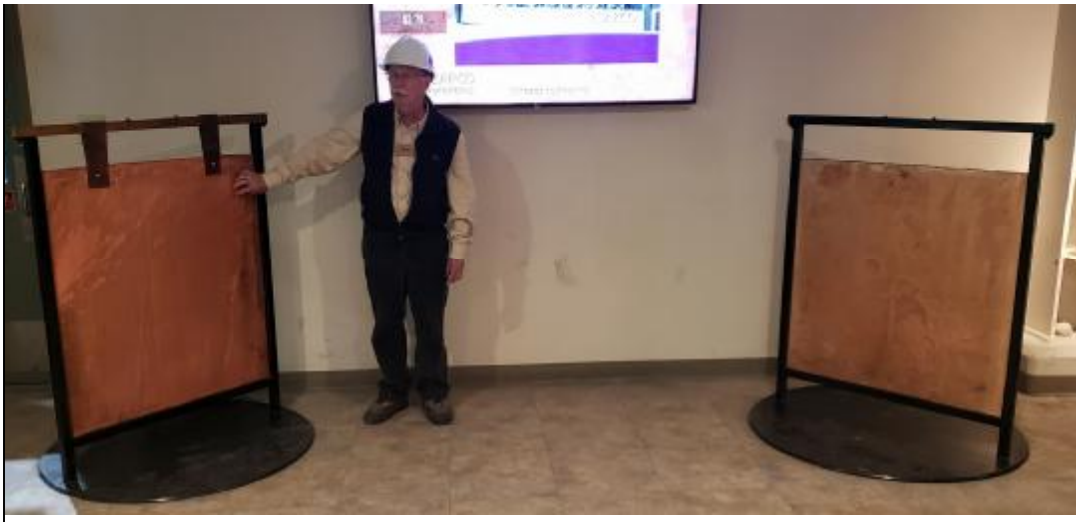


The smaller steel balls grind it into a powder. Via conveyor again, the powder is conveyed to the other side of the same building where chemicals are added to make the powder into a slurry. Air is pumped in to create bubbles. The copper sticks to the bubbles and floats to the surface. The froth is siphoned from the top of the tank and is sent to the dryer.

Below is the copper containing slurry as it floats to the surface and over the edge of the tank

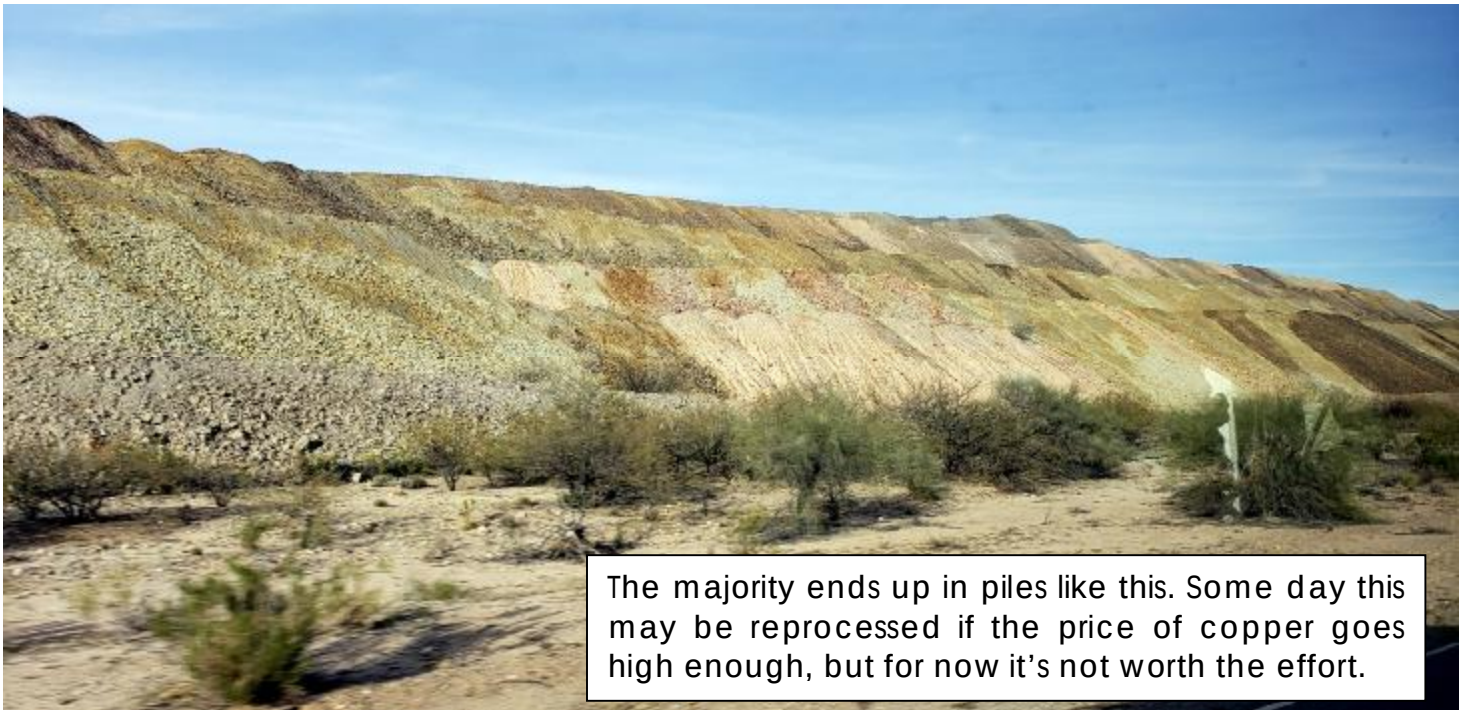
The slurry is sent to this tank where I'm not sure what happens. Hey, I can't remember every detail.

Jerry is explaining that the anode to the right is the finished product that exits this plant. It is only about 28% copper. Only 1% of the ore processed contains copper. The anodes get shipped to Amarillo, Texas where they are electrically treated transferring the 28% copper to the left panel, a cathode, which is 99.99% copper and ready for delivery to manufacturers.



I know what you're asking yourself right now, or maybe you're asking me, "so if only 1% of the ore contains copper, what happens to the other 99%?" I'll tell you. The stuff at the bottom of the slurry vat is called tailings. This stuff is worthless. You can't use it to make adobe blocks, it won't mix with water, you can't use it for roads, and you can't eat it. So they use it to build tailing dams, as seen below along the top of the hill. This dam holds back the water used in the mining operation. 80% of water is reused.

The pond behind the tailings dam

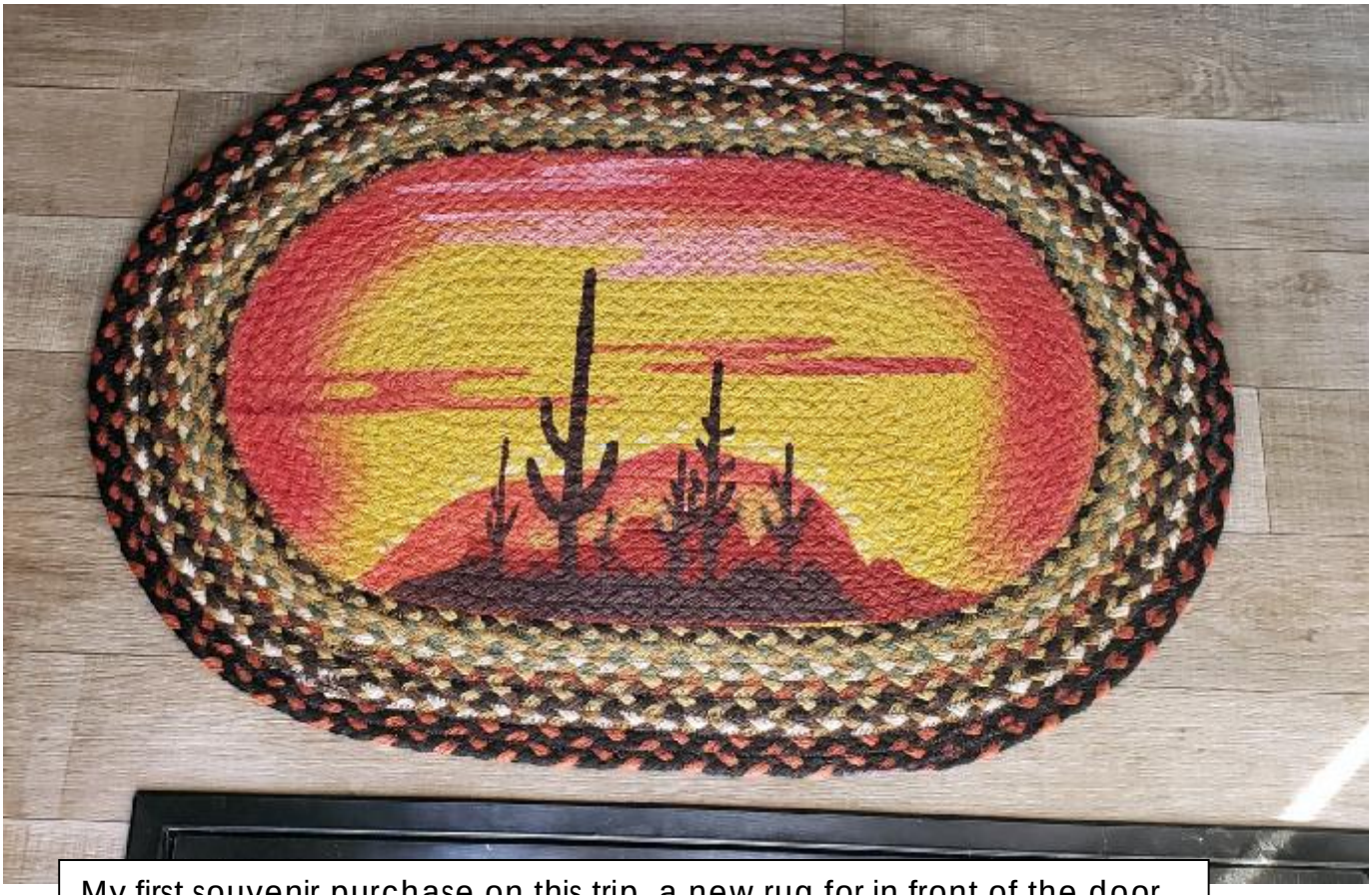


The majority ends up in piles like this. Some day this may be reprocessed if the price of copper goes high enough, but for now it's not worth the effort.

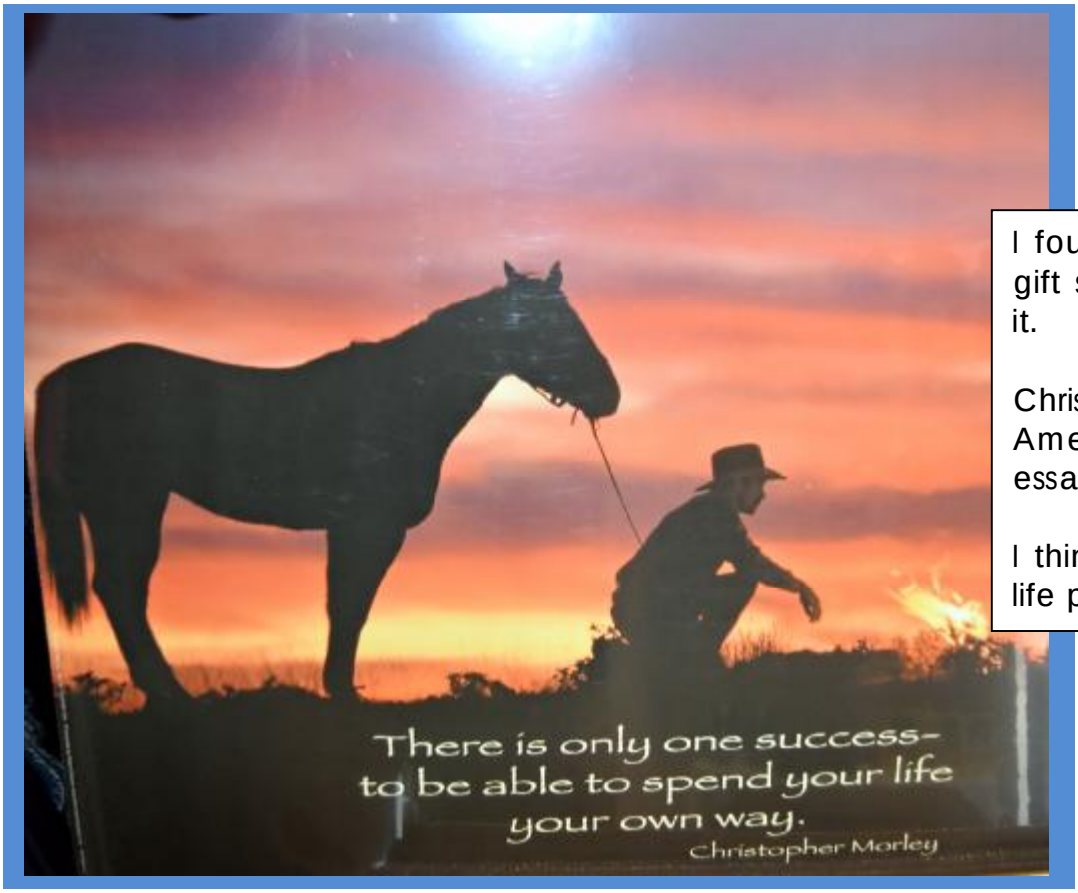
Remember, I told you to keep in mind the size of the shovel and the truck? This is why. The shovel I am standing in is old and small and not used anymore. The truck below is only two-thirds the size of the one being used in the mine.

Now you know everything there is to know about open pit copper mining. I also have some land for sale in Florida…

I had not seen a cactus like this yet so I took a photo for you.



My first souvenir purchase on this trip, a new rug for in front of the door.



I found this print in the Mission gift shop and took a photo of it.

Christopher Morley was an American journalist, novelist, essayist and poet.

I think it expresses some of my life philosophy.

Today was a fun-filled, information-filled, photo-filled day. The weather was beautiful, the sun was shining.

I decided to head back north and visit some parks between myself and Phoenix. I chose a Walmart that Allstays was not sure about overnighting at. There was a sign stating no overnight RV parking. I did some grocery shopping and decided I would work on this newsletter, then move to the Cracker Barrel across the street.

As I finished, I took a look outside and found that at least a dozen other RV's, trailers, camper vans and a semi had joined me for the night. Guess I don't have to worry about getting towed.

Another easy day tomorrow with just some parks. Oh, I almost forgot, I found a brochure for a neon sign Museum in Tucson, first time I've heard of that. Maybe on my way back through.

Until next time…..