# Ft. Stanton Cave Project

*By Pete Lindsley*

This article is both a trip report and a four-decade summary of a very interesting project in a growing New Mexico cave. I first visited the cave in the mid 1960's at the insistence of Lee Skinner. When Lee came to Dallas to work at Texas Instruments as a computer programmer he dreamed of hidden passages in his favorite cave, Ft. Stanton. It didn't take long to convince several DFW Grotto cavers to travel west to the land of enchantment to visit the cave. We had just introduced Lee to Fitton Cave in the Ozarks, and he could see some similarities to Stanton in the trunk passages, blocked in places by large breakdown piles. When he learned of some special capabilities with "chemical engineering" it was off to the west on a long 12 hour drive (no Interstate highways back then) to try our hand at digging through some of the blowing breakdown. Babb's Burrow was partially dug and we cautioned Lee about any heavy duty digging techniques that might weaken the ceiling of the breakdown crawl. Lee could only dream of what he called "Lincoln Caverns" that surely must lay beyond Robbie Babb's famous dig. We dug at several other locations on several weekends, but only broke through into some small breakdown chambers.

On one trip to Stanton Lee had a special map he brought along. It was drawn on the back of about 6 feet of fan-fold computer paper. A Fortran core dump on one side, and a beautiful cave map on the other side. I guess Lee had blown a few brain cells trying to figure out the hexadecimal clues to the error in his Fortran code that Friday morning. At lunch he flipped over the white and green striped paper and very carefully traced the 8 1/2 x 11 inch size map of Ft. Stanton that Jack C. Burch (Jack "Sonora" Burch) had made of a compass and pace survey of Stanton made in the late 1950's, before either Lee or I had started caving. (It later turned out that Jack's map was very accurate!) It may have taken Lee the rest of the afternoon to draw up the "new" Ft. Stanton map. Passages went everywhere, with a few appropriate connections. Lee multiplied the size (and extent) of the cave by an order of magnitude.

Arriving at the cave in the wee hours of Saturday morning, we all crashed until the sun woke us up. We prepared for the trip into the cave with our digging tools and just before starting down the sloping sides of the sink Lee remembered the special map. He wanted to motivate us for the day's digging efforts so out came the map and he showed us what "lay beyond" Babb's Burrow. We easily followed the passages from the entrance back to the dig site, and as Lee started telling us about the new (undiscovered) passages beyond, a car with several cavers pulled up. The four of us huddled closer in a circle around the map, which was spread out, on the ground, small stones on the corners to keep it from blowing. Lee was pointing out some passage names. None of us knew any of the other cavers. They quietly approached and tried to see the map. Lee kept up the description (deception) of all the new passages for the next 20 minutes. Finally one of the other cavers dared to ask "Where's the entrance?" Silence. Then Lee pointed to the entrance. Silence, questioning looks, and a hesitation to ask any more. Then I pointed to a spot about 6 inches from the entrance location on the paper and said "Have you been to 20 steps?" Slowly, recognition. They had been there. Eyes widened. Sudden realization that the cave was approaching Mammoth size. Then Lee quickly folded up the map, stuck it in the car, locked the door, and the four of us vanished into Ft. Stanton Cave, leaving the other cavers to get ready for their trip. We never saw them again.

The Albuquerque cavers have been working on the cave for four decades. The cavers that moved away keep coming back. One time someone set off a 10 pound red smoke bomb at the entrance to Russell's Crawl, not too far past where the main entrance gate is located today. The cave was sucking in air that day. No red smoke was seen from the entrance area. Then they started digging out the crawl. A faint red color on top of the gypsum sand pointed the way of strongest airflow. Once or twice they talked me into going to the end of Russell's Crawl to dig. They even talked Karen Lindsley into digging. Once was enough for Karen, twice was plenty for me. Then over the next decade they pushed twice the distance I had seen. They were in the cave for such a long time they mentioned seeing some ghosts of the Ft. Stanton soldiers from the 1880's "walking by them" while digging.

A few years' later cavers finally dug through into Lincoln caverns. Not quite the same as Lee had drawn on his map, but very similar. I got a chance to visit the new passage and take some photos. The cave was growing. A chain link fence was constructed all around the large circular sink on the side of the hill. One time Karen and I joined the SW Region to install a couple of real gates just inside the sink entrance. That weekend the team put three concrete trucks worth of cement in place at the gates.

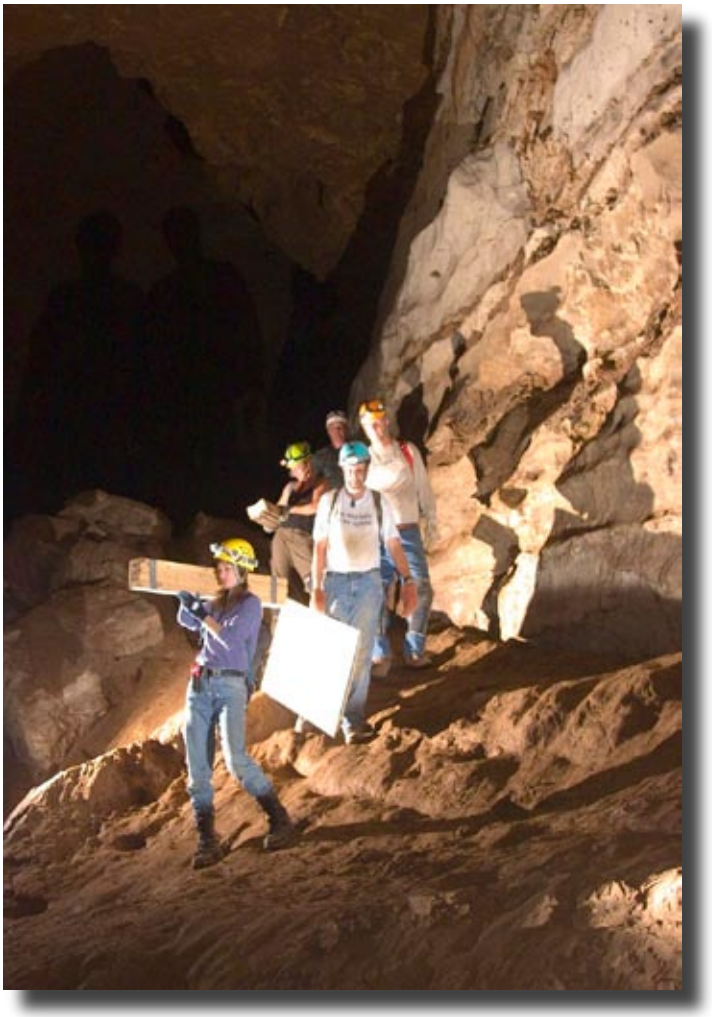
A breakdown pile was blowing so hard they gave it a name: *Priority Seven*. Fast-forward two decades. John Corcoran was leading the cartography efforts and other science projects at the cave. John McLean was leading a resistivity study closely associated with exploration in the cave

including Priority Seven. Many people hours were spent digging through the breakdown in search of the source of the air. Finally the team broke through. Major trunk passage! And the discovery of Snowy River, a fantastic white calcite formation that ran down the center of the trunk passage on top of the clay floor. Researchers think it could be the "longest" calcite formation known. Although there is no water running down Snowy River now, at the far north end, closest to some surface springs, water has been found. The new passage parallels much of the known passage in Ft. Stanton. How extensive is the new trunk passage? Could it be the next Lechuguilla? Ten years ago many would have run down the white floors trying to reach the end.

But this is the 21st century. You just don't run ahead and scoop the cave; we're talking about cavers with strong ethics here. So they worked closely with the Bureau of Land Management (BLM), the owner of the cave. Attention was paid to science, safety and conservation. The new discovery was carefully documented and surveyed. A cave radio was used to enhance the survey accuracy. It was said that Priority Seven was dangerous unless it was better stabilized. Priority Seven is currently closed to all entry. End of story? No way. You will be able to read about Snowy River later this year. I know John McLean and Donald Davis and others will be presenting information in at least one conference later this year. And now they know where to dig a safer entrance.

Earlier this month John Corcoran held a weeklong expedition at Ft. Stanton. The priority was digging (of course) and resistivity measurements. On Saturday morning there was a flurry of activity at expedition headquarters. Batteries for a hammer drill were topped off with a charge. Plywood sections came out of the trucks plus numerous 2x4 lumber sections. Long screws, bolts and nuts, a pulley or two and more drills all went into the caver's packs. A short drive took us to the chain link fence around the entrance sink. Half the team took off at a quick pace, anxious to hit the digging face where they had left off after the previous expedition. (Ft. Stanton Cave is closed for half the year due to the bat population. Many of the expeditions are 9-day long affairs that bridge the week with both weekends.) I took a more leisurely stroll through passages that I had not visited for many years. Past the turnoff to Hell Hole #2 and Bat Cave (and one of the gates) and through the main gate, we passed the passage called Hell of a Thousand Pinches. Next was the lead to Russell's Crawl and down the main corridor to 20 Steps, leading up the clay bank to Crystal Crawl. Years before this section of the cave was heavily vandalized by mineral collectors after a gypsum needle location was published in the Rocks and Minerals magazine. That's why there are numerous gates now. Over a century ago some of the soldiers stationed at Ft. Stanton found their way through Crystal Crawl and left their names on the calcite walls. This is also the way to Lincoln Caverns. But not today.

Continuing down the main corridor we passed the remains of a boat built from wooden planks long ago. Periodically the cave floods in this area and it can take years for the pooled water to evaporate. If you look closely in this area



Carrying construction materials down a slope of th main corridor. *(photo by Pete Lindsley)*

you can spot nice displays of cave "ice", formed on the surface of standing pools of water, supersaturated with calcite. Just short of the Skyscraper Domes passage we turn into the passage that leads to Don Sawyer Hall, our destination for the day. As you might guess by now, we pass through yet another gate blocking this part of the cave from the casual visitor. We finally caught up with the tail end of the 2x4 timber haulers. They are carefully making their way up through another breakdown crawl that opens up into the north end of Don Sawyer Hall.Something is going on here from the sounds that become obvious. Digging, hammering, drilling, sawing - these are the sounds I experience when I pop up through the breakdown. There's a line waiting at the dig site. I grab my camera and elbow my way

One of Ft. Stanton's interior gates leading to the dig site. *(photo by Pete Lindsley)*

Assembly of an A-frame and shoring materials in the cave. *(photo by Pete Lindsley)*

to the top of the shaft. Buckets full of pulverized rocks are being hoisted up the hole. A bucket brigade passes them 20 feet up a slope to the top of an old caving rope, set up as a zip line. Donald Davis grins as he shows off his "invention". The tension on the zip line is carefully adjusted to allow full buckets of material to fly down the slope, just missing the top of a large boulder at the bottom. We laugh at the now obsolete red metal wheelbarrow on the side that my son Steve once bragged about hauling back to this particular dig site on a previous expedition. A smaller haul line quickly brings the empty blue bucket back up the line for the next load. One or two team members are stationed at the bottom to carefully dump the bucket on top of a giant tarp placed on the floor to distinguish the old and the new portion of the floor. Don Sawyer Hall continues off into the distance.

At the top of the zip line, John McLean loads the blue bucket. *(photo by Pete Lindsley)*

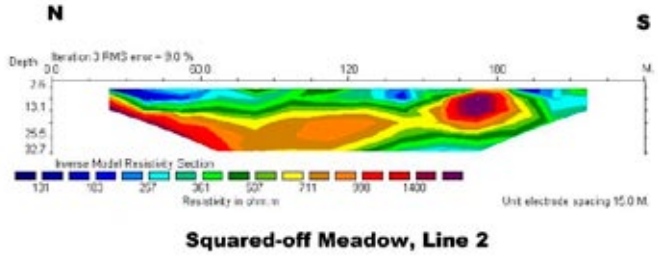
It was fun caving again with old friends like Donald, John Corcoran and John McLean on such an industrious project. After taking turns at the various jobs, they finally let me have my turn at the dig face. The size of the shaft is approximately 5 feet square with assembled sections of wood shoring installed from the top down every two feet. At some point in the future some sort of reinforcement will be added around the perimeter of the shaft, along with yet another gate and some sort of air lock.

The next day the cavers were not so quick to rise. Several teams went to do surface work and work in smaller local caves. I got a chance to observe first hand John McLean's resistivity survey. The concept is based on running lines across known cave passages and beyond. Conducting rods are driven into the ground at specified increments and a cup of salty water is added to insure good contact with the earth. A pair of long cables, periodically connecting to the rods, run in opposite directions from the relay control box that switches the voltage between the various pairs of rods. A computer controls the switching and records the digital data from the RS-232 connector on the meter. It takes about 45 minutes for a team of four to place the probes and about the same amount of time for the computer to run the various combinations between the 17 rods. A GPS unit can be used to locate the actual position of the rods over the cave, or in some cases more precise cave survey techniques are used. We ran four lines across and to one side of known cave passages that day.

Diana Tomchick is standing at the bottom of the zip line dumping the bucket. *(photo by Pete Lindsley)*

Main control box for John McLean's Resistivity Survey. *(photo by Pete Lindsley)*

Back at expedition headquarters out came the computers and the data was post processed. Color graphics were generated and the circular red spots on the contour cross sections marked some of the known cave passages. There were also some other anomalies that might be undiscovered passages. Now I know how these cavers think when they are at a blowing lead in the cave below.




Color contour computer data from the Resistivity Survey. *(plot by John McLean)*

On the third day it was back into the hole. We took in more shoring materials. The digging process evolved. This time every 20 minutes one of the diggers at the face had to come out of the hole, which kept the diggers fresher than on the

John McLean and Donald Davis at the top of the shaft. *(photo by Pete Lindsley)*

Assembly of A-frame and shoring materials in the cave. *(photo by Pete Lindsley)*

Ft. Stanton Project BLM field house. *(photo by Pete Lindsley)*

Sink entrance to Ft. Stanton Cave. Note A-frame leaning against the fence. *(photo by Pete Lindsley)*

previous dig day. The larger boulders are drilled with the hammer drill in three or four points in a line. Next 12 inch long tapered spikes are hammered into the holes at the same time. The resulting force usually shaves off chunks of the rock in smaller pieces that can be hammered and broken down to fit in the haul buckets. An A-frame with a centered pulley directly over the shaft allows a quick haul up to the bucket brigade line. From there the full buckets are dumped into the slightly larger blue plastic bucket attached to the zip line with a pulley. The cave survey is carried forward at the end of each day so that the progress can be measured on the cartographic database of the pertinent cave passages.

We made about 5 feet on those two dig days. I had to return to work after the Holidays. By the end of the week John reported that they were about half way to the Mud Turtle Passage that connects to Snowy River and beyond. There are more places to dig. I plan to return.