

APPENDIX E  
PHOTOGRAPHS

## Existing Exhibit Photographs

### Exhibits Discussed By Visitors



Photograph 1. The perched mountain lion (*Puma concolor*) that was liked by a visitor. Note that there is no label on the animal; perhaps mountain lions are self-explanatory. This is one of several taxidermic animals in various exhibit areas.



Photograph 2. This is Roy Rogers' dress shirt and not the shirt that the visitor's father called "old dirty shirt"; that shirt was worn on his television show. His hat and boots are also on exhibit.



Photograph 3. Mammoth (*Mammuthus sp.*) tusk exhibited as it would have looked when it was being collected. Panels near this case discussed that it is a local fossil and shows a geologist working at a dig site. This exhibit may have provided learning to a grandparent and child.



Photograph 4. Many visitors were impressed by the beauty of the minerals. Some of the minerals exhibited include the copper minerals, green banded malachite  $[\text{Cu}_2\text{CO}_3(\text{OH})_2]$  and blue azurite  $[\text{Cu}_3(\text{CO}_3)_2(\text{OH})_2]$  and yellow native sulfur (S). The Iceland spar variety of calcite ( $\text{CaCO}_3$ ) is on the upper shelf; it would have been more interesting if a label was underneath, so that visitors could see a shift in the letters due to its optical activity. The specimens are numbered and labeled below the display case. Some of the large mineral panels are in the background and discuss various aspects of minerals. Note the small size of the aisles and the lack of seating.





Photograph 5. Some common rocks disliked by a visitor who thought they should not be in a museum. This is part of the Death Valley exhibit and as indicated on the panel partially seen in the background, some of the rocks are old for California.



Photograph 6. This photo shows turquoise jewelry liked by a visitor. This is exhibited in the area that has many Native American artifacts. The individual pieces are labeled with numbers and the panel explains their origin. Note that they are not very old.



Photograph 7. The Reading Room was liked by a visitor who was interviewed and is used by many visitors. This is off the lobby of the museum and use does not require admission to the museum. The picture on the back wall shows the area in the early 1900s. The racks, one not visible in this picture, contain National Geographic magazines. The books are arranged by subject. One interviewee remained in the Reading Room for some time, looking through the books available. The thesis interviews were conducted in the Reading Room.





Photograph 8. This musk-ox (*Ovibos moschatus*) is in the exhibit that explains why the Arctic is a desert, which surprised one visitor. The exhibit also explains the musk-ox adaptations for living in the cold climate include the long guard hairs that almost reach the ground and the large feet that help this animal walk on the snow. This is the largest taxidermic animal on exhibit; most are much smaller and include several birds and insects.



Photograph 9. This is the large camera that surprised a visitor. It is 1.84 m long. It was used to make large photographs such as the one on the panel behind the camera. The film would be placed in the box with the handle to the right.



Photograph 10. This is a replica of the Old Woman Meteorite. The actual meteorite is on display in Barstow. A small piece was removed for study when it was at the Smithsonian. The display case is tucked into a lower corner of the mineral exhibit, where it may be missed.



Photograph 11. The badger (*Taxidea taxus*) mentioned by a visitor is in this exhibit on the right side; one visitor had seen a larger badger in Texas. The other larger animals are the golden eagle (*Aquila chrysaetos*) and the coyote (*Canis latrans*). The specimens are identified through a panel with their silhouettes and the accompanying letters and numbers. Note the diorama at the back of the exhibit; the Joshua trees (*Yucca brevifolia*) on the panel suggest that it is a more mountainous area of the Mojave Desert near the southern county border.





Photograph 12. Titanotherium (*Brontherium* sp.) replica is shown above that was mentioned by visitors; while *Brontherium* is the official genus, they were first described and named titanotherium informally. It is part of the Death Valley exhibit; fossils of this animal have been found in the park near Titus Canyon. The oldest titanotheres are Eocene as indicated on the exhibit (approximately 56 to 34 Ma) and are relatives of tapirs, rhinoceros, and horses. Those found in Death Valley are actually Oligocene (approximately 34 to 24 Ma). Titanotheres became extinct in Middle Oligocene.





Photograph 13. This panel shows some of the larger faults in the area, indicated by the bluish-green lines and small white lights. The San Andreas is the fault trending northwest-southeast that extends from the Mendocino Triple Junction off the coast of California (not shown on this map) south to the Salton Sea. The Garlock Fault is the more east-west fault that forms the northern boundary of the Mojave tectonic block. Most of the Mojave Desert is on this block, but since the desert is usually defined by its ecology, some of it is located in southwest Nevada and western Arizona. The screen on the right is showing part of the video that discussed the San Andreas Fault and earthquake safety. This scene is demonstrating the safety hazard of heavy objects on book cases or other high areas. There is a small bench in front of the monitor for visitors to sit and watch the video; it is the only seating in the exhibit area.



Photograph 14. This Brazilian geode is over a meter in length and 74 cm wide at the opening. It contains amethyst crystals which are a variety of quartz; ferric iron ( $\text{Fe}^{+3}$ ) is thought to give these crystals their color. This geode is from the 133 Ma (million years old) Paran Flood Basalt and is a gas bubble that later was filled with a silica-rich fluid that produced the crystals. It is not spherical because the gas bubble was deformed by movement of the lava.



Photograph 15. The connection with Hollywood is made with these and other photographs. One visitor thought that the connection to the movies was made too often and detracted from the museum. Many Hollywood actors and writers made Apple Valley their getaway place, in part due to Roy Rogers and Dale Evans living in the area.



Photograph 16. This is part of the back wall pictures that no one liked. The photograph third from the left, top row, is a picture of Louis Leakey when he visited the Calico Early Man Site. The other pictures are of people involved with the Calico Early Man Site and the site itself.

## Other Exhibits



Photograph 17. This is the panel with the error in the three dimensional block illustration. The words at the lower left of the diagram say that the descending block melts. It does not melt, but undergoes metamorphism that releases



volatiles into the upper plate. The volatiles lower the melting point of the rocks to produce magma.



Photograph 18. This small case holds three bats with one easily seen exiting the cave. The other two are visible by looking down into the cave. There is no signage to identify the bats and nothing to educate the visitor about their role in insect control. This bat appears to be the Yuma myotis (*Myotis yunanensis*), which is very similar to the related little brown bat (*Myotis lucifugus*) that is found north of the desert. The Yuma myotis has duller fur than the little brown bat and hunts over water, which the Mojave River does provide in several areas.



Photograph 19. This is part of the new exhibit installed by the City of Victorville since the interviews were conducted. The exhibit discussed the new role that the

decommissioned George Air Force Base has taken on, as well as the last activities as the base closed in 1992.

### Mojave River Photographs



Photograph 20. Summit Valley is shown above. It is an alluviated valley formed by West Fork, a tributary of the Mojave River. The erosion of this valley helped to fill the Victorville Basin. After filling the basin, the ancestral Mojave River began to flow north into Harper Lake and later into Lake Manix.



Photograph 21. The Cedar Springs Dam shown above holds the waters of Lake Silverwood, which is part of the California State Water Project. It is located in Summit Valley.





Photograph 22. The Mojave River Forks Dam is shown in this photograph. It is for short term storage of flood waters. It may mitigate flooding in the Mojave River, but fewer floods may also be due to climate change. After the Pleistocene, the storm track moved further north. Continued warming of the Mojave Desert may also push the storms even more to the north. The current drought may be due to global warming as deserts world-wide seem to be growing.





Photograph 23. Mojave River looking upstream from Rock Springs Road in Hesperia. This area often contains water during or just after winter storms. It does not completely fill the channel except during large floods. One visitor from another state was fascinated by the changing water level of the river after a storm. The green and brown plants show the inactive portion of the stream bed. The bare track between the level to the left and the inactive stream bed is a road.



Photograph 24. This is a photograph of the low water crossing at the Mojave River and Rock Springs Road. The dirt road seen in Photograph 23 continues across the stream bed. The typical flow of the Mojave River occurs in the center where the culvert is located. This low water crossing replaced the bridge that was destroyed by a flood in 2004. The Rock Springs Road was again closed when water topped the low water crossing in 2006. To the north (right) is a trestle supporting the rail bed of the siding that services the Mitsubishi Cement Cushenbury Plant.



Photograph 25. The picture above is the Upper Narrows in Victorville. Access is limited, but the narrow channel is visible below the bridges. Here the superimposed stream has cut through bedrock, which causes the water to flow on the surface since it cannot infiltrate. The Lower Narrows is just downstream, to the right of this photograph. After the Narrows, the water flowing in the Mojave River infiltrates and no longer is at the surface, except during high flow conditions and some winters.

Photograph 26: On the next page is a photograph of the cement plant at Oro Grande just downstream from Victorville and the Lower Narrows. It is presently operating. Cement manufacturing began in Oro Grande in 1887. This is also the general location of stamp mills that processed silver from Calico in 1881 and gold ore from the San Bernardino Mountains in 1886.







Photograph 27. The canyon between Victorville and Barstow was reworked. This produced the sediment that caused Lake Manix to partially fill and flow into the Afton Basin. Sediments are visible in today's cliffs that flank the west side of the channel. Southern California Logistic Airport is located just beyond the cliffs. A major channel of the south flowing drainage that preceded the development of the Mojave River is beneath the airport.

Photographs 28 & 29. The photographs below are of the Helendale/Silver Lakes area, a site of a high groundwater table. A natural riparian zone flanks the river here as seen below. Cottonwoods as seen on the right, often have their roots extended into the groundwater.







Photograph 30. This is a photograph of water flowing on the surface near Helendale/Silver Lakes in the early spring of 2015. It indicates that groundwater is at or near the surface. If the groundwater table were considerably deeper, the Mojave River would become an influent stream as it is during drier weather.





Photographs 31 & 32. This photograph above shows the Mojave River at Barstow. The bridge connects the main part of town with Old Highway 58. Below is the post office at Newberry Springs. This area supplied water to the train stop at Ludlow. It is not on the Mojave River, but south of it near the mountains.







Photographs 33 & 34. The Camp Cady area is an important riparian area downstream from Barstow. It is also the location where numerous fossils from the Pleistocene were found. This area was part of Lake Manix prior to its draining.



Photograph 35. The Mojave River in the vicinity of Camp Cady is shown above. The beds of Lake Manix can be seen at the edge of the active flood plain. After the lake drained, the Mojave River cut into the lake deposits to form its channel.



Photographs 36 & 37. The upper photograph shows Troy Dry Lake with Interstate 40 in the background. This is a remnant of Lake Manix. Troy is a wet playa with groundwater near the surface. As the groundwater evaporates, it leaves salts at the surface. The surface is spongy to walk on. Below are salt resistant plants on the edge of Troy Dry Lake. Mud cracks are visible just right of center in the foreground.





Photographs 38 & 39. These photographs are of Afton Canyon. Lake Manix beds are in the background. Above, water is slowly flowing in the Mojave River. Below is another picture of the lake beds. The white shelters are in the campground. The surface of Lake Manix was above the lake beds.







Photographs 40 & 41. The photograph above shows the engines of the Union Pacific traveling west and crossing the rail bridge in Afton Canyon. This is the main line between Barstow and Las Vegas. During the days of steam locomotives, Afton Canyon was an important water stop. At one time there were nine structures at this station. On the following page is Kelso Depot; it is farther east of Afton Canyon on the Union Pacific line. It was established near the base of the rise to the Cima Dome and supplied helper engines to get the steam powered trains up the grade. Because there was insufficient spring water, nine wells were drilled to supply the trains and the town. There was a working iron mine nearby that supplied ore for the war effort during WWII; this also added importance to the site. Today, it is part of the Mojave National Preserve, has been restored, and is open to the public.







Photographs 42 & 43. The upper photograph is of Lake Tuendae at Soda Springs (Zzyzx) on the edge of Soda Lake. This area is now operated as the Soda Springs Desert Studies Center. The photograph below shows more of Soda Lake.









Photograph 44. The photograph above shows the Tonopah & Tidewater rail bed looking from Soda Springs north toward Baker. Note the world's tallest thermometer visible at the end of the lake to the right; it is Baker's claim to fame.



Photograph 45. Above is a photograph of the terminus of the Tonopah & Tidewater Railroad at Ludlow. The rail did not extend to either Tonopah, Nevada or Tidewater near San Diego, but ran from Rhyolite, Nevada to Ludlow, California. Here in Ludlow, the railroad crew built a large loop for the trains to turn and return north. Part of the loop is in the picture above. When the railroad was active, the town was in the center of the loop. The BNSF railroad was just south of the loop, left in this picture. The Ludlow Southern Railroad extended to

south of the BNSF to service the Bagdad Chase Mine. Today, the main business area of Ludlow, containing a café, motel, and the Chevron station is north of the loop and south of Interstate 40; the Dairy Queen and 76 Station are north of the freeway.





Photograph 46. The thermometer in Baker is 134 feet ( $\approx 41$  m) tall. It is as tall as the highest measured temperature in Fahrenheit ( $\approx 57^{\circ}$  C) in the world, which

was measured at Furnace Creek in Death Valley. It was soon surpassed by a reading in Libya.



Photographs 47 & 48. A bridge over the Mojave River in Baker is pictured above. The photograph below shows water in the river that collected after a local storm.







Photographs 49 & 50. Silver Lake, terminus of the Mojave River is pictured above; this photograph was taken from the north end of the lake, looking southwest. Below is a photograph of the remains of the town of Silver Lake, the important mining supply center during the mining boom.





## Eolian Deposits



Photograph 51. The Cat Dune above is more cat shaped when viewed from the freeway. It is a falling dune on the Cronese Mountains. The sand was derived from Cronese Lakes on the other side of the mountain. Sand sheets and partially stabilized dunes are in the foreground.



Photograph 52. The Kelso Dunes shown above are slowly advancing toward the field of creosote in the foreground. The steep slip faces are well defined on the higher dunes by the shadows. The lower dunes have their slip faces on the right (east) side. Some vegetation is growing and stabilizing the dune fronts, thus slowing the advancement of the dunes.