

Frequently Asked Questions about 1673 and the sculpture of Earp and Holiday

This is a living document. If there are new questions and answers that need to be added to it, feel free, but please make sure that you have proper references, especially on historical and technical issues.

1673's sister locomotive is at the
SCV Historical Society
P.O. Box 221925
Newhall, CA 91322-1925
Phone (661) 254-1275

(1) Q: Who are the statue people?

A: (facing the sculpture) Doc Holiday on the left and Wyatt Earp on the right.

(2) Q: Is this where Wyatt Earp shot Frank Stillwell?

A: No, it is not. The original 1880 depot is long gone, dismantled in 1907 when the current depot was completed that same year. The Porter Hotel, later known as the San Xavier Hotel, burned down a few years prior. The building that is here now, is the old Railway Express building, but it is adjacent to the spot where the hotel was, and it is approximately where Stillwell was first encountered by Earp and his party, who then chased Stillwell down the tracks some 100 to 200 yards (92 to 183 meters) west down the tracks, and shot him.

(3) Q: Why did they shoot Frank Stillwell?

A: That is a long and complicated question that is not without a lot of controversy. The shooting was the result of events that began before the infamous gunfight at O.K. Corral in Tombstone, Arizona, cumulating with that incident, and then a series of brutal reprisal shootings in the months following afterward that resulted in the death of Wyatt Earp's brother Morgan and the wounding of his older brother Virgil. It was never discovered for certain who carried out those attacks, but various people who were allied with the Clantons and the Cowboy faction were rumored to have taken the claim for them. Stillwell happened to be among them. When Wyatt, Doc Holiday and two others encountered Stillwell on the southeast corner of the Porter Hotel after escorting Virgil onto a train bound for safety in California, they took their chance for revenge. The story that Wyatt and his allies told varies, but a later story claimed that Stillwell and one other person (Ike Clanton) were allegedly lying in wait on a parked flatcar to ambush Virgil Earp as his train went by, but this is at odds with the few third party eye witnesses to the event and earlier accounts given by Wyatt himself.

(4) Q: How old is 1673?

A: The locomotive was built in 1900 and rolled out in November that same year. The engine then went into service the following month with S.P.R.R., and by early 1901 was assigned to Tucson.

(5) Q: Where did 1673 operate?

A: Mostly in southern Arizona. The locomotive had two primary routes; Elgin via Patagonia and Fort Huachuca via Tombstone, and was based in Tucson. Sometimes 1673

would go as far west as Yuma, sometimes down to Benson, Sahuarita, or Nogales. When the locomotive went out of Arizona, it spent that time in California, either for major overhauls, or running freight and possibly passenger trains, especially during World War 2. 1673 may also have gone as far east as El Paso, Texas. It is also known that for a brief few months in 1947 that 1673 was leased to Southern Pacific of Mexico.

(6) Q: How many miles logged?

A: Approximately 1 million miles (1.6 million kilometers).

(7) Q: How fast was 1673?

A: How fast the locomotive could go depended on various factors such as the number and weight of the cars being pulled and the terrain. 1673 was not built as an express (high speed) engine. According to Connie Weinzapfel, 1673's last engineer, it could pull 25-30 freight cars at up to 35 M.P.H (56.31 K.P.H) on level ground, and 15 miles per hour (24.13 K.P.H) up a steep grade in the Dragoon Mountains. Southern Pacific Railroad's specifications list the M-4 class' maximum speed as 53 miles per hour (85 K.P.H).

(8) Q: 1673 burned coal, right?

A: No, originally the engine did burn coal during her early years of service, but around 1905 it was converted to oil.

(9) Q: Converted to oil? So does that mean it is no longer a steam engine?

A: She still is a steam engine. All that has changed is what fuel is burned in the firebox, which in turn heats the water in the boiler to make steam.

(10) Q: Why was the engine converted to oil?

A: Economics. Coal has to be shipped from the Northwest, or from way back East. It was cheaper to ship in oil from the California, Texas, or Louisiana oil fields, which were all along S.P.R.R.'s Sunset Limited route in the southern most part of the United States. Furthermore, from an operational and maintenance standpoint, oil was cheaper and easier to use as a fuel since all the fireman had to do was turn a handle, make a few valve adjustments, and toss a burning rag into the firebox to light the burners to get the fire going. On top of that, even though the fuel was a crude "Bunker C" type, barely better than sticky tar, it burned far cleaner than coal or wood, and was more efficient.

(11) Q: Is this the same engine from Himmel Park?

A: Yes, originally the engine was given to the citizens of Tucson on the 75th anniversary of the arrival of the railroad on March 20th, 1955. After the ceremonies the engine was moved and placed on display in June 1955 in front of what is now the Arizona Historical Society on 2nd Street where it sat for seven years. It was then moved to Himmel Park where it sat for 38 years. In 2000 it was moved to the Depot.

(12) Q: How did 1673 get to the depot? When did it happen?

A: The locomotive was carefully winched up onto a special flatbed trailer and pulled by a Mack-semi truck across town. This happened on December 3rd, 2000.

(13) Q: Was the ramada enclosure already here?

A: No, it was built around the engine after the move, and was completed by September 2002.

(14) Q: How much does 1673 weigh?

A: Currently it weighs approximately 65 U.S. tons (59 metric tons). After the locomotive was placed on display, it had several tons of hardware removed over time. In her prime, 1673 had a dry weight of over 71 tons (64.41 metric tons), and 79 U.S. tons (71.66 metric tons) loaded. The tender car has a dry weight of 30 U.S. tons (27.21 metric tons), and a loaded weight of 71.5 U.S. tons (64.86 metric tons).

(15) Q: Wow! That's big! It's the biggest, right?

A: Nope, not even close. For instance, the Union Pacific 4-8-8-4 Big Boy type locomotives with tender are more than twice the length of 1673 and its tender! Big Boys weigh 595 U.S. tons (540 metric tons) fully loaded. That's a little over 4 times more massive than #1673 and its tender.

(16) Q: What type and class is 1673?

A: 1673 is a 2-6-0 Mogul type, M-4 class locomotive.

(17) Q: "M-4 class? What does that mean?"

A: That is Southern Pacific's designation for this particular design of Mogul locomotive. In this case "M" stands for mogul, and the number indicates it is the fourth specific design. In total, S.P. had up to 21 different exclusive Mogul locomotive designs with a few of the designated designs never having been built, among them the M-3, M-5, and M-7 class.

(18) Q: What does "2-6-0" mean?

A: That is the Whyte classification system for wheel configuration/arrangement. In this case we have two (2) small pilot wheels on the front truck (one on each side), followed by six (6) of the big "driver" wheels (3 on each side), and no or zero trailing truck wheels, hence the "0".

(19) Q: The display sign says "sand dome" and "steam dome". What does that mean? What do they do?

A: The sand dome (the small dome up front) is a container that literally holds sand inside. There are 4 pipes (2 on each side) that take the sand down to the rails underneath the big front and middle set of driver wheels. This helps provide traction for the wheels when the engine is starting up, or the train is going up a steep hill, and or on slippery wet or icy tracks.

The steam dome is the second and biggest of the two domes. It is where super-hot steam from the boiler is collected. If you could look inside the dome, you would see the throttle mechanism. It looks like a big stopper with linkages attached to it. When the engineer wants the engine to go or move faster, he pulls the big horizontal lever in the cab on the middle top of back of the boiler back head, which in turn opens the throttle in the steam dome. This in turn allows the steam to flow down what is called the "dry pipe" into the silver colored "smoke box" portion of the train. The pipe splits into two and carries the steam into the steam chests on either side of the locomotive. The steam is then directed by the smaller cylindrical valves (on the top portion of the chest) into the larger cylinders that contain the pistons. The steam pushes on the piston from one side or the other, which in turn pushes or pulls on the rods connected to the driver wheels making the engine move. The more the throttle is opened up, the more steam flows into the cylinders, and the faster the engine goes.

(20) Q: So this (referring to the tender car behind the engine) is a “coal car”, right?

A: Not exactly, the proper term is “tender car”. Since steam locomotives can burn a wide variety of fuels. 1673 is an oil-burning engine, but other engines burn wood or one of several different types of coal. Recently, some excursion and theme park steam railroads converted their steam locomotives to burn waste vegetable oils. Some examples of railroads that have done this are the Disneyland and Disneyworld theme park railroads (located in CA, FLA, France, and Japan), and the Grand Canyon Railway up in Williams, AZ.

(21) Q: Are there any operating steam locomotives left?

A: Yes, quite a few operating steam locomotives are in service around the U.S. and North America as well as around the world pulling special excursion trains. In some cases, like in India or some African and Asian countries, steam is still in use on mainline railroads.

Note: If people ask for more information, about excursions or museums, consult the Tourist Train book, or direct them to online resources. Three good online resources are:

<http://www.steamlocomotive.info/unitedstates.cfm> (Comprehensive listing, with photos, of surviving steam locomotives in the U.S.A. and around the world)

<http://www.steamlocomotive.com/lists/> (Surviving Steam Locomotives in the U.S.A. website, which contains a comprehensive list of static display and operational steam locomotives)

http://www.up.com/aboutup/special_trains/steam/index.shtml (*Union Pacific's UP Steam website*)

All of these websites, except the UP Steam, have comprehensive and up to date listings of operational and display locomotives for the United States.

(22) Q: Are there any excursion trains in Arizona?

A: Yes, there are. There is the Grand Canyon Railway that operates from Williams in northern Arizona and goes to the South Rim of the Grand Canyon to the former Santa Fe Railroad depot. They have three operational steam locomotives and several on display, along with several operational modern diesel engines. They have a website at <http://www.thetrain.com/>

The Verde Canyon Railroad is the other excursion railway based out of Clarkdale, Arizona, which features a four-hour route from Clarkdale to the Perkinsville Ranch, and back again. Unlike the Grand Canyon Railway, Verde Canyon Railroad does not operate any steam locomotives, though it has two vintage FP7 series diesel engines. Their website is <http://verdecanyonrr.com/>.

(23) Q: What is this I hear about the museum putting on an event?

A: Consult with the volunteer updates and procedures handbook and make yourself familiar with all monthly events before getting the questions!

(24) Q: How long has the museum been open?

A: Since March 20th 2005, the 125th anniversary of the arrival of the railroad in Tucson.

(25) Q: Where did the first train to Tucson come from?

A: The first train arrived in Tucson at 11am (an hour early) inbound from San Francisco, California. And the first tickets in Tucson were sold for the trip back up to San Francisco early the next morning.

(26) Q: Is 1673 operational?

A: No, it is not. The locomotive when donated to the city of Tucson was in operational condition. However, over the period of time the locomotive was on display at the Historical Society and Himmel park, its condition deteriorated badly. The locomotive was only cosmetically restored in the early to mid 1990s, and recently is being worked on once more as funding and time allows. In 1984, a study was conducted to see if it was possible to restore the locomotive back to operational condition. While it was found to be feasible, the cost was too high for the project's backers. About \$1.7 million (adjusted for inflation dollars). Most of that cost would be for the outright replacement of the boiler and firebox, and the reconditioning of the running gear.

(27) Q: How long was 1673 in service?

A: Nearly 55 years from 1900 to 1955. 1673 was one of the last operational S.P.R.R. steam locomotives in Tucson. Other steam engines have visited since then. 1673's last duty was pulling a special excursion train from the depot here to the Pacific Express Fruit yard and back again all day long as part of the 75th anniversary of the arrival of the railroad in Tucson in 1955.

(28) Q: How many other Moguls like 1673 did Southern Pacific build and operate?

A: 1673 was one of 153 M-4 class engines S.P.R.R. had built and operated from 1899 to 1957 on it's regular lines as well as it's subsidiary Texas and New Orleans railroad. Southern Pacific also operated other classes of Moguls as well, too.

(29) Q: How many of this class of Mogul still remain?

A: Only two; 1673 here, and 1629, which is located in Newhall, California. All other surviving S.P.R.R. Mogul engines are either M-6 or M-8 class.

(30) Q: Where was 1673 built?

A: Schenectady Locomotive Works in New York State. Schenectady is still in existence, but it is a part of the American Locomotive Company (ALCO).

(31) Q: Is 1673 the only steam locomotive here in Tucson?

A: Inside the city limits proper, yes. However Old Tucson Studios (12 miles west of Tucson adjacent to the Tucson Mountains and close to the western portion of the Saguaro National Monument) has a vintage, former Virginia and Truckee Railroad 4-4-0 American Type locomotive named "Reno" (Also known as "The Old Reno") and numbered 11. That locomotive is nearly 140 years old having rolled out January 13, 1872 from the Baldwin Locomotive Works in Philadelphia. It has been used in well over 100 motion pictures, numerous television shows and commercials since 1939 when it was first used by MGM Studios for the movie "Union Pacific" starring Joel McCrea and Barbara Stanwyck. It was purchased by Old Tucson Studios in 1970 and remains with them to this day.

(32) Q: Is the Reno operational?

A: Sadly, no she is not. On April 25, 1995, a fire swept through the Old Tucson Studios, destroying many irreplaceable historic structures and props, and severely damaged the Reno, rendering her inoperable. A few years later, the engine was cosmetically restored for use in the 1999 movie “Wild Wild West” starring Will Smith and Kevin Kline. The engine since then has seen some use and remains on open static display to the public visiting the studio.

(33) Q: How come this train (1673) doesn't look like Thomas the Tank Engine?

A: Thomas the Tank Engine is a British locomotive. Because most of the rail lines in that country, as well as the rest of the United Kingdom, are largely fenced off, Thomas does not require a headlight, or a cowcatcher (pilot) that 1673 does. Also because Thomas (a switcher engine) has different duties than 1673 (a freight engine), he carries his water, not in a separate tender car, but in tanks saddled on either side of his boiler. He carries his coal fuel in a small bin connected to the back of the cab. This helps make his job as a switcher locomotive much easier as he moves cars about the rail yard since he does not have to haul around an extra car with fuel and water in it that would potentially get in his way, and take up too much room when things get a bit crowded. Of all the Thomas the Tank Engine locomotives, 1673 is closest to James, who is also a Mogul-type engine (he shares the same 2-6-0 lead truck and driver wheel arrangement).

(34) Q: Is Thomas based on a real-life locomotive?

A: Yes! He is based on the E2 class switcher engines built for the L.B. and SCR railroads. In fact, all of Thomas' friends are based on real engines, and rolling stock found in the United Kingdom. For example, Gordon is based on the famous A3 class “Flying Scotsman” 4-6-2 Pacific locomotive, and James is based on a rebuild of the L&YR (Lancashire and York Railway) Class 27 locomotive.

(35) Q: Why do steam engines make a ‘chugging (or ‘chuffing’) sound?

A: The noise that you hear actually is not at the cylinders as most people presume, but at the locomotive's stack. The reason for the “chugging” sound really starts all the way in the engine's firebox. Large quantities of fuel have to be burned to generate the heat needed to boil the water. If no outside air draft were present, the fire would starve for a lack of oxygen. So a draft is created by ejecting the used exhaust steam from the cylinders into the “saddle” part of the engine frame (In 1673's case the ‘saddle’ is right under the silver painted smoke box of the engine. It looks like a big, black metal box), and from there the steam rises in the smoke box, directed via a nozzle, where a venturi funnel channels it up and out of the long cylindrical smoke stack. The steam expands as it rises, creating a vacuum and the “chugging” noise. This vacuum also pulls the exhaust gasses in the firebox through the bundle of flue tubes running horizontally inside the boiler to the smoke box and up out of the smoke stack. If you watch a steam engine starting up in person or on a video or film of one in action, you will often see where white steam vents out from the smoke stack, followed by or mixing with grey/black soot. The chuffing sound often occurs in time with this. Meanwhile, the outside air rushes in to fill the void in the smoke box to bring much needed air, and creating a draft for the fire.

(36) Q: Has 1673 been used in any movies?

A: Yes, she has! The engine was used for several days in 1953 for filming in Elgin, Arizona for the 1954 musical “*Oklahoma*” starring Gordon MacRae and Shirley Jones (in her film debut). It is the locomotive seen pulling into the station during the beginning of the “Kansas City” number, is in the background all throughout, and when the train is pulling out of the station at the end. For the production, 1673 was repainted in bright, garish colors, as well as fitted with a diamond smokestack and other turn of the century equipment. The locomotive was also used to move the cast and crew, and their gear to and from the shooting location. This was the only time 1673 would ever star in a movie or television production outside of documentaries.

(37) Q: With that fire going, it must get really hot in the cab!

A: It can get a bit hot, especially in summer. However because 1673 is an oil-fired steam engine, the firebox door does not have to be kept open constantly the way some wood and coal-fired engines do. Also, although it is not fitted to the locomotive anymore, the boiler, in this case, the backhead of the boiler (even wrapped around the pipes), would have had a thick layer of asbestos insulation or “lagging”, and then a thin protective sheet of metal over that called “jacketing”. This provides sufficient insulation to keep the cab at a more comfortable temperature, especially when the locomotive is underway and the windows are open to allow air to flow through it.

(38) Q: What do those numbers and letters on the side of the cab mean?

A: The large “1673” number seen here and on the front of the engine is its road number that helps identify the locomotive for the purposes of train orders and maintenance.

The smaller numbers told SP workers important basic information about the locomotive and its primary specifications. They are as follows as seen from the Fireman’s side of the engine (left side):

- First letter and numbers “M-63”= Mogul with 63 inch diameter drivers (the 6 big wheels with rods connected to them).
- The second set 20_ = in inches the diameter of the cylinder over the piston stroke.
 - 28
- Next is “135-S”. This means 135,000 pounds weight on the drivers and the “S” indicates the engine has a superheater in its smokebox.
- Finally at the far end of the cab is “M-4”. That is the class of Mogul, M standing for “Mogul” and 4 indicating it is the fourth specific design of mogul locomotive for SP.

39.) Q: What is a “superheater”?

A: A superheater is a device used to convert *saturated steam* or wet steam into *dry steam* used in steam engines or in processes, such as steam reforming.

In a steam engine, the superheater re-heats the steam generated by the boiler, increasing its thermal energy and decreasing the likelihood that it will condense inside the engine. Superheaters increase the thermal efficiency of the steam engine, and have been widely adopted. Steam, which has been superheated, is logically known as superheated steam;

In steam locomotive use, by far the most common form of superheater is the fire-tube type. This takes the saturated steam supplied in the dry pipe into a superheater header mounted against the tube sheet in the smokebox. The steam is then passed through a number of superheater elements—long pipes that are placed inside special, widened fire tubes, called flues. Hot combustion gases from the locomotive's fire pass through these flues just like they do the firetubes, and as well as heating the water they also heat the steam inside the superheater elements they flow over. The superheater element doubles back on itself so that the heated steam can return; most do this twice at the fire end and once at the smokebox end, so that the steam travels a distance of four times the header's length while being heated. The superheated steam, at the end of its journey through the elements, passes into a separate compartment of the superheater header and then to the cylinders as normal.

(40.) Q: What is a “Gandy Dancer” and is there a tool by that name?

A: The term has an uncertain origin. A majority of early railway workers were Irish, so an Irish or Gaelic derivation for the English term seems possible. According to writer Daniel Cassidy, the word "gandy" is associated with the sound of the Gaelic word "cinnte", which may be translated as "constant". However, the term gandy sounds nothing like cinnte, and Daniel Cassidy is regarded with derision by genuine linguists.

Others have suggested that the term gandy dancer was coined to describe the movements of the workers themselves, i.e., the constant "dancing" motion of the track workers as they lunged against their tools in unison to nudge the rails, often timed by a chant; as they carried rails; or, speculatively, as they waddled like ganders while running on the railroad ties.

Some have identified a "Gandy Shovel Company" or, variously, "Gandy Manufacturing Company" or "Gandy Tool Company" reputed to have existed in Chicago as the possible source of the tools from which gandy dancers took their name. Some sources even list the goods manufactured by the company, i.e., "tamping bars, claw bars, picks, and shovels." Others have cast doubt on the existence of such a company.

This document was last updated Friday August 29, 2014.