



# Maricopa Live Steamers

## STACK TALK

APRIL, 2020

The official newsletter of the Adobe Mountain Railroad in Phoenix, Arizona.  
Operated by the Maricopa Live Steamers Railroad Heritage Preservation Society.



### President's Page



Welcome April! You know the saying: April showers bring May flowers! I hope you and your family are healthy and staying safe while enjoying your home time during this difficult time we all are facing today. Social isolating seems like an oxymoron; be social, but stay away from each other. Well, as you know, we cancelled the Spring Meet due to the request of the County Parks, and today the Governor weighed in by closing the state of Arizona until further notice.

This announcement doesn't mean you need to stay inside your home. Physical activity is still being encouraged. Even though our Spring Meet was cancelled, if you live close by, you may go to the club and run your trains, or take a walk, but with the understanding that you must be healthy. That would mean you haven't had any signs of a temperature, cold, sore throat, sniffles, runny nose, sneezing, coughing, or diarrhea for at least the last 10 days. Then if you do go to the club, remember social distancing, which means at least six feet away from each other. Most important today is to wash your hands often!!

The April General meeting has been cancelled. If you have any concerns or questions, please contact any Board member. We will follow up with a response. The Board meeting will be via Email. I will send information to Board members. The Public Runs have also been cancelled for the rest of the season. Since this will place a strain on our cash flow, we will place a hold on our monies. We will only spend on immediate items to keep the Train Park open. There are a few projects that have already been funded and paid with donations. We will proceed with these projects, as long as there are members to help. These projects include: railroad repair, switch replacement, and reroofing of some buildings. We are also looking for a crew to do the semi-annual safety check on all of the MLS Riding Cars.

The recent rain has caused the weeds to grow, which may cause an increased fire risk this Summer. If anyone can help to rid the weeds next to the train tracks, it would really be appreciated.

Wishing your family stays safe and healthy. We will get through this together!

— Pete



### Vice President's Page



I hope all is well, health-wise, with our members. And, after this is over, we can go back to playing with our toys. As you saw, if you were here, the county cancelled our special use permit for the Meet to have RVs on the property and everyone's RV was off the property quickly. **THANK YOU.** For the most part, everyone was doing their part by social distancing the trains that were running. It was really easy to do when Branch Rotation was applied. If the last train was on Pottsville, the next one left on Werner, so they stayed miles apart.

**THANK YOU** to all of the people who attended the first half of the Meet. We were all disappointed when it was cancelled, but as you know, this was way beyond the club's control.

In keeping with the social distancing and quarantine requests, we will be holding our Board Meeting over the email thread. And, for April, there will be no General Membership Meeting.

President Pete has put a halt on all club spending that is not essential while we are in suspension. This does not include projects that are funded by private individuals who are paying the bill. Since we are looking at probably not running the public in the near future, we will be curtailing all unnecessary spending and club project spending until this is over. We will be using what supplies we have on hand for now, and we have a good stock of track material. These private projects will continue, since we will not use club funds to purchase ANYTHING and there will be NO expense to the MLS treasury.

Manly Curve has been completed. There has been quite a bit of work done in the Fisher complex and, come next Operations Meet, it will be the premier industry for switching. **MANY THANKS** to Larry Kirchner and his helpers, because they are doing a fantastic job of rehabbing the whole yard. This will be an asset for many years to come, and will make access to the area a pleasure to ride on.

Although the Volunteer Appreciation Lunch that was scheduled for April has been (postponed?), I wish to extend my **MANY THANKS** to each and every person who comes out to help do everything from crewing trains, to facility maintenance, to track and signal work, to make MLS one of the premier places to play. — Joe

# APRIL CALENDAR

**SORRY FOLKS,**

For members' health and safety, until further notice, all social activities at the Park have been cancelled.

## Mary Jo McCully's Memorial

The Memorial Service on March 7 was well attended.

Perry and Betty Ann thank all of their many friends for their sympathy and prayers.



photos from Perry McCully



**Pete Pennarts**  
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**Joe Schnyder**  
Vice President

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**Joe Fego**  
1-inch Operations  
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Send emails / photos to:  
[MLSnewsroom  
@Gmail.com](mailto:MLSnewsroom@gmail.com)

## Operations Superintendent Report

story and photos by Hank Gallo

On March 23, the Penton family helped me run some of the club's locos, while we are shut down for who knows how long. We will try to visit often and get a couple of engines running each time, so the batteries don't go dead and so the gas doesn't go stale. And maybe to shake off a little boredom while doing it.



From the Desk of: Hank Gallo

Subject: 20/21 Public Runs Safety Video

Just got word: our next safety video will be done by Mr. Gibbs, first mate from the Black Pearl, played by actor Kevin McNally, from Disney's *Pirates of the Caribbean*!

Sending him the script now, March 31.

## Drones Inside

### The National Museum of the U.S. Air Force

Stunning videography. Impressive editing. Incredible flying skills.

Located at Wright-Patterson Air Force Base, some six miles to the northeast of Dayton, Ohio, the National Museum of the United States Air Force, the official museum of the USAF, is a must see for every aviation enthusiast: with more than 350 aircraft and missiles on display, it's the oldest and largest military aviation museum in the world. You can find the Boeing B-17F Memphis Belle; several Presidential aircraft, including the Boeing 707 known as a VC-137C; the Apollo 15 Command Module Endeavour; the only surviving [XB-70 Valkyrie](#); the F-117 Nighthawk and many, many others. In fact, the Museum hosts some of the world's most iconic and rare American aircraft, and also some foreign aircraft, and for this reason it attracts about a million visitors each year. However, no one has probably seen it through the birds-eye view of a drone. The video below is just fantastic. Filmed by Paul Nurkkala (NURK FPV) with DJI drones and GoPro cameras, it provides the most amazing way to explore the collection of Dayton Museum I've ever seen. To be honest, I was stunned by the quality of the videography, but also by the incredible flying skills of the drone operators. As an amateur DJI drone pilot, I can't really understand how they managed to fly that fast and close to (sometimes inside) the aircraft! By the way, at 04:40, the drone hit a cable, but fortunately the incident did not harm the Cinewhoop drone, nor any aircraft.

Ed. Not railroading, but this 7 min. video was too good not to share.

Drones link provided by Bill Myers

click link: [https://youtu.be/m4wLr8\\_Kaw4](https://youtu.be/m4wLr8_Kaw4)

From the Desk of: John Lovely – Engineer

Subject: **Mogul Steam Engine/Tender *FOR SALE***

I am sad that I must say goodbye to Jack – my little green steam engine. I need to make room in my toy box. Little Engines Mogul – engine and tender only. Propane fired, copper boiler, many Superscale parts.

Email [JMLProd@aol.com](mailto:JMLProd@aol.com).

John Lovely (c) 928-637-5127 (h) 928-774-7589.

**\$12,000**



From the Desk of: Bruno Platzer – Engineer

Subject: **Diesel Engine *FOR SALE***

Here are pictures of the diesel that I have for sale. I have all loose parts: snow plow and hand rails.

Asking **\$12,500**. Email [platzerbruno@aol.com](mailto:platzerbruno@aol.com).

Thank you.

Bruno (c) 702-371-6397



## Health and Safety Info (and photo) provided by Bill Myers

### From Johns Hopkins University Hospital regarding COVID-19:

- ❖ The virus is not a living organism, but is a protein molecule (DNA) covered by a protective layer of lipid (fat), which, when absorbed by the cells of the eyes, nose or mouth, changes their genetic code (mutation) and converts them into aggressor and multiplier cells. The virus does not enter through unbroken skin.
- ❖ Since the virus is not a living organism but a protein molecule, it is not killed, but decays on its own. The disintegration time depends on the temperature, humidity and type of material where it lies.
- ❖ The virus is very fragile. The only thing that protects it is a thin outer layer of fat. That is why any soap or detergent is the best remedy, because the foam CUTS the FAT (that is why you have to rub so much, for 20 seconds or more, to make a lot of foam). After dissolving the fat layer, the protein molecule breaks down and disperses on its own.
- ❖ HEAT melts fat. This is why it is so good to use water above 80 degrees F. for washing hands, clothes and everything. In addition, hot water makes more foam and that makes it even more useful.
- ❖ Alcohol or any mixture with alcohol over 65% DISSOLVES ANY FAT, especially the external lipid layer of the virus.



❖ Any mix with 1 part bleach and 5 parts water directly dissolves the protein, breaking it down from the inside.

❖ Oxygenated water helps long after soap, alcohol and chlorine, because peroxide dissolves the virus protein, but you have to use it pure and it will hurt your skin. Peroxide can be helpful in the laundry when you can't use bleach.

❖ NO ANTI-BACTERIAL OR ANTIBIOTIC – The virus is not a living organism, like bacteria, so antibodies cannot kill what is not alive.

❖ NEVER shake used or unused clothing, sheets or cloth. While the virus is glued to a porous surface, it will disintegrate on its own, but only after:

3 hours (fabric and porous)	24 hours (cardboard)
4 hours (copper and wood)	42 hours (metal)
	72 hours (plastic).

But if you shake clothing or use a feather duster, the virus molecules become airborne for up to 3 hours, and can lodge in your eyes, nose or mouth.

❖ The virus molecule remains dangerous in external cold, or in artificial cold, such as air conditioners in houses and cars, which sends it airborne. It also needs moisture to remain viable, and especially darkness. Therefore, dehumidified, dry, warm and bright environments will make it degrade faster.

❖ UV LIGHT on any object that may contain the virus will make it break down faster. For example, to disinfect and reuse a mask, UV light is perfect. Be careful, because it also breaks down collagen (which is protein) in the skin.

❖ The virus CANNOT go through healthy skin, so wearing gloves is unnecessary. Just wash your hands often, for 20 seconds with foamy soap and warm water.

❖ Vinegar is NOT useful. It does not break down the protective layer of fat.

❖ NO SPIRITS, NOR VODKA, will do anything. The strongest vodka is only 40% alcohol, and 65% is required to break down fat and protein.

❖ LISTERINE does work because it is 65% alcohol.

❖ The more confined the space, the more concentrated the virus will be. The more open or naturally ventilated, the less concentration.

❖ You have to wash your hands before and after touching mucosa, food, locks, knobs, switches, remote controls, cell phones, watches, computers, desks, TV, etc., and when using the bathroom. Refrain from touching your face.

❖ You have to HUMIDIFY HANDS DRY. So much washing of hands will dry out the skin, and the virus molecules can then hide in the micro cracks, and enter broken skin. Using the thickest moisturizer will maintain healthy, unbroken skin.

❖ Also keep your NAILS SHORT, so that the virus does not hide there.

— Johns Hopkins University Hospital

# TRACKING TRACKSIDE PROGRESS 2020

## MARTIN'S FERRY

story and photo by Joe Schnyder

Here is the eastbound number 2 track at Martin's Ferry, where we have dug out the old track, removed it and are getting ready to install concrete ties and welded steel rail. This is part of the Werner Branch rehab project that we are working on. This track has been down since 2004, and has small screws and wood ties that have seen their lifespan of heavy traffic. All of the curves were re-laid with steel and most ties flipped or replaced using long screws two years ago. Now we are beginning work on the straight track spots, installing 50 year "span of life" track, but I hope for more. All of the switches are now all steel rail, and we are hoping to replace most of the straight track in welded steel with new concrete ties. This is the Christmas Run track, which gets a good share of the traffic, and we hope to have it mostly done by December. At least we are shooting for that completion date. Please watch for our signs, as we will be leaving Werner open for traffic, but the switches will be lined around our work areas. There is only one spot of about 160 feet where we will have to close the branch, so watch the board for closures and please do not pass a red flag or red board.

We have finished about 65 percent of Arntchoo outbound track. It has been put back leveled, ballasted and tamped. The rest should be done before the end of summer. Last week we got another section leveled, tamped and ballasted just as Mother Nature was kind enough to water the track for us with 1.46 inches of rain. I think that was very kind of her to do that for us.

The switch barn has set up the plastic tie spacing for the switches, and we will soon be kicking out switches with plastic ties for the continuation of the switch project on Far Flung branch. The old switches are mostly aluminum, but any steel parts in them that can be recycled will be used in the new switches, which will be all steel. We have to make 19 number 9 switches and 16 number 7 switches to complete Far Flung Branch. I have noticed quite a spike in the traffic on this branch. I guess it is because it is such a long run and is the north end of Serpentine Branch, where we have noticed a lot of wear on the rail in switches and in curves.



*(continued next page)*

# TRACKING TRACKSIDE PROGRESS 2020



## PERRYVIEW

story and photo by Joe Schnyder

Here is the Perryview Station with its new metal roof, just installed after Pete got the scaffolding he needed to do this job safely. Because the angle of the roof is so steep, it is real easy to slip off while putting on a metal roof. The guys doing the project are old enough that they no longer bounce when they hit the ground. They just lay there and moan about broken parts. I am glad to report they did not have to try out the bounce test for older adults. Another job well done, and done safely.

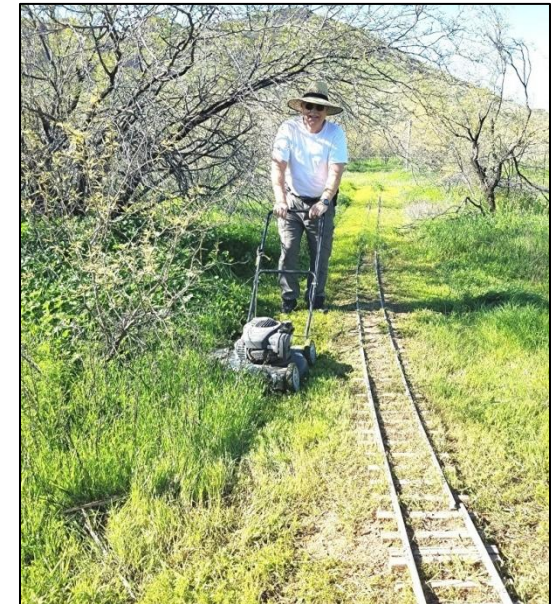


## The Resurrection of Pardee Point

story and photos by Mick Janzen

### Part VIII

On Feb 29th, work resumed at Pardee Point. It rained during the week, so there was an explosion of weeds. The first task was to find the tracks again. Bill Pardee works with a lawnmower.



(continued next page)

Pardee Point (cont'd)

# TRACKING TRACKSIDE PROGRESS 2020

## Part IX

On March 2, Jim Zimmerman arrived with a ballast train. Bob Rauperstrauch and Mick Janzen shoveled the ballast onto the new track panels that were placed last week.

JimZim tamping the new ballast.



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Pardee Point (cont'd)

# TRACKING TRACKSIDE PROGRESS 2020



## Part X

Jim Z and Bob R carry a new track panel and move it into place in Pardee Yard. After alignment, the panels are joined and screwed down.



# STEAM LOCOMOTIVES BOILERS

## THROTTLES and SUPERHEATERS

by Dave Griner



Hello again. Well, what a difference a month makes.  
Best wishes for the health and safety of you, your family and friends.

This will be kind of a continuation of the discussion on throttles by addressing the superheater.

First, let's define superheat . . . (edited from Wikipedia)

**Saturated steam** is steam that is in equilibrium with heated water at the same pressure, that is, it has not been heated above the [boiling point](#) for its pressure. This is in contrast to superheated steam, in which the steam (vapor) has been separated from the water droplets, and then additional heat has been added. These condensation droplets are a cause of damage to [steam turbine](#) blades, the reason why such turbines rely on a supply of dry, superheated steam.

**Dry steam** is saturated steam that has been very slightly superheated. This is not sufficient to change its energy appreciably, but is a sufficient rise in temperature to avoid condensation problems, given the average loss in temperature across the steam supply circuit. Towards the end of the 19th century, when superheating was still a less-than-certain technology, such steam-drying gave the condensation-avoiding benefits of superheating without requiring the sophisticated boiler or lubrication techniques of full superheating.

By contrast, water vapor that includes water droplets is described as **wet steam**. If wet steam is heated further, the droplets evaporate, and at a high enough temperature (which depends on the pressure) all of the water evaporates, the system is in [vapor-liquid equilibrium](#), and it becomes *saturated steam*.

**Saturated steam** is advantageous in heat transfer due to the high latent heat of vaporization. It is a very efficient mode of heat transfer. In layman's terms, saturated steam is at its dew point at the corresponding temperature and pressure. The typical latent heat of vaporization (or condensation) is 970 Btu/lb (2256.5 kJ/kg) for saturated steam at atmospheric pressure.

**Superheated steam** is [steam](#) at a temperature higher than its [vaporization](#) point at the [absolute pressure](#) where the temperature is measured. Superheated steam can therefore cool (lose internal energy) by some amount, resulting in a lowering of its temperature without changing state (i.e. condensing) from a gas, to a mixture of saturated vapor and liquid. If unsaturated steam (a mixture which contains both water vapor and liquid water droplets) is heated at constant pressure, its temperature will also remain constant as the [vapor quality](#) (think dryness, or percent saturated vapor) increases towards 100%, and becomes dry (i.e. no saturated liquid) saturated steam. Continued heat input will then "super" heat the dry saturated steam. This will occur if saturated steam contacts a surface with a higher temperature.

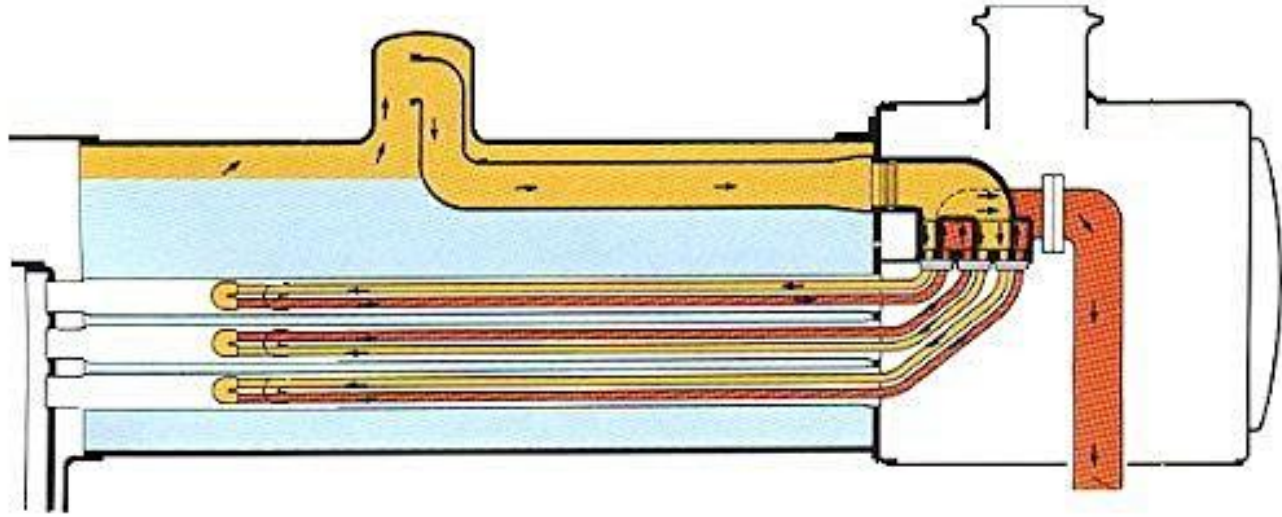
Superheated steam and liquid water cannot coexist under [thermodynamic equilibrium](#), as any additional heat simply evaporates more water and the steam will become saturated steam. However, this restriction may be violated temporarily in dynamic (non-equilibrium) situations. To produce superheated steam in a power plant or for processes (such as drying paper) the saturated steam drawn from a [boiler](#) is passed through a separate heating device (a [superheater](#)) which transfers additional heat to the steam by contact or by [radiation](#).

Superheated steam's greatest value lies in its tremendous internal energy that can be used for kinetic reaction through mechanical expansion against turbine blades and reciprocating pistons, that produces rotary motion of a shaft. The value of superheated steam in these applications is its ability to release tremendous quantities of internal energy yet remain above the condensation temperature of water vapor; at the pressures at which reaction turbines and reciprocating piston engines operate.

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### SUPERHEATERS (cont'd)

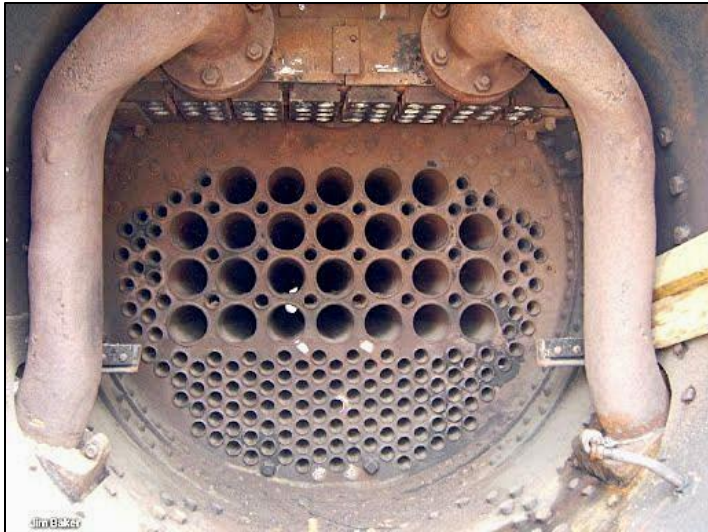
In [steam locomotive](#) use, by far the most common form of superheater is the fire-tube type. This takes the saturated steam supplied in the dry pipe into a *superheater header* mounted against the tube sheet in the [smokebox](#). The steam is then passed through a number of superheater elements – long pipes which are placed inside large diameter 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.



It should be pointed out that adding superheat to a given engine typically would reduce fuel consumption by 20%.

We've spent a fair amount of time looking at exactly what superheat is, because without this understanding, the work of the device becomes a bit more difficult. Now there are many different configurations of superheaters, but a more common one is the Schmidt type A. The diagram above shows the steam path from the dome through to the cylinders.

Here we have the front tube sheet without the units installed, but showing the header and branch pipes to the cylinders.



Here is a batch of units ready for installation. When we would make repairs or build new units, they were hydro tested to 1,000 psi before installation.



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# SUPERHEATERS (cont'd)

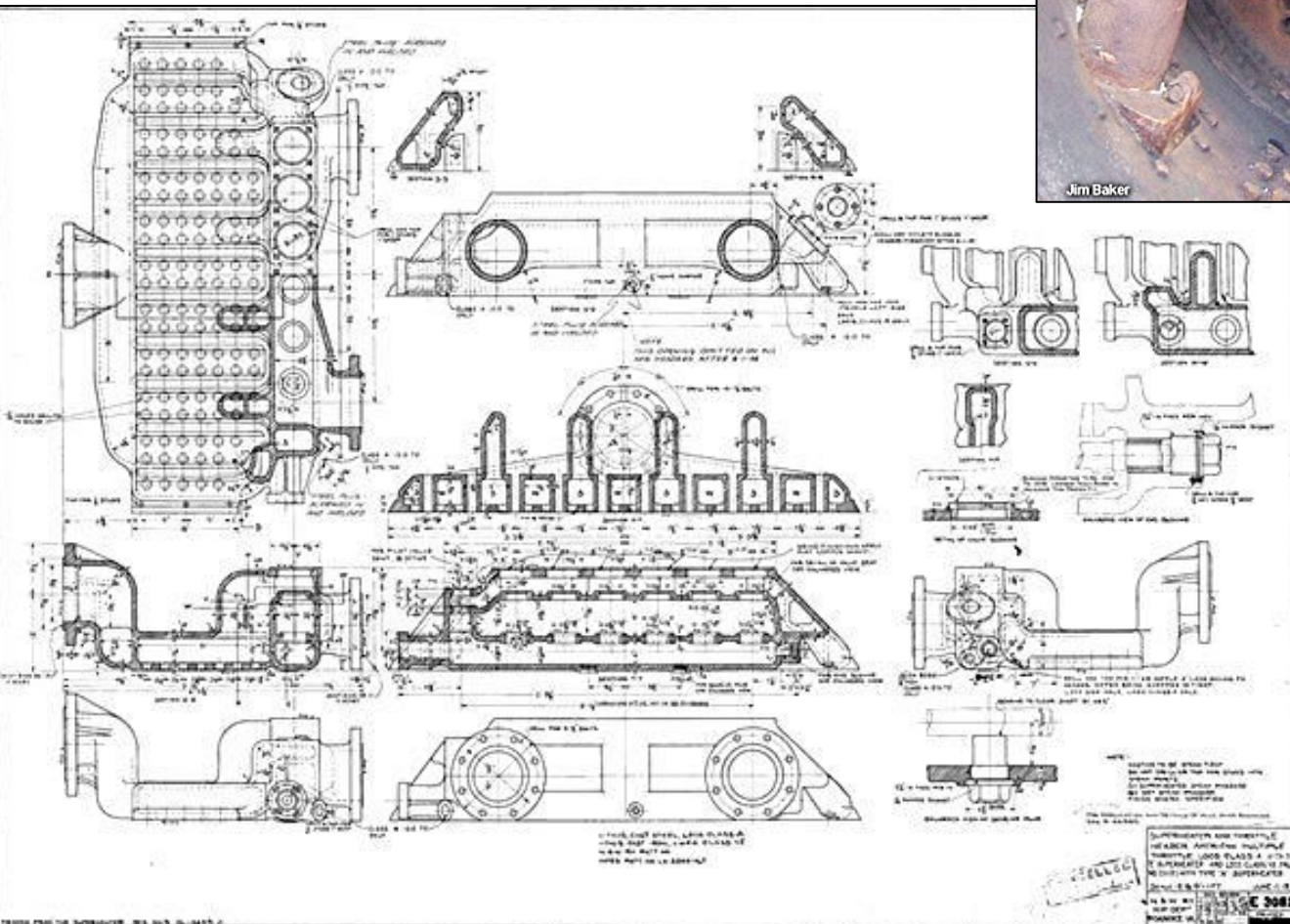
Now the units have been installed.  
Note the clamp and tee bolts.



Jim Baker

This is a drawing of the header.

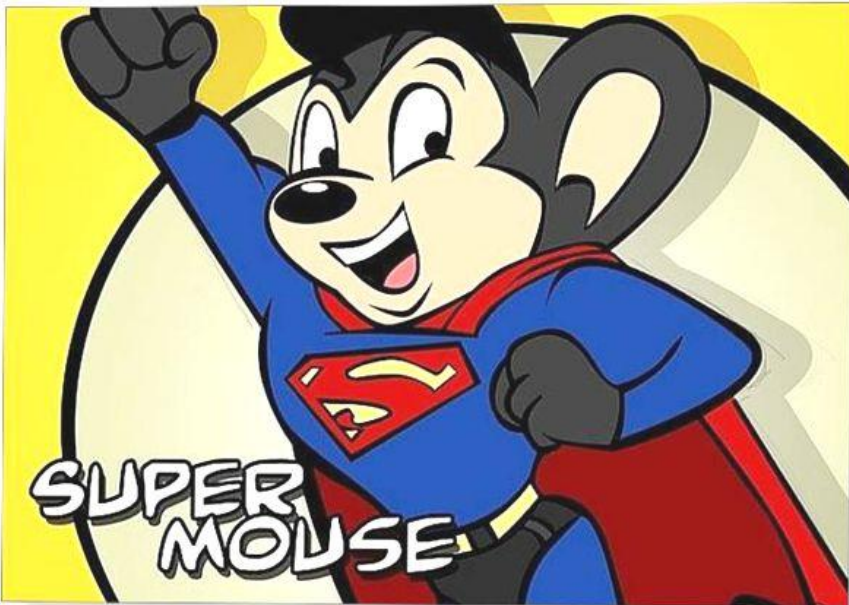
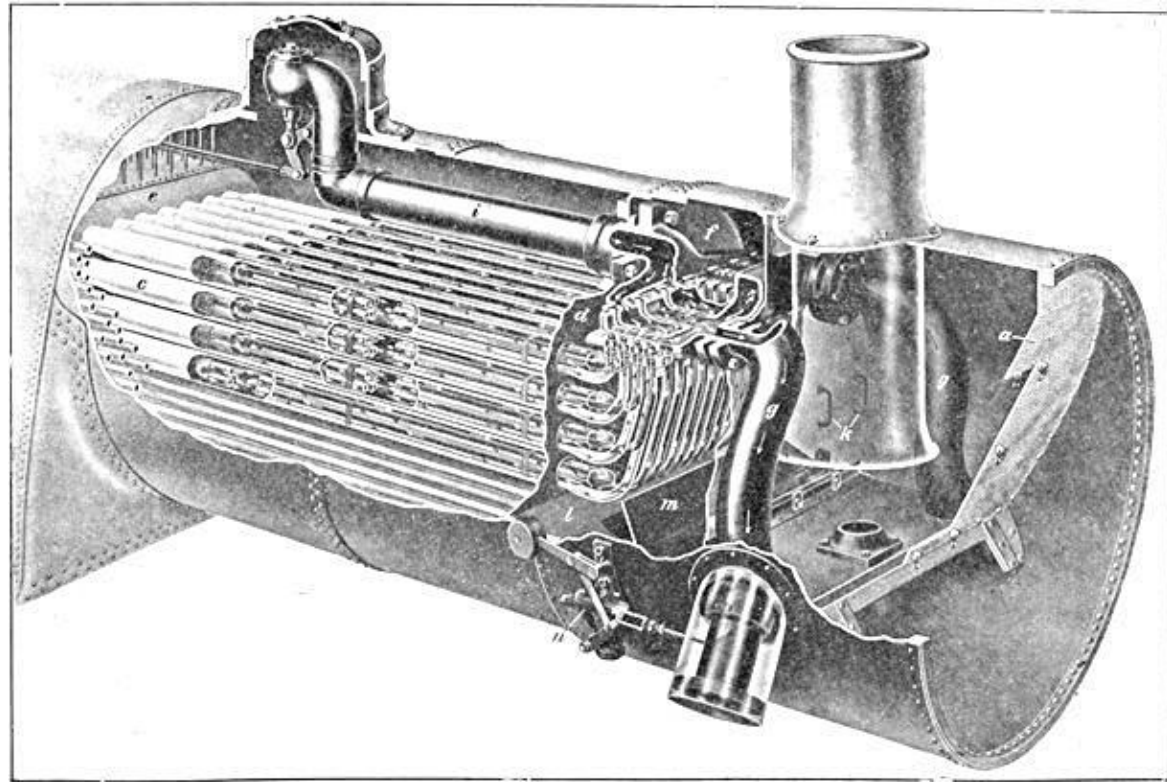
This one does not have provisions for a front end throttle. Rather, the throttle valve is in the dome which then feeds to the header. A very intricate casting.



## SUPERHEATERS (cont'd)

Here is the completed assembly, again not employing a front end throttle. We'll discuss those next time. As can be seen, there is a great number of parts making up a superheater, and they are all "shoehorned" into the smokebox and tubes. When a unit develops a leak it's always hoped to be one in the bottom row . . . . otherwise, a lot of other units need to be removed just to get at the bad one!!!

Well, that'll do for this time. Tried to find a bit of humor to show how much superheat changed the characteristics of an engine . . . . came up with this . . . .



Be well. We'll be thinking of you all . . .  
'til next time . . . be careful . . .

**Dave**

# HAPPENINGS PAST!

## YUMA TERRITORY LIVE STEAMERS

### Spring Meet 2020

March 13<sup>th</sup> / 15<sup>th</sup>

story and photos by John Schwartz



Well, things did not go as planned. The weather was terrible on Friday. We had over a foot of water in the canyon and several lakes around the track. Later that afternoon, it poured again in the Foothills just east of Yuma, and we figured that we would be closed for the weekend, but it did not rain at the park. The sun came out and it dried out enough that you could walk around, so we went ahead with our public ride.

We also had 3 out-of-town people show up. Steve and Peggy Borchner from CA, Bill Hesse from Riverside, and Judith from BC. So they ran on Saturday and Sunday with our public ride train and I think everyone had a good time.

Jeff fixed the 45 so it would charge its battery Sunday morning. Thank you. We had several trains full of riders on Saturday and we started Sunday with a train of Red Hat women riding who had a blast.

So, thank you to everyone that showed up and helped out.

We have voted to close down our public rides for March, April, and May.

John Schwartz  
President YTLS



# MLS Spring Meet 2020

## Mini-Operations Switching Session -- March 17<sup>th</sup> / 18<sup>th</sup>

story and photos by John Draftz

The 2020 MLS Spring Meet reflected the virus concerns prevalent at the time. Attendance was down, activities were reduced, meals were eliminated to avoid possible adverse situations, and camping was eventually stopped. Nevertheless, things did happen, and guests and members were still able to run on the railroad.

The meet started with the Tue-Wed switching session, with Monday being the setup day. On Monday, cars were pulled from the barn (photo 1) and pulled out past the sorting switch (photos 2 and 3). From that point, cars would either go into the yard by the barn, if they were destined to be taken out on the railroad, or into the classification part of the yard, if they were destined to be initially spotted out on the railroad.

Once the cars were sorted, those destined for initial spots on the railroad were taken out and spotted in their correct location (photos 4 and 5).

With outbound and inbound cars ready to go, it was time for crews to "grab" their outbound cars and start switching (photo 6). A nice aspect of the switching session was that even small locomotives, e.g. an 0-4-0, could be used for switching.

And while the switching session activity was limited, a good time was had by all.

**SWITCHING SESSION VOLUNTEERS NEEDED**  
The 2-day switching session at the beginning of the Spring and Fall Meets has been well received. To ensure that this event can be done with minimal disruption, it's important that more than one person understand how to conduct the event. To that end, if you would be interested in learning how the event is done and be able to set it up if needed, please contact John Draftz 602-942-3457 or [jdraftz@cox.net](mailto:jdraftz@cox.net). Thank you.

(photo 1)



(photo 2)



(photo 3)



(photo 4)

(photo 6)



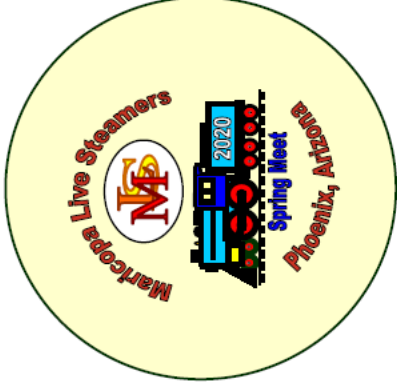
(photo 5)



## GENERAL INFORMATION

1. **Safety first** – be aware of other trains. ALL crew members are responsible for the safe operation of the train. Engineers must run at a safe speed so as to stop short of obstructions or misaligned switches – 5mph max & 3mph thru divergent switch tracks and in yards.
2. WE HAVE WEEDS. Watch out for “critters” as you walk.
3. All trains must have a radio capable of FRS 5,10 communication.
4. Westbound (outbound) is moving away from Adobe Station. Eastbound (inbound) is moving toward Adobe Station. Exception: Serpentine is northbound or southbound.
5. The Switching Session will use only the Far Flung Branch. Other trains are to not use that branch during the Tue-Wed 9-5 session time. Exception: Serpentine uses Far Flung balloon.
6. The branch will not have signals Tue & Wed.
7. Adobe yard tracks 7, 8 & 9 by car barn reserved Mon-Wed. Use the other tracks.
8. All signals are absolute. Stop and remain stopped at a RED light. Move on YELLOW or GREEN. A dark signal is a RED signal. Flashing RED is like a STOP sign. Call the dispatcher when in doubt.
9. AWRR ASPECT NAME INDICATION
  - a. **Green** or **green over red**: **Clear** - Proceed on mainline.
  - b. **Red over green**: **Diverging Clear** - Proceed on diverging route.
  - c. **Yellow** or **yellow over red**: **Approach** - Proceed or proceed on mainline. Prepare to stop at next signal.
  - d. **Red over yellow**: **Diverging Approach** - Proceed on diverging route. Prepare to stop at next signal.
  - e. **Red** or **red over red**: **Stop** - Remain stopped until signal changes aspect or permission to pass is given.
  - f. **Flashing yellow**: **Approach Medium** - Prepare to enter diverging route at next signal.
  - g. **Flashing red**: **Restricting** - If track clear, enter interlocking at reduced speed. Prepare to stop short of possible obstructions.
10. AWRR SIGNALS
  - a. Hand signals may be given with the hand, a flag, or a light
  - b. **PROCEED**: Raised or lowered vertically.
  - c. **REDUCE SPEED**: Arms held horizontally with short up and down motion of the hands.
  - d. **STOP**: Swung down at arm's length from shoulder height perpendicular to the track.
  - e. **WASHOUT**: Swung down violently at arm's length from above shoulder height perpendicular to the track. Used to signal emergency stop.
  - f. **BACK-UP**: Swung vertically in circles perpendicular to the track.

## Adobe Western Railroad



## 2020 Spring Meet

### SWITCHING SESSION INFORMATION

1. Switching session is 9-5 Tue & Wed – no dispatch after 4.
2. Six minute dispatch intervals initially.
3. Switch list not card order.
4. 2 out, 2 in, 1 move
5. All switching moves must be made with the engine attached, i.e. no gravity or flying switching.
6. All trains must have a crew member at the end.
7. Get on/off the train only when it is stopped.
8. Mainline switches should be left in the mainline position when switching is done. The mainline is shown as a dark line on map.
9. The Far Flung Branch will be “dark territory”, i.e. signals will be non-operational. When a train is ready to move on the branch, the crew must use the radio (FRS 5-10) before doing so giving train #, location, direction & destination.
10. Passing sidings are at most places.
11. If you need to move a car already at a siding, return it to its original position when done.
12. **Stick** stays w/car – sticks available for the crew car.
13. Blue flagged cars cannot be moved or coupled to.
14. Arrow shows eastbound/inbound travel that have priority.
15. Sequence
  - a. Get list from yardmaster.
  - b. Build train by water tower.
  - c. All help couple/uncouple and throw switches.
  - d. Exit yard via yard lead using buttons or tower.
  - e. Use long sidings to plan.
  - f. On return, use outside balloon track, stop at WhichWay and call yardmaster.
  - g. Enter yard on track 9; stop on east end & cut cars.
  - h. Give list to yardmaster.
  - i. East switcher will move incoming cars to track 7 (or 8).
  - j. Either go to west end to get new list & repeat or just clear track 9