

THE SAN LUIS OBISPO MODEL RAILROAD CLUB

SLO TRAINS

Drawing By Norm Hammond



Volume 14, Issue 10

October 2002

Upcoming Events

• 2002

- Oct 5-6 Public Train Show Vets Hall
- Oct 8 Club Mtg. @ Congregational Church, 7 PM
- Oct 9 San Luis Obispo RR Museum Meeting @ Embassy Suites in SLO, 7 PM
- Oct 22 Board Meeting @ Applebee's in SLO, 7 PM
- Nov 12 Club Mtg. @ Congregational Church, 7 PM
- Nov 16-17 PCR Daylight Division Meet in SLO
- Nov 26 Board Meeting @ Applebee's in SLO, 7 PM
- Dec 13 Xmas Party @ Margies, 630 PM

• 2003

- Feb 7-9 Vets Hall Run in SLO
- Apr 11-12 WP Convention in Oakland @ Holiday Inn (Hegenberger Road)
- Apr 18-20 Vets Hall Run in SLO
- Apr 23-27 PCR Convention in Pleasanton @ Crowne Plaza Hotel
- Aug 8-10 Vets Hall Run in SLO
- Oct 3-5 Public Train Show Vets Hall

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Hot Times On the High Iron Make Up & Handling

By Joseph Santucci

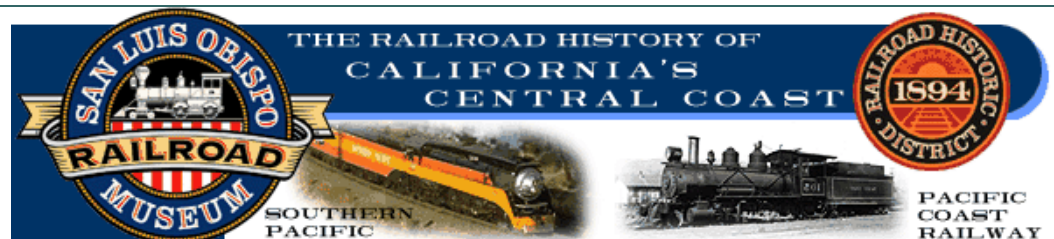
No, this is not a column discussing putting on our faces, doing our hair and nails and proper charm and poise. Instead, we will discuss such issues as how loads and empties are placed in trains. In the last column I touched upon the subject. This time we're going to delve into it much deeper and in detail. I was going to make this lesson a two part affair as it is rather long. However, I could not find a good place to break it into two segments. So it will just be one great big happy column.

Train make up is pretty basically just that, the way the train is made up in regards to the placement of loads and empties. Good train make up can make life and running the train

enjoyable. Poor train make up generally makes for a long, miserable trip. Bad train make up can also create a set of problems unto itself. We will look at some of those problems as we progress through today's lesson.

Most railroads offer some sort of guidelines in regards to the make up of their trains. Over the years, different ideas and philosophies have governed these guidelines. Some of these philosophies have been dictated by derailments, others by the notion they would rather not have derailments force them to change their philosophies. More often than not though, the former, rather than the latter have prevailed as the in-

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San Luis Obispo RR Museum News

By Joe Burns

Disney Railroads Rolling into SLO

Coming in October, the general public is invited to another free event sponsored by the museum. On Wednesday, October 9th at 7 pm, our Featured Guest Speaker will be Michael Broggie, author of "Walt Disney's Railroad Story."

The Broggie connection to Walt Disney was initially forged by Michael's father, Roger E. Broggie, a precision machinist at the Disney Studio who became the first "Imagineer." (A Disney term that denotes anyone who works on theme park projects.)

As a youngster, Michael took rides on "Uncle

Walt's" backyard railroad, The Carolwood Pacific. As a 12 year old, Michael test-drove prototype Autopia cars in 1954, one year before Disneyland opened. In 1960, Michael worked on Autopia as a cast member and later, after getting his college degree, was hired as a writer at the studio marketing department in Burbank.

One of the highlights of Michael's talk is when he shows "home movies" of Walt Disney playing with his new toy, a railroad in his backyard in Holmby Hills. Friends and employees were invited by Walt Disney to rail-

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Presidents Message

By Dave Wilding

Hi Everyone. Well October is here and it's show time. That is, our big train show which will be on the 5th & 6th at the Vets Hall with several layouts in different gages and lots of vendors with their products. It should be a great show. I have been

working on one 4'x8' layout the club bought and it will be ready for the show. I hope all our club members can be there to help out and enjoy this show. See ya there. Thanks Dave W.

September Club Meeting Minutes

By Terry N. Taylor

The SLOMRC Club Meeting was called to order by President Dave Wilding at about 7 pm on 10 September 2002, at the Congregational Church on Los Osos Road in San Luis Obispo. In attendance were Steve Francis, Jim Jonte, Mark Lang, Bud Rogers, Terry Taylor, and Dave Wilding.

After welcoming aboard Steve our newest member, we went over the status of the upcoming train show. We are looking in good shape with nearly 70 tables reserved by various vendors. Jim will arrange for the rental of more tables.

We will meet at the storage facility at 5 pm Weds night to load Dave's truck with the demo layout and supplies for unloading Thursday morning at 10 AM at the Vets Hall. Steve is making sure that the publicity is getting out and that each of the local scout troops know of the opportunity to work on their railroad merit badge.

Terry moved and Dave seconded that we refund a members unused portion of dues due to circumstances. Passed. Dave moved and Terry seconded to pay the monthly bills. Passed. The meeting was adjourned at about 8:30 pm.

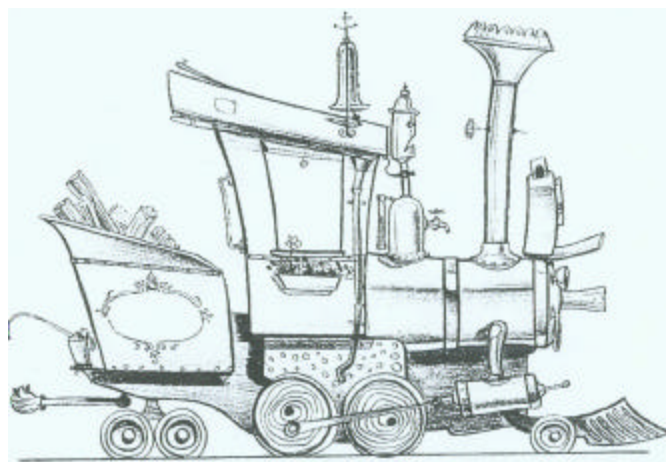
September Board Mtg. Minutes

By Terry N. Taylor

The SLOMRC Board Meeting was called to order by President Dave Wilding at 7 pm, on 24 September at Applebee's Restaurant in San Luis Obispo. Also in attendance were Jim Jonte, Bud Rogers and Terry Taylor.

Terry went over the revised floor plan due to more vendors than expected. The extra tables will cost us about \$12 each against the expected vendor rental of \$20. We decided to raffle off one of the demo layouts at \$5 per ticket or 5 for \$20. Our second raffle will be for the donated items.

Dave will get more flyers made and coordinate distribution with Jim. The meeting was adjourned at about 8:15 pm.



Pencil on paper concept sketch for Casey, Jr. locomotive by Bruce Bushman. Image © The Walt Disney Company

San Luis Obispo RR Museum News continued

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road parties at his home during weekends.

Michael Broggie is a nationally recognized expert on the career and personal history of Walt Disney. He has been a frequent speaker at the Disney Institute in Orlando and is a consulting historian for Retlaw Enterprises. In 1995 Michael Broggie formed the Carolwood Pacific Historical Society to preserve the railroad legacy of Walt Disney.

Also on the agenda is Gary Elem as Dr. Magic will perform his amazing, fun-filled Comedy Magic Act. Dr. Magic has entertained around the world, on cruise ships and on the rails with Amtrak. Gary was First Runner-Up in the Main Street Magician competition sponsored by The Disney Channel. Thanks to the Embassy Suites who is donating the space for

this meeting.

July SLO RR Museum Meeting a SRO Success

Our last public meeting, July 10th, at the Embassy Suites was sooooo successful, we had 125 people show up. There were only 99 chairs available, but veteran railfans adapted to the situation by leaning against walls, standing without leaning or sitting on the floor. After the two hour meeting no calls were made for an EMT or a Massage Therapist. Railroad experts were pleased to report the meeting was considered a "Safety Success".

Guest speakers at the July meeting included Barry Howard, a museum designer and the man behind the California State Railroad Museum in Sacramento. Jeff Hook, an Associate Planner

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Hot Times on the Old Iron continued

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spiration to make the changes.

On CNIC we have virtually no guidelines other than what the FRA requires for placement of hazardous materials (hazmat). While there are requirements in the special instructions for the placement and handling of dimensional (high or wide) loads, we have no requirements in regards to placement of loads and empties, just get 'em on the train and run it. In Canada, CN used to have guidelines for train make up, but these guidelines have since been abandoned. Certain restrictions still exist for speeds with certain cars, but we'll get into that later. I have been told the reasoning behind this policy is that we are a "flat" railroad. This means we do not have hilly or saw tooth profile to our railroad. True, we don't have some of the legendary grades and profiles like Tehachapi, Altoona or Sand Patch, but we are by no means table top flat as is constantly suggested. If we were, a recent derailment that was blamed on train make up would likely not have occurred.

On the other hand, railroads like Burlington Northern & Santa Fe have very strict guidelines for train make up. Of course, some of their guidelines were developed after several fiery, disastrous wrecks involving hazmat release. Its amazing how one's attitude can be swayed after they have to pay out millions in costs to clean up derailments. BNSF restricts non-unit trains in regards to loading placement in the train. Two spectacular wrecks by BNSF predecessor Santa Fe lead to the development of these restrictions.

One of the major restrictions works like this. On all manifest freight trains, there cannot be more than a solid block of fourteen loads together. If there are more, they must have at least one empty car after the first fourteen loads of the block. Simply put, if there are a block of twenty-nine loads in one block, they cannot be all placed together in one solid block. There must be an empty car between the fourteenth and fifteenth loads and another between the twenty-eighty and twenty-ninth loads. There also cannot

be more than thirty-three percent of all tonnage in the rear twenty-five percent of the train. This restriction reduces the potential for severe run in of slack under certain conditions. Minimizing a great concentration of weight on the very tail end of the train significantly improves train handling. The better a train handles, the less likely a break in two will occur. The likelihood for a derailment from in train forces is also reduced.

Any train that must operate outside these parameters has to be approved by the Chief Train Dispatcher. Such trains are designated as "non-complying" and cannot exceed a maximum speed of 45 MPH.

Some railroads have guidelines for train length as well as restrictions for cold weather operations too. If you look at their system special instructions, there are pages of restrictions with regard to make up, car restrictions and train handling.

Norfolk Southern has specific train length guidelines for cold weather operations when brake pipe air is only provided from engines coupled at the head end of the train. These rules do not apply when there are mid-train locomotives to provide air to the system. You need such guidelines as it is very difficult to get brake pipe pressure up and maintain it in the bitter cold. I've always stated "Cold weather and compressed air do not mix." The colder it gets, the harder it is to maintain the air pressure throughout the train. If the brake pipe pressure begins to drop as a result of the cold weather while you are en route, it may cause the brakes to begin to apply within the train on their own and this will drag you down to a stop. It may also cause for brakes not to release completely on some cars within the train which may also cause problems later in the trip.

NS's guidelines as taken directly from one of their employee timetables: Ambient Temperature Maximum number of cars In degrees F based on fifty-foot cars

35 and up Full train and tonnage / 32 to

34 195 / 29 to 31 180 / 26 to 28 170 / 20 to 25 155 / 15 to 19 145 / 10 to 14 135 / 5 to 9 125 / 0 to 4 115 / -1 to -5 105 / -6 to -10 95 / -11 to -15 85 / -16 to -25 75

Note: Long cars such as bi-level, tri-level, piggyback or hi-cube to be counted as two fifty foot cars in the above train lengths. Bi and tri-levels are the covered, multi-level 93 foot flatcars that are used to transport finished auto parts. Hi-cubes are the 86 foot boxcars used for hauling such items as auto parts.

One of the biggest problems with train handling (aside from junk power or not enough decent working power) is the make up of the train. A train with a bunch of heavy loads on the very tail end or with a large block of empties right ahead of a big block of loads make for very tricky and careful handling. Empties want to slow down faster than the loads. It only makes sense, far less weight will tend to brake much easier and faster. This means you really need to be on top of your game when you have a large block of empties ahead of loads. Having a large block of loads on the very tail end of your train, such as coal, grain or potash presents opportunities for problems to occur and you need to be in full control of your skills and abilities to avoid problems.

When releasing the brakes on a train like this, there is also the potential for rapid run out of slack. The loads are slowing down as the empties are releasing. Even with careful handling of the throttle, those loads on the tail end are now acting like an anchor. Just enough of a tug from back there can create an excess of 450,000 lbs. of draft force; just enough to snap a knuckle.

The profile of the track (hills, dips, sages, hog backs, etc) make handling poorly made up trains a challenge. The ups and downs make for significant changes in slack. In what is known as undulating territory (segments of numerous rises and dips in the track), these trains can be an adventure.

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Hot Times on the Old Iron continued

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One afternoon while coming south on an empty coal train, we get a call that "they" want us to stop and pick up fifty loads of grain at Paxton. In order to keep the single track railroad clear and open, it is decided by "they" to have us add these cars to the tail end of our train, behind the 108 empty coal hoppers. Needless to say, I questioned this illogic, but was told to do as instructed. With this task completed, I know I will now have what amounts to an accordion for a train. There will be constant and significant slack action going on within this train and lots of in train forces that I will not be able to control at all. There will be a great deal of slack running in and out depending upon the terrain over which I am operating and whenever I use the air for braking. It makes me think of that "Who" old song "Squeeze Box."

You remember the line, "They go in and out and in and out." Fortunately for me, I only had to run the train some twenty-four miles or so. And aside from feeling the constant significant changes of slack on our alleged river grade railroad, I managed to keep the works in one piece. The crew that would take it from Champaign to Centralia would get to have all the fun with it though.

And fun it was. I was told they got two knuckles with it. Getting a knuckle means breaking one of the coupler knuckles in between in between the cars. Too much draft force can cause this to occur. On a train made up like this one was, you will pretty much always be on the brink of too much draft force at various times, even if there are very good train handling techniques used. With the lack of dynamic braking available, the only choice was to use the air for slowing and stopping.

Trying to use the air on a train like has all those empties attempting to slow down far quicker than those fifty loads of grain on the tail end. You'll have slack running in rather quickly. When releasing the brakes, they do not always release

uniformly and certainly not instantly. So as they are releasing throughout the train, you now get slack starting to run out creating all that draft force. There are times that no matter what you do in regards to the method of handling the train, none of them are right. The loads are now dragging as the empties are releasing. You are using only enough throttle against all of this action as absolutely necessary. But still, the in-train forces can still outmatch the best of skills in this situation.

Having a great deal of loads behind empties make it very difficult to try to handle the train according to the methods the company desires. Enough run in of slack, known as buff force, can cause cars to either get popped off the rail or even to completely jack-knife. In either case, it is a derailment and depending upon the speed, can wreak total havoc on the operations. When a large concentration of loads runs in hard on a block of empties, something has to give. In some cases, the loads hit hard enough to slam you forward. This action creates a sudden run out of slack on the head end of the train creating a sudden surge in draft force. Enough draft force in the right spot and you suddenly discover the weakest knuckle in the train. With the exception of intermodal trains (trailers and containers loaded onto flat, spine or well cars) the longer the train the greater the amount of slack action. Intermodal trains with the numerous, two, three, four and five pack cars generally have less slack than do manifest (mixed freight) and unit trains. This is a reason some railroads place restrictions on the lengths of manifest and unit trains. MoPac had a rule of 135 cars not to exceed a total train length of 8000 feet on manifest. Union Pacific adopted this rule in 1982 when they took over the MoPac and hold to it today. Unit trains, even when long, are consistent with their weight. The weight is generally uniformly spread throughout the entire train. In most cases, the equipment is all the same as well. I much prefer a 15,000 ton unit train of coal, grain or potash over a manifest train of the same weight. In the unit train, all my cars are going to be loads as opposed to the

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MEMBERSHIP APPLICATION Pacific Coast Region / National Model Railroad Association

LAST NAME: _____ FIRST NAME: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP CODE: _____

TELEPHONE: _____ NMRA # (if a member): _____

FAMILY MEMBER NAME (s): _____

I want to become a member of the National Model Railroad Association and the Pacific Coast Region of the NMRA. I have checked below the type of membership I desire and have enclosed the proper amount in a check payable to: PCR-NMRA. I understand that membership in the Pacific Coast Region requires membership in the NMRA.

- ☐ PCR and NMRA for one year \$51.00
- ☐ PCR and NMRA for five years \$240.00
- ☐ PCR \$6 and NMRA \$23 Affiliate at \$29.00 (No Bulletin)
- ☐ PCR and NMRA YOUTH at \$36.00

- ☐ PCR only (requires NMRA membership # above) \$6.00
- ☐ PCR only - five years (requires NMRA # above for 5 yrs or life) at \$25.00
- ☐ PCR Family at \$1.00 (Must have Regular PCR member as sponsor)
- ☐ Check here if this is a renewal. PCR # _____

Life Memberships in both the NMRA and PCR are available. Contact the NMRA Home Office for NMRA actuarial Life quote and the PCR Member Services Chairman for PCR actuarial Life quote. Send Application form and remittance to: PCR Member Services, 530 Fig Tree Lane, Martinez, CA 94553. Allow 3-6 weeks for processing.

Hot Times on the Old Iron continued

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manifest train where you have some of almost everything. Unit trains of mineral freight or grain also do not have any cushioned drawbars to reduce shock within the car to protect the load. The lack of such equipment helps minimize some of the slack action in unit trains as well.

On CNIC, we have no train length restriction rules, even in cold weather. I have operated manifest freight trains well in excess of 11,000 feet. I have also operated intermodal trains that have well exceeded 13,000 feet out here as well. We do have some weight restrictions though. Trains with trailing tonnage exceeding 13,000 are restricted to a maximum of 50 MPH.

Some railroads restrict heavy train based on a formula called tons per operative brake (TPOB). This is calculated by dividing the weight of the trailing tonnage by the total number of cars in the train. Take a train of ninety-two loads of potash weighing 12,000 tons; divide that figure by the number of cars (92) for a figure of just over 130 tons per operative brake. Many railroads have restrictions based on 100 tons or greater per operative brake. MoPac used to restrict us to 40 MPH when the TPOB was 100 or greater. For awhile, they had a restriction of 50 MPH when TPOB was between 95 and 99.

Conrail restricted all grain and mineral trains to a maximum speed of 40 MPH. MoPac also had a restriction for manifest trains containing thirty or more loaded cars of grain or mineral freight. Several other railroads also restrict manifest freights with a solid block of grain or mineral freight as well.

BNSF is a big subscriber to the use of Distributed Power (DP) for their trains. DP involves using locomotives placed within the train and/or at the tail end of the train in addition to the locomotives on the front or point of the train. These DP locomotives are remotely controlled by the Engineer in the locomotive on the point of the train. There are several ways

to set up and operate these units within the train. Their use can make smoother brake applications and releases as well as greatly reduce in-train forces. It also allows for the safe operation of longer, heavier trains at higher speeds. While this is a great tool, it is not infallible and subject to radio interference, although it doesn't seem to be as bad as the problems encountered with remote control engines being used in the yards for switching service.

Union Pacific also uses DP in some of their operations as well. Like BNSF, they have had pretty positive experiences with it and have suffered from the same communication interruptions that BNSF has dealt with as well.

Norfolk Southern and their Southern Railway predecessor have made use of radio controlled mid-train units for years. They are referred to as "radio" trains. The geography of the Southern's right of way lead to the development and use of mid-train units. They needed assistance to get long, heavy trains up and down their hilly and curvy routes. Canadian Pacific is another major subscriber to mid-train units and were very instrumental along with Harris Electronics (now GE Harris) in getting "Locotrol" developed and placed into regular service. Louisville & Nashville and Burlington Northern also used mid-train units as well. These two lines had moderate success, but returned to using manned helper units. Santa Fe also used mid-train units in places like Texas where the hills can be torturous.

There are differences between how Southern and later NS and CP operate their mid-train units. Both lines have designated "mother" or "master" units. These units are equipped with the electronics and controls required to send commands to the remote helper or slave units. CP had a fleet of units equipped to receive these radio commands and operate in radio control. They could also be operated manually from the control stand within each unit. Instead of a fleet of dedicated helper units, Southern and later, NS used radio receiver cars. These

were cars that look like mutated boxcars. Inside was the required radio receivers and equipment for remote service. There was a jumper connection that could be coupled to any locomotive and make it a mid-train helper unit. This method gives greater flexibility in that certain units do not have to be assigned to radio train territory to be helper units.

CN has adopted the TrainLink ES telemetry system from Wabtec Railway Electronics. This system mirrors on the tail end what the Engineer does on the head end in regards to handling of the air brakes. This system will allow for a service reduction of air through the end of train telemetry device (FRED) as well as the reduction from the head end. This allows for a more rapid and uniform application of the brakes throughout the train. It reduces both the in train forces and the total braking distance. In my experiences with the system, it does exactly what it claims to do and does so very well. The only drawback is that we hardly ever actually get the complete system on all of our train. While it accelerates the brake application the ES system cannot initiate a quick release of the train brakes once they are applied. But I have no complaints with this aspect.

You need a locomotive equipped with the ES hardware as well as a FRED with the ES technology. If either the head or tail end is not equipped with the feature, you do not get the benefit of the ES system. While CN has been a big purchaser of this technology, other railroads have been very slow to adopt it. In fact, I've yet to have a FRED from another railroad with the ES system.

With the ES system, you can use the air brake system to slow and stop your train more in compliance with the method prescribed in the Canadian National U.S. Air Brake and Train Handling Rules. This would include not having the throttle in a position higher than run 4. Even with the lack of regard to train make up we embrace here, the ES system can help to overcome some, but certainly not all of the problems associated with such a

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Cajon Tales: Part 29 (Sweet Water)

By Francis (Pancho) L. Post ex-Cajon Hogger

There were rules we almost NEVER disobeyed. For instance: when operating on a time table schedule we DIDN'T RUN EARLY because we had no RIGHT to occupy the track until the time stated. About three seconds late was perfect. I only know of one case in my thirty years, and that was a case where the schedule was the same six days a week but a few minutes later on Sundays. Once, the hogger forgot it was Sunday.

There were many other rules we almost NEVER obeyed. One of them required that we do a thorough check of the hand-brake before cutting off a car. THAT would have paralyzed all the railways of the nation.

One day about fifty years ago on the Reed Street switcher on the Milwaukee Road in Milwaukee Terminal, a conductor named Oakley Strong kicked a car-load of sugar down toward the swing bridge over the Milwaukee River. My dad was riding the car on the hand-brake platform. When the car was cut off, the governing signal was green for a bridge crossing. A few moments later the bridge tender looked down the river and saw a

Polish freighter which had used the St. Lawrence Seaway coming toward his bridge. The freighter had NOT blown the horn signal requesting use of the river, nor had she called on the radio.



The bridge tender did the right thing: he swung the bridge, saving it and the ship from severe damage. When my dad saw the bridge swinging, he wound up on the hand-brake but it was inoperative. Dad "bailed off" the car, and as the ship went through one side of the bridge, the box car dropped into the river on the other. It was the sweetest river around.

When Superintendent Dombrowski heard about the affair he immediately (and stupidly) called for an investigation. He charged the whole crew with failing to check the hand-brake. Well; the Local Chairman for the Terminal trainmen was a fine, intelligent man named Dave Kamack. After the charges were read, Dave was asked for his defense statement.

I will paraphrase Dave's statement: There is no defense. These men are completely guilty. Not one of them even considered checking the brake. The entire crew should be fired; and when they ARE fired, I WILL GUARANTEE THAT NOT ONE CAR FROM MILWAUKEE TO SEATTLE WILL BE CUT OFF UNTIL THE HAND-BRAKE HAS BEEN THOROUGHLY TESTED!

Superintendent Dombrowski growled, "Get out of here; all of you!" No this is not fiction, this happened. The rule needed to be in the book, and there were times the rule needed to be obeyed, but if every crew checked every brake the result WOULD have been paralysis.

Hot Times on the Old Iron continued

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philosophy.

Stretch power braking was the method used for years by many railroads for years. Before the advent of dynamic brakes on locomotives and the development of better control valves on freight cars, the Engineers had to run a great deal of power against the train while braking. The fact that most cabooses did not come equipped with cushioned draft gear in those days, you were also trying to prevent a sudden change in slack which could be devastating to the boys in the back. This method of braking trains was passed to the following generations of railroaders. I learned this method when a Student Engineer in 1980.

Being that most of MoPac's locomotives

were not equipped with dynamic brakes, we power broke all the trains. We did have a fleet of 75 SD40-2C locomotives that were equipped with dynamic and also some former C&EI GP35 locomotives also equipped with dynamics, we generally didn't see them very often, and when we did, there would usually only be one of these units in the consist. If it was the leader, it didn't do much good to attempt to use this feature. It wasn't until MoPac and Western Pacific merged with Union Pacific in December of 1982 that the attitude changed towards power braking. With the merger we now started to get UP and Western Pacific power, almost all which was equipped with dynamic brakes.

The Missouri Pacific Air Brake and Train Handling Instructions effective

September 1, 1975 were in effect during most of my time at the MoPac. As issued, Section 4, Rule 404, Service Braking Of Freight Trains, was written as follows:

- 1.. In making stops from fifteen or more miles per hour, the train brakes should be applied with an initial reduction of six to ten pounds, depending on make up and speed of the train. Initial reduction must be made before the throttle is reduced, keeping engine brake released. After brake pipe exhaust has closed and slack is adjusted, throttle must be reduced as train speed decreases; working just enough power to keep the slack adjusted.
- 2.. If the initial reduction proves insufficient, further light reductions of two pounds each should be made, keeping

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San Luis Obispo RR Museum News continued

with the City of SLO talked about the Freight house Restoration Project. Terry Masters, a Senior Special Agent with the Union Pacific Railroad Police talked about Operation Life-saver. Local designer Pierre Rademaker explained some of his ideas for the Historic Railroad District. A "railroad psychic" had been scheduled for the evening but she was cancelled.

SLO RR Museum Goal Statement

OUR GOAL is to recreate the energy, the excitement and the history of Central Coast railroading within the Historic Railroad District in San Luis Obispo. Museum exhibits will also focus on how the railroad changed and transformed the face of America.

We see the Freight house building as the first step in a major museum complex. In future phases, we will add a walk of his-

tory, rail equipment that can carry guests for short excursions, a restored roundhouse with turntable and a visitor's center & film theater.

Valuable railroad items to be held captive behind glass

Coming in January 2003, you can find a railroad display with a literary twist. The Downtown Library in SLO is providing the San Luis Obispo Railroad Museum with a large display space for the entire month of January.

We plan on using this opportunity to give a "sneak preview" of some of the exhibit ideas now being planned for our permanent location inside the Freight house. Members or non-members with museum quality models or railroad artifacts who would like to loan items to the exhibit should contact Joe Burns either at BeyondBurns@earthlink.net or 805 546-1011.

Hot Times on the Old Iron continued

(Continued from page 6)

engine brakes released. A brake pipe reduction should not be made until the brake pipe exhaust has closed on any brake pipe reduction previously made.

3.. Braking should begin at a sufficient distance from the stop so that not more than twenty three pounds total reduction will make the stop. In making service slow down or stops the brake pipe pressure must not be reduced below forty pounds. Brake pipe pressures of less than forty pounds will not in most cases allow a rate of reduction fast enough to initiate an emergency application should it be necessary. There was much more to the rule, but this portion is what is relevant to what we are talking about.

In August 1983, we were issued a supplement to the 1975 book. The new attitude was to use dynamic braking, when available for planned slow downs and stops. Being that we were now getting more and more units with this feature, it was decided to fully embrace the use of it.

Also in this supplement was a revision to service brake rule 404. It was changed to read as follows:

- 1.. Reduce the throttle to a level that will keep the train stretched.
- 2.. Make a minimum brake pipe reduction (6 to 8 pounds), keep the locomotive brakes released.
- 3.. Again reduce the throttle to a level that will keep the slack stretched.
- 4.. Make additional reductions to two or three pounds as needed.
- 5.. As speed of train reduces and additional reductions are made, continue to reduce the throttle. A "rule of thumb" is to not let the amperage increase during the stop. Notice though that in the case of both rules, the throttle settings were totally at the discretion of the Engineer operating the train. It was our judgment.

In today's era of operations, the book tells us exactly how much throttle to use when service braking trains. They stress NOT to stretch power brake. What they have learned from simulators has been passed along to us. However, they are just that, simulators. They simulate, but do not duplicate the real world. There are situations that cannot be accomplished in the simulators like brake fade when brake shoes overheat. They also don't calculate the rolling resistance of such things as flat spots on wheels, lateral motion of cars, open boxcar doors and head and cross winds. Open boxcars doors create a great deal of drag. Once upon a time back in the early 1980's some railroads were maniacal about closing open doors to eliminate the drag and conserve fuel. Those days are gone. Poorly running power is also never taken into consideration with the simulations. While the operator of the simulator can set it up for problems with locomotives, it doesn't allow for a locomotive that is simply not producing its normal horsepower due to such things as worn traction motor leads, bad load regulators, partially clogged fuel filters and the like. All of these can be factors. Now just put several of these problems into the equation.

In my experiences with simulators, I have learned that sometimes you can do things in the real world that you cannot do with a simulator. According to the data programmed into the system, its logic will cause a break in two based upon some of the actions you take where in real life, you keep the train in one piece. I was even told by one officer in charge at a simulator that I simply cannot attempt to do what I was doing in real life as it would not work never mind the fact I had done it numerous times with no problems and no worries about any developing.

I have used a fierce head wind to stop my train without using any air or dynamic brakes. I simply reduced the throttle and let the wind drag my train to a stop. Or, I have used the strong winds to work in assisting my braking efforts. Having a bunch

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Hot Times on the Old Iron continued

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of empty open top cars in the train like coal hoppers or gondolas can act as a parachute. Do that in your simulator.

How we used to brake trains in most cases was this; When planning a slow down or stop, we left the throttle in run 8, made a minimum reduction (6 to 8 pounds) of brake pipe pressure with the automatic brake valve. After the exhaust ceased, another reduction of 2 to 4 pounds would be made and when the exhaust ceased, the throttle would be reduced to run 7. As needed and required, additional reductions of the brake pipe would be made and the throttle gradually reduced as needed until the train was about to stop.

Normally, depending upon the situation, when only slowing and not stopping, just the two reductions of the brake pipe and the reduction of one or two notches of throttle would be made. Possibly, more throttle reductions would occur if you needed to reduce your speed significantly, like say 60 MPH to 10 MPH.

Where you begin braking for your stop or slow down are also factors. No two trains handle alike as there are so many variables with each and every one. Therefore, you cannot begin your reduction of speed to slow or stop at the very same place with every train. I have had one official in my career try to tell me different. He was adamant about this. I attempted to explain to him that I could wait far longer with a train of 126 empty coal hoppers than I could with a 12 or 14,000 ton manifest train. Why would I want to begin slowing down a very light weight and good braking train so early? Isn't one of the purposes of our job to get the train over the road in a timely manner?

You don't want to begin slowing down too late as well as start too early. There is a tremendous amount of judgment involved in deciding when to begin the reduction or stop. With some trains, especially after you have acquired the feel for how they will brake, you can wait on the slow down a bit. Others, you need to start

earlier as they don't feel like they want to stop. There is no worse a feeling than that of approaching a stop signal with the brakes applied and the train doesn't feel like it is slowing down.

One method I liked to use with trains consisting of all, or mostly all empties, such as empty coal or grain trains. This would be waiting until the last possible second to begin a slow down. For an example, I will demonstrate slowing an empty northbound grain train for the 30 MPH restriction at Gilman. At 60 MPH with the throttle in run 8 at about one mile from the restriction, I would make a ten pound reduction of the brake pipe keeping the engine brakes released. The throttle would remain in run 8 and the train speed would begin to drop. As the speed reached approximately 37 MPH (depending upon train size, if the train was longer, it might be 40 to 42 MPH) I would release the brakes and drop the throttle from run 8 right to run 6. By the time I reached the speed restriction area, the train speed would be right at 30 MPH and the train brakes would be completely released. This is referred to as grandstanding. I'm no fool though, I know when and where and can do this as well as when and where not to do it as well.

I used to perform this type of braking with intermodal trains as well, only beginning the slow down a little sooner. With a very short intermodal train, I could wait for the last moment though.

Braking trains in this manner made life easy for me, kept my overall speed higher and over the road time shorter. It was also fun as sometimes it would really scare the hell out of some Conductors as they did not believe I could get the train slowed down in time.

When I call the brake applications reductions, they are just that, reductions in the air pressure in the brake pipe. We use a charged system. Charging the system releases the brakes. Reducing the pressure causes the brakes to apply. When George Westinghouse first invented the air brake system, the air was put into the

system to apply the brakes. The slang term "putting the air to them" was derived from this system. Some people still use that term to this day.

It was soon learned this original design was not a failsafe system. Should the train come uncoupled or break in two, it might not be known. There was nothing in the design to stop either portion of the train should a separation occur. The charged system was developed to remedy this situation. If the train comes apart, an air hose or train line on a car breaks, or some component of the air brake system breaks or ruptures, the entire train loses its air going into emergency. This prevents either portion of the train from just rolling freely. With numerous improvements made to this system over time, the charged system continues to be used all these years later. And with the charged system comes a dictionary of slang terms including "lost the air" when there is an undesired emergency (UDE) application of the brakes.

On the subject of emergency applications, train make up can be a huge factor in the event of a UDE. When an emergency application of the brakes occurs, whether intentional or undesired, you lose virtually all control of slack. There are a few things you can do in regards to using the engine brakes under this situation, but overall, the train is now at the mercy of such things as the design of the system and the laws of physics. Trains have derailed AFTER an emergency application or broken in two owing to train make up. Once again, placement of a large block of empties ahead of a group of heavy loads is a factor.

Starting a train can be an event unto itself at times too. Once again, in many cases, I do not do it the way the simulator wants as it wastes too much time and fuel.

When I start a train out of Markham Yard going south, Kankakee coming north or Otto or South Otto going south, Paxton coming north and Rantoul coming north, my train is sitting on the side of a hill. Once again, so much for that

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Hot Times on the Old Iron continued

(Continued from page 8)

thought of Illinois being a table top with river grades. With a big, heavy train, you need to really work on it to get them started and rolling.

Markham Yard is on the side of a grade. In A Yard where many southbound trains originate, there is a twenty-two foot difference in elevation from the south to north end. It is also an ascending grade from the yard out to the main tracks and down to Flossmoor where the track levels a bit and then drops down towards Vollmer Road. Kankakee is also steep as we are coming out of the Kankakee River Valley. The other mentioned places also have fair grades for starting a train against.

At Markham and Kankakee, I normally open the throttle to run 1 with the engine brakes fully applied to establish loading of amperage on the traction motors. I then advance the throttle right to run 4 or 5 depending upon what's behind me for trailing tonnage. Then, I gradually release the engine brakes so as not to have the power lurch forward and possibly break the train in two. Once the power is pulling against the train, I wait and see if the train will begin to move. If not, I give the throttle another notch, and watch. I have had to go all the way to run 8 in some instances to get the train to begin to roll. When doing this though, I have to be extremely careful as I may get a lurch from the power. In some cases, the wheels will start to slip as both the amperage and tractive effort, are very high. If necessary, I will work the throttle back and forth between two notches to prevent wheel slip but gain the most amperage possible to start the train and advance the speed.

Once the train starts to move, if necessary, I will begin to use the sanders to help the wheels bite the rail and prevent wheel slip. Never, do I start the sanders until the train is moving. If the train is still sitting with the sanders running, it starts to pile on the rail making just one more hurdle to overcome.

And never, do I jerk on them as this too,

can break the train into pieces. I know a Trainmaster on the Wisconsin Central who was playing Engineer one evening. He managed to get a knuckle in the yard while starting his 40-car train. Boy, did we give it to him over this episode. Of course, he had plenty of excuses.

Then there are individual car restrictions. Many railroads have restrictions on certain types of cars, on certain trains or at certain speeds. Empty bulkhead flats (flatcars with the large bulkheads on either end) tend to have a great deal of lateral (side to side) motion when they are empty. So do certain types of gondola cars. As a result of this action, there have been derailments reported owing to this condition. Most railroads have speed restrictions of 40 to 50 MPH on these types of cars when they are empty. Mo-Pac had a policy of keeping such cars off the higher priority manifest trains so as not to slow them down unnecessarily.

In Canada, CN has numerous restrictions on certain types of cars. The paperwork generated for our trains uses the CN mainframe and these restrictions show up on our lists and wheel reports. In most instances it will say "Canada only" on the restricted car. In other situations it may not have this notation. A rather vaguely worded statement the CNIC Special Instructions tells us that generally, unless the car number in question is part of a group of cars listed within the Special Instructions as having a specific restriction, the speed limit indicated on the wheel report is to be disregarded. I have inquired to the "proper authority" as required by the rules when not certain of a specific rule or special instruction about this situation. I was told exactly what I wrote here, if it is not on that list in the Special Instructions, it does not apply to us. I live by those instructions.

Several railroads have maintained restrictions dealing with the placement of empty flatcars. I can recall L&N having a restriction that prohibited their placement any closer than five cars from the engines on all but intermodal (trailer/container) trains. Empty flats are lighter than most other cars and the possibility

exists for a derailment caused by buff force (slack bunched). All that tonnage up against this car when in dynamic braking can be brutal. Whenever I have an empty flat next to the engine with 10,000 tons or more of train behind that car, unless I really need to, I try stay away from dynamic braking to avoid the potential for problems. When the train is between 8 and 10,000 tons, I'll use the dynamic, but may avoid it in certain situations.

There is also a long/short car issue. Most railroads prohibit the placement of a short car, usually less than forty feet between two longer cars, generally more than seventy-five feet. There are dynamics that occur especially in curves and short turnouts that can cause the short car to be popped off the rails.

In all of my experiences at all the railroads I have worked for, I take all the knowledge I have gained from each and every one of them and use it all in my daily operating mode. But being that we don't carry all the restrictions here that other railroads do, I comply with the way CN want us to do things with regards to speed restrictions. If it isn't in the book, unless there are some extenuating circumstances to prevent it otherwise, it goes track speed. However, that same experience has taught me that even though we don't have many of the restrictions other lines do, it is good to know and be versed in them. There are times when knowing what I have learned comes in very handy. This knowledge has very likely kept me out of a great deal of trouble over the years. It has also helped save the railroads who have employed me from derailment clean ups, especially ones that could be considered my fault.

And so it goes.

Tuch (thetuch@netnitco.net)

Visit the BLE Division 10 Website at <http://div10.tripod.com/homepage.html>

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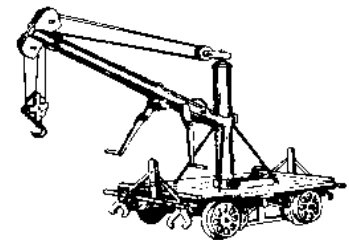
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San Diego Charger

By Wayne Scarpaci

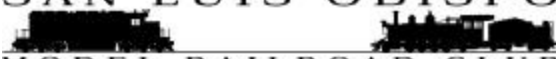
ATSF3450 title: San Diego Charger. Acrylics medium, 16X20 Canvas Panel. Southbound crossing the causeway at San Elijo Lagoon, south of Cardiff Ca, bound for San Diego, circa 1949.



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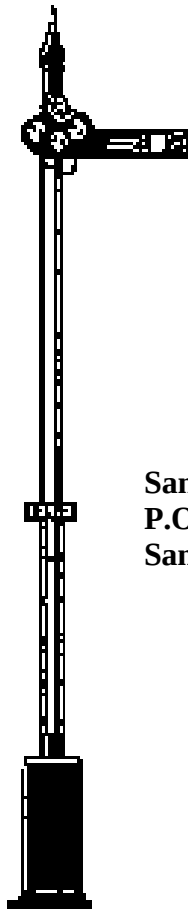
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Volume No. 14 Issue No. 10 October 2002

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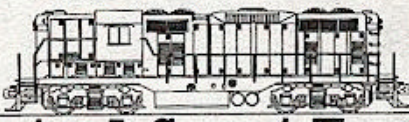
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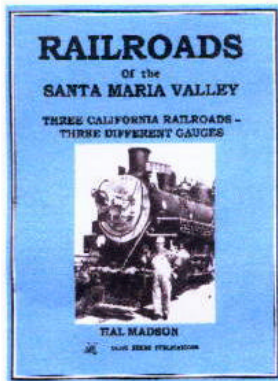
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