SIERRA CENTRAL HERALD

Publication of the Sacramento Model RR Historical Society, Inc.

Our 59th Year **May / June 2007**

"Under The Hard Hat" *by President Bob Rohwer*

Walking around our HO and HOn3 layouts one can see the progress that is being made. Just a few examples you will notice are:

1. The track for the second ladder in the 12th St. yard is installed. Installation and wiring of the switch machines has started.
2. The Reno holding tracks are completed including a temporary panel.
3. The scenery in the Feather River canyon is well underway. The scenery crew has been experimenting with ways to give the scenery more depth. The improvements are very impressive and will shortly include a waterfall and concrete abutment.
4. The narrow gauge is installing track in the expansion section. The hand built switches Lu Good built are excellent.

Some of the work that is not as visible is the installation of the Chubb electrical system. Don Butler has already completed the conversion on a large part of the layout. This conversion will allow us to have switch control from either the CTC panel or locally. In some locations you may have more than one local switch control point. The signaling will be controlled by the system. What it will mean to our members is that train operations will be more prototype and much smoother. Since the system is controlled by a computer, it will be much easier to update and the wiring will be greatly reduced.

Our efforts will be very evident to the public in the upcoming July 14th open house. Within a month we will begin to operate trains. Give some thought to what you want to operate. Be sure that your cars are certified. If they are not, contact one of the certifiers to get them certified. A list of Certifiers will be posted above the certification desk. You will also need to have a resistor wheel set on every 4th car. We recommend that every car have a resistor wheel set. The resistor wheel set swap program will begin shortly. It is very easy to install resistors on you own wheel sets. If you would like to try it please contact me. The Society provides the resistor and conductive paint. If you have locomotives that need to be converted to DCC and need help, contact Scott Inman.

Speaking of Open House, Scott Inman will send out instructions shortly on train submissions. As with past open houses only trains and equipment that have been selected will be allowed to operate. This year's submissions will include display equipment. For the July, 2007 Open House we will have a new group supporting us – the SMRHS Ladies Auxiliary. They will help us with the food and greeting of our guests. Thanks go to Dave Good and Penny Zine for their efforts creating the Auxiliary.

The operations committee continues their work on developing operations for the Society. Recently the Board of Directors approved the draft of the operating rules. The committee just made a field trip to the 26th Street group to review the RailOp software program. I personally was very impressed with the software. In May we will visit Dave Clemens' layout to look at the card control system he uses. In order to have operations you need to have industries. I have appointed Tim Grover to form a committee to look at the industries on the layout. He will coordinate his efforts with the operations committee to get the best mix of industries for the operations plan.

Needless to say we certainly have a lot going on. If you would like to participate please feel free to contact the chairman in charge of your area of interest.

Inside This Issue

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Look for these and other interesting articles inside this issue of The Herald.

Articles Under Development

Servicing Mines
The End Game
Specialized Trackwork

This is a current list of articles being prepared for the Sierra Central Herald. If you have an idea for an article, please feel free to pull me aside and ask for help!

The Caboose *by Karl Griffin*

The history of the caboose is a fascinating one that in many respects mirrors the railroad's development and its evolution was in many respects dictated by safety dictates from the ICC (Interstate Commerce Commission) as well as from a railroad's needs. From their origins in the 1850's as a specially modified boxcar office on wheels to their eventual demise in the 1970's due to the railroad's need to reduce labor costs and their replacement by the FRED (Flashing Rear End Device) they have had a colorful run throughout their history.

The first cabooses were shortened boxcars that were used for housing the conductor and his two brakemen. They were specialized cars modified and outfitted as such when they began appearing in the United States in the mid-1800s. After the Civil War, the railroads built cabooses in significant numbers, most of which were twenty foot four-wheel all wood bobber cabooses. They were constructed this way because it was cheap (a caboose is a non-revenue producing dead weight car) and most trains used front end helper locomotives rather than pushers if more tractive effort was needed to get over steep grades. This style of operation changed around 1900 as trains became much longer and heavier and used pusher engines. Bobber cabooses had to be uncoupled and tacked onto the rear of the pusher engine as they couldn't survive the push without derailing or being literally crushed. This meant unacceptable delays to the railroad so from this point on most cabooses where converted to standard four axle types with steel underframes and all steel construction by 1920. On many railroads the caboose grew considerably in size to carry passengers as well as mail and packages between stops on branchlines. Only the narrow guage railroads continued the tradition of using the bobber on their shorter lighter trains until they all disappeared as well.

Almost all cabooses were of the standard cupola style but that would change with the building of a new design constructed in 1930 at the B&O Railroad Company shops at Mount Clare, Baltimore. This new caboose was a radically different designed caboose. The new B&O car, numbered C2500, featured bay windows instead of the more traditional cupola. From that time forward, all B&O cabooses built new or converted, were of the bay-window design. Other railroads picked up on the style and built or purchased their own bay-window cabooses. Bay-window cabooses had several major advantages over cupola cabooses of the era. Their single level floor plan was considered to be safer, easier to heat evenly in the winter and visibility of the train from the side bays was believed to be superior to observation from the cupola, especially since freight cars of the time were increasing in height and would effectively block the view from the cupola windows. Raising the cupola higher wasn't an option as the existing tunnels wouldn't permit that.

The caboose was at its heart a safety device. In its heyday, one of the primary functions of the caboose was to serve as a backup on the train's air brake line. A gauge mounted on the center of the cupola wall showed how much compressed air was in the line. If a kink or blockage developed somewhere in the line between the locomotive and the caboose it would show on the guage (pressure falling) and the conductor or brakeman, riding the caboose, could apply the brakes and safely stop the train. The caboose was also a vantage point to watch out over the train. As a long train winds its way around curves, the conductor and brakemen in the caboose could look ahead for signs of trouble. At night, this might take the form of stuck brake shoes glowing red hot - a serious fire hazard. In daylight, a crew might watch for the smoke produced by brakes that hadn't released after the last application. Also, a good crew would open the windows and smell for hot grease or smoke caused by a freight car wheel bearing failure (Hotbox). The caboose also carried marker lights, flares and torpedos to warn any following train of its presence ahead on the track whether running or stopped due to some emergency.

In addition to its safety functions, the caboose was also the conductor's office. One of the conductor's primary duties is to oversee the safe operation of his train. The engineer and fireman are responsible for the safe operation of the locomotive. The conductor made sure that all the tools of the trade were aboard the caboose - spare air hoses, fusees (flares), lanterns, flags, forms, spare brake and coupler parts, grease for lubricating, oil or coal for their stove, drinking water...an almost endless list of things big and small required to get a train over the road. When a problem

such as a hotbox or minor derailment was encountered, the conductor and brakemen were often responsible for repairing it en route. When a hotbox (wheel bearing failure) broke into flame it would take at least 55 minutes to cool it, re-brass it, and repack it. If you could catch it before then, you might fix it in 20 minutes. The brass and grease used to make such repairs were carried in the caboose. A hotbox out on the line meant a delay not only for the train itself, but potentially to opposing and trailing trains as well. With all crews subject to Federal rules regulating service hours, this sort of delay could cause a crew to "die on the road" which meant that the railway had the additional problem of getting a new crew out to take over the stranded train. Before the widespread use of computers (1970), much of the business of the railroad was carried out in the field - aboard the caboose. The busy traffic generated a considerable amount of paperwork. Each car on a train had a waybill-a written summary of the identity of each car in the train, what was in that car, who shipped it and who is receiving it. The conductor would spend a great deal of time filling out waybills and making sure that everything was in order. In addition, the conductor was given orders on what trains he had the right of way over or had to stop for. These train orders were nicknamed "flimsies" for the thin tissue paper they were typed on. All of this work was carried out at the conductor's desk, aboard the caboose. Bunks, storage for clothing, food and tools, a toilet and sink and stove provided a home away from home for the conductor and brakemen. This became more important as railroads lengthened their division points and the assigned crews would spend many days on the road before returning to their homebase. Until the 1960s, most railroads assigned cabooses to specific conductors, and they often took on some character traits of the individual conductors. Some were decorated with posters and pictures from magazines while others were all business with home-made shelves and storage devices. To spot their cars in the busy, crowded railroad yards, some conductors took to adding some very personal touches. Conductors might install easily identifiable metal plates on the sides of 'their' caboose.

The caboose like all freight cars and locomotives was inspected frequently. Cars were marked with a construction date and shop mark. The car's rebuild date (if any) was painted on the frame. On the side of the long end of the car would be a paint stencil showing when the car was last painted, at what shop, and with what paint shade. On the side of the short end would be a re-pack date for the car's journals (the box-like opening on the wheel sets containing the journal bearing). The air brake cylinder beneath the car was stenciled with its overhaul date and its most recent test date. The interior of the caboose is a myriad of things designed to make it a safe workplace and storage space, all of which had to be neatly arranged. The cupola forward and rear-facing cupola windows did not open and were barred to prevent the crew from being thrown from the car, or hit by debris, during an emergency stop. Each side of the cupola had a "monkey pole" running from the bottom of the cupola seat area to the roof of the car. It served as an added hand-hold for employees. Lockers beneath the cupola seats were divided into an ice-cooled refrigerator on one side, and a sheet metal lined locker for oil lamps on the other. In a wood caboose, fire prevention was an important concern. Thus, above each lamp in the car was a metal deflector, which served as a heat shield to prevent fires. The stove, used for heating and cooking was surrounded above, below and beside by metal flashing - another fire protection device.

Another concern was with the safety of employees when the car was on the move. In addition to the monkey poles and hand grabs of the cupola, sharp vertical corners in the caboose were covered and padded with horsehair-stuffed bumpers. The conductor's desk provided a place to handle the train's paperwork, and had drawers for yet more equipment and blank forms. Under every bunk was a storage locker for all manner of railroad equipment. Above the bunks were space-saving devices, the most common of which was a fold-down table hinged to the caboose wall. Other cabooses featured fold-down bunks.

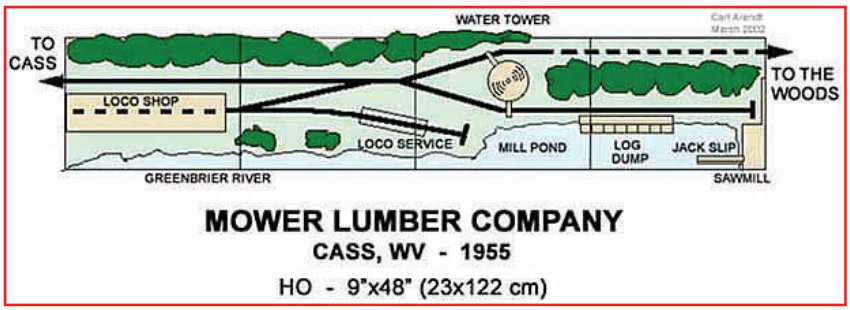
The caboose is now long gone never to return. The railroad's relentless quest for efficiency continues. Technology has made it obsolete; however for the modeler we are fortunate that we can model back in a time when the caboose was a vital part of every freight train!

Designing the 'Micro' Layout *by Karl Griffin and Carl Arendt*

Planning an ultra-small micro layout is slightly different from traditional model layout design methods. It has a lot in common with theatrical stage set design, where you carefully pick a single location then figure out how to squeeze the illusion of it into an extremely small space. That's the challenge! Like stage designers, you'll find yourself using a lot of special tricks including flexible backdrops, low-relief and flat models of structures, forced perspective, behind-the-scenes fiddle yards, and carefully chosen rolling stock.

Why go to all this trouble? Because a micro layout fits into even the smallest flat or bedroom. You can finish it in a reasonable amount of time at reasonable cost. It can be carefully detailed to any degree you wish, and it will provide a significant amount of operating fun.

The requirement for "operating fun"—things to do on the layout—is what distinguishes a micro layout from a diorama or a module. A micro layout is a self contained, **working** model railroad with a clear purpose and operating capability — usually occupying less than six square feet!



Let's Design an Example-Here are some of the design tricks used to create micro layouts. To illustrate, I took on the challenge of designing a micro logging layout that has both accurate modeling and operating potential — in less than four square feet! The result is Mower Lumber Co. — Cass, West Virginia - 1955. It actually occupies 9"x48" — just three square feet. Here's how it was designed.

STEP 1 - Pick your locale and era to suit your taste in scenery and layout operations. After mulling a number of locations and consulting half a dozen logging picture books from the library, I picked Cass, West Virginia as my area to model. The lumber line headquartered at Cass has been a spectacular example of mountain railroading since 1903, and it's still going strong as a tourist line. The road has always featured geared Shay locomotives operating on tight curves and 11% grades amid amazingly beautiful West Virginia mountain scenery. It's a railfan's paradise. As my modeling era I picked 1955, near the end of the line's commercial life, because much of the timber was logged out by that time so the trains were shorter and would require less space to model. Owned by the Mower Lumber Company, the little railroad brought hardwoods and spruce down Bald Mountain to the sawmill at Cass, right at the base of the hill alongside the Greenbrier River. The railroad features a number of very compact scenes to model, so Cass in 1955 is ideal as a source of inspiration for a micro layout.

STEP 2 - Limit your setting and make sure it has operating possibilities. A micro layout basically has room for only one scene, so it's important to make sure the scene has the potential to keep you busy once it's built. Main line running, for instance, is pretty much out of the question. (unless several micros are connected!) At Cass, there are three excellent possibilities for a micro scene. The switchbacks offer 11% grades and wonderful forest scenery broken by occasional vistas of the distant West Virginia mountains. This setting is very beautiful, and I find the photograph endlessly inspiring, but the trains just run right through it. There's not much else to do there. Operating and switching possibilities are very limited despite the scenic grandeur of the setting.

The landing, where logs are loaded onto flat cars would make a wonderful animated model or diorama. The log loader (a large, specialized type of crane) moved along the decks of the flat cars on tracks or rollers, loading logs onto the cars as it went. Keystone Locomotive Works make excellent model kits of a Barnhart log loader and log buggies that can duplicate this fascinating operation.

The third choice, the sawmill, is where logs are dumped from the cars into the mill pond to be taken up into the mill and sawed into boards. The mill at Cass was in a spectacular scenic setting beside the Greenbrier River. It featured a log dump into the mill pond, and right down the line was the Cass company store where supplies and provisions were regularly loaded into boxcars for delivery to the woodsmen. There was also an interchange with the C&O RR down at Cass. I chose the sawmill for my design on the grounds that it offered some extra switching possibilities.

STEP 3 - Pick a scale and gauge. Cass is a standard gauge line that uses historic and delightful Shay locomotives so I picked HO scale for this design because there are now several affordable Shay models available, and HO scale is small enough to fit into a very tiny layout. Shay locomotives and short flat cars are easy to find.

STEP 4 - Get out your shoe horn. Look for creative ways to jam very large scenes and structures into very tiny spaces! It's time to start doodling layout plans. At Cass, the "bottom of the hill" is relatively constrained in area because it's in a narrow valley. But the sawmill is gigantic, spreading over acres of prime bottomland! So the mill has to go at one end of the layout with most of it painted on the backdrop. The mill pond can be suggested near the front of the platform and theoretically continue beyond the front edge, saving lots of valuable space. Perhaps an inch or two of the sawmill could be built up in low relief, so we can model a jack slip — the incline that hoists the logs from the pond up into the sawing room above. A working jack slip might be an interesting piece of animation for this layout.

Obviously, the line up the mountain to the woods is much too long for modeling, so we quickly decide to make it a duck-off to a backstage holding track, where consists are changed, logs are loaded onto the flat cars, etc. Fortunately terrain on the north side of the tracks (away from the river) is nearly vertical and almost solid with trees, so a backdrop close behind the tracks can be convincing, and the tree line can comfortably hide the track behind it making it appear to vanish. The track plan is beginning to take form.

STEP 5 - Plan the details. This is the most important part of making a layout fun to build and operate. For example, because the mill pond is fed by the lovely Greenbrier River we have a chance to model a bit of the river itself along the front of the layout, where it can mirror the trains in a nice scenic setting. A "must" for modeling is the Cass water tower,, which is very familiar to tourists because every train stops there for water. Fortunately it's almost beside the sawmill, so it's easy to add. And finally, the line over to Cass is too long to be included in its entirety, but we need to suggest its presence and somehow arrange for it to duck out of sight. So we think about the loco shop, which in reality is a couple hundred yards to the north along the line into the woods. What's actually there alongside the river is a rusting corrugated metal storage building. So we decide to use a little modeler's license and substitute the well-maintained engine shops for the old storage building. As a bonus we gain another operating possibility, and the long, high shop building can conceal most of the track to Cass. At this point, our initial sketching is becoming pretty detailed. But before we begin inking in the lines, there's one more crucial detail to consider. A Shay locomotive has all its working parts on the right-hand side. We need to be sure that the working side of our model locomotive is presented to the spectators. And sure enough, by a fortunate chance Cass is arranged so that the locomotive's fascinating gears and cylinders are always facing the river — and our layout's viewers — all the time. So our design is complete — we've created a realistic HO scale U.S. logging line on a bookshelf measuring 9"x48". Our model's track patterns diverge a bit from the prototype in order to fit into the tiny space, but the operations we perform are the same as their full-sized counterparts.

How about the operating potential? Because operation is a major goal, let's see how the Mower Lumber Co. runs its micro railroad. Flat cars of logs appear from the woods (from the holding track) with a Shay locomotive pulling, its nose facing uphill. For safety reasons, the locomotive is put at the lower end of a train on the mountain line. The Shay pulls its train clear of the wye switch, the brakeman bends the iron, and the flats are shoved into the mill track where the logs will be dumped into the pond (a wonderful modeling challenge). The loco uncouples, takes on water at the famous Cass water tower, and backs down the track to Cass to pick up a carload of supplies at the Cass company store or a hopper car of coal from the C&O for our hungry road engines. Our Shay might also get some treatment at the engine service track, which is "front and center" for the benefit of loco lovers. Eventually the engine returns to the mill track, couples up to the now-empty log flats, backs to clear the wye switch, and pushes on up the big hill (offstage). A whistle sounds in the distance, and quiet returns to the Greenbrier valley. Until the saw mill resumes operations...

Industrial Switching *by Karl Griffin*

Railroads have two primary types of operations in the field, mainline running and switching. Mainline running is the most cost effective in terms of labor costs per mile, fuel usage per mile and so on. And we can model this side of operations fairly accurately on our layouts except that we can't portray the great distances involved due to space limitations. Switching is performed in three distinct areas; main yards, interchange points and industrial set outs and pickups. The yard switching is done on a reduced scale, again, because of space limitations. The interchange points can and are accomplished in a fairly realistic manner, but it is the industrial switching operations where we can best replicate what our prototype railroads do most faithfully. This is because the space required to model this is smaller.

Efficient industrial switching is both science and art; that is, it is both intellectually stimulating and therefor brings a sense of personal satisfaction when done in a timely manner. For those of you who delight in the cerebral challenge of performing the fewest separate moves required to complete a switchlist or in the least amount of time or both there are several switching puzzles available to challenge you. They usually involve unrealistic trackplans that are expressly designed to make life unnecessarily difficult for you. Prototype railroads don't arrange trackage to increase their crew's frustration level and neither should you!

In the rest of this article I'll include some schematics that railroads use to service various lineside industries. The primary purpose of this is to demonstrate realistic trackplans as well as innovative solutions to space constraints that most modelers must reckon with.

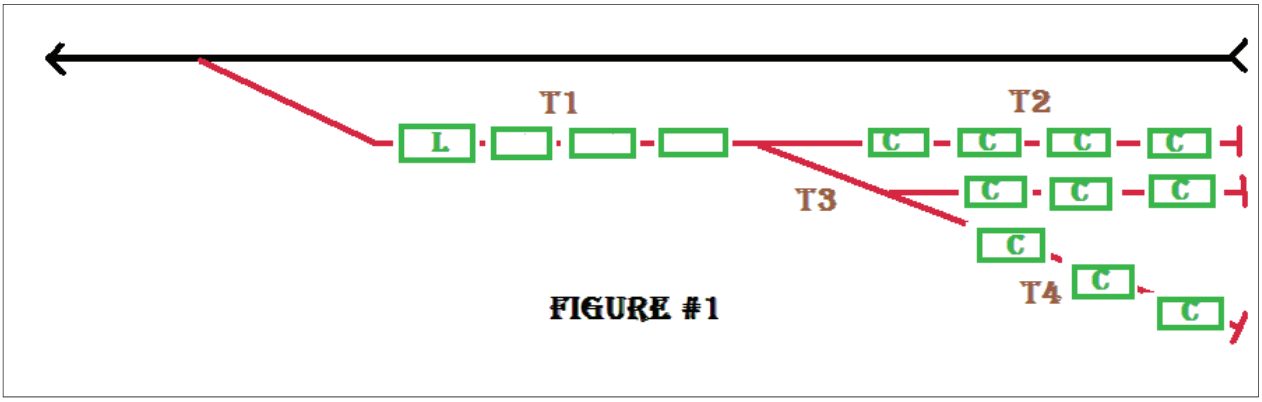


FIGURE #1

So let's begin with an example-Figure #1 shows a typical industrial siding. T1 is the switch lead track long enough to accomodate a locomotive and 3 freight cars. T2 is a storage track usually reserved for loaded cars ready to be picked up. T3 is usually reserved for empty cars on arrival or in the process of being loaded. T4 is the sorting track. At any given time there might be 5-8 cars on tracks T2-T4. If you assume that the mainline track at the top of the figure is actually on a passing siding where your roadswitcher locomotive stopped on, uncoupled and then went into the industrial siding, you can understand why you can't use this trackage for switching cars around.

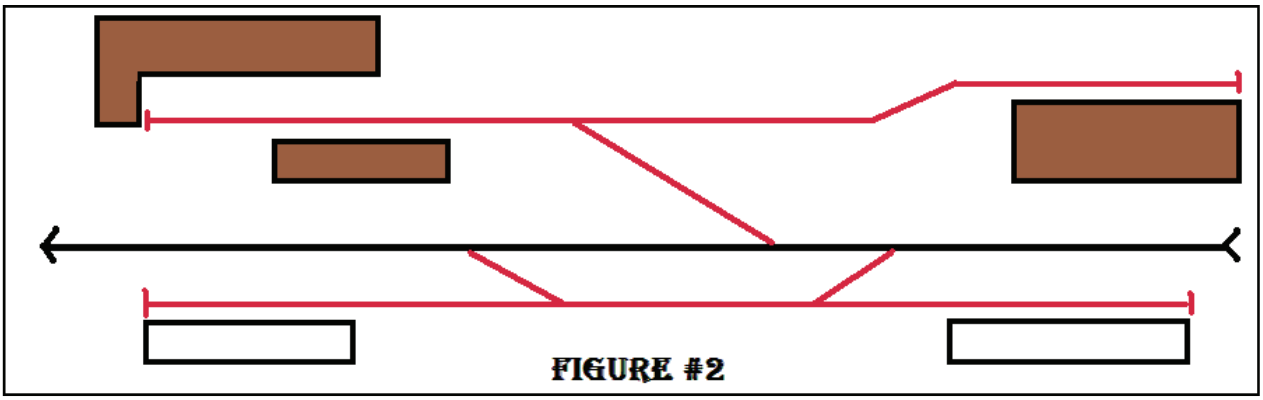


FIGURE #2

If you further assume that cars must be spotted in a specific order at specific spots you can see that there are many different possible switching scenerios to either delight or torment you. To help out the

yardmaster or yourself, if you are taking this reconstituted train of cars to an interchange yard, you should attempt to 'block' the cars which will require fewer switching moves later on.

Example #2 is a more sophisticated industrial switching area in that it has five area buildings that are serviced as well as a run around track to permit the switching locomotive to be properly positioned to shove or pick up the freight cars into their proper locations. This arrangement is typical of what would be found on a branchline operation rather than a mainline in that the peddler freight would tie up the main (in this case the branch) line while performing its switching duties. If time permits, the cars could be ordered in the most efficient manner when dropped off at the next available interchange point. What this means is that a decision must be made by the operator as to whether this 'ordering' of cars can be done most efficiently here at the industrial area or can be better accomplished at the interchange point. A little bit of trial and error will answer that question for you and your fellow operators. Even if you are a solo operator one method will prove itself superior to the other.

There are several factors to consider when experimenting with where the best place is to do your sorting and blocking of cars before delivering them to your main yard (assuming you have one). As previously mentioned there is the question of how many operators do you have to dedicate to the industrial switching area(s), do you have a separate operator to work the interchange area(s) or will one person have to go between the yard and the interchange area or between the industrial area and the interchange area or if space doesn't permit an interchange area then between the industrial area and the main yard.

There is also the possibility that your overall layout size constrains you to not have a main yard or an interchange point at all! This just means that the smaller the space available the fewer main features you can include. You must have your industrial switching areas as your first priority, then the interchange areas and finally the main yard in that order. The only exception to this would be if you don't want industrial switching on your layout at all! If what you want is only mainline running with hidden staging, then you don't need to be concerned about all these switching considerations. I would consider that boring but each person gets to make that decision themselves. The only 'perfect' layout is the one that meets all your personal needs and desires.

I suppose then that the question now becomes "Do you want theatre or drama?" Ah Hah! Does the lightbulb click on now? The Theatre part is the mainline where your favorite detailed freight or passenger trains leave your staging area and parade across the stage (your layout) and disappearing from view again in the staging area. The Drama part is the industrial switching where you do your setouts and pickups in the most efficient manner possible and tying up the mainline the least amount of time while the dispatcher is trying to run mainline trains through the area that you are working in!

There are also a few things you can do to make your life a bit easier (or more difficult if you prefer) in regards to laying out an industrial switching area:

1. Hand operated ground throws or remote controlled turnouts?

2. Kadee uncoupling magnets or finger pics?

3. Stretched out switching areas or a compact area with specialized track work and tight radius curves?

4. Long length or short freight cars?

5. Multiple spots on a single length of a track siding or blocks of cars on one or more siding tracks?

6. Building interior drop offs and pickups?

7. What about setouts behind buildings?

8. Setouts and pickups where you have to go up or down a grade first?

Industrial switching can be as simple or as complicated as you like-enjoy the possibilities!

Editors' Comments *by Karl Griffin*

Is there a subject that you haven't seen in magazines or newsletters that you have an interest in or question about? Send me an E-Mail and we'll talk about it. If I feel that the membership would be interested in this subject or idea, I'll be happy to do the research, find an applicable photo or make the drawings myself and present it in this newsletter. Often times the hardest part is coming up with the subject itself rather than the actual process of putting it all together. Don't be bashful. If you always wanted to know how something works or how can I model a particular item or operation this is your chance! I enjoy the interaction as well as the challenge of taking a basic idea and creating an article that a lot of us have an interest in. And by the way, if you disagree with some idea that I present-well that is also appreciated because as I have found out there really is no one 'best' solution to any problem...

Articles for inclusion in the July / August issue are due NLT the second Friday of June!

The Sacramento Model Railroad Historical Society, Inc. is located at 1990 Grand Ave., Sacramento, CA 95838 and is open every Tuesday and Friday night at 7:30 p.m. It is the home of the ***Sierra Central Railroad*** which is modeled in both HO Standard and Narrow Gauge. Telephone (916) 927-3618 for info and directions. Visitors are always welcome!

Our Internet Club Website: **www.smrhs.com**

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	D Launderville	2 yrs
	Dave Good	1 yr

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Next Business Meeting will be on the last Friday of the month—May 25, 2007.

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