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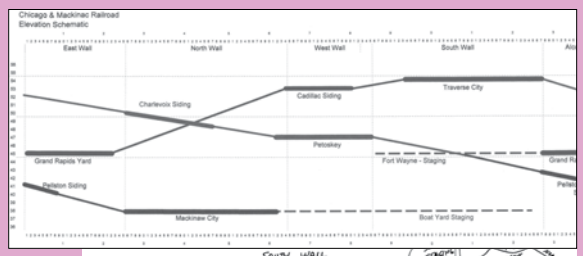
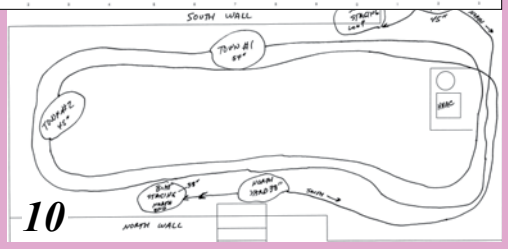
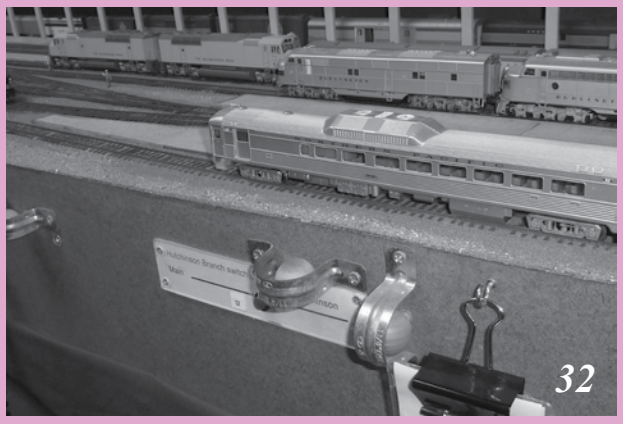
Features

News and Departments







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The LDSIG's goal is to act as a forum for the members' exchange of information and ideas, and to develop improved ways for hobbyists to learn the art and science of model railroad layout design.

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LAYOUT DESIGN *Journal*

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Layout Design for "Slow Ops"

"Think about what you're supposed to do"

by Trevor Marshall

"... consider ways to design layouts that do more with less."

It often seems that there's just not enough space to include everything we think we need to create a layout design that will provide for satisfying operation. If that sounds familiar, maybe it's time to rethink the term "satisfying operation", and consider ways to design layouts that do more with less.

Every train one plans to run on a layout requires infrastructure to support it. That may include a staging track at the beginning and/or end of its run, one or more sidings to clear opposing trains, the amount of industrial trackage for locals to switch, classification tracks in a yard for breaking up and building trains, and aisle space for train crews to meet and pass each other.

It's safe to say that if all else is equal, the more trains one plans to run, the bigger the layout room will have to be. But if a bigger layout room is not in the cards, what do we do?

Entertainment versus layout size

One approach that I have found to be very successful is to reassess what I think a layout needs to keep operators entertained. In most cases, layouts would be just as entertaining with about half as many trains – providing each of those remaining trains is more challenging to run.

One way to create that challenge is to give each train crew more work to do – for instance, by combining the roles of two trains into one. Another approach, which may be used in combination with this, is to adopt techniques to slow down operations.

Several hobbyists have written about such techniques before – including myself, Lance Mindheim and Linda Sand. And while this sounds like a topic more suitable to the Operations SIG's *Dispatcher's Office* magazine, it's easier to design a layout from the outset to support "slow ops"[1] techniques than it is to retrofit such techniques to an existing layout.

What's more, slowing down operations may require different standards for a number of planning parameters – including a shorter maximum reach-in distance, a more generous minimum aisle width, better layout lighting, additional layout wiring requirements, and so on. On the plus side, designers who employ techniques to slow down operations may find they save space through the reduction, or outright elimination, of trackage. They may need fewer tracks in a yard – or no yard at all.

Before we can discuss design decisions, however, we need to understand why anybody would want to slow down operations in the first place. For the answer, the best place to look is the prototype.

Learning to slow down from the pros

In his book *Doubling Over* (Carleton Press, 1987), retired Delaware & Hudson railroader Larry Marnes recalls an encounter early in his career as a brakeman. He was new to the job and nervous so when the conductor told him to throw a switch, he jumped off the caboose and ran for the switch stand. The conductor called him back when he was about halfway there. Marnes ran back ... and was so flustered when he got to the caboose

All layouts benefit from generous aisle space and staggering the focal points on each side of an aisle, but it's especially important when using two-person crews – even on a modest layout such as this one. Crews working Port Rowan (at right) stand in this portion of the aisle, while those working St. Williams (at left in the distance) will work further down – and stay out of each other's way. All photos by author.

1 Some also refer to this as "Finescale Operations" – BH

Here are some ways I've found to do this on my layout, with implications for layout design.

Designing for two-person crews

Assigning two-person crews to each train doubles the fun and enhances the social aspects of an operating session. One crewmember works as the conductor (often also wearing the brakeperson's hat), while the other assumes the engineer's duties. The engineer looks after running the locomotive, while the conductor does everything else – including handling the paperwork, directing train movements and operating switches. The interaction between members of two-person crews stretches out their operating experience as they discuss moves before making them, confirm that they have correct signals or time table authority to move down the line, and so on.

Prototype-action couplers help slow down operation but as the author noted in LDJ*-42, access for coupling and uncoupling is important. As this view shows, the Port Rowan peninsula is quite deep – except near the yard throat, where most of the switching action happens. The reach here is reasonable and low terrain provides clear sightlines to couplers. Note the row of garden-scale switch stands mounted along the fascia to throw switches on the layout.*

Every layout needs a place for those who aren't operating to stay out of the way of those who are. The author could have wrapped the backdrop at right around the end of the peninsula, but decided instead to leave the end open so that guests could enjoy this end-on view of Port Rowan while staying out of the way of the switch crew.

The impact of two-person crews on layout design is primarily an issue of aisle space. Regardless of crew size, planners must be aware of potential choke points – but with two-person crews, twice as many bodies will be involved. I suggest designers think about where trains will meet or pass, or where two crews will be working in the same aisle, and plan aisle space accordingly (see photo Page 4).

Also, it's important to think about where the conductor and engineer need to stand to work a yard or town: If the two operators must switch places frequently in the course of doing their work, the layout may benefit from additional aisle space at that location. Finally, off-duty crews will congregate somewhere – so consider designing layouts that allow them to watch some part of the action without interfering with those still running trains. Often, this can be easy to accomplish. On my layout, a design decision to not curve the backdrop around the end of the peninsula means that off-duty crews will be able to enjoy the goings-on in Port Rowan without getting in the way of those switching in the terminal.

Switch lists from waybills

Layout owners often prepare paperwork before an operating session, but making train crews write up their own is another way to enhance the play value of a layout without adding trains and track. Every operations-oriented layout needs a car-forwarding system. Popular forms include car-cards-and-waybills and switch lists.

Personally, I like to combine the two. I create a waybill for each car to be moved, and require crews to use these to write up their own switch lists. There's prototype justification for this: Waybills are important documents that help the railroad get paid for doing its work. Therefore, they should be left in the relatively dry comfort of the caboose or combine. The

The Chicago & Mackinac, Part 1

Proto-freelancing favorite locales and desired operations

by Bob Osborn

It all started back in Michigan, in 1977, in a suburb of Detroit. I was a train buff and enjoyed traveling around the country chasing and photographing real trains with my railroad buddies. Today, a railroad employee would probably have referred to me back then as a "foamer"!

I did have a nondescript little dog-bone-shaped "Plywood Central" layout in my basement with which I played around and ran trains in no particular order or for no particular purpose. At that time "I didn't know, that I didn't know" anything about model railroad layout design and operations.

A call in the night

One night I was awakened by a call around midnight from one of my railroad buddies. He was really excited – screaming something about the fact that he had just attended an "operating session" on a layout and it was the greatest thing since night baseball and that I had to see it. Not knowing and understanding exactly what he was talking about, I finally said "Good night, I will talk to you tomorrow," hung up and went back to sleep.

"I wanted a CTC-like dispatcher-controlled, point-to-point, single-track mainline with sidings."

Early the next day, we spoke again and I found out that the operating session that he had attended was on the Erie and Michigan Navigation Company (E&M). The E&M was a fledgling, all-steam 1940s HO scale model railroad basically following the general direction of the Ann Arbor Railroad from Toledo, Ohio to Manistee, Michigan. The owner and Superintendent of the E&M was William R. (Bill) Dewey, who later became my mentor and one of my best friends.

Eventually my friend finagled an invitation for me to attend an E&M op session and, indeed, it was even better than night baseball. "I knew that I didn't know" anything about layout design and operations, and so I wanted to learn everything I could about my newfound interest. I immediately went home and tore down my nondescript basement layout and started planning a new, operation-friendly layout.

A new basement (and house, sure)

It so happened that my wife and I had purchased some land north of Detroit and we were in the process of designing our new home, so I made sure that our new basement would be model railroad friendly. If I knew back then what I know today, I would have designed the home a bit differently to make the model railroad experience a little better. (See Lessons Learned sidebar page 21).

When our new house plans were complete I mapped out the basement on graph paper and started sketching my dream layout using pencil and paper. I first developed a very basic vision for my new railroad. It had to allow for multiple person operations based on a proto-freelanced operating scheme. Like Bill's E&M, I wanted a CTC-like dispatcher-controlled, point-to-point, single-track mainline with sidings. This was the 1970s and pre-DCC, so I felt that a CTC type of train control system [with dispatcher control of cab assignments] was the only way to run many trains and perform various functions simultaneously in a prototypical manner.

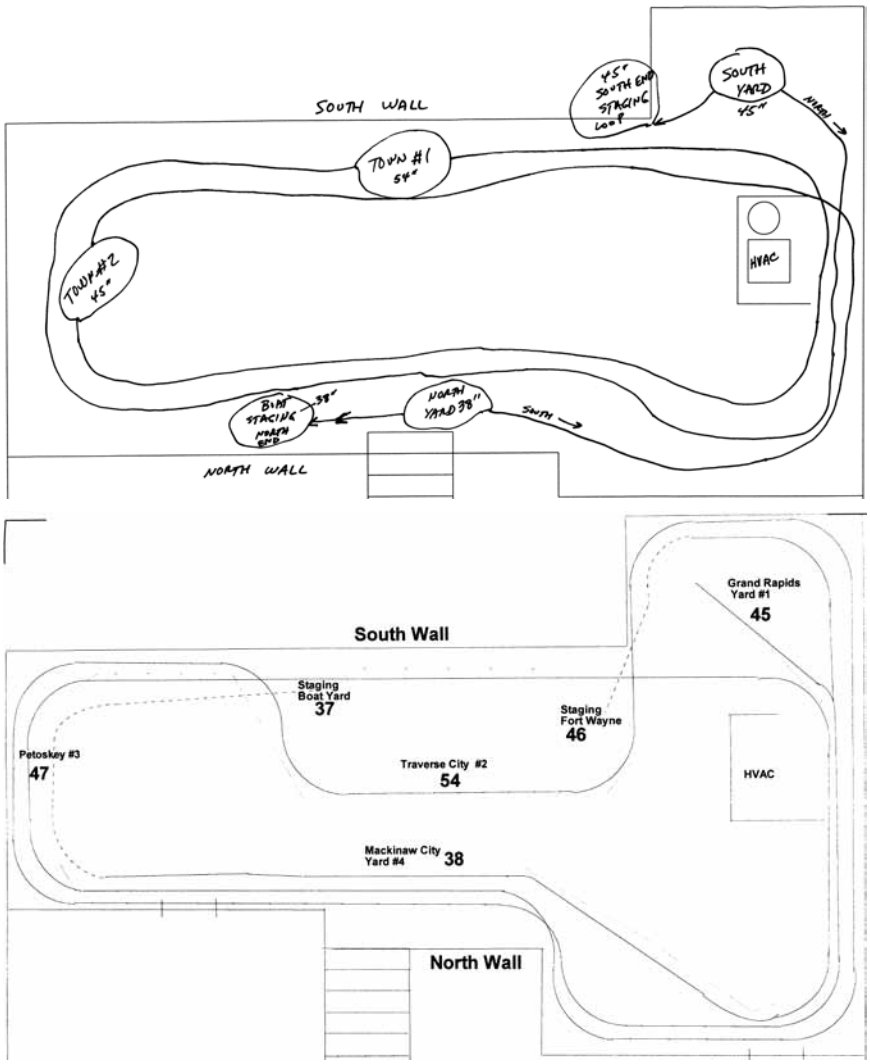
In addition, I wanted to combine mainline through freight traffic, passenger traffic, lots of industrial switching, plenty of yard work –and maybe a branch line or two thrown in for good measure. Finally, there must be adequate isle space to accommodate a group of model railroad sized operators and, of course, there must be plenty of places for the trains to go "beyond the basement". Basically, I wanted a model railroad just like Bill's Erie & Michigan, without stepping on Bill's toes! That should be no problem, a real piece of cake, right?!

With the overall vision established, I needed to define more specific details about my railroad concept. Details like what prototype would serve as my inspiration, where would my railroad be located, in what era would it operate, and maybe most importantly, what would I name this new creation? So here we go.

pied the same footprint at different elevations (stacked staging), which provided the staging I needed and minimized the required space.

Grand Rapids yard was located in the alcove and against the west wall. The main line continued clockwise three-quarters of the way around the basement to the south wall and a "blob" for Traverse City. I placed south- and north-end staging below Traverse City.

From there, tracks ran three-quarters of the way around the basement to Petoskey on the east wall. Finally, another three-quarters run around the basement brought the design to Mackinaw City yard on the north wall. The result is an around-the-wall design facilitating my goal of walk-around train control and a 300+ foot mainline.



Top diagram is one of Bob's hand-drawn rough sketches made on copies of the basement floor plan. This located major generic elements, such as yards, towns, and staging, within the basement. The more-finished diagram above includes a bit more detail. Note that tracks climb as they moves around the room, with multiple passes through each scene at different elevations. Active tracks in each scene tend to be toward the front, the "pass-through" tracks are typically to the rear.

Grades and multiple passes – worthwhile compromises

To accomplish my goal of a long mainline, this plan included a lot of elevation change, not very prototypical for Michigan's Lower Peninsula. But this was a compromise with which I could live. To somewhat mitigate this issue, I made sure that all switching areas contained no grades. In my operating experience, once into the "heat of the operating session", one concentrates on his/her train and in accomplishing the assigned tasks, and the surrounding elements sort of melt away. I believe the elevation changes and the multi-level approach were definitely worth the compromise in the final layout and did not detract from the overall feel of the railroad, but instead enhanced its operations.

Climbing in plain sight

Note that my design does not include a hidden helix. Elevation changes take place along the wall on the mainline, mostly in full view of the operator. Again, in my opinion, while operating, the presence of a second pass of the main line tucked away in the back of the scene causes little distraction from the operating experience.

The benefit of this approach is allowing the operator to follow his train around the layout, keeping it in view at all times, while maximizing the length of the mainline run. In most cases, the actual background track was camouflaged so that it was very unobtrusive and its presence was only noticed when it is occupied by a passing train. Unfortunately, my design did include a stretch of track that was not easily visible, as it traveled under the Comstock Park/Grand Rapids yard. I will discuss the fix for this situation a little later.

Design standards and preferences

Now that I had the areas for the basic mainline, stations, yards and staging in place, it was time to define the details and standards that I wanted to follow:

1. 30" minimum mainline curves, broader where possible
2. Minimum #6 turnouts on the mainline (#8 where possible), #4 and #5 okay for switching areas

The Layout Design SIG at 30 – Personal Reflections

by Doug Gurin, Founder and Coordinator, 1982-2002

Noted layout designer, author, and SIG member Don Mitchell reminded us during his SIG Banquet presentation at Sacramento in 2011 (see LDJ-*44) that 2012 is the thirty-year anniversary of the Layout Design SIG. To mark the occasion, I asked LDSIG Founder Doug Gurin to share some thoughts on the beginnings of the SIG, its impact, and opportunities for the future. – BH*

In 1982, the NMRA promoted the formation of a new kind of hobby institution, "Special Interest Groups" (SIGs), with members who shared an interest in a particular aspect of model railroading. The NMRA provided a resource and clearing house for individual SIG coordinators, a SIG column in its monthly magazine with periodic descriptions of the SIGs to help recruit members, and opportunities to make clinic presentations at conventions.

I decided to start a layout design SIG for many reasons. The hobby seemed to need leadership to provide and promote information on designing layouts, incorporating the ideas of some of the more progressive layout builders and authors of the day. Many barriers made it hard for designers to identify kindred spirits and inspirational layouts, communicate with experts to discuss design matters, and arrange layout visits. I hoped that my unique hobby background and perspective might help many hobbyists to design, build, and operate more numerous, ambitious, satisfying and innovative layouts. I looked forward to addressing many unmet needs for better layout coverage, design concepts and useful vocabulary, the design process, user-friendly design education, and design institutions.

"The LDSIG gave me the design insight I needed to build a very satisfying layout that's stood the test of time."
Joe Fugate
Publisher, Model Railroad Hobbyist
Former Editor, LDJ

"Make only new mistakes" pencil eraser used as a SIG promotion in the 1990s.

So decades before the LDSIG officially incorporated and became a 501(c)(3) educational organization, my goals and hopes for the SIG were always based on educating and inspiring others.

Personally, I loved learning about layouts, sharing design ideas with thoughtful, creative experts and mentoring motivated, open-minded hobbyists excited about learning. Long term, I expected that leading a layout design SIG would also help improve my own ambitious lifetime layout and lead to new friendships.

Help from friends

Support and early guidance for starting a design SIG came from many respected hobby friends. Most notably, John Armstrong, Tony Koester, Steve King, Bob Schleicher, Dan Holbrook, Tony Steele, and Bruce Metcalf helped me formulate and promote an array of promising activities. The mix would include member services, publications, events, networking and socializing, and aids for communication and research.

The prime purpose of the LDSIG has remained the same for over 30 years: "to aid efforts to design and create layouts which achieve owners' layout goals (with minimum space and cost), avoid common design flaws, and include prototypical and model design features that maximize operating and visual interest."

Learning from best practices

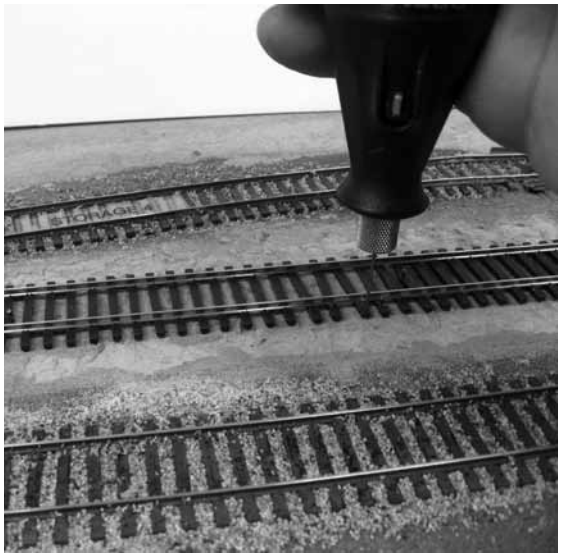
While the purpose of the SIG hasn't really changed over the years, people probably remember the motto "Make Only New Mistakes" more than the SIG's formal charter. My pre-1982 layout design efforts, conversations with other layout owners and operators, and my professional training had alerted me to the notion that certain mistakes were preventable.

I adopted the slogan of "Make Only New Mistakes" for all aspects of my own future layout design efforts and for the new SIG. It was also relevant when I initiated each of the LDSIG's education activities, administrative and promotional matters, and relationships with other organizations. Establishing or compiling "best practices" seemed like a wise course of action

Feeders for "Doorminoes"

Wiring tips for hollow core door benchwork

by Seth Neumann



1 (above). First I selected a location to place the drops. In this case, I wanted the drop to be located near the center of the section of flex track. But I wanted to avoid placing it directly above a support, so that the feeder (drop) would be easy to retrieve from below. I began by drilling a #61 pilot hole with a cordless rotary tool. I placed the two pilot holes on opposite sides of the track. In the case of switches, I place the holes outside the area of the guardrails. All photos by author.

Recent *LDJ*s have included a number of articles on "Doormino" benchwork constructed from hollow core doors and layouts designed around the use of Doorminoes. Hollow core doors are a light, rigid and convenient substrate for flat industrial areas and small switching layouts. I have used hollow core doors for several areas on my Union Pacific in Niles Canyon layout. For reliability and best performance, I believe that you should feed power to every section of rail on any model railroad, but this is difficult because it is hard to guide the wire through the hollow (actually packed with cardboard) center of a hollow core door.

I recently had to rearrange some track in Milpitas Yard on my layout – follow along as I share my technique for feeding wire through hollow core doors.

2 (above). The next issue you'll encounter is that the door is about 1 3/8" thick but miniature drills are much shorter. I solved this problem with a piece of .047" music wire. I grind a 45 degree angle at the tip of the wire and cut it to about a 4" length. I then chuck the music wire into a cordless drill/driver and insert the music wire tip into the pilot hole and drill. The pointed tip acts as a bit and will drill though the doorskins and fill in a few seconds.

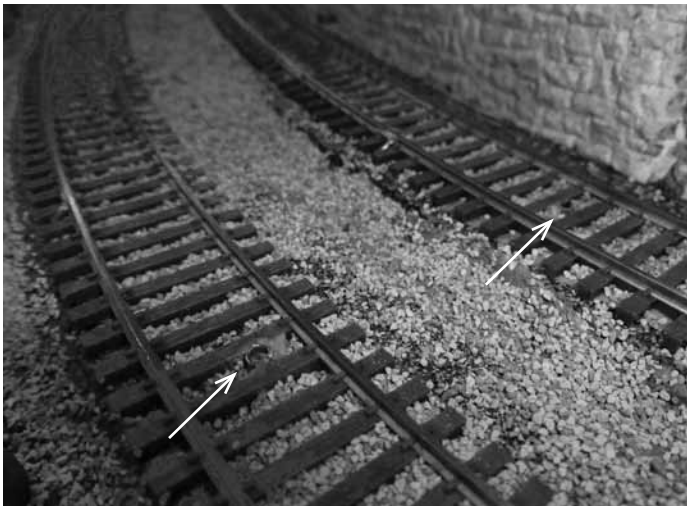
3 (left). I use salvaged 24 Gauge telephone cross-connect wire for my feeders. It is perfectly adequate electrically as long as the feeders are 18" or shorter – and the small size makes the feeders easy to disguise as spikes. Remember every piece of rail has a feeder so all of the feeders are in parallel along the length of track.

I strip the end of one wire and insert it through the hole. (I use White with Blue Stripes as North Rail and Blue with White stripes as South Rail, but others use Red and Black or some other convention).

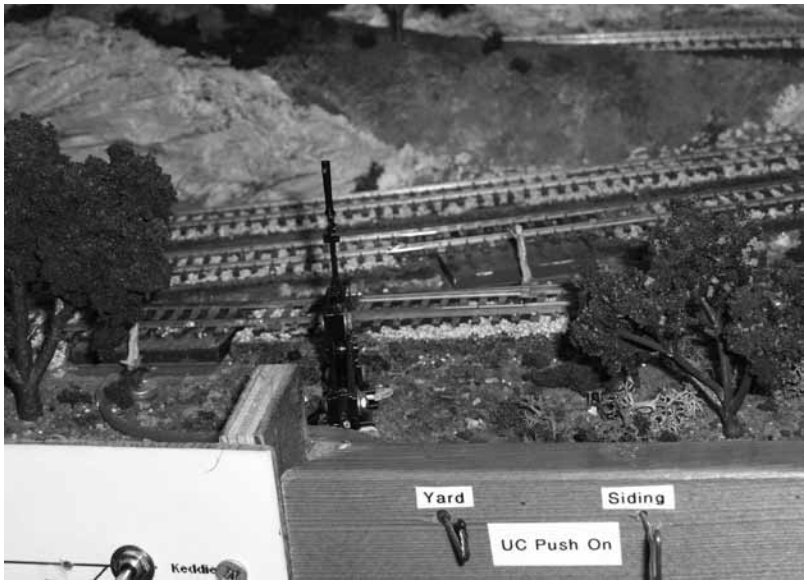
Controls and Human Factors Ideas

As seen on LDSIG tours

Photos and text by K. Travers Stavac



Ernie Simard uses retracting wire to hold trains on a grade on his Western Pacific layout. Setting the Hump Yard Purveyance "Armstrong" type levers, parts of a train can be kept from running away on the grade while the engine and cars are taken uphill for switching. At the center of the track, the pin contacts the axle, which holds the car and those downhill. Top left shows brakes retracted (arrows), lower left extended. Controls below. *From NMRA Sacramento Convention X2011 West.*



(Right) Ernie also uses manual controls to slide magnets under the track for uncoupling. Pulling the control out moves the magnet to the normal off-center position. This allows passage of trains without creating unwanted uncoupling due to slack that would allow the couplers to part. The model crew figures attached to the activating cable (in a sleeve) locate the center of the magnet, indicating the position for stopping the train for uncoupling when the controls are pushed in.