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The Semaphore

LAND-O-SKY
DIVISON 15, SOUTHEASTERN REGION
NATIONAL MODEL RAILROAD ASSOCIATION
AND
WNC MODEL RAILROADERS, INC.

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August 2007

Our next meeting is on Thursday, August 2, at 7:00 p.m.

Send comments about and contributions to this newsletter to chsmoke@bellsouth.net.
Please keep us informed of changes in your address, phone number or email address.

Fred Coleman congratulates **Jim Fugua** upon being awarded this year's Superintendent's Award at the recent picnic. Jim has served this organization well as Paymaster and as editor of *The Semaphore*.

News for Members

Here is a picture from the Black Mountain Railroad Depot where the renovations to connect the depot to the caboose are complete. We have a brick with club name (the club donated) and also a brick that was placed there in memory of one of our past members, John Rigg, donated by John's wife, Maureen.

Books for Sale

The Apple Valley Model Railroad Club has several books for sale. They include: *150 Years of North American Railroads* – Fitzsimons, *Age of Steam* – Beebe, *All Color World of Trains* – Westwood, *America's Colorful Railroads* – Ball, *American Heritage History of Railroads in America* – Jensen, *Great Book of Trains* – Hollingsworth, *Highball* – Beebe, *History of the New York Central System* – Klein , *Locomotives That Baldwin Built* – Westing, *Model Railroader Cyclopedia – Vol. 1 Steam*, *Pictorial Encyclopedia of Railways* – Ellis, *Portrait of the Rails* – Ball, *Railroads – The Great American Adventure* – Ogburn, *Road to Paradise* – Moedinger, *Steam Trains of the World* – Garratt, *Ultimate Encyclopedia of Steam & Rail* – Garratt *Wonderful World of Steam Locomotives* – Whitehouse. If interested, contact John Ryan at 828-859-5488 or 704-544-9009.

We still need hoppers for our coal and rock facilities, and now tank cars for running to and from a new refinery complex. Any donations will be appreciated, including kits.

Our August program will be by **Tom Sinks** on Southern Rwy. steam engines used in the Asheville area.

Ten design tips from an expert

By Don Mitchell

Things to keep in mind when you're designing your first (or next) model railroad

ONE: Accurately define the layout space Make accurate measurements in all three dimensions. Be sure to include all projections into the space, especially overhead objects such as beams, ductwork, and piping that could become "head knockers" for people moving around in the room. This is especially important when designing multilevel or mushroom layouts, as these place greater emphasis on using vertical space.

TWO: Use templates for drawing turnouts. Most overly-optimistic track plan sketches I receive from clients result from underestimating the length and overestimating the angles of turnouts. Templates preclude cheating and subsequent disappointment. They can be homemade, as described by John Armstrong in *Track Planning for Realistic Operation* (by Kalmbach) or commercial (check the Walthers catalog). I use CAD software to ensure precision and to produce high-quality printouts. There are several commercial design programs available for those who are willing to invest the time required to become proficient. Modelers who have personal computers may want to consider using CAD software, as the layering, ease of making changes, printouts, and 3-D rendering capabilities make it well worth the steep learning curve that applies to all but the simplest layout designs.

THREE: Draw accurate tangents to curves The second most frequent cause of overly optimistic track plan sketches is improper alignment of the straight (tangent) track with the curves. Again, this can be corrected by using templates that ideally include transition easements between the tangent and constant-radius curve (see next tip) or by using CAD or commercial layout design software.

FOUR: Plan easements for curves Easements improve the operation and appearance of trains negotiating curves. They may also help where space is tight, as it's often better to include easements even if this forces you to reduce the curve radius slightly to accommodate them. Easements can be as short as 1.25 to 1.5 times the length of the longest car or locomotive to be operated. Remember that vertical curves - those at the top and bottom of grades - need easements too.

FIVE: Plan for people, not track Model railroads are always constructed, operated, and maintained by people. Their movements and access to the layout are as important, if not more so, than the arrangement of the trackwork. You won't enjoy running or working on a layout where crew members keep getting in each other's way or maintenance is difficult. You can be absolutely certain that the most difficult section of trackwork to reach will be the toughest to build and always cause you the most grief.

Design yards with people uppermost in your mind. If manual uncoupling will be used, yard ladder tracks should ideally be aligned so that the uncoupling locations on each track are directly visible from the aisle. Similarly, track spacing should be sufficient - I recommend 2 1/2" in HO and not much less in N (fingers don't get smaller) - to provide access for manual uncoupling.

Tracks can be closer together and uncoupling sites out of direct view if automatic uncoupling is used, but uncoupling devices will still require some sort of visual markers, such as poles or a splotch of paint on the side of the rail, for reliable operation. And keep in mind that automatic uncoupling requires higher standards for coupler installation and maintenance.

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SIX: Plan benchwork to be adaptable Just like full-size railroads, model railroads typically require trackwork changes after they are built, so benchwork design should allow for such alterations. It's also a good idea to design a layout to facilitate moving it, as our highly mobile society is unlikely to settle down any time soon. Model Railroader magazine managing editor Jim Kelly, who has gone through more than one layout-moving experience himself, suggests open-grid benchwork sections on top of L-girder supports. The grid sections can be moved intact, and the L-girders and legs can be disassembled into components that are readily moved. Domino or modular construction also lends itself to design revisions and relocations.

SEVEN: Think about wiring - now! I like to separate wiring into three main bundles: track power, which includes wiring for switch motors and structure lighting; command control bus lines; and signaling. There is always the potential for interference between wires carrying relatively high voltage and current to run trains and those carrying low-voltage control signals, hence the need to separate them. Identifying these routes in advance helps prevent interference if electronics such as command control and logic circuitry for signal systems are added at a later date. Yes, the advent of Digital Command Control systems has helped alleviate interference problems, but those who ignore such concerns and haphazardly group wiring will quickly regret it if my experience is any indication.

EIGHT: Avoid sharp S-curves Insert a tangent of suitable length, as discussed in tip 4 on easements, between curves in opposite directions. "Hidden" S curves - those that are created by crossovers between adjacent tracks as well as several other turnout arrangements - can easily catch you unawares and become a major problem when longer cars and stiff-legged steam locomotives encounter them. The cure is to use higher frog numbers in crossover turnouts, use easements, and/or increase the curve radius in such locations.

NINE: Do your homework There is a wealth of layout-design knowledge available in Model Railroad Planning, Model Railroader, Kalmbach books, and the NMRA's Layout Design Special Interest Group publications. (You can reach the LD SIG care of Bob Knoll, 5428 North Via Papavero, Tucson AZ 857506055; annual dues, including a subscription to the always-informative Layout Design Journal, are $15 in the U. S., $20 Canadian and foreign.) Elsewhere in Model Railroad Planning, author Henry Freeman provides tips on how to use a variety of resources, including the Internet, as you tackle the homework that can lead to a more meaningful layout design.

TEN: Don't strive for perfection Layouts, like full-size railroads, aren't cast in concrete. They're made of relatively easy-to-change wood and plaster or foam. Start small, test as you build, and make changes when needed to improve operation or appearance. Layout design and construction are both continuous learning processes. Most of the well-known and respected model railroads in the hobby are the result of an ongoing series of changes and additions to the original design efforts - even to the point of being completely rebuilt from the ground up to embrace a new theme. From the time a design is "frozen" and construction commences, be it for a model railroad, a full-size railroad, or even an airliner, rocket, or attack submarine, it embraces old technologies and design concepts. As Steve King, a former Baltimore & Ohio dispatcher and builder of the N scale Virginian Midland, has pointed out, a "perfect" model railroad wouldn't be much fun to operate anyway, as all of the challenges would have been designed out.

So, the goal is to make well-informed decisions, then build a layout that embraces that knowledge yet can still be adapted to changing conditions and additional input. Just as we continue to gain knowledge and skills, our model railroad designs should continue to reflect those ever-improving conditions and be readily able to accommodate them.

This article was prepared by Don Mitchell and is based on his book entitled *Walkaround Model Railroad Track Plans* available from Kalmbach Publishing