Sunrise Herald

October 2014 Volume 7, Number 10

Sunrise Division Officers

Superintendent……..…Steve Schweighofer
Asst. Superintendent……..Frank Germo
Secretary……...……..Stewart Jones
Treasurer……..Bill Johnson
Program Chair……..…….Gary Myers

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Notes from the Secretary

I have been including requirements for the NMRA Achievement Program for a number of months. This month I describe the Civil Engineering award. I think that I have cycled through all the awards now. However we haven't been announcing many AP awards for members lately, so I am going to cycle through them again.

Below is an account of the October Clinic, 3D Printing. Such printers would apparently be quite useful for making complicated parts for scratchbuilding, possibly replacing older casting techniques. Candidate parts might include car sides, ends, roofs and underframes. It would only be a small step to turn Doug's bezels into structure windows and doors for parts that are not commercially available. This might include an entire building including walls and roofs.

Next Meeting

Our next meeting will be Thursday, November 6, at Holy Love Lutheran Church.

Upcoming Clinics for 2014

Nov - MoPac in Colorado - Bob Hochstetter
Dec - Movie & Seasonal Treats
Jan - Moffatt Modelers - Frank Germo

Upcoming Tool Times for 2014

November – Painting Aids – Bob Rothgery
December - None

Upcoming Show 'n' Tell Themes for 2014

Nov 6 - Mail
Dec 4 - Switcher Engines

October Division Meeting

Steve Schweighofer opened the meeting at 7:20 with introductions. 25 members were present. Gary Myers gave the first report on the September 27 Board of Directors meeting in Colorado Springs. John Griffith, Sunrise

Division, was appointed the AP program chair. The board also adopted a code of ethics and is working on preparing a disclosure form.

Upcoming Events

Nov 1-2
Don Meeker's Open house
6407 Sapphire Pointe Blvd., Castle Rock

Nov 7-9 Wasatch Rails,
Fairgrounds, Salt Lake City, UT

Nov 15 Slim Rails
Swap Meet, Woodland Park, CO

Nov 15-16 Rails Along the
Rio Grande, Albuquerque, NM

Nov 29-30 TCA Meet,
Merchandise Mart, Denver, CO

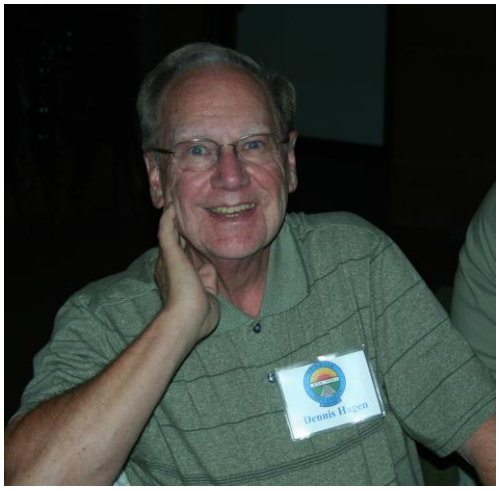
Dec 6-7 TECO Train
Show, Colorado Springs, CO

Feb 13-14 Rails in the
Rockies, Estes Park

June 4-7 Smoke &
Steam in 2015, Denver

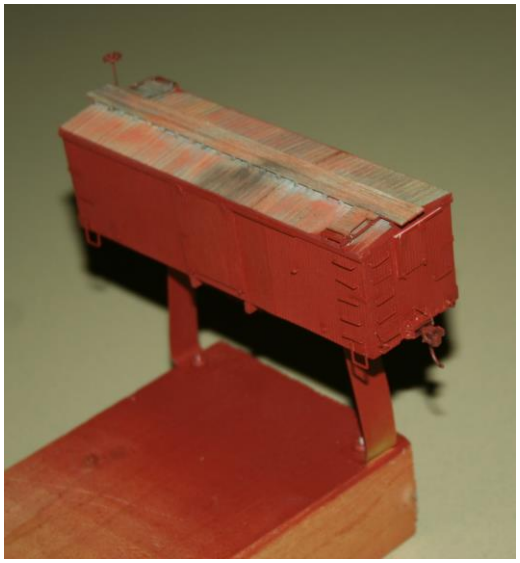
October Tool Time

Dennis Hagen presented the October Tool Time. Faced with the task of painting a number of scratchbuilt boxcars and admitting to being a not-so-fastidious painter, he devised a support tool to hold his boxcars for airbrushing. To construct the tool he fashioned a brass strip into back-to-back "Z's" and mounted onto a 2 x 4. Each end of the strip was drilled to accept a truck screw.



Dennis Hagen

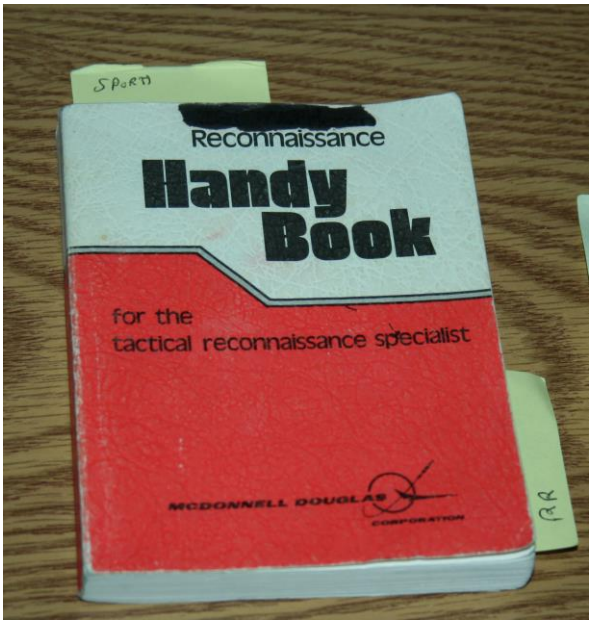
Unlike other hand-held painting tools, this jig is stand-alone, leaving the hands free. When a car is ready for painting, Dennis removes the trucks and using the truck screws, attaches the car to the jig. When the car has been painted, he sets it aside to dry while he prepares the next car for painting, requiring perhaps 10-15 minutes. He then repeats the operation.



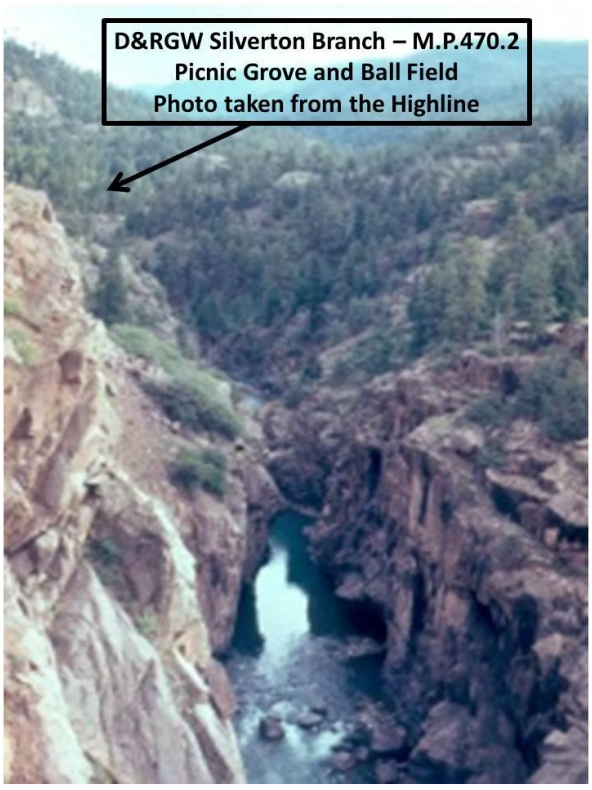
Dennis' Painting Jig

October Show and Tell

The October theme was Sports. John Griffith was awarded the Caboose gift certificate



Ernee Edwards' Handy book provides directions for estimating the size of prototypes.



Dick Hunter

Just above the point of the arrow, there is a trestle. It was replaced many years ago with a fill. Behind that location, there is an open field way back in the trees. Many years ago, special Sunday trains from Durango transported folks to that location where they picnicked and played baseball.

Gary Myers received a number of models painted in Bronco's logos as gifts from various family members

Larry Stephens

Rich Flammini

John Griffiths Pullman car replicates a car that was used by Creighton University's present when travelling to football games

October Clinic

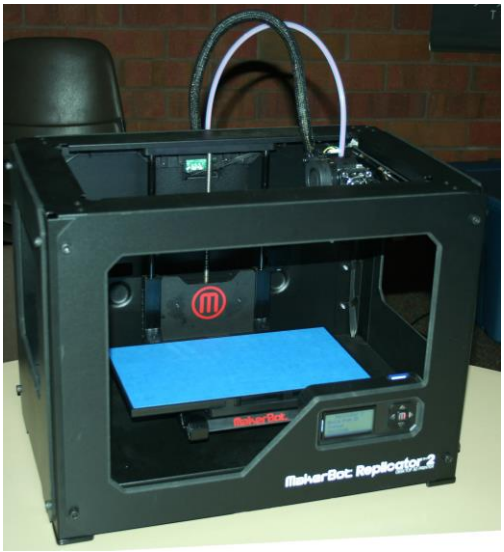
Doug Semon presented the October Clinic on 3D printing. Some of us wondered what 3D printing had to do with Model railroading, (at least I did) but it quickly became evident.


Doug Semon

He began his clinic with a Power Point presentation. He selected a control panel example for his 'project'. For his panel he wanted to mount some square push button toggles on his control panel, and to provide a neat appearance. To accomplish this, he created bezels to frame the toggles. Making them by hand proved to be too laborious, so he used a 3D printer instead. Next he described the software and steps required to prepare the 3D program:

1. Design the part
2. Save the raw 3D design
3. Import the design
4. Scale the part
5. Adjust the print parameters
6. Save the design on a memory chip
7. Insert the memory card into the printer and print

He demonstrated the software design process for the bezels in PowerPoint. The software is similar to a CAD program, but less complicated. If the part to be made is more complicated, he showed a 3D scanner that may be used to scan the design and create the program.

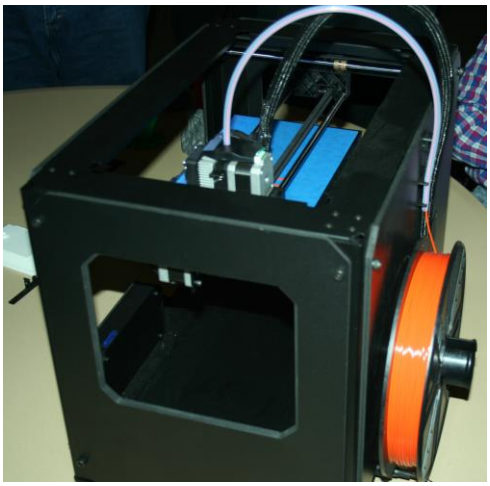


Doug's 3D printer

Finally Doug discussed the economics. Low-end printers, he explained, can be obtained for about $300, but for quality work, he didn't recommend those. His printer currently retails for about $2500. For most of us, that would be well beyond our budgets, unless we are planning to make a lot of parts or want to gain experience. However, the price will probably drop

significantly in the near future as the printers gain popularity.

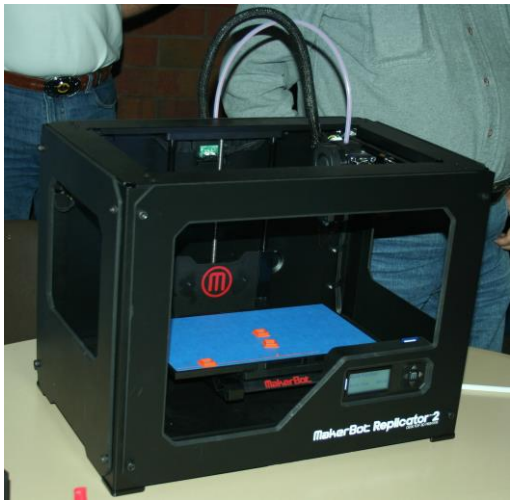
The printer works, not by printing as we think of it, but by extruding a stream of molten plastic in layers. Two types of plastic are used: ABS (such as Plastruct) or a plastic made from corn starch. The plastic is extruded onto a glass bed that Doug covered with blue painter's tape to avoid the plastic part sticking to the bed. The tape is also pricey, but he explained that one roll will probably last a lifetime.



The printer at work. The reel on the right side contains the plastic feed stock that passes through the white tube to the 'print head'.

Before starting, the print head must heat up for about five minutes and Doug cautioned us not to touch it. For this demonstration he copied six bezels onto the design so he could make six parts at a time. It then took about fifteen minutes to "print" the six bezels. Doug used orange feedstock for the demonstration, but other colors are also available. He suggested that if anyone can produce a design, it may be possible to have it commercially produced at a nominal cost.

3D printing opens an entirely new technique for making parts and its application is only limited by our imaginations.



The printer after project completion showing three completed bezels on the bed.

The NMRA Achievement Program Award

Model Railroad Engineer - Civil

The requirements for Model Railroad Engineer - Civil may look long and complicated, but they really are not. The reason that they are so long is to offer you more options for meeting the requirements.

Remember - don't read more into the requirements than is there.

To qualify for the Model Railroad Engineer - Civil certificate:

1. Prepare one original scale drawing of a model railroad track plan, identifying overall size, scale, track elevations, curve radii, and turnout sizes.

   Before you start drawing your layout plan, look at requirements 2 & 3 to see what features you are going to want to incorporate in your track plan. Remember: you do not need to build everything on this plan, just the minimum required part of it. The plan

should be neat and legible, but it does not have to be in ink.

You should also consider the requirements for Model Railroad Engineer - Electrical, and Chief Dispatcher when planning your layout - it is much easier to include the requirements in the planning stage than to go back and add them later.

This plan must include:

a. Adequate terminal facilities for handling freight and/or passenger cars
   - This will vary, depending on the nature of your layout. Keep in mind that a railroad needs to have a reason to exist, other than to provide modelers and railfans something to look at! There needs to be someone that will pay for it to haul something from one place to another, be it lumber, coal, fruit, passengers, etc. (and usually more than one thing). Your plan and your layout should reflect this. Remember, you don't necessarily have to build these facilities, just include them in your plan. This is to show that you know what the design of a logical terminal facility would look like.

b. Adequate terminal facilities for storage and service of motive power
   - This doesn't mean you need a turntable with a twenty stall roundhouse. For a small operation, a simple engine house with a fueling track may be sufficient. It should be consistent with the theme of the rest of your plan. Again, remember that you don't necessarily have to build these facilities, just show that you know how to plan one.

c. A minimum of one mainline passing siding

d. Four switching locations, not counting yards, interchanges, wyes, and reversing loops
   - These would typically be spurs for setting out or picking up cars. Again, each one should have a purpose.

e. Provision for turning motive power *(except for switchbacks, trolley lines, etc.)*
   - A turntable, wye, or reverse loop, which actually changes the way that the motive power faces. Not just a loop of track that sends it back through the scene in a different direction on another track.

f. Provision for simultaneous operation of at least two mainline trains in either direction.
   - Remember, you don't have to actually build this, just show it on the plan.

2. Construct and demonstrate, the satisfactory operation of a completed section of the model railroad and track work described in #1. Containing at least 25 linear feet in Z, N, or TT scale, or 50 linear feet in HO or S scale, or seventy five linear feet in O scale, or 100 linear feet in G or #1 scale, or other scales in proportional relationship to HO scale, with appropriate ballast, drainage facilities, and roadbed profile, which may contain spurs, yards, etc.

   Notice that last part - 50 feet of track, not 50 feet of main line - all operational track counts. While there is some element of scenery (appearance) to the track work and ballasting, the greatest number of points come from Construction and Conformity. In other words, what you need to show is that you know how to build track following prototype practice.

The track work must have examples of six of the following features:

- Passing Siding
- Spur
- Crossover
  - A crossover is a diagonal track connecting two parallel tracks.
- Reversing Loop
- Wye
- Simple Ladder
  - A ladder should have a minimum of 3 tracks
- Compound Ladder
- Turntable
- Transfer Table
- Super Elevation
  - Banking the track and roadbed on a curve.
- Simple Overhead Wire - *A single overhead wire (such as on a trolley system)*
- Compound Overhead Wire (catenary)
  - One wire which carries the power, with another wire above to support it (such as on high-speed electrical lines)
- Scale Track
  - A track with a scale for weighing cars.
- Cog Railway Track
- Coal Dump Track
  - Could also be for dumping something besides coal
- Ash Pit
- Service Pit Track
- Grade Elevation
  - This is a lot simpler than it sounds: it's any change in the slope of the track, like at the top or bottom of a hill. It's to show that you can make the transition smoothly between grades.
- Other _____

3. Construct for Merit Judging, scratch built scale models of any three of the following, and demonstrate their satisfactory operation:
   - Turnout
     - Point or Stub
   - Crossover
   - Double Crossover
   - Single Slip Switch
   - Double Slip Switch
   - Crossing
   - Gauntlet Track
   - Gauntlet Turnout
   - Dual Gauge Turnout
   - Gauge Separation Turnout
     - Narrow gauge splitting off from dual gauge.
   - Double Junction Turnout
     - One set of parallel tracks diverges from another.
   - Three-Way Turnout
   - Spring Switch
   - Operating Switch in Overhead Wire
   - Other _____

Commercial frogs are not permitted to be used in any of these items. These models may be built and demonstrated as part of the layout or separately.

Remember that these items do not need to be part of your layout - they don't even need to be the same scale or gauge. They don't even need to be part of a layout at all. You can build them on separate pieces of wood. They just have to be big enough and with enough track on either side to "...demonstrate their satisfactory operation. " This means that a unit of motive power must be able to travel through them (along all the possible routes) under its own power.
It is **NOT** sufficient to push or pull a car through by hand.

4. You must win a Merit Award (at least 87.5 points) with the items in section 3 above.

   Notice that you only have to win a Merit Award with the items in section 3 - the trackwork items in section 2 don't have to be judged at all, except to demonstrate that they work. They must be available for examination by the judges, however.

5. You must submit a Statement of Qualification (see SOQ below) which includes the following:
   - Attachment to the SOQ showing the track plan required in Section 1 above. The attachment should include:
     - Identification of all scratch built features
     - All commercial components used
     - Materials used in building the model

     (This is just a list of what was used - you don't have to try and figure out how much)

   - Description of the track work features, methods of construction and identification of commercial components used in Section 3.
   - Verification of the Merit Awards(Photocopies of the certificates or signed judging forms.)
   - Witness Certification showing that each of the above models meets all applicable NMRA standards.

Further Information

Contact National Achievement Program General Manager, Paul Richardson, MMR achiev@hq.nmra.org, or your Region or Division Achievement Program Manager for more information.

Forms available for this category:

- SOQ Form: (PDF)
- Record and Validation form: (PDF)