BANTRAK Newsletter

Volume 32, Issue 4
May 2019

The Engineer's Cab: Martin Myers

We have reached our summer slow down month. Time to get those outdoor projects done but don't forget our trains. Rainy days are great for getting some modeling done. The annual N Scale Convention is approaching. Chicago is the destination. June 26 – 30 are the dates for this year's convention.

With no other location for our May meeting we will be meeting at my work garage at 3202 Southern Avenue in Northeast Baltimore (21214). May 19th at 2:00pm. Please try not to arrive before 1:45 as there is no street parking and I will not have the gate open before that time. There is plenty of parking on the lot. This is the lot where we keep our club trailer. The facilities are very limited but there are plenty of seats. Please enter the building through the front door facing the street. Any member that may be coming through the city to this meeting needs to know that Harford Road is closed for several years to replace the bridge over Herring Run. Belair Road or Hillen Road are the alternate North/South routes.

We are in serious need of meeting locations in the upcoming months. As of today we do not have a location for June, August, September, or November. If anyone can help with this, please reply.

Alan and Debbie Del Gaudio will be hosting us at their home on July 20th for our annual club picnic and meeting. More details will be sent to us.

Our next official show and layout will be the 15th annual N Scale Weekend in Altoona, PA. I will again coordinate this show as Mike Phillips has already been in contact. More information will be posted as it becomes available. This is an all N Scale show and sale. No doll house or horribly oversize stuff at this show. I wonder what color the shirt will be this year? Several of the members have already reserved rooms at the Super 8 Motel in Altoona. The facilities are nice and well maintained and reasonably priced.

We have secured and built four T-TRAK modules for this year's raffle layout. Track has been obtained. Three of the four modules will be fully T-Trak compatible. The fourth will include a crossing so it will not be possible to use this one on a fully compliant T-TRAK layout. Electrical modifications will be on this module so that the other three will work reliably as our raffle layout. The next phase will be scenicking the modules. We need a theme for this year and that will be one of the subjects of this month's meeting. Hopefully we can send each module home with a volunteer at our June meeting so that they can be worked on during the summer. Of course structures will also need to be built so more there will be more opportunity to participate in this project. Our hope is to have the four modules ready to go in time for the October Scale Show. Completing one T-TRAK module should make this task easier by spreading the responsibility in four different directions.

Regards
Martin

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Next Meeting...

May 19th

Timonium recap: Lauren Baker

Notes from the April show. We had a large layout incorporating both sets of the "free mo style" curves. The setup gave us some ability to take advantage of running in opposite directions on blue and red.

Thank you to all that brought modules and those that just came to help with setup and teardown. Also welcome to our new members that came to their first show, Ken Malone and Ethan.

Setup went fairly smoothly. The space corners marked out by the show coordinators were a little tight (3 feet missing) and incorporated the columns on the east end. Since I had to use all of our available space east to west to fit the configuration, that was a problem. We measured 50 ft off the column line and marked new starting points and the layout was able to fit. I marked all 4 corners which seemed to help with the setup process as we didn't have to make much of a final adjustment to make the layout meet.

The morning run slot on Saturday was pretty rough on blue, derailments derailed our opposite running. However it was fun at the meets while it lasted. Adjustments were made throughout the day on Saturday as the layout was tuned. The layout started running reasonably smoothly. Speeds were restricted on horseshoe curve both days. I didn't see many folks working with the opposite running idea, the sidings weren't ideally placed for that purpose.

Hopefully someone can come up with a future arrangement that keeps the passing sidings farther from the yard so there isn't too long of a wait on the passing siding. Of course in real life waiting is a way of life.

Lauren

New Member Spotlight: Ethan Bernstein

I will start with the basics. My name is Ethan Bernstein, and my Dad is Joshua Bernstein (who is just getting into the hobby). I have always had a deep admiration for trains, and the hobby started for me when I discovered n-scale for the first time one summer.

I had a Bachmann HO scale starter set with a GP-40 that I loved for a while, but once I found n-scale, that is when I truly became interested in the hobby. I have already built five different layouts, not due to moving reasons, but instead experimentation.

Currently I have two layouts, one, which is about a nine by four foot L-shaped layout (the bigger of the two), and another, small, also n-scale switching layout which I have just begun constructing. The second layout is quite small, but has two levels: the bottom for staging with a helix up to the soon-to-be scenicked portion with small industries and towering mountains.

The larger layout has both NCE DCC and DC control, and the smaller layout is DCC. Both layouts use Kato Unitrak (I adore this track as it looks pretty accurate, is very reliable, and is easily rebuildable to form new track configurations), and are both still under construction. I have a growing locomotive fleet of thirty engines (including an Athearn Big Boy and a Scale Trains GTEL), along with a little over one hundred train cars.

Moving on to the prototype, my favorite railroads are Union Pacific, B&O, C&O, and the PRR, though I am a freelance modeler and will buy just about any locomotive or train car from any time and any road.

In addition to U.S. prototypes, I also like the high-speed electric trains of Europe and Japan, as well as German steam locomotives. Outside of trains,

I love to play tennis and play on my high school tennis team, as well as run cross country. I also play cello and piano.

Ethan

3D Printers: Bob Bunge

I usually enjoy learning newer technologies. I also like to make things. In the past, I've made telescopes which has involved wood, metal working as well as glass shaping. In recent years, on top of N-scale modeling, John developed an interest in rocketry, moving from assembly of kits to using a computer program to design his own, using off the shelf and custom parts. In between has been woodworking.

At some point, it occured to us to ask Santa to bring a 3D printer to use with both trains and rockets as well as other hobbies. Having watched the technology for a bit, talked to a few folks, we started to research possible printers. Selection was a serious challenge… or fun depending on your outlook. There are several technologies and price ranges. A breakthrough occurred when John's computer science/robics teacher suggested that getting a printer in kit form would save money and allow a step up in quality.

At the amateur level, there are two primary 3D printing technologies, plastic extrusion and resin. In short, plastic extrusion feeds in a long string of plastic, called a filament, heats it and deposits tiny bits in precise locations to slowly build up the print from bottom up. These extrusion, or FDM printers tend to be cheaper. There are many different types of plastic, hard and soft, available in about every color you may desire, including transparent and glow in the dark. My experience is after the print is complete, there is a fair amount of post printing work. More on this later. But FDM printers have a lower resolution for fine detail than resin and therefore are at a disadvantage when it comes to fine work, as is required for N-scale.

Resin printers start with a container of liquid resin. A laser or UV light is used to harden the resin in a such as way the print slowly rises out of the pool of resin. Resin printers, often referred to as DLP or SLA printers, tend to be more expensive, but have higher resolution when it comes to making fine detail. Because the resin creates fumes, many people recommend working with these printers in a space with good airflow or in a hooded environment. Post printing, resin prints need to be cleaned in alcohol then cured in sunlight or under UV lights.

A combination of cost and the fume issue steered me to start off with a FDM printer. After reading and watching a number of reviews, we settled on a Creality Ender 3. You can find these on both Amazon and Ebay from a number of vendors.

The printer went together in about two hours using only tools that came with it. The instructions are visual; drawings, with bits of English and Chinese instructions. Assembly was easy. There was at least one spare screw of each type used. It then took me about 30 minutes to "level" the printer. In short, I was up and running and printing a test about four hours after opening the box. The hardest part? Understanding how to actually start a print. For that, there were a number of Youtube videos.

To step through the printing process, in short, there are about a dozen websites that host thousands of 3D files. Most are free, others cost money to download. Once you have downloaded a 3D object file (there are a number of different data formats), you open it with a "slicer" program. The Ender 3 came with a slicer program called Cura. The version that it came with was pretty old, but wasn't difficult to find the Cura website and download the most recent version. After selecting the type of printer you have, you open the data file. The slicer program then allows to you position the object on the print "bed," and set a number of parameters used in the printing. These include the temperature of the extrusion head and the temperature of the printing bed. The bed is the base of the printer to which the material is extruded to. This needs to be warm, else the hot plastic coming out of the head would cool and not stick to the bed. There are a number of other parameters to learn and tinker with. If you like to tinker and experiment, it's a good time. The temperatures vary based on what material you are printing with.

3D Printers: Bob Bunge

The slicer program calculates how the printer will make the object. It is, in fact, slicing your model into layers and providing instructions to the printer how the printing head moves as it builds the print. The slicer program provides an estimate of how much filament will be used and how long the job will take. Once you are done with the slicer program, a data file is saved to a SD card. This card is then inserted into the printer. A menu on the printer allows you to select your file and start the print job.

Stepper motors on the printer move the head across the bed, or the bed under the printing head, in three dimensions - X, Y and Z (Z being height). As the head moves, another stepper motor extrudes small amounts of the filament. The head moves around the bed to deposit material for the bottom layer. It then moves up a layer and starts over.

Because the opening of the extruder is 0.04mm, that is in effect the resolution of the printer. While that sounds small, as the layers are built, you can visually see the layers up close.

As the model is printed, when there are overhangs, the print will fail if the head would try to deposit material without any support. Image building a signal bridge that spans all three mains on our modules. You start at the base, but when you get to the span, the model becomes deformed when you reach the horizontal span. One way to counter this is to build a support starting from the bed of the printer. Once the print is done, you then need to trim away these supports.

As a result of the supports and layers, many models, require a fair amount of post printing work. This is usually in the form of using snippers, needle nose pliers and a small knife to remove any supports and trim up edges. This is often followed by small files and sandpaper to smooth rough edges and remove layer marks that you dislike. For us modelers, this isn't all that different then assembling a kit, but perhaps more of it. The most common material for FDM printers, a type of plastic called PLA, is tough, but is pretty easy to sand and cut, but is brittle enough that small parts can sometimes break off. But PLA responds very well to CA glue. Another material, ABS, is more difficult to print, but responds to Acetone for removal of material.

I quickly found a cache of printer files for World War II vehicles. Since I've had a interest in building a WWII train, this was a great place to start. In a matter of a couple of weeks, I had mastered loading the files, scaling the model to N-Scale size, printing and finishing the models to the point I now need a fleet of flat cars to carry the loads. Some more hunting around found files for a simple two piece 50 foot flat car. Some test prints suggested I'll need only a few minutes of post clean up, including drilling holes for microtrain kingpins. While I tested making weights for the cars, testing showed they run fine with a load on them.

Final tests occurred at the February Scale show when I ran a six car train for most of a shift without any major problems. The cars and loads looked good with several positive comments from both club members and the public. In my case, I purchased the bulk sets of microtrain trucks with truck mounted couplers.

The way this car is designed, there is no reason you could not add body mounted couplers. After printing a test car using red filament followed by painting; I purchased black and brown filaments. The test car took about 3 hours to print, with the printer making the deck and base at the same time. The next step was to print five decks, in brown, at a time, the five bases in black at the same time. Combined, this is about a ten hour print time.

3D Printers: Bob Bunge

Another find was a basic 55 ton hopper. These not only seemed to run well on a basic loop at home, but are a pretty good representation of a PRR class G hopper of which the PRR had thousands. I've long wanted to build a coal train. While not of rivet counter quality - for example, it would be up to you to apply grabs, air tanks and brake wheels - I think they will look just grand on the track. However, testing at the February show showed there is more work to be done.

As printed, the trucks don't sit level with the track; with the axle closest to the center of the car lifting up above the rails. While this remains to be troubleshot, it will not doubt require the use of a knife or file to clean up the bolster to allow the truck to ride correctly.

The hopper body costs about 16 cents to print. A pair of Microtrain trucks run about $4.50. A set of decals about $4. Printed using black filament, only bottom and top clear coats of paint are needed, so I figure about $10 per car and my own time in putting them together. Printing five cars at a time takes about 18 hours.

But making rolling stock was not my original intention for the printer. I had researched enough to know there are files for wayside buildings and other details that can be used for any layout. I can't have enough automobiles and trucks on our modules. Tests show that cars can be printed, but the detail is limited and basically FDM technology is at the very edge when it comes to n-scale. Nonetheless, I have printed a number of automobiles. A resulting job was a Farm-all tractor that I've painted and weathered to match a tractor my father-in-law had restored and used. During visits, I had both worked on this tractor and learned to use it on various tasks around the farm, so it will be a nice personal touch on one of our modules.

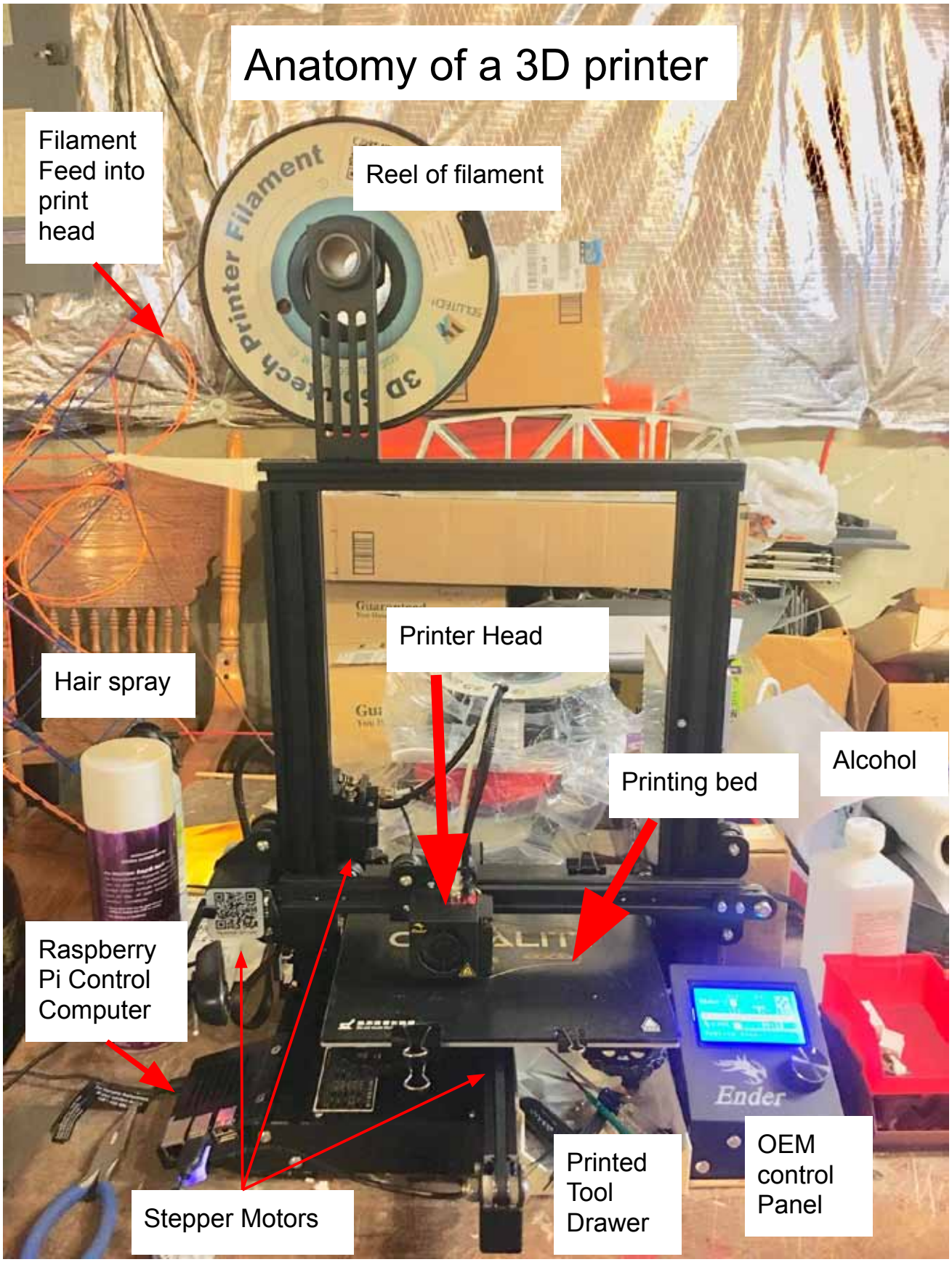
Browsing around finds files for shipping containers, a number of buildings, fences, railers, and many other objects. I've also now printed a series of stackable project containers to hold printed parts that I'm working on, a container to hold various small part like small screws, etc.. There are tool holders and other desk side accessories. I have also printed a number of upgrades to the printer, including a device to better feed the filament into the printer, a niffy drawer to hold the tools used to maintain the printer.

The next major step is to pick and learn a 3D CAD/design software. You use this software to virtually build your model with the output file going to the slicer software. John will use this software to design custom parts for his rockets… nose cones, fins, etc.

See an image of my printer and discription on the following pages.

Bob

- Filament is the ink of a 3D FDM printer. A reel holds about 2 lbs of a several hundred meter long 1.75m thick plastic that is fed into the printer head;
- Printer Head: Here the filament is melted at about 200 degrees C and extruded out to make the print. On this printer, the head moves left and right (Y axis) and up and down (z axis);
- Printer Bed: This is usually a type of glass and is heated to about 50 degrees C to help hold the piece in place. On this printer, the bed is moved front and back (X axis) by a stepper motor;
- Hair Spray: This is used to help make the printer bed sticky so the filament will stick;
- Alcohol is used to clean the bed after each print run;
- Stepper Motors are computer controlled motors that rotate in very precise amounts, or in small steps;
- Raspberry Pi: this is a small computer, an add on, that is used to control the printer remotely via Wifi, a web browser or a smartphone app. The computer is in a 3D printed case;
- Control Panel: The out of the box control panel for starting print jobs, etc.
- Tool drawer: The printer came with a collection of tools originally used to assemble it. This is a printed draw to hold the tools. There are other printed accessories, including a filament feed and stackable project cases.


Anatomy of a 3D printer
Filament Feed into print head
Reel of filament
Printer Head
Hair spray
Printing bed
Alcohol
Raspberry Pi Control Computer
Stepper Motors
Printed Tool Drawer
OEM control Panel

NMRA Mini Con recap: Al Del Gaudio

Many thanks to our members who participated in our N-Trak and T-Trak displays, at the NMRA joint Potomac and Chesapeake Divisions, whether bringing modules, setting up, running and/or tear-down!

The organizers told me the Mini-Con drew more attendees than expected. A number of them came by to check out our layout. Given the limited space, it seemed the "no-Yard" layout worked well to showcase our scenicked modules. This is a crowd which is predominantly running larger scales and I think we made a hit. Certainly, I hope so.

To fit comfortably in the space provided, T-Trak used an 18-foot layout with the tight 180 corners. For N-Trak, we used a 10 x 30 N-Trak layout format. Challenges in tweaking the layout were encountered but it was great to see we had trains running all day. Moreover, we ran efficiently and amicably without a run schedule. Paul Diley's enhanced Roanoke Yard module set served us well for setting up. Thanks for the upgrades Paul!

It was a good show for passenger trains and we had a good quantity of short- to medium-length freight trains. We were usually running 2 trains per line.

By 7:55 Friday, the modules were clamped in place and we started with joiner track. That was completed Saturday morning by 8:15 and with a little bit of work buzzing out the N-Trak layout, we were running by 9. T-Trak was good to go even earlier!

I know the chairman of the 2021 Mid-Eastern NMRA Convention was enjoying his chance to look us over. The Chesapeake Division will host this 3-day convention in the Baltimore area sometime in September/ October, 2021, and we'll be thinking of modular layouts, hopefully with some switching activity, for persons to partake in,

Back from the Future, we had set up in the original church, built in 1894. If I remember right, the rest of the facility was built or added to in the late thirties, mid-fifties and early nineties. Thank you to the group that stayed to place all the furniture leaving the room as we found it on Friday at 5:45- and thank you for vacuuming the carpet. I'm sure it helped show BANTRAK in a very complete, professional light!

Alan Del Gaudio

Upcoming Conventions:

Upcoming Conventions:

15th Anniversary

"2019 N-Scale Weekend"

N-Scale Model Train Show

Saturday August 3rd, 10 AM till 5 PM
Sunday August 4th, 9 AM till 3 PM

ALTOONA JAFFA SHRINE CENTER

2200 BROAD Ave., Altoona, PA 16602

General Admission: $5
Under 12 Free w/adult

Participant & Vender registration forms see below or,
e-mail: weekendnscale@yahoo.com Web: www.n-scaleweekend.com
Bedford Model Railroaders c/o Mike Phillips
773 Barclay Drive, Bedford, PA 15522
Phone or Text: 814-977-4933

N-Scale Model TRAINS & SUPPLIES

TEXNRAILS, WINGARD'S TRAINS, THE N-CELLAR, CRAZY TRAINS, SCALETRAINS
NEALS N GAUGING, BUNKER HILL TRAINS, BMRR, BOSTON & ALBANY HOBBIES,
CMR PRODUCTS. ESTHERS HOBBY, MIKE SABIA, MICRO TRAINS LINES, FOX VALLEY
RANDGUST, PAUL BANNETT, GARRY LANCE STEEL, TIM CASAZZA, SCOTT LOHR,
W. NEAL TRAINS, RICK PELTZ, WURTZ TRAINS PAUL DICKASH, FRANK FEDROFF

14 Large Operating N-Scale Train Layouts + Several Small Layouts

BALTIMORE AREA N-TRAK & T-TRAK, TWIN TIERS N-TRAK, JERSEY CENTRAL N-TRACK
CAPITOL PENNSCALERS N-TRAK, GENESEE & ONTARIO MODEL N-GINEERS,
THREE RIVERS ASSOCIATES N-TRAK, NEW JERSEY SOUTHERN N-TRAK, CANTINGTON N-TRAK
PENNSCALERS, NORTHERN NEW JERSEY N-TRAK, T-TRAK DI VISION, STEEL TOWN N-TRAK
PITTSBURGH LITE TRAK, & BEDFORD MODEL RAILROADERS

MAKE CHECK PAYABLE TO: **BEDFORD MODEL RAILROADERS**
$25.00 FEE FOR ALL RETURNED CHECKS.

NAME: _____
ADDRESS: _____
CITY: _____ _____STATE: _____ZIP:_____
PHONE: _____E-MAIL OR FAX:_____
"Weekend Participant" $10 _____ Pig Roast w/ All the "Fixins" $13 _____
Event T-Shirt: $13 S M L XL $15 XXL XXXL Circle Size

Total enclosed: $_____

EXHIBITORS & PARTICIPANTS ACCEPT FULL RESPONEIBILITY FOR LOST AND OR INJURY TO THEMSELVES, FAMILY, STAFF, AND PERSONAL PROPERTY WHILEATTENDING THIS SHOW. THEY EXPRESSLY RELEASE THE SHOW MANAGEMENT FROM LIABILTY FOR ANY LOSS AND/OR INJURY. Aug 2, 3 & 4, 2019.....

Train Spotting: Ed Kapuscinski

BANTRAK Membership: Al Palewicz

BANTRAK does a significant amount of charitable activity, although we rarely think of it that way because we get pleasure out of it. When you think about it, that is as it should be with all giving from the heart.

What is our charitable activity? Our major participation is in the B&O Museum's (which is a charitable organization) Annual Festival of Trains. Our display has been a major draw for people to come to the Museum for many years, both recent and in the past. There are plenty more examples, this is just one.

Please contact Treasurer Alan Del Gaudio for more information regarding your membership status and roster questions or contact Al Palewicz with general questions.

Member Benefits:

- Sharing of your knowledge (railroading & modeling) with others of similar interests
- Access to railroading and modeling knowledge of other members
- National exposure and recognition of your endeavors in modeling
- Hands on activities: Club modules - track, wiring and scenery. Raffle layout - track and scenery Members' layouts
- Recognition as being part of a Nationally known club.

BANTRAK 2018-2019 CALENDAR

Date	Event	Location	Contact	Type
May 19th	General Meeting	Martin's Work	Martin	Meeting
June 26-30	Convention	Chicago	NA	N-Scale Convention
June 23rd	General Meeting	TBD / Location Needed	Martin	Meeting
July 20th	Club Picnic	Al Del Gaudio's house	Al	Meeting / event
August 2-4	N-Scale week-end	Altoona	Martin	Show
Oct. 26-27th	Great Scale Show	Timonium Fair Grounds	TBD	Show

BANTRAK CALL BOARD

CLUB WORK SESSION 2019

Contact Tim Nixon, Eric Payne, or Paul Diley for work session information.

BANTRAK was founded in 1983 as the Greater Baltimore N-Scale Associates. Begun as a "round robin" group to share skills and experiences, we have expanded our focus to include participation in many diverse activities to promote model railroading in general and N-Scale model railroading in particular. Activities include participation in local, regional and national shows, meets and conventions. BANTRAK membership includes membership in the national NTRAK organization.

The BANTRAK Newsletter is the official publication of Baltimore Area N-TRAK (BANTRAK), Inc. This is your newsletter! Please send articles, photos, and suggestions to newsletter@bantrak.net
Editor: David Betz