On3 Trainbuffs in Zurich

The On3 John Armstrong Memorial Layout

by James Stapfer
Photos by the author

Introduction

In the autumn of 2004, a group of model railroaders near Zurich, Switzerland, met and formed the On3 Trainbuffs with the aim of building a modular On3 layout to be displayed at shows and exhibitions in Europe. The search for a room in which to build and house the layout led us to a large factory building with 3821 square feet available. We were able to rent two-thirds of this space. So, we decided that, with so much space, we would build a permanent layout instead of a modular one.

Earlier, back in 1991, the late John Armstrong had designed an Sn3 layout for me. It was never built, but I still had the plan. So we modified it to On3, simplified it, and adapted the plan to fit our available space.

The layout is 65 x 39 feet, the minimum radius is 48 inches, and trains climb from 35 inches from the floor to 75 inches (above eye level). The era and setting are roughly from 1940 to 1950, mainly on the Denver & Rio Grande Western and Rio Grande Southern. Some members also model logging and Uintah Railway equipment.

Construction

Most of 2005 was occupied by planning the layout, and by cleaning, and painting the room. Then in 2006, we started construction. We tested steel girder construction versus wood L-girder construction, and finally settled for the wood option. It proved to be easier to build, and more stable.

The stations and yards were built on ¾-inch-thick plywood. The roadbed was built from 0.19- x 0.8-inch Masonite strips spliced together. Ties were hand cut, and we used Micro Engineering Code 100 rail. All turnouts were hand-built by Andy Meier, using a template. The mainline track was hand-laid, and all the rail was weathered before being spiked down. The storage tracks are San Juan Car Company Code 100 flex track.

The scenery is hard-shell over cardboard strips, and/or chicken wire.

Electrics

The layout is operated with a ZIMO DCC system with wireless remote control. Most of the decoders are Tsunami® with additional ZIMO function decoders when the Tsunamis lack sufficient outputs. Some ZIMO decoders with SoundTraxx sound only decoders are also in use, as well as some ESU decoders.

Initially, the entire layout was powered by a ZIMO MX-1. Since mid 2010, the layout has been divided into blocks with the sections between stations each being a block. We recently installed DCC circuit breakers, and use various track occupancy detectors. The blocks are used to indicate whether tracks between stations are occupied or free. Since one cannot see one station from the other, this is very important to avoid head-on meets.

Turnouts are powered by either Tortoise or stall motor switch machines with external micro-switches powering relays. All frogs are powered, and turnout positions are displayed in various panels by means of yellow LEDs.

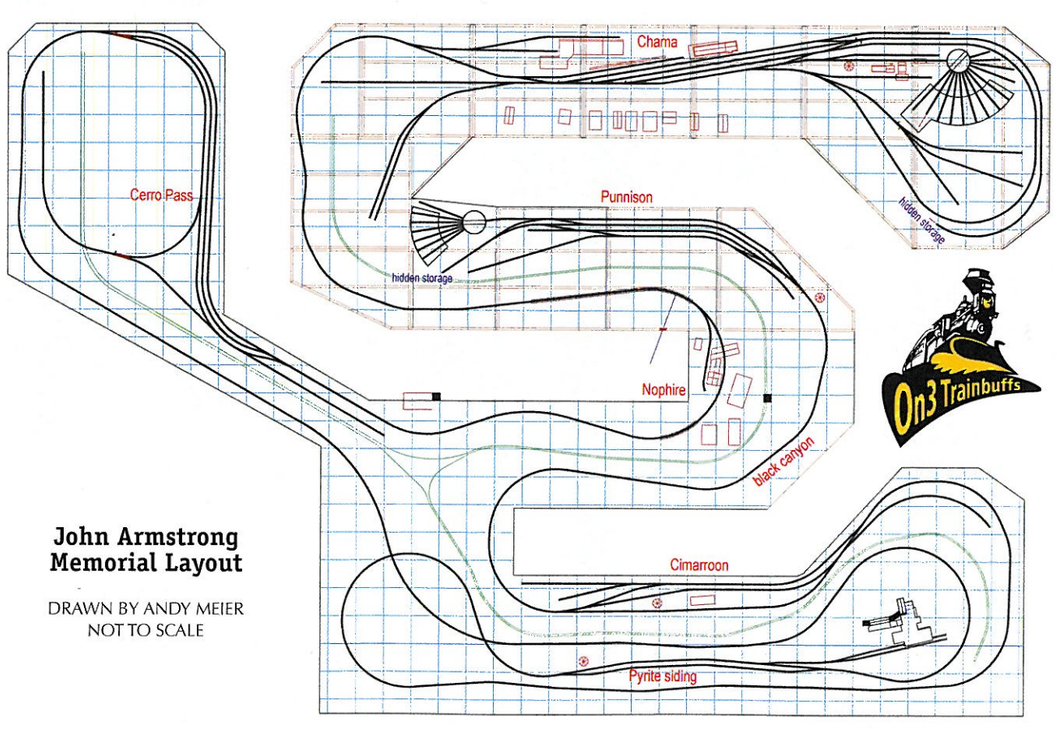
The turnouts are controlled from a central panel as well as at local walk-around switching stations. Controls in the central panels have buttons to switch entire groups of turnouts, while the local panels allow individual turnouts to be thrown.

Emergency stop push buttons and LEDs every 9 to 12 feet allow the entire layout to be disconnected from the DCC system. These switches need to be disabled during open houses since their push buttons are too much of a temptation for children to press.

Most stations have modified Kadee HO electric un-couplers. They are used for switching cars as well as for uncoupling locomotives and cabooses. Every electric un-coupler has a red super bright LED installed next to it giving a visual indication for positioning the cars during uncoupling.

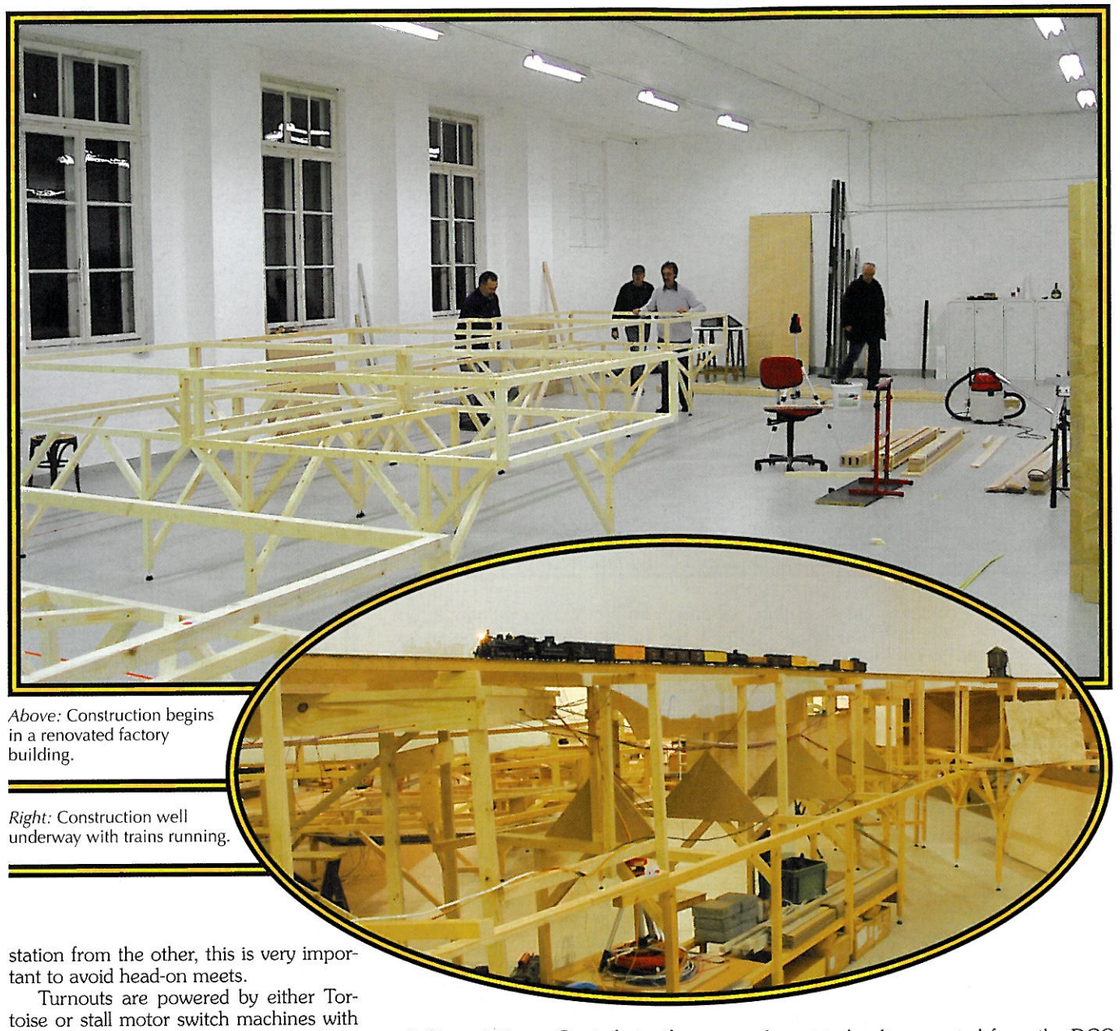
Operation

Operation is walk-around, with an engineer accompanying his train around the layout. It takes about 25-



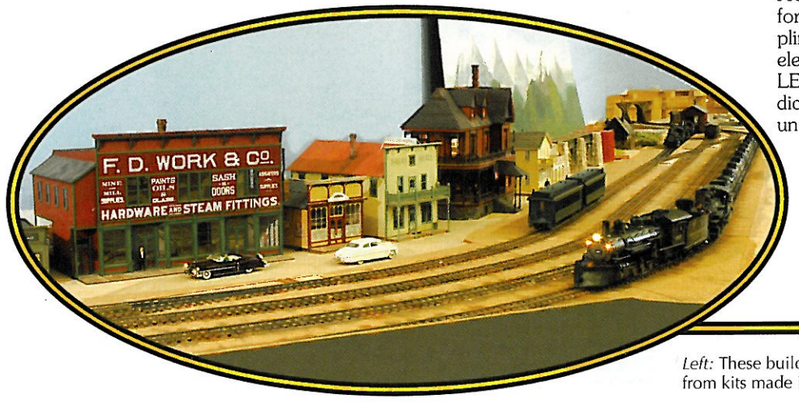
John Armstrong Memorial Layout

DRAWN BY ANDY MEIER
NOT TO SCALE



Above: Construction begins in a renovated factory building.

Right: Construction well underway with trains running.



Left: These buildings in Punnison were assembled from kits made in the United States.

30 minutes for a complete circuit of the layout, and 10 or more operators can easily be running trains at the same time.

John Armstrong cleverly designed the layout so that it runs from Punnsion, via Black Canyon, Cimarroon and Pyrite Siding to Cerro Pass with a maximum grade of 1.6 percent. In the other direction, trains run from Charma to Cerro Pass via Nophire – the grades were planned at 3.5 percent but we reduced then to 2.5 percent. This allows long trains pulled by one locomotive to run in one direction while trains need to be shorter or long trains must be broken and doubled into two parts in Charma – or a pusher locomotive must be added. For this reason we have a turntable and balloon loop in Charma, as well as a wye and holding track up at Cerro Pass. Long trains leaving Charma can be split there, and pulled up the 2.5 percent grade to Cerro Pass where the cars are pushed onto the holding track, the locomotive turned on the wye, and, after retrieving the caboose, move back to Charma to collect the second lot of cars. Once all cars are up at Cerro Pass, the train gets re-assembled, and is ready for the long downhill run. If pushers are being used, they are uncoupled at Cerro Pass, "wyed" and run back to the engine facility in Charma.

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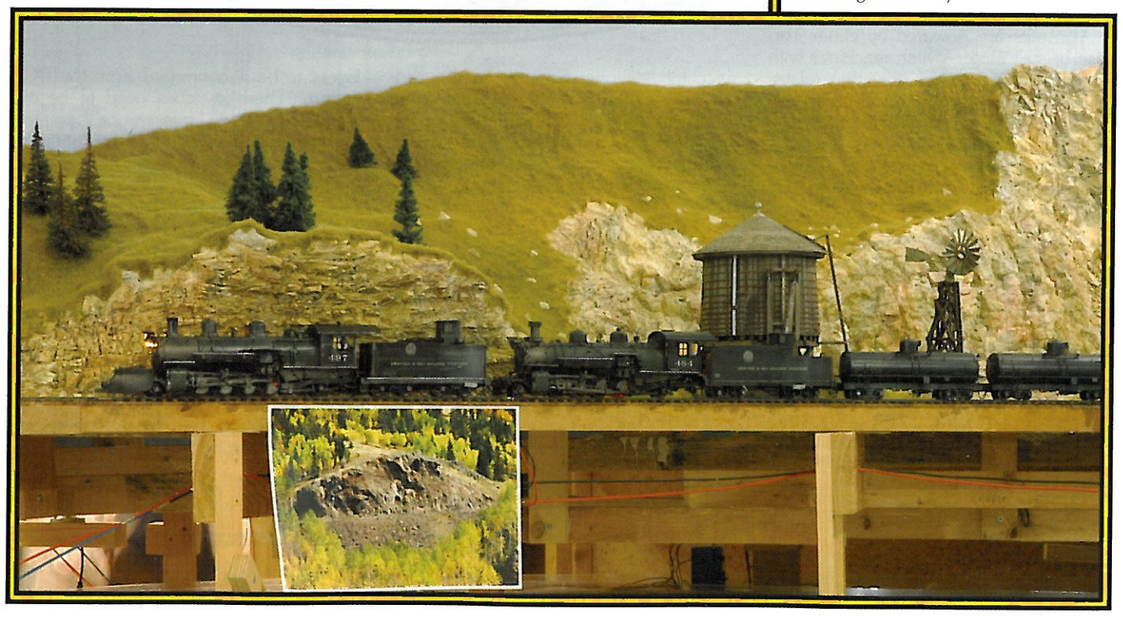
Above: A train eases through Cimarroon.

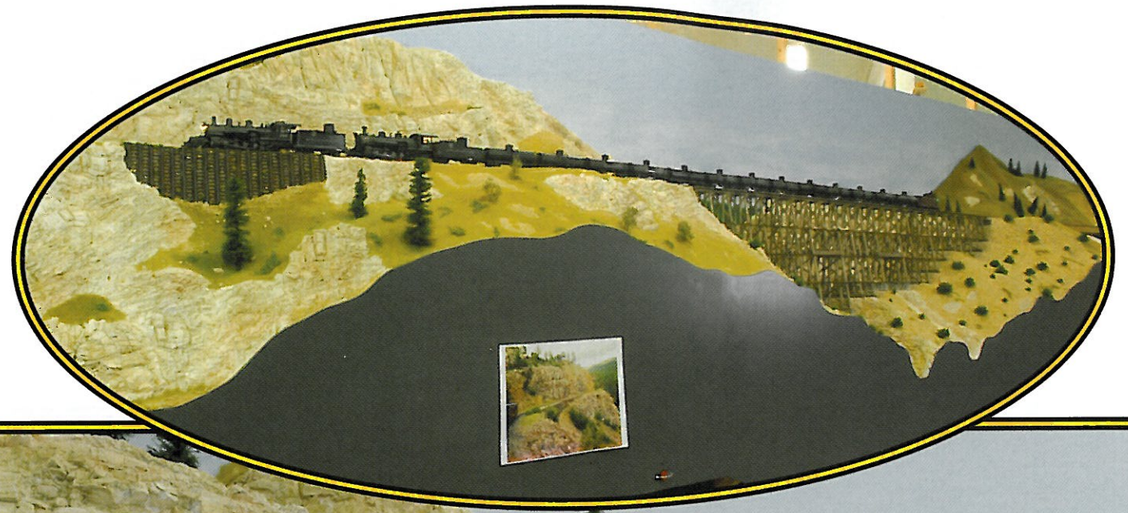
Opposite top: The large size of the layout is apparent in this photo. Note how the train is dwarfed by the scenery.

Opposite center: This double-header is entering the highline.

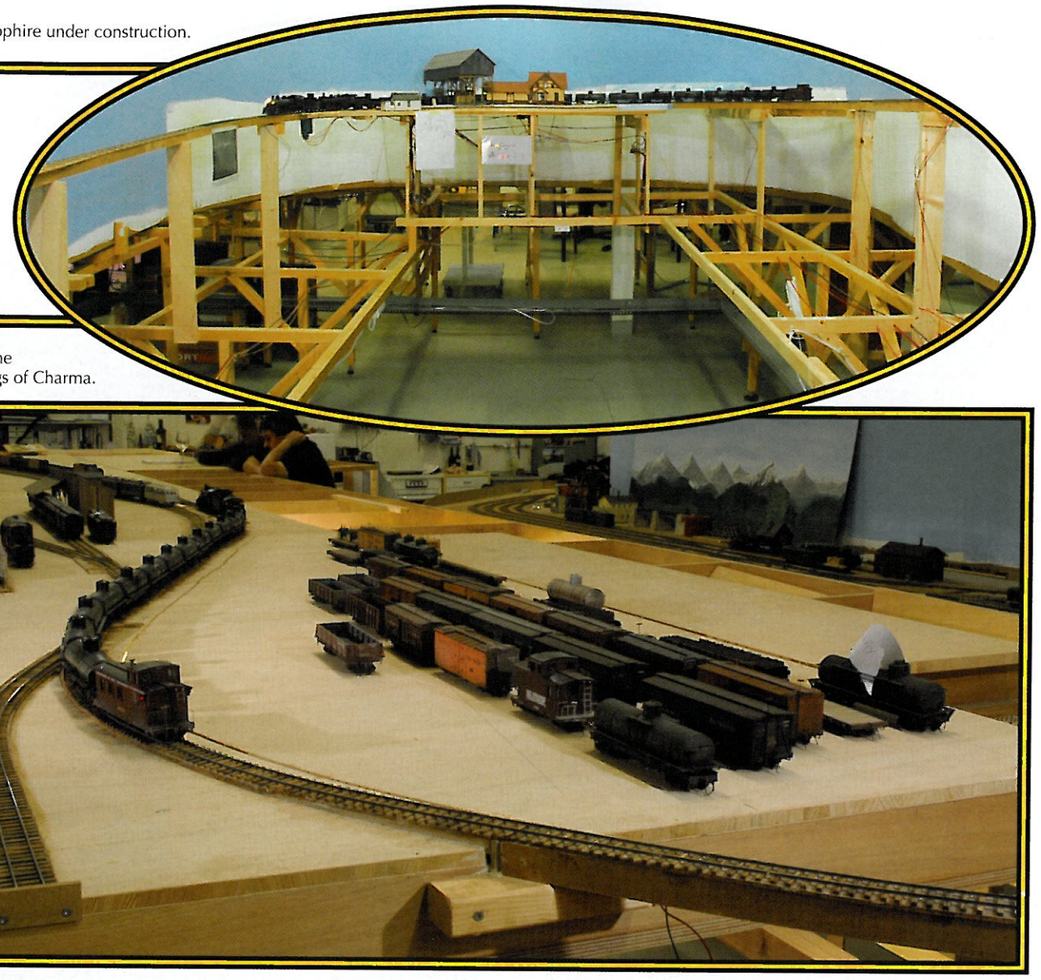
Opposite bottom: The highline easily accommodates a long train of tank cars.

Below: This double-header is taking on water. Note the photo used as a guide in building the scenery.





Right: Nophire under construction.



Below: The beginnings of Charma.

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Switching will be introduced later. We plan to have a few mines as well as a lumberyard with sawmill. A second hidden storage yard with six tracks is being built just ahead of Pyrite Siding to take some of the lumberyard and mining trains.

Further mines are planned in Punnision, Cerro Pass and Nophire. Local industries of various sorts will be situated in these towns. Charma will also have a large yard for freight and passenger cars, and some caboose tracks. An oil-loading facility, livestock loading track, and maintenance-of-way yard will complete the facilities at Charma.

Rolling Stock

We do not have any club-owned rolling stock. All models are individually owned. Most locomotives are either brass or Mountain Model Imports "hybrids," and have Faulhaber coreless motors and sound decoders. Most of our locomotives have headlights, backup lights, marker lights, number boards, cab lights, and firebox flickering.

Our passenger cars have full interiors, figures and lights. Wherever possible, we use warm-white LEDs for illumination. Our cabooses have marker lights illuminated by micro-LEDs and switched by a DCC function decoder. Each lit caboose has its own address linked to a locomotive – so if you call up a locomotive, its caboose comes up automatically.

We have not standardized on a coupler system. Some members use Kadee, and some use more prototypical couplers that cannot be uncoupled remotely. We generally encourage the use of plastic trucks with metal wheels to avoid short circuits (especially with brass cars), and find they allow for smoother operation.

In order to avoid DCC address conflicts, each member has a group of numbers assigned to him, such as 1000's, 1500's, 2000's, 2500's. He then adds a locomotive number to his number group to get the address for the model. For example K-36 #484 owned by the member in the group 2000's, gets the address 2484.

Status of Construction

As of May 2011 all mainline tracks had been completed. However, the Mine sidings, all the yards at Charma, and the engine facilities at Charma and Punnision needed to be built. Parts of the highline – including the long bridge – as well as some part of Cimarroon are completed.