

"What is Garden Railroading"

By Kenneth Majchrzak

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- **Scale & Gauge**
- **Planning**
- **Design**
- **Construction**
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"Garden" Railroading

In Britain "garden" simply means the backyard. At this juncture it might be a good idea to examine the term garden railway. In Britain, where garden railroading achieved its pinnacle, the yard outside one's house was called the garden. It didn't really matter if there was anything planted there or not, it was still the garden. Thus a "garden railway" was any railway built outdoors in the yard. It wasn't until years later that gardening was formally associated with garden railroading.

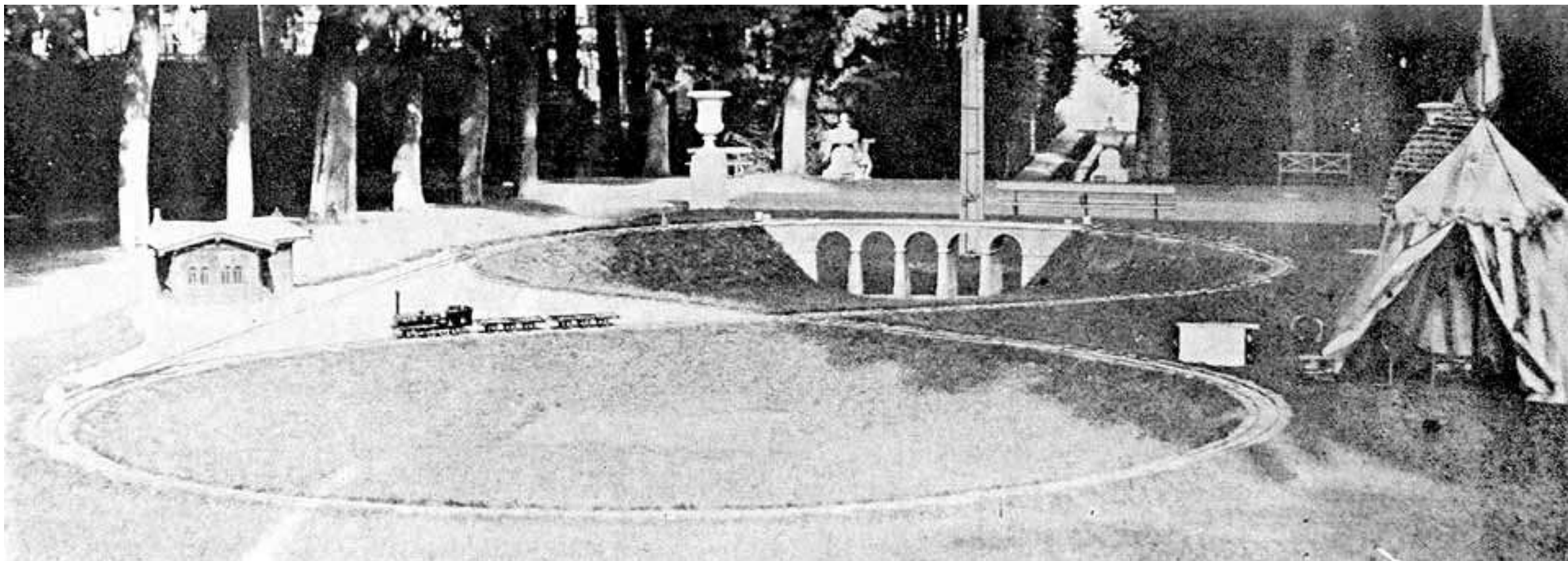
Scale & Gauge Definitions

- **These terms are sometimes used interchangeably which is incorrect**
- **Scale – The proportion of the model to the full sized train which can be expressed as a fraction or as a ratio**
- **Gauge – Distance measured between the inside edges of the rails**

Garden Railroading History

Back before the "dawn of time," say around 1860, the model train hobby was in its infancy, as was the full-size railroad industry. In fact, for decades, the development of model railways closely paralleled that of full-size railways. Railroad builders often built models to test theories and to present their ideas to the public. The concept of a fully working model railway was soon exploited. The first primitive models were made by craftsmen for themselves, or for wealthy clients. These were most often powered by steam, and were fairly large in scale. This necessitated their use outdoors.

Oldest Known Garden Railway Photograph - France 1859



In the late 1880s when the Marklin company of Nürnberg set forth to standardize gauges and scales. Their first three offerings were imaginatively named gauge 1, gauge 2, and gauge 3. Gauge 1, at 1 3/4", was the smallest, then Gauge 2 at 2" and Gauge 3, at 2 1/2", was the largest. These standards were soon adopted by virtually all European and some American model train manufacturers.

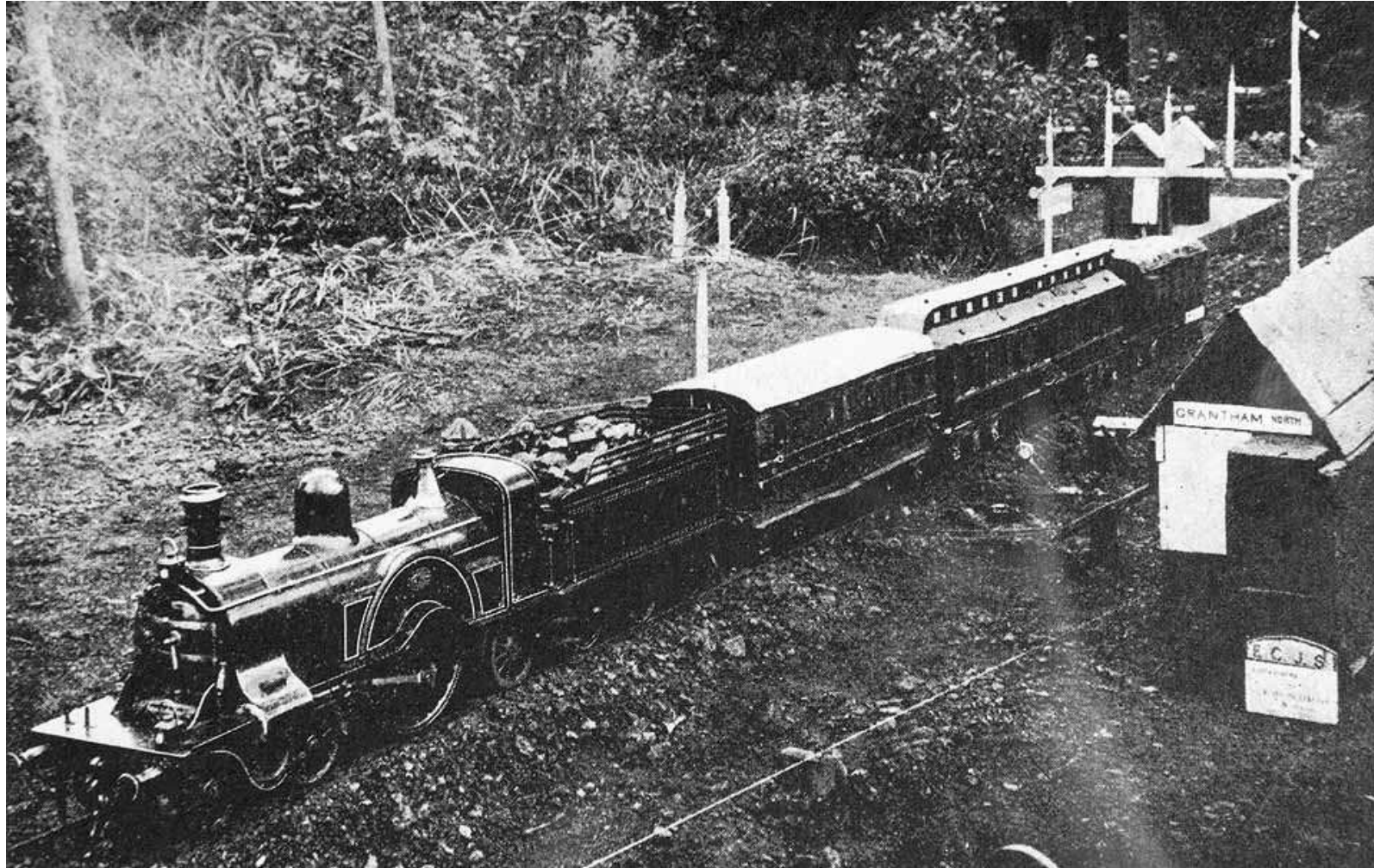
By today's standards, even the small Gauge 1 was still pretty large, and relatively few people had enough space indoors to build a railway, so they built them outdoors. The more sophisticated builders molded the terrain through which their trains ran, and added suitable plantings to enhance their lines. Hence today's Garden Railroads.

In the 1880's makers of toy and model trains soon realized that by manufacturing trains that were too big to be used indoors and too expensive for most people to buy, they were losing a good bet. So a new, smaller standardized scale/gauge combination came into being. Since there were no numbers left, the new one -- 1 1/4" between the rails -- had to be content with zero as its designation. So what we know of today as "O" gauge is actually zero gauge.

Gauge 0 took off and it soon eclipsed the larger sizes. It could be used indoors or out, the engines could be powered by old-fashioned steam or new-fangled electricity, and the trains were cheap enough so that anyone who wanted a railway could have one.

Meanwhile, out in the garden gauge 1 was still the generally accepted favorite. Several very large railways sprang up on British estates, and smaller ones were created in more modest environs. Gauge 0 was used as well, sometimes by children who brought their Hornby or Bassett-Lowke trains outdoors to build railways that varied in permanence.

Great Britain - 1898

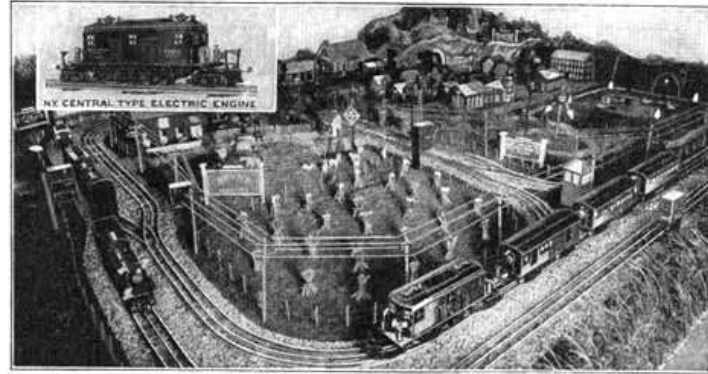


In the United States, though, things were different. Gauge 1 never had a great following. The Lionel company (followed by American Flyer and others) developed their own gauge, which they called "Standard Gauge." The track measured 2 1/8" between the rails, and fitted no common scale.

For decades during the first part of the 20th century, Lionel was the leading supplier of toy trains in America. Virtually all of their literature promoted the use of the trains indoors. Lionel was such a formidable force in the industry that they as much as dictated how the trains were to be used. Garden railroading had little chance.

During the 20s and 30s, the American Flyer Company of Chicago did a little advertising showing their products in use outdoors. And of course there was the famous Buddy-L nonpowered railway system, designed expressly for outdoor use. However, this was a large and expensive system that saw relatively small acceptance, despite the ruggedness and beauty of the trains.

American Flyer Ad - 1924



BUILD AN "American Flyer" Backyard Railroad

Backyard Railroading is the greatest sport for vacation days. Lay track, build bridges, make tunnels and operate your "American Flyer" Miniature Railroad outdoors—an extension wire from the house gives you power.

Big 1924 Prize Contest

To every boy who builds a Backyard Railroad and sends us a photo of it we will send an *Engineer's Cap* and *50c worth of Railroad Equipment*. 38 Cash Prizes ranging from \$25.00 to \$2.00 will also be given to the boys who build the best Backyard Railroads. Use any equipment. Contest closes September 15th.

STRUCTO
Grab Bucket Crane
works automatically—
loads freight cars—
great for the "Sand
Pile."



No. 111—
21 $\frac{3}{4}$ in. \$3.75
No. 52—
13 in. \$2.25
delivered

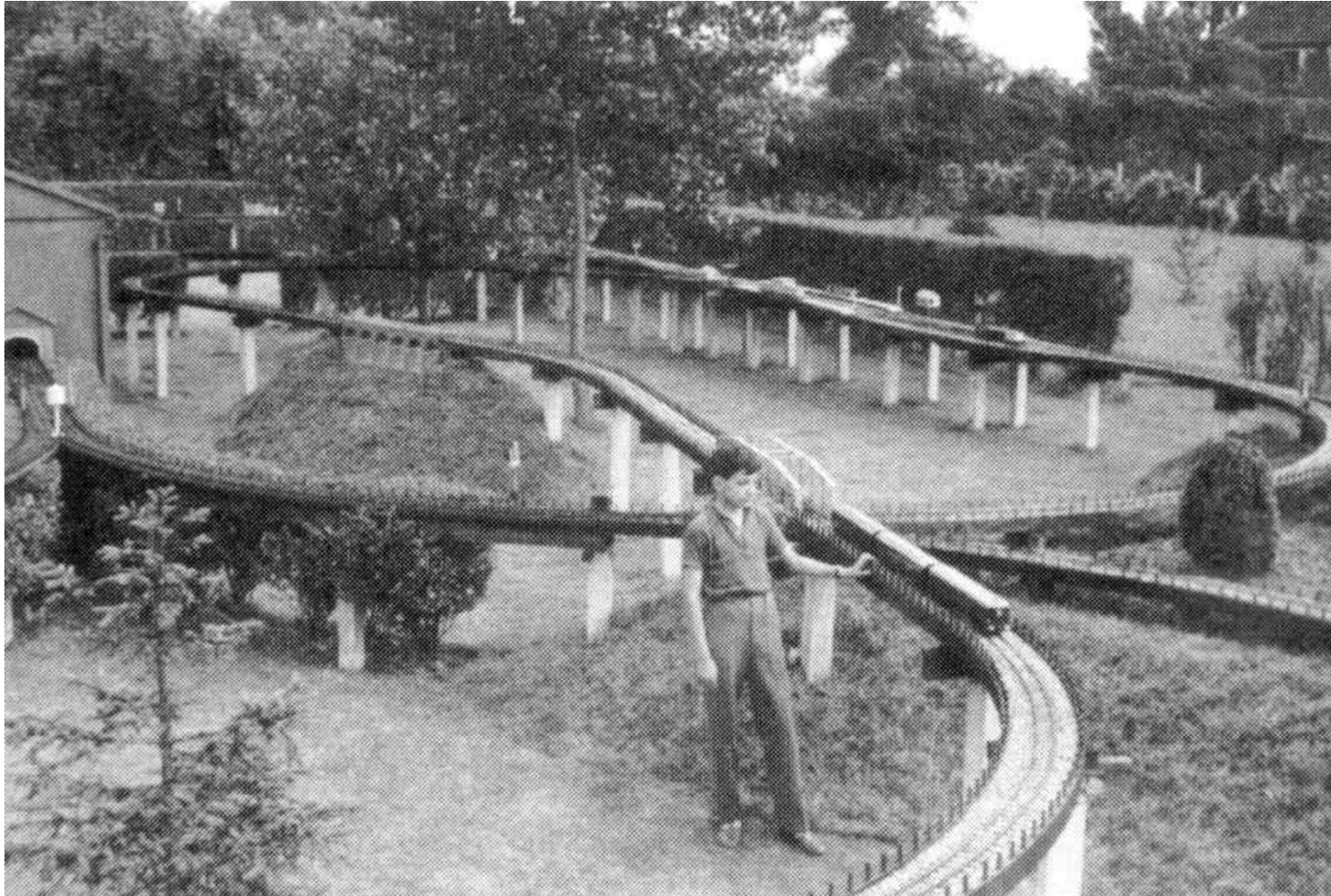
Ask your Toy Dealer or write us for
*Horace Wade's Story on The Back-
yard Railroad* and for pictures
Showing Prize winning R. R's.

Mail Photos to
American Flyer Mfg. Co.

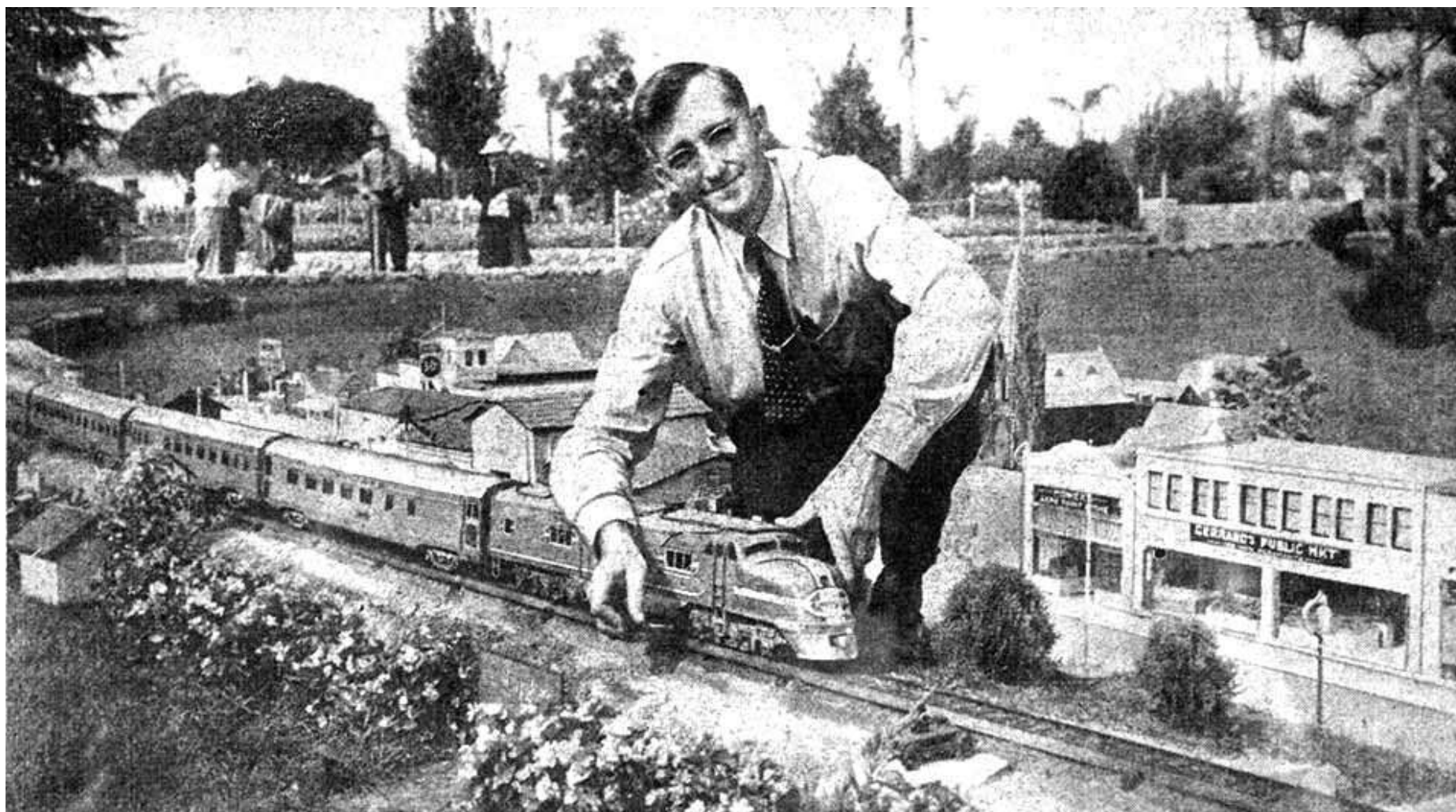
"American Flyer" Railroads
STRUCTO Hoisting Toys and Autos

2223 South Halsted St. Chicago

Garden Railroad in Great Britain – 1930's Victor Harrison



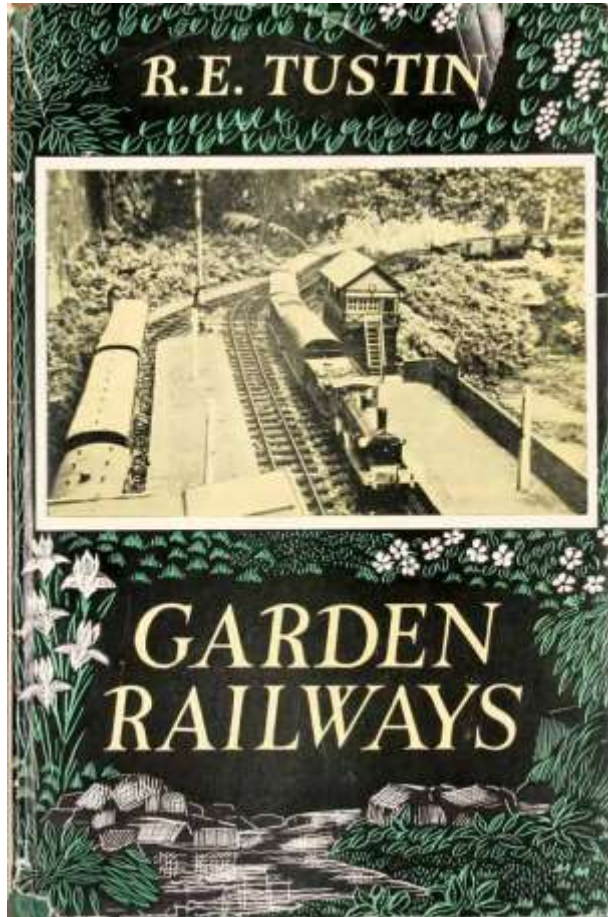
Los Angeles Fairplex Garden Railroad - 1935



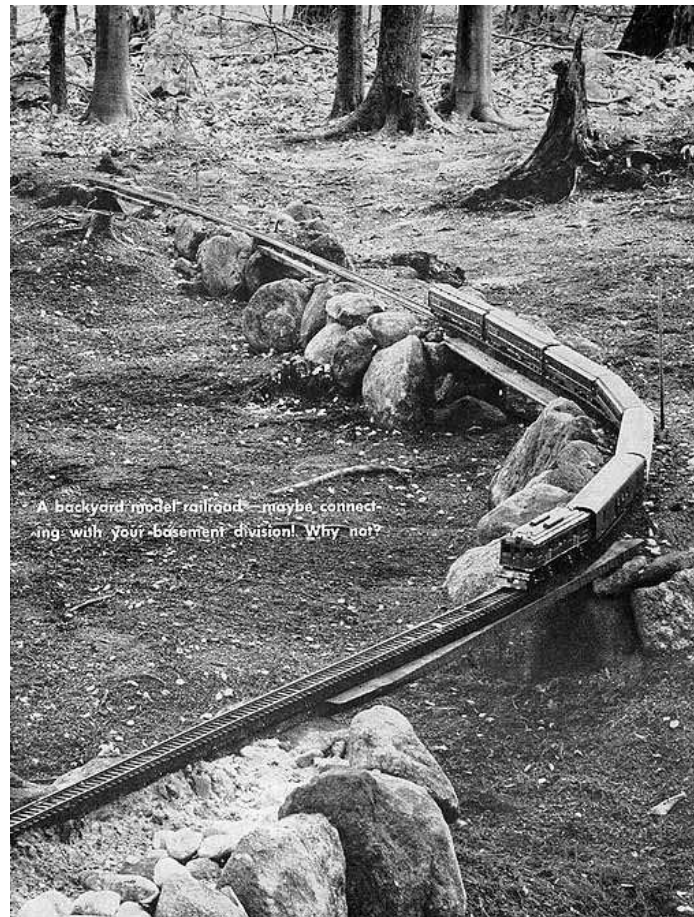
Lionel's O gauge trains dominated the 40's and 50's in America. The demise of garden railways was drawing near. World War II came along, and life as was known before was gone forever. After the war plastics became the rage, as did miniaturization. Gauge 1 became obsolete, and gauge 2 and 3 had long since died out. New, smaller scales were becoming popular. They allowed much more railroad to be built in a given space. This fact was particularly attractive to those people who were starting new families after the conflict, and who didn't have a lot of space to begin with.

So garden railways were in decline. It is ironic that the first -- and quite possibly still the best -- real treatise on garden railroading was published during the twilight of interest. Englishman R.E. Tustin's GARDEN RAILWAYS, published in 1949 by Percival Marshall, remains probably the single best source of information on the nuts-and-bolts end of this arcane pursuit. It is also the first book that set down in writing the principles of combining the railway with an appropriately scaled garden.

First Book on Garden Railroading Great Britain - 1949



George Lake Garden Railroad - 1951



In 1969 the German company of Ernst Paul Lehmann -- toymakers from way back - introduced a new/old concept in model trains. Their all-plastic products were initially models of narrow gauge trains from Germany. They were built to the heretofore unheard of scale of 1:22.5, and they ran on the old standardized gauge 1 track. The LGB trains (Lehmann Grossbahn, or Big Train) were specifically designed for use outdoors. They were rugged and all of the more fragile gears and motor parts were encapsulated to keep the nasty dirt away.

LGB's product line constituted a revolution in model railroading; one that did not succeed over night. Since the trains were brightly colored models of European equipment, they were looked upon as toys by most "serious" modelers in the US. The British, who are at least as jingoistic as the Americans, also resisted this new line. But Lehmann persevered, and the company continued to come out with new products based on railroads from around the world.

After a while articles on the potential of these trains in outdoor environments began to appear in model train magazines. Charles Small, a noted railroad author, wrote about the outdoor use of LGB trains for Model Railroader in the mid 1970s. The flame was kindled.

Meanwhile, there was a revolution occurring in Britain as well. Live steam locomotives -- engines that actually ran on fire and water -- had been popular in years past, but had died out as a breed during the 1950s. In the late 1960s and early 1970s a new company called Archangel Models, headed by Stewart Browne, revived interest in small steamers.

Archangel's models were generally of narrow gauge proportions, built to the scale of 16mm to the foot to run on gauge 1 track. They were big and heavy, and they lacked certain refinements, but they were colorful, powerful, and docile. The writings of Jack Wheldon and Dave Rowlands in the British press ensured the success of both the product and the company. As this market segment grew in popularity more manufacturers came into the picture – such as Accucraft, Aster, Barrett Steam Models, Bing, KM1, Roundhouse, etc. - which are still active today.

Aster UP 844 Live Steam

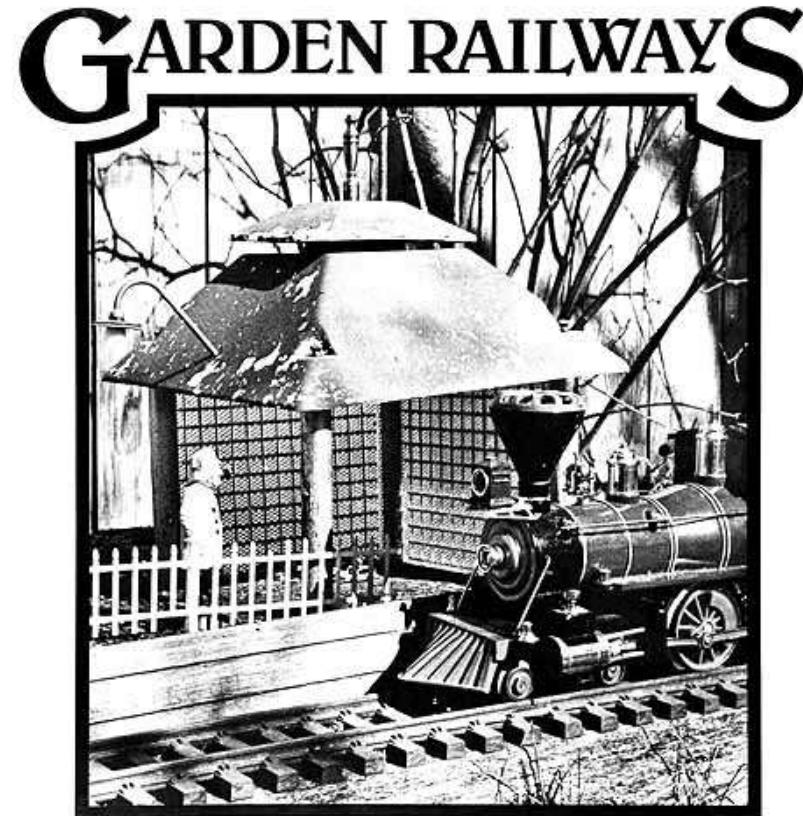


In 1984 Garden Railways magazine began publication. While covering the entire field of garden railroading, the publication stresses the importance of integrating the railway with a garden to achieve a railway-like atmosphere. It is the only model-train magazine that has regular gardening articles and its own horticultural editor.

First Issue of Garden Railways Magazine - 1984

January-February 1984

\$2.25



First Garden Railway Convention - 1985

Garden Railway Convention **August 16-18, 1985 Denver, Colorado**

The **First Annual Garden Railway Convention**, co-sponsored by the **Denver Garden Railway Society** and **Garden Railways Magazine** will be held in Denver, August 16-18, 1985.

There will be a variety of events of interest to the garden railroader, including a **Garden Railway Tour**, a **Steam Up**, **Clinics** on a variety of subjects relating to garden railroading, and **Dealer & Manufacturer Displays**. Plan to be in Denver for this unique event.

For complete information and registration forms, send an SASE to:
Garden Railway Convention, Box 503, Westminster CO 80030 USA

Scale & Gauge

Scale & Gauge Definitions

- **These terms are sometimes used interchangeably which is incorrect**
- **Scale – The proportion of the model to the full sized train which can be expressed as a fraction or as a ratio**
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Selected USA & Euro Model Railroad Scale & Gauge Standards

Common Name	Scale	Gauge - mm	Notes
HO	1:87	16.5	
S	1:64	22.5	
O	1:48	32	
O-27	1:48	32	Lionel Tin Plate
Gauge 0	1:48	32	Developed in the UK in the 1950's for NG railroads
Gauge 1	1:22.5	45	1-3/4" Scale
Gauge 2	1:27	54	2" Scale
Gauge 3	1:22.6	64	2-1/2" Scale
G	1:32	45	Proper proportions in Scale & Gauge
	1:29	45	Aristocraft, Bachmann & USA Trains are the major suppliers
	1:24	45	1/2" Scale - 3 Foot NG
	1:22.5	45	Meter Gauge - Mainly European NG
	1:20.3	45	3' NG in proper proportions - mainly in NA
	1:13.7	45	7/8" Scale - 2' NG

Layout Planning

Considerations

- **Like Indoor Railroads:**
 - Available Space
 - Shape of space available
 - Obstacles that need to be removed, modified or worked around
 - Electrical power
 - Lighting
- **Unique to Outdoor Railroads:**
 - Terrain
 - Drainage
 - Debris
 - Water features
 - Pneumatics

Hillside Layout – Stan Cedarleaf in Arizona



Another View of Stan Cedarleaf's Layout



Bridges over Terrain Low Areas

8' High Wood Trestle



Pond in Layout – Sid Murphy in Simpsonville



Waterfall on the F D & L Layout



Layout Design

Considerations

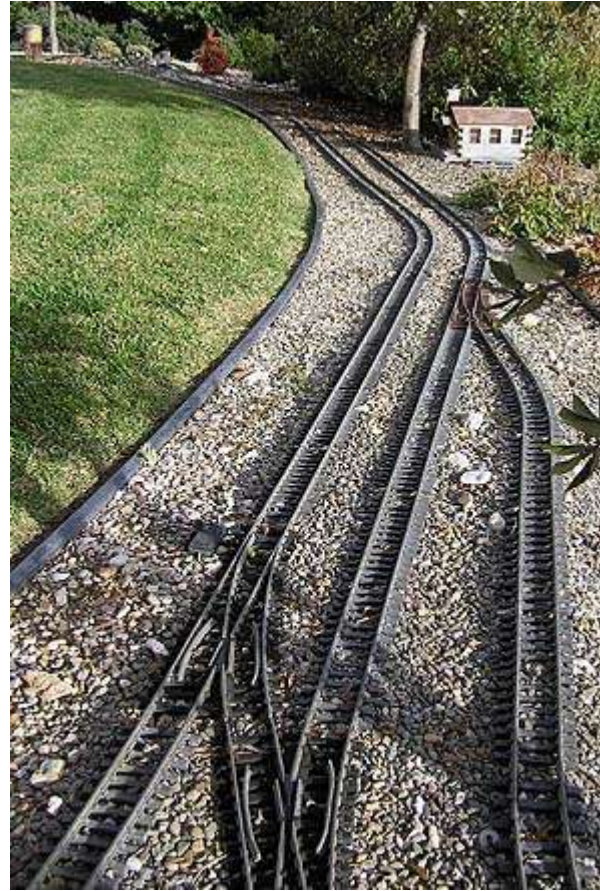
- **Continuous Running or Operations**
- **Era**
- **Scale – Limited number of manufacturers in each scale**
- **Access for maintenance, viewing and operation**
- **Length of trains**
- **Minimum radius curves**
- **Passing sidings and industrial spurs**
- **Grades and tunnels**
- **Rail thermal growth**

Layout Construction

- 1. Ground Level Layouts**
- 2. Elevated Layouts**
- 3. Scenery**

At Grade Layouts

Level Yard – Arroyo Grande Layout



Arroyo Grande Access Bridge



Beechwood Railroad in Delaware



Ground Level Garden Railway Construction 2010 – Move the Dirt



Eagle Wing's Arched Deck Truss Bridge



Eagle Wing's Hells Gate Bridge



Pond and Rotating Bridge Noel Wilson's Layout



East Broad Top Electrical Trenching



Mountain Scene on the In-Ko-Pah



Tunnels on the In-Ko-Pah



Flexible Sewer Pipe Tunnel



Concrete Block Tunnel



Waterproofing a Block Tunnel



Access Hatches for Long Tunnels



Elevated Layouts

Elevated Portion of Noel Wilsons Layout



Medium Elevated Trackwork Beachwood Railroad in Delaware



Low Elevation Trackwork Beachwood Railroad in Delaware



Pine Needle Railway in New Jersey



Elevated Garden Railroad Benchwork Construction - 2013



Elevated Garden Railroad Benchwork Construction - 2013



Elevated Garden Railroad Benchwork Support - 2013



Concrete Mountains



Scenery

Vegetation

Miniature Red Cedar Trees



Micro Miniature Ground Cover



Lemon Thyme Ground Cover



Moss Ground Cover



Pond with Railroad Bridge Over Sid Murphy's Layout



Pond and Rotating Bridge Noel Wilson's Layout



Eagle Wings Metal Warehouse Building



Colorado Model Structures Plastic Warehouse Kit



Freelanced 5' Long Warehouse Front



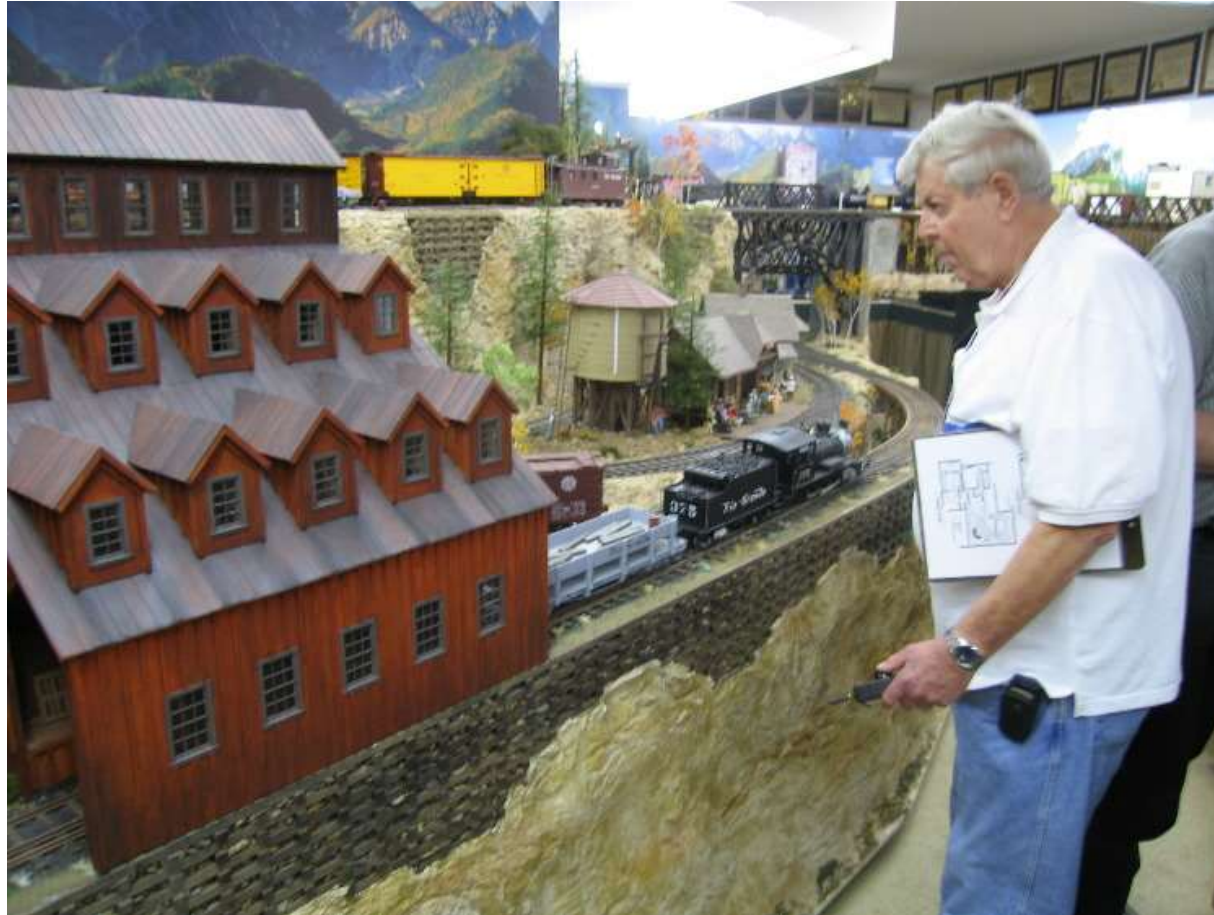
Operations

Power and Controls

- **Basic DC power & control thru tracks**
- **DCC power and control thru tracks**
- **DCC power thru tracks but radio control**
- **Battery power and radio control – all in each engine**
- **Battery power and radio control in a trailing car**
- **Live steam with local control**
- **Live steam with radio control**
- **Smoke units**

Miscellaneous

Colorado & Western Indoor G_n3 Layout



Carl Brummer's 7/8" Layout Battery Power & 3' Diameter Circle G Track

