

Beginning Garden Railroading

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Garden Railways magazine

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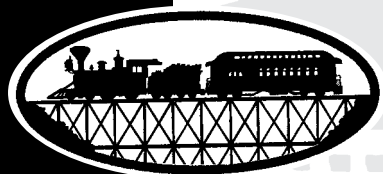
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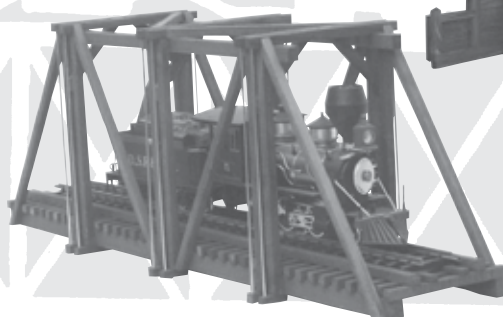


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P26216

Getting started

COVER: A Santa Fe F unit takes a mixed train around the bend. Photo by William Zuback.

Welcome to the wonderful world of garden railroading! Though this fascinating hobby is over a century old, it has never been more popular than it is today, and nothing can match its appeal. It's a hobby that can involve the entire family. A railroad built outdoors takes on a realism that nothing else can match.



STEVE SEIDENSTICKER

Aristo-Craft locomotives and rolling stock wind their way through Steve and Jan Seidensticker's Gopher Canyon Line. The track is handlaid, and locomotives have been converted to battery power and radio control.

Before you start planning your railway, there are several things to consider. Here are some questions to ask yourself.

Is your area more or less level?

Levelness is not a mandatory factor in building an outdoor railroad, but your land's topography can seriously affect the configuration of the railroad that is built in it. The steepness of the grade a train can negotiate is limited, and if your yard is quite hilly it may need to be smoothed out some. This can be done through the use of additional earth made into embankments, retaining walls to prevent soil from washing away, or bridgework and trestlework to span larger or deeper gaps.

Is there an existing garden, or will the garden be designed along with the railway? The garden should be considered part of the railroad. If one exists already, you must consider how best to integrate the railroad into the garden so as to show each to its best

advantage, while creating the kind of environment and atmosphere for your trains that you desire.

If a new garden is to be made, it should be designed along with the railway. If you are weak in the planting area, do some homework—it will pay off later. Visit local nurseries, read books, and talk to people.

Are there things in the way—like clotheslines, houses, or swimming pools—that must be removed or worked around? If so, these things can influence the route of the track. A sidewalk can be crossed at ground level by cutting away the concrete, laying in the track, and replacing the concrete with new cement, being careful to allow for flangeways. A walkway can also be crossed above ground level with a lift-out or moveable bridge. However, this will be an obstruction to the path when you are operating.

Swimming pools can be built around, but they tend to be a visual distraction to the railroad. If the line is close to the pool, it may be difficult to photograph without getting the pool in the shot, too.

Structures can be built around, or through. Many garden railways begin indoors and then go outdoors through a hole in the wall. Some are routed through garden sheds or garages, where the trains are stored and serviced.

How elaborate will the line be? As a general rule in building a garden railroad, less is more. A traditional indoor railway may have many loops of track, dozens of engines, and hundreds of pieces of rolling stock. Outdoors, where we are dealing with the elements, a single-track mainline usually suffices, with sidings at stations, industries, and points of interest, and perhaps a branch line to an outlying terminal. To get started, a single locomotive and three or four pieces of rolling stock—freight or passenger—are all you really need.

Is your area secure? Vandalism can be a problem in some areas, and it is generally felt that what is out of sight is out of mind. A high fence may be a good idea. On the other hand, if the neighborhood you live in is itself secure, fences may not be necessary.

Trains, and even buildings and other structures, should be either brought indoors or be made secure in permanent garden structures of their own. These will prevent them from being damaged by weather, or from wandering off when you aren't home. ▀

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Excerpted from *Beginner's Guide to Large Scale Model Railroading*, by Marc Horovitz and Russ Larson (Kalmbach)

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Choosing equipment

In choosing your first train, decide what your railroad is to be. Is it a line that will haul only freight? A line of this nature might start out with one or two small engines and a half dozen freight cars of specific purpose.


Is your line an old fashioned, narrow-gauge steam railway, or a modern, standard gauge, diesel-powered line? The space you have available may help to answer these questions. A small industrial line, with little engines, short cars, and tight curves, will look more at home in a limited space. A modern mainline road with A-B-A diesel lashups and trains of 20 or more cars will require broader curves and longer straight stretches to look right.

Track

There is a wide range of commercially available track today, and this is probably the best approach for the novice. When you have gained some experience, you might want to consider building your own track.

Commercial track is available in short pieces of set lengths and curvatures, called sectional track, or in longer sections that you can bend and shorten to suit your needs, called flex track. Sectional track is good for some applications, but it can also be very limiting.

Sectional track is an excellent choice if your railway is not to be permanent, as it can be easily picked up and put down. Several different radii of curved track are available, the tightest curve being 2' radius and the widest being 10'. Straight sectional track comes in different lengths, nominally 1', 2', and 3' sections. These can be easily cut to length with a hacksaw.

For a permanent railway, though, you should consider using flex track. This can be bent to any desired curvature. The rail used in flex track must be prebent to the proper configuration before it is slid into the plastic tie strips. With aluminum rail, this can often be accomplished by careful hand bending of the rail. The best curves can be attained by using a machine called a rail bender. 

Garden railroad plants

Choosing plants for your garden railway should be just like choosing plants for your own garden. You need consider your local soil conditions and climatic conditions in order to select the best-suited varieties for your particular setting.

Perennial groundcovers, creepers, and other low-growing plants

Thymes (*Thymus* spp.) Many selections available, from groundcovers to tiny shrublets. Most have fragrant leaves.

Irish, Scotch moss (*Sagina subulata*, S.s. 'Aurea') Often used to simulate lawns and meadow grass.

Corsican mint (*Mentha requienii*) Tiny green leaves on a dense mat. It has a minty fragrance when crushed.

Miniature shrubs and trees

Miniature rhododendron (*Rhododendron impeditum*) Brilliant lavender flowers and tiny, evergreen leaves.

Compact lavender cotton (*Santolina chamaecyparissus* 'Nana') Finely textured foliage with a shrub-like habit.

Miniature boxwood (*Buxus microphylla* 'Kingsville Dwarf' or 'Morris Midget') Evergreen and slow-growing.

Miniature elm (*Ulmus parvifolia* 'Hokkaido' or 'Seiju') Tiny leaves and branches help create a scale tree.

Dwarf and slow-growing conifers

Dwarf Alberta spruce (*Picea glauca* 'Conica')

Often used in groves to represent a miniature forest.


Dwarf Japanese garden juniper (*Juniperus procumbens* 'Nana') Tight, ground-hugging evergreen mat.

Dwarf Irish juniper (*Juniperus communis* 'Compressa') Very narrow column of grey-green foliage.

Blue star juniper (*Juniperus squamata* 'Blue Star') Silvery blue needles on a compact grower.

Small-scale annuals

Sweet alyssum (*Lobularia maritima*) Tiny, shining-white blossoms create solid color for months.

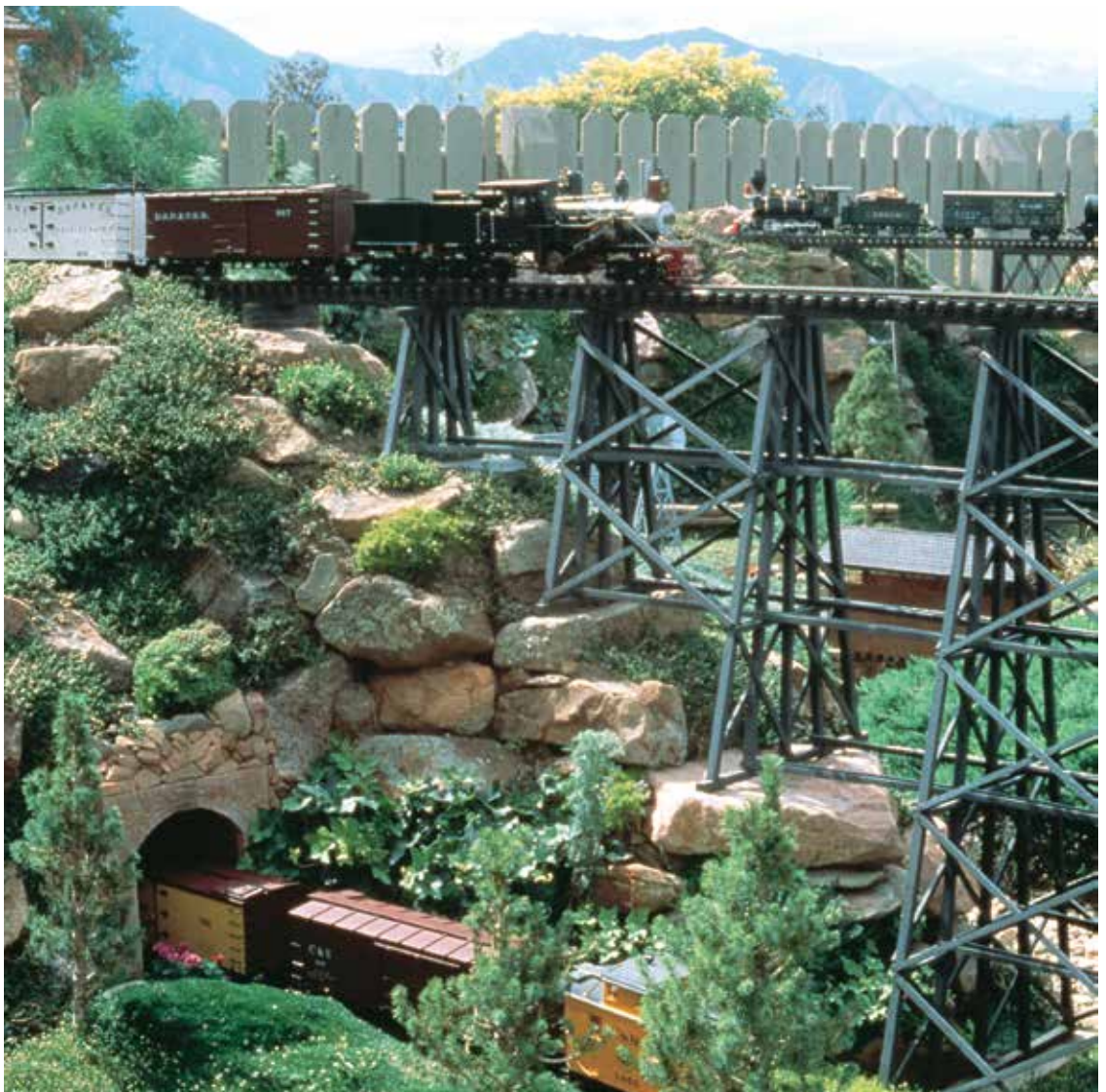
Trailing lobelia (*Lobelia erinus*) Comes in an array of deep colors. 

Planning the line

What is the best minimum radius to use on your railroad? There is no “best,” really. The rule of thumb, when planning your line, is to use the widest minimum that will conveniently and aesthetically fit in your available space. Personally, I like a minimum of 6' (making a 12' circle), but there have been fine railroads built with sharper curves. On the other hand, long, standard-gauge passenger trains running at speed just don't look right twisting around very tight curves, even though they may be physically capable of doing so. A minimum radius of 10' may be what's called for in this instance, and a really grand curve could be as

wide as 15' or 20'.

However, very tight-radius track was sometimes used on prototype railroads, especially in the narrow gauges. Industrial railroads that ran small equipment and had to thread their lines between buildings or along ledges used extremely tight curves. Several manufacturers of industrial-railway equipment even offered full-size sectional track so that temporary railroads—like those used in the construction of dams, for instance—could be easily put down, moved at will, and taken up when the job was complete and installed at the next job site. These railroads are interesting prototypes to model. Space is always a problem, so do what you must, but your railroad will be much more plausible if you tailor



An Aster live-steam Climax crosses a scratchbuilt trestle on Joe and Annie Mellen's Mellen Patch Railway. The locomotive crossing the trestle in the distance is an LGB Mogul.

BARBARA HOROVITZ



C.J. HOUGHTALING

your rolling stock to your curves.

When planning grades, try not to make them steeper than about three percent (3" rise over 100" horizontal travel). Steep grades are unrealistic, and they will severely limit your train length. In prototype practice it is considered that train length is cut in half for every percentage of grade that must be negotiated. So, if your locomotive can pull an eight-car train on level track, it will only be able to manage four cars on a 1% grade, two cars on a 2% grade, one car on a 3% grade, and, on a 4% grade, another locomotive must be added to get that single car up.

On our model railroads, these same laws don't necessarily apply, and the powerful electric engines will pull unrealistically long trains up unrealistically steep inclines. For plausibility in operation, though, the above rule of thumb applies.

There are other factors that will affect your engine's ability to tote a train up a hill. It will be far easier if the entire grade is on straight track. Flange bind will considerably slow a train on curves, particularly tight ones. The condition of the bearings on your rolling stock is another factor to consider. Also, wheels of different materials and profiles have different rolling characteristics.

Roadbed

There are probably as many different methods of building roadbed in the garden as there are garden railroaders. There is no right or wrong way to do it, though some ways may be better than others, depending on where you live.

Perhaps the best general-purpose method for most applications is to build your railway in a prototypical manner. On a full-size railroad, the track actually

floats in the ballast. By floating the track in the ballast, you are allowing it to move, which it will do. The heat of the summer will cause the rails to expand and the cold of winter will make them contract. The freeze/thaw cycles may bring frost heave. Floating track will move as it needs to, but will be easy to realign when necessary (probably just once or twice a year, if that). The more established the railway becomes, the less it will change.

Dig a shallow trench—say 2" to 3" deep, and a little wider than your track—and fill it with ballast up to just below grade level, as shown in the drawing on the following page. There is no need to line the trench with plastic or anti-weed fabric. On the contrary, good drainage is important and an underlayment may impede it. Place your track on the ballast and level it up, making sure it's exactly where you want it. Backfill with more ballast to the tops of the ties, which should be at grade. Tamp the ballast into place for a better fit, using a piece of wood to push the ballast down between each tie. Then fill in again where necessary.

A word about ballast: Pea gravel is often used, but it is definitely not the best choice. Pea gravel is a type of river rock, and the stones are round, which means they want to roll. A heavy rain will take it right away, as will the lawn sprinkler.

What you need is a stone with sharp points and edges. These teeth will lock the ballast (and the track) into place. Many people use a product called "crusher fines," available from local rock yards. It is chipped granite, and it contains a fair amount of rock dust, which is an added advantage. After the track has been firmly set in the ballast, the roadbed can be sprinkled with water. The rock dust sets up like

Lush foliage and color characterize Dan Gruzlewski's DT&Y. The switch tower is scratch-built. Bachmann motive power and rolling stock are used throughout the railway.

Planning the line

cement, but it is still easy to break apart for relocating or releveling the track. A good alternative to crusher fines is chicken grit, available in several different sizes at grain and feed stores.

There are other methods of roadbed construction (see the drawing below). One is to elevate the track on a wooden baseboard. This can be attached to wooden posts sunk in the ground, but only in temperate climates. Frost heave in the colder climes will force the stakes out of the ground during the spring thaw, making your railroad look like a roller coaster. If you live in a cold place and want to try this idea, set the posts securely in concrete, or make sure they penetrate to below the frost line. Use a rot-resistant wood like redwood or cedar, or pressure-treated wood intended for use in decks and patios.

If you are planning not to move, the railway can be set on a concrete foundation. The roadbed should be made in much the same way as the foundation of a house, with steel reinforcing rods to prevent it from cracking. It is essential that your form work be of the highest quality. Smooth curves and consistent grades are very important. The track can be screwed to wooden tie-downs embedded in the surface of the concrete. The surface of the concrete roadbed can be at grade and disguised with ballast, or it can be elevated slightly. If it is elevated, it will act as a dam, so be sure that you have cast-in culverts at the low points to allow for proper drainage.

Electricity

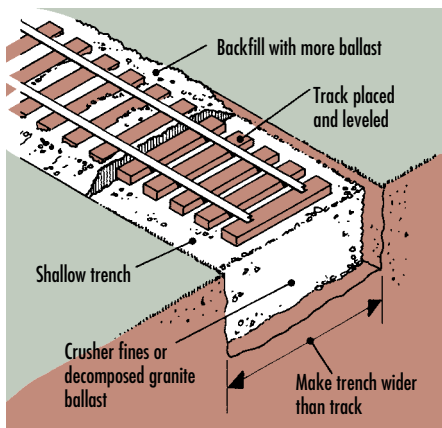
Electricity in the garden is not a problem. Trains generally run on 12-24V DC, which is quite safe, even in the rain. However, you'll need to keep your power pack dry and safe from the weather. The primary (the 110V AC input line to the power pack) is where the potential danger can occur, as well as inside the pack itself.

Perhaps the best system to use is a transformer that is kept inside a shelter, like the house, a garage, or a storage shed. The secondary (the 12-24V DC line to the track) can be brought outside safely and led through a rheostat and reversing switch to the track. That way the power for the trains is inside all the time, while the control for the trains can be conveniently trackside.

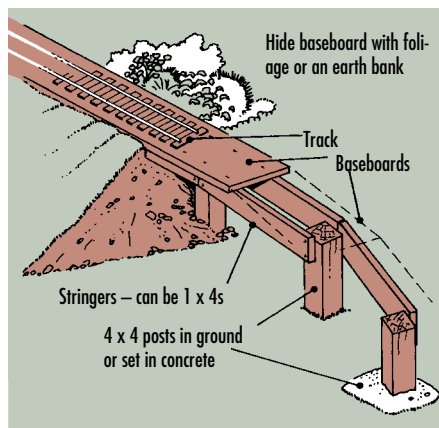
On the other hand, if you want to use a more advanced momentum throttle, for instance, or a self-contained power pack, it can still be used outdoors with care. Some people just bring the power pack outside in good weather and hook it up the leads to the track when they want to run. On more complex railroads, where there are multiple lines, and a complete control panel is dictated, it can be built inside a shed, on the porch, or inside a specially built shelter just for the control panel.

A ground-fault circuit interrupter is always a good thing to use between your power pack and the house current. This device senses a short in the line and

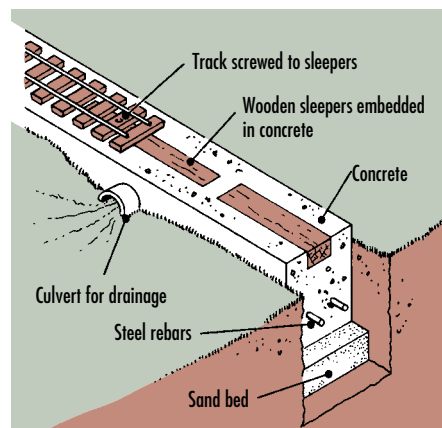
Below are roadbed construction methods for garden railroads.



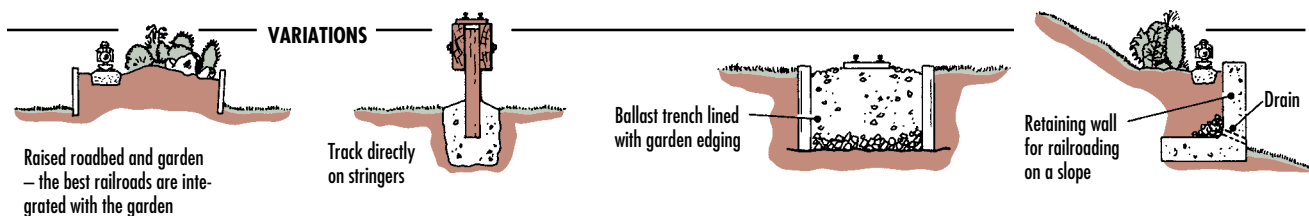
FLOAT THE TRACK IN BALLAST



WOODEN BASEBOARDS ON POSTS



CONCRETE ROADBED



cuts off the power faster than it can electrocute you. It is inexpensive and simple to install, and it can be a lifesaver. Talk to the folks at your local hardware store about them.

Perhaps the biggest problem in running electricity through the rails is maintaining continuity across the joints as the rails expand and contract. One of the most effective ways of doing this is to solder jumper wires across the joints. Use a relatively heavy multi-strand wire and make a small loop between the soldered ends. This allows the rails to move around a little as they expand and contract without putting stress on the soldered jumper.

A big soldering iron—one that really puts out a lot of heat—should be used. The idea is to heat up the rail, which is a considerable chunk of metal, quickly, get the joint soldered, and get out before you melt your plastic ties too badly. (One way of protecting the ties is to pack them with wet paper toweling or sand while soldering.) I know of a railroad that was about 350' long that had all rail joints soldered. A single lead powered the entire line with negligible voltage loss.

There are clamp-on rail joiners that aid in continuity, too. These either replace the supplied rail joiners or clamp over them, compressing them into the rail. These make the track more rigid, though, and if you have long straight sections of, say, aluminum rail, you could find your track buckling in the hot summer sun. A compromise of some jumped joints and some clamp-type joiners may be the answer here.

Electrically conductive grease (available at electronics-supply stores) can also be used in the joints. This will not only aid conductivity, but will help prevent water from entering the space between the joiner and the rail. This is ordinarily not a problem in warmer climates, but in colder places the water will get in there and freeze, expanding the rail joiner. I've seen heavy brass rail joiners fracture after only a single Colorado winter.

Trains run on the same voltage that garden lighting uses. The two systems can be successfully integrated, creating wonderful nightscapes. Garden lights should have their own power supplies, again kept well out of the weather.

Alternatives

If you find running electricity through the rails to be a big hassle, there are better ways to go. Battery powered, radio-controlled (R/C) trains are becoming very



LARRY WEBB

popular, and several companies offer systems that can be fitted to existing track-powered locomotives.

Some locomotives are big enough to carry all of the battery and R/C gear onboard the engine or in the tender. If the engine is not large enough to carry all of its own gear, then a special battery car might be the best way to go.

Another popular alternative is live steam—real steam locomotives to pull your trains. These burn either alcohol or butane gas, and are quite safe to operate in the garden. Operating a steam locomotive is an entirely different experience than running an electrically powered train. If you approach it expecting the same sort of performance and instantaneous availability that you get with an electric engine, you may be disappointed. Every steam locomotive, even ones of the same type made by the same maker, is different. It must be learned to get the best performance from it. Its characteristics and idiosyncrasies must be sorted out, just as with a full-size steam locomotive, to know what it is capable of and what sort of train it will take over what sort of terrain. ▀

Above, a tunnel is under construction on Larry and Pam Webb's Little Vista Railway. The interior of the tunnel is constructed of concrete block. After the interior was finished, it was covered with dirt so only the portals remained visible, as shown in the lower photo.

Landscaping and scenery

It is the goal of the garden railroader to achieve a railroad-like atmosphere through the integration of the railroad and the garden. “Garden” does not mean just plantings (though these are of paramount importance), but all the additional landscaping that must be done to attain the desired goal. Much of what should be done is determined by your existing topography, how accessible you want your railroad to be (i.e., will it lie at grade or will it be elevated for convenience or to smooth out the hills?), and how much you intend to modify the area in which you are working.

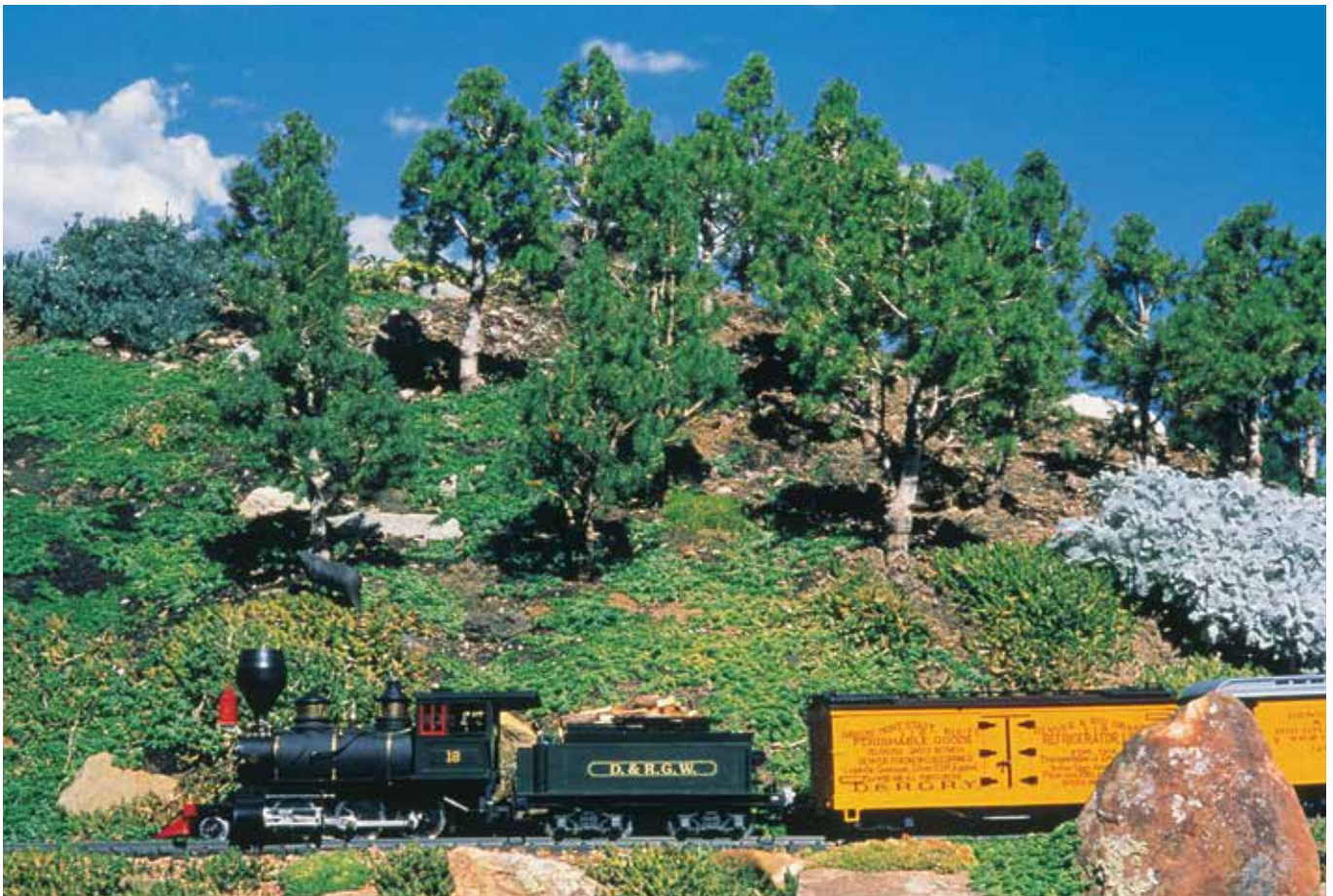
Placing rock and dirt

Moving landscaping materials is hard work, but it usually only needs to be done once. Even if your line expands later, the major work will have been done at the beginning. If you intend to include a rock garden, or even a few stone outcroppings to suggest a mountainous region, these areas should be initially planned into the line and not added later as afterthoughts.

Rocks can be purchased from rock yards by the pound. The price will vary depending on how attractive or scarce the stone is. Choose your rocks carefully, and don’t mix types. Generally, a natural outcropping will consist of only one type of stone. Select rocks of different sizes, too. Stones all the same size will be boring to work with if you are trying to create an interesting setting. A variety of sizes will add interest and challenge your design skills. Read some books on rock gardening that discuss rock placement. It isn’t as easy as you might think.

Sometimes you can get dirt free for the hauling. The alternative, of course, is to buy it from a garden center. Dirt is sold by the “yard.” A yard of dirt is actually a cubic yard, or 27 cubic feet. If you are filling a space between two retaining walls, it may be fairly easy to calculate how much dirt you need. On the other hand, if you are building hills and valleys, it might be quite difficult. The cost of the dirt will vary based on what’s in it. High-grade potting soil or topsoil will probably be the most expensive, and dirt

On Annie and Joe Mellen’s railway in Colorado, a forest of selectively pruned dwarf Alberta spruce sits atop a carpet of ground-covers. The locomotive is LGB and operates on track power.



MARC HOROVITZ

that is mostly sand or clay will be the cheapest. It is usually well worth the nominal charge to have the dirt delivered to your house by a dump truck.

Once your yard is filled with mountains of dirt and piles of rocks, then what? That's when the hard work begins. You must now start shifting the dirt and placing the rocks so that your grand plan is realized. Rock placement is perhaps the most difficult task, both physically and aesthetically. I've known people to reposition rocks weighing over a ton three, four, or more times, usually with the assistance of a crane, to make sure it is just right. After all, it may rest where you put it for centuries.

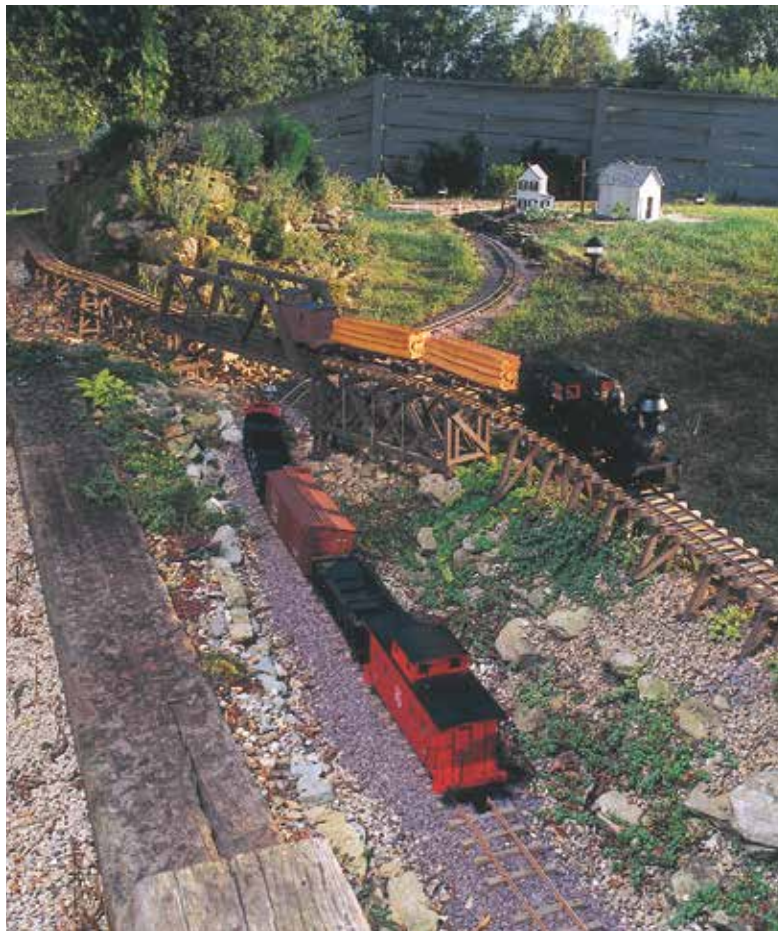
Dirt can be built up until it looks right or fulfills its function. Compared to rocks, it is easy to move around, so don't hesitate to change your mind. You can change it later, too, if you must. It has been suggested by experienced garden railroaders that you should get the dirt where you want it, then come back in a year and build the railway. During this year the dirt will have settled and compacted about as much as it's going to, and you'll have a steady and stable surface upon which to build your roadbed.

Of course, if you don't want to wait a year, there are things you can do to speed the process. Tamping it is a must, and your hardware store will have a special tool for this. It is nothing more than a heavy chunk of metal at the end of a pole. I suggest thoroughly tamping the route of the track and then give it a good watering. Do this about three times in as many days, and you should have a relatively stable track bed. There will always be some shifting, but this can usually be compensated for with the roadbed.

Mulch

Leaving great areas of exposed dirt lying around is just asking for trouble. If you are building an extensive line, I suggest that you do it in small steps, finishing off one area before going on to the next. If you build an entire set of foothills in your yard and then neglect them, the first thing you know they'll be covered with weeds. They'll also be subject to erosion the first time it rains, leaving you with unplanned gullies and mud flats. The dirt needs to be covered.

Grass in the form of sod is a reasonable expedient, even if you don't ultimately plan to have grass there. Another good plan is the use of mulch. This can be bark nuggets or chips, small stones, wood chippings, buckwheat hulls, or other things. The mulch will prevent light from reaching the ground, thus inhibiting the growth of weeds. Water will gently seep



JIM FORBES

through and not erode the exposed earth.

The garden

Many beautiful and effective garden railways have been created by people who claim not to be gardeners. Gardening is a fascinating and important aspect of the hobby and railway gardening has become a sub-hobby in its own right. It is the garden that often ties the separate elements of the railroad together, and it draws entire families into garden railroading.

It is impossible in a booklet of this nature to educate you about the myriad aspects of the pastime of gardening, or even to give you a comprehensive list of plants that grow well in your area. Rock-garden plants go especially well with garden railways. Look into your local rock-garden society. Go to garden centers, read gardening magazines and books, and visit public and private gardens in your area.

When choosing plants for the railway, carefully consider the function the plant must serve, and choose accordingly. Do you want something that imitates a lawn for the yards around the houses? Or how about a plant that can be planted in multiples in a line as an informal miniature hedge (or cut into a formal one)? Miniature trees can be used *en mass* to suggest a forest, or a single, fine specimen can be used to delineate an important point on the line. Set

A Bachmann Shay takes a short train of logs over a scratchbuilt trestle on Terry and Carole Seese's Twin Lakes Lumber and Mining Railroad.

Landscaping and scenery

in rows by the track, miniature cypress can provide a formal gallery as an entry to the station area.

Plants in great diversity can be used to soften the rock garden and fill in the areas between the stones. If you choose your plants carefully, something will be in bloom during most of the growing season. If you have an area that needs filling quickly, you might consider a more “invasive” plant. More slow-growing plants can be added later, and the invasive ones removed as needed.

The scale of the plants is something that should be seriously considered. How big will it grow if left on its own? You don’t want to spend all of your free time trimming plants that have grown too large for their settings. Do your homework and choose your plants carefully.

As a general rule, there are three zones of planting in the garden railway. Plants near the track, or near the more developed parts of your line, should be closely in scale with the trains, people, and buildings. As you get farther from the model setting, or in places where the trains pass through more rural areas, the plants can be larger, though you might

want to continue using plants with smaller-scale components (leaves, branch structure, etc.). Farther back from this area, the plants can be as big as you like and, often times, the bigger the better, as these very large plants will provide a pleasant green backdrop to the garden railroad.

What we’ve covered in this booklet is a bare-bones introduction to the fascinating pastime of garden railroading. This form of model railroading is exceedingly gratifying and it can be pursued in more individual and creative ways than probably any other. Go outside and enjoy! 🚂

Chuck & Anabeth Dollins’ C&A Railway was designed for watching. Plants have been carefully chosen for their slow growth, small characteristics, color, and adaptability.

Visit us online

- For more help and information, visit www.GardenRailways.com
- Beginners can sign up for our free email series at www.GardenRailways.com/grbeginner



MARC HOROVITZ

Scale and gauge¹



Proportions of a model to its prototype

Scale name	Proportion	Written scale
1½" scale ²	1:8	1½" = 1'0"
¾" scale	1:13.7	¾" = 1'0"
16mm scale	1:19 (approx.)	16mm = 1'0"
15mm scale	1:20.3	15mm = 1'0" ¹⁰
LGB (G scale)	1:22.5	.533" = 1'0"
½" scale	1:24	½" = 1'0"
—	1:29	.414" = 1'0"
1 scale	1:32	⅜" or 10mm = 1'0" ⁸
0 scale (USA)	1:48	¼" or 7mm = 1'0" ⁸

Track gauges commonly used in the garden

Gauge 3	2½" or 64mm ⁸
Gauge 1 ⁴	1¾" or 45mm ³
(No name)	1½" ⁹
Gauge 0	1¼" or 32mm ⁸

Confusion about scale and gauge continues to plague our hobby, so we felt that it was again time to try to set the record straight. The tables printed here will answer what is perhaps the most-often asked question *Garden Railways* hears: What are the differences between the scales and gauges? Over the years, all these scales and gauges have evolved, and some (which we have not listed) have died out. Granted, it is confusing, but we have attempted to print the correct information here in the most understandable form possible.

It may take some study to learn it all. If you don't feel like taking the time, just use the information below as a reference. ➤

Track gauges as they relate to the different scales

Scale	Actual gauge	Represented gauge	Scaled gauge
1:8	Ga. 1	15" narrow	14"
1:13.7	Ga. 1	2' narrow	2'0"
1:19 ⁵	Ga. 0	2' narrow	2'0"
1:20.3	Ga. 3	Standard ⁶	4'2¾"
	Ga. 1 ⁷	3' narrow	3'0"
	Ga. 0	2' narrow	2'1"
1:22.5	Ga. 3	Standard	4'8¼"
	Ga. 1	3' narrow	3'3½"
	Ga. 0	2' narrow	2'4½"
1:24	Ga. 3	Standard	5'0"
	Ga. 1	3' narrow	3'6"
	Ga. 0	2' narrow	2'6"
1:29	Ga. 1	Standard	4'3½"
1:32	Ga. 1	Standard	4'8"
	Ga. 0	3' narrow	3'4"

Footnotes

1. Scale is simply the proportion of the model to the full-size item, while gauge is no more than the distance between the rails measured from the inside edge. The terms are sometimes incorrectly used interchangeably.
2. 1½" scale is commonly used for larger, ride-on trains. However, there are some modelers who are using this scale on gauge-1 track to represent 15"-gauge railways, such as those designed by Sir Arthur Heywood in Britain. We've not listed the larger, ride-on gauges in this scale because they fall outside the scope of *Garden Railways* magazine.
3. There is a slight discrepancy between the metric measurements and the imperial. Today, gauge 1 is considered to be 45mm.
4. Gauge 1 is commonly—and incorrectly—called "G gauge" by some manufacturers and dealers. This is an unfortunate misnomer that merely adds to the confusion. G-scale trains run on gauge-1 track.
5. 1:19, or 16mm, scale evolved from gauge-0 (32mm) track. The idea was to choose an existing gauge and design models of 2'-gauge trains around it, which is why this scale works out quite well. However, modeling for other gauges in this scale is almost nonexistent, so only gauge 0 has been included here.
6. Standard gauge on full-size railroads is 4'8½". Anything less is considered narrow gauge. Anything more is considered wide or broad gauge.
7. There was a gauge 2 (2"), which was quite popular in the early part of the century, but has long since died.
8. There is a slight discrepancy between the metric measurements and the imperial.
9. The correct gauge for accurate modeling of 3'-gauge trains in ½" scale. Little is commercially available in this gauge.
10. The correct scale for accurate modeling of 3'-gauge trains on gauge-1 track.


Photo gallery



STEVE HART

Garden railroading is many things to many people. It cannot be stereotyped or categorized and, of course, there's no one right way of doing it. It is a diverse and abiding pastime of great depth. There are so many different aspects to it that you'll never lack for new areas of pursuit and there are no hard and fast rules to constrain you.

The difference between traditional indoor model railroading and garden railroading is the difference between realism and reality. Indoors, the goal is the imitation of reality. But when you are working outdoors, you face the same realities that full-size railroads face, including all types of weather, changing seasons, different climates, and a variety of materials with which to do your work.

The photo gallery on the following pages will give you a brief glimpse of what just a few people have achieved in the garden. We hope that these images will inspire you to try your own hand at this wonderfully diverse and satisfying pursuit. 



CHARLEY LIX

ABOVE: The train, departing Summit Station on Charles & Elizabeth Garbett's Matadero Valley Railroad, is dwarfed by the lush, green hillside. Scale houses overlook the track on this California railroad.

LEFT: *Arthur* pulls onto the big bridge running towards the strawberry fields at Belleville on Charley Lix's Excelsior Ditch Company Railway in Nevada. This railway is $\frac{3}{8}$ " scale running on gauge-0 track.



GAVIN SMART

ABOVE: GP9 N° 3838 displays the full SP light package as it rolls gently past the sawmill on the outskirts of Blythevilleon Gavin and Sandy Smart's Somerville & St. Francis River Railway.



PAUL MANGAN

LEFT: As dusk settles in the evening, a local freight passes by High Pass station as passengers await the arrival of the Midnight Special that has a scheduled 12:02 a.m. arrival time in Los Angeles. The scene takes place on Paul & Kathy Mangan's Wild Cat Mountain & Santa Fe garden railroad in Oregon, Wisconsin.

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