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Steam in the Garden

Magazine

*Gather, friends, while we enquire,
into trains propelled by fire.....*

Issue No. 21

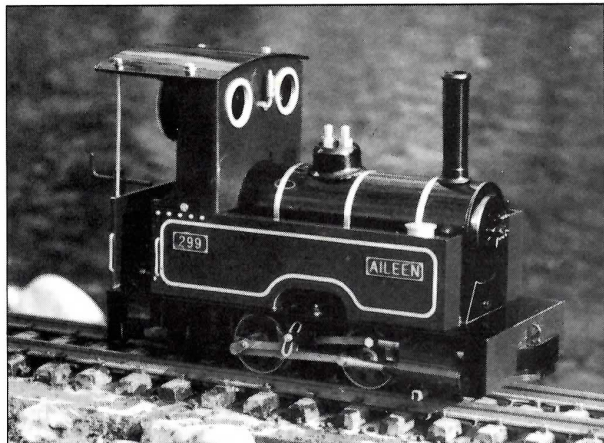
March/April 1994



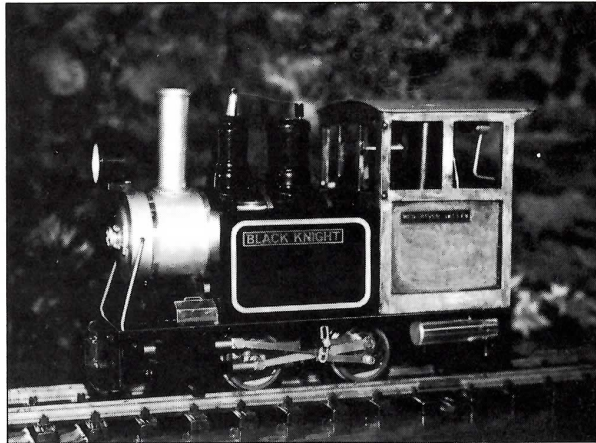
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- **LOCO REVIEW – THE NEW MAXWELL HEMMENS PORTER**
- **BUILD YOUR OWN FUEL TANK FOR GAS FIRING**
- **STEAM IN NEW JERSEY – A PHOTO REPORT**
- **SIMPLE MODS FOR YOUR LGB FRANK S**
- AND LOTS MORE.....**

ANNOUNCING . . . GIANT LITTLE RAILWAYS LIVE STEAM LOCOS



Little Giant



Dixie

Yesteryear Toys & Books Inc. has been appointed the exclusive North American distributor for 'Giant Little Railways.' 'Giant Little Railways' are manufactured by The American Steam Locomotive Co. Ltd. of the UK (formerly Steamlines Publications & Models).

A NEW GARDEN RAILWAY CONCEPT!

- AFFORDABLE EASY-TO-BUILD LIVE STEAMER KITS AND READY-TO-RUN MODELS (45mm—GAUGE 1) • 3/4" SCALE, A THIRD LARGER THAN LGB • TOUGH ENOUGH FOR THE WORST OUTDOOR CONDITIONS • TAME ENOUGH TO RUN INDOORS

This new and exciting line consists of the high quality and powerful models; the 'Little Giant' and 'Dixie.' Both are available in kit or assembled form.

LITTLE GIANT and DIXIE SPECIFICATIONS

Kit supplied as an assembled chassis/boiler, track tested to pull 30 lbs. before despatch. You fit superstructure, detail parts (all components are unpainted). No problems for the first-time builder. Ready-to-run models are supplied with a two-year parts and labor warranty.

Immensely strong construction. A loco is only as safe as its safety valve. Twin safety valves set at 55/60 PSI. The reversing valve also provides an extra margin of safety. Free-steaming copper boiler, internally gas fired, 2" dia. x 6" long, 1.6mm thick, will not dent, double stayed, all joints silver soldered and tested to 150 PSI, working pressure 40 PSI. Tubular copper gas tank, 1.2mm thick, shielded from the burner. Exhaust gases ducted under the smokebox to warm the cylinder block, prevents priming.

Cylinders are 13mm bore (fitted "O" rings), 16mm stroke, double-acting cylinders w/piston valves. Monoblock chassis machined from HE30 aluminum, no frame stretchers. 1.25" dia. wheels, insulated steel tires, 1/4" steel axles run in brass bearing blocks.

A regulator you can get your hands on provides fine control in either direction. Radio operation optional.

Dimensions: 8.25" long, 3.75" wide, 6.75" high, weight 2.65 kg. (5.8 lbs.), will run 2 foot (60 cm) radius curves.

LITTLE GIANT Special Features: Steel cab 1.2mm thick high tensile steel. 1-5/8" dia. pressure gauge. Ready-to-run colors: buffer beams, red; chassis, black; cab roof, black; side tanks and cab, maroon, green, or dark blue.

DIXIE Special Features: All-wood cab, dummy sand dome, headlamp, tool box, air tank, bell. 3/4" pressure gauge, black livery.

Size enhances simplicity to achieve more power at a minimal cost. The extra material and machining is more than offset by quicker assembly. But nothing costs more than demand—'Giant Little Railways' are rapidly making friends around the world.

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ON THE COVER:

The driver watches while a deer, startled by the sound of the engine, bounds off into the woods as the Sedimentary Sand & Gravel Co. DeWinton "CYCLOPS" passes Amble Junction on the works train from Woody End.

*Photo by Peter Dobson
submitted by David Pinniger*

THREE CHEERS!

Jerry Reshew has done it again! The National Gauge One Steamup, held again this year in Diamondhead, Mississippi, was bigger and better than ever, and everyone that attended owes Jerry a great big THANKS for his tireless efforts.

Faithful Assistant and I, having been frozen out of last year's event (literally!), took Amtrack down and back this year and had a wonderful time. We'll bring you a full report, complete with photos, in the next issue.

WE NEED YOUR HELP!

And speaking of photos...we need more of them. We appreciate all the photos you've sent to us, and many of you are probably wondering why you haven't seen that photo of your favorite steam scene in print. Truth is, most of the photos we receive are interesting to look at and would make fine scrapbook material, but they just aren't suitable for publication.

We need photos without distracting backgrounds. You'd be surprised at how many we get that are filled with arms, legs, dogs, fences, garbage cans, cars, and so on. The subject of the photo might look great, but if the photo is filled with distractions we just can't use it in the magazine.

Common problems with photos we receive are: fuzzy, blurred, shallow depth of field, too dark or too many shadows.

Take your time and set up your shots carefully. I won't attempt to get into a course on photography here, nor am I qualified to do so, but read some of the excellent articles on the subject of photographing models and miniatures and spend some time trying the techniques they discuss.

For closeups, use a tripod and the small-lens opening your camera is capable of. This will increase your depth of field and will help to keep the photo sharply in focus. Bright, sunny days are great for getting out in the garden, but they aren't so great for photography. For best results, pick a day that's overcast but bright.

We really need your help, so if you'd like to earn our eternal appreciation and see your name in the photo credits, spend a few pleasant afternoons or weekends setting up and shooting some terrific shots of steam locomotives at work and at play.

For the cover we need vertical format photos, and we prefer that they be 35mm color transparencies. These translate well to b&w, and if we ever decide to do a color cover, we'll be ready. Until next time.....

Happy Steaming,

Ron

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Steam in the Garden magazine

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Items for review may be mailed to P.O. Box 335, Newark Valley, NY 13811 or sent via UPS or Federal Express to 6629 SR 38, Newark Valley, NY 13811.

Questions or comments? Phone us at 607-642-8119 - before 9:00 p.m. Eastern time, please - or send a FAX anytime at 607-642-8978.



R P O Mailbag

Letters from all over

Letters from readers are welcomed and encouraged. Offer advice, encouragement, suggestions or constructive criticism. Tell us about your current project (and don't forget the photos!) or just share live steam experiences. But please keep your letters to a reasonable length so everyone has a chance to use this forum. Send your contributions to: SitG, Dept. RPO, P.O. Box 335, Newark Valley, NY 13811, USA.

* * * * *

Live Steamer List Proposal Generates Responses

Columbus, Ohio

Dear Mr. Editor Sir,

I am in favor of a list of steam enthusiasts, both to be included in it and to be a recipient of one, although periodic updates would be helpful. I can't imagine what "the wrong hands" might be for it to fall into, however, as the worst case scenario is that someone would wish to sell me something and I can either say "no" or simply enjoy the mailing. Then again, Harry Wade's insurance agent may come a calling with a policy for death benefits from small boiler explosions. That's not usually a problem for me as I'm rarely successful even getting a small head of pressure up (in the train, folks).

As far as tapping into the Collective Wisdom...I think that's a great idea, as I'm frequently informed, particularly by Sam Muncy, that I have none. As far as a rundown of my interests and experience, at my age my inability to actualize my interests results in my lack of experience. Keep up the Good Work, my friend, and happy steaming!

Yours,
Chip Rosenblum

New Brunswick, Canada

Dear Editor & Faithful Assistant,

I am responding to your editorial in the last issue of SitG, in regard to publishing a list of names and addresses of live steam enthusiasts. My opinion is that we are a small brother (and sister) hood of enthusiasts that have a common interest in steam and trains. Yes, I run the risk of having my name and address given to someone and put on a national junk mail list. Well, that's what we have File 13 for in our household. The positive

side is that if I had a list of SitG subscribers, I would have the luxury of being able to call, plan a visit, or be visited by vacationing live steamers -- and might even find out that there's a fellow steam lover within driving distance. Put my vote down as a YES, make the list available to members.

Ricky Morningstar
The Poorboy Railroad

Escondido, California

Dear Sirs,

I am responding to the letter penned by Mr. Leonard Hills in your latest issue. Please include my name on the suggested listing. I have some practice in mechanics, but having pursued an education in chemistry I am sadly lacking in the finer points of mechanical engineering and would enjoy corresponding with fellow devotees of steam garden railways.

As I am a small business owner, time is my worst enemy. The scheme to exchange ideas and knowledge comes as the second best thing to happen in American garden railways after your magazine, which I happened upon while visiting Railway Garden Ltd. The publication is just the right size, filled with information perfectly suited to the enthusiast, and its pages and correspondence convey that special "feel" that only steam model people sense.

The how-to articles I enjoy immensely and hope to see more. Please tell your authors to be as explicit as possible when describing techniques and tools. None of us should be insulted to have an expert describe a screw as "a metal rod, threaded, with a slot on the end". It only takes one technique not fully understood to halt things, even if the other 20 are crystal clear. I would love to see a glossary of terms included with each of these articles.

Excellent magazine. Right on target and heading in exactly the right direction. Keep up the good work and thank you.

Ronald G. Beales

Well Deserved Words of Praise

Chesterfield, Missouri

Good Morning Ron,

Please let me thank Jerry Reshew and all the Diamondhead

volunteers, through the pages of SitG, for a job well done on the Second Annual National Gauge One Steamup, held at Diamondhead, Mississippi. Carol and I, along with all the other attendees, had a wonderful time again this year. Jerry did a fantastic job of hosting this major event in the steam world. All of us who attended are extremely grateful for the magnificent effort that was put forth by all of Jerry's volunteers; the seminar speakers, the track crew, and especially the lovely ladies who sat for hours manning (or should I say womaning?) the registration desk. Thank you all for the great time.

Good steaming,
Bob & Carol Paule
Sulphur Springs Steam Models, Ltd.

Thornton, Colorado

Dear Ron & Marie,

Boy oh Big Boy, did we have fun!! I started a fire, burnt my fingers, charred my lungs, ate too much and slept too little. Additionally, I learned lots of steam related stuff from the seminars and talked and played with really wonderful people at the Second Annual National Gauge One Steamup. What more could you ask for!?! Not much, except possibly another steam engine.

Being a newcomer, I learned a lot about my engine and the great people involved in this hobby. First, make sure no alcohol is leaking when you light the wicks. Second, the participants of the steamup are very gracious. For instance, they help put out fires. Marc Horovitz (being the great guy he is) spilled a container full of coal so he could be more embarrassed than I was. Also, Leslie Hall told me that the shoot of water coming from my smoke stack was one of the highest she had ever seen. I think she was politely telling me that I put too much water in the boiler. Third, keep steamin' up. Practice may not make perfect, but it sure is fun!

Thanks to everyone who made a nervous newcomer welcome. My Mogul and I will see you next year!

Morgan Jennings



Bellevue, Washington

Dear Ron,

I've discovered a mine of shop hints and construction aids that I realized might be worth passing on to all the other SitG readers who get their hands dirty and knuckles skinned. As you know, since I got into this hobby I've been slowly getting a shop together with the goal of designing and building a 1/2 inch scale SP 4-8-4. I've been fortunate to have a friend, Marv K., who is a very experienced model maker, machinist,

physicist, professional computer programmer, and heaven knows what else.

When I started to put together my home shop with a lathe, mill/drill machine, etc., my friend Marv began to write letters to me with hints, suggestions and instructions on all manner of things that would be of help to me. I've kept most of Marv's letters and review them when I'm looking for input on an ongoing project. It occurred to me that a lot of guys who are setting up a shop to build models might like to read some of his hints. I will sift through all the letters, select the best of the shop hints and put them into the form of a series of *"Letters From the Old Curmudgeon"*. "Old Curmudgeon" because Marv has always started his letters with a pithy quotation reflecting his views on life.

When I think of a curmudgeon I am reminded of the machine shop old timers in the 1940's era newspaper cartoon "Bull of the Woods". They were always amused by the new machinists attempts to do some job the hard way when the old hands knew a quicker, easier way. The figure above shows how I think of the Old C., with his snuff stained mustache and old German caliper.

As I sort through the piles of letters I'll cull out the best of them and edit them into a series of "Letters". Some will contain hints on where to buy model making stuff, others will tell how to build useful shop aids. I will add drawings to these letters, when I think it's appropriate, to help your readers visualize the shop hints.

Gene Rutkowski

Gene has generously taken the time to submit several of the proposed columns, and I find them useful, entertaining and worthwhile. We'll start running them, as space permits, in the next issue - ed.

Pasadena, California

To: All Aster customers, dealers, supporters and admirers.

At the end of this year, 1993, owing to harsh economic realities, Aster Hobby U.S.A., Inc. will close its doors indefinitely. We hope that we have been of service and offered support when needed, and we deeply appreciate the support that you have given us. Please send all future inquiries regarding parts, sales or information to:

ASTER HOBBY CO., INC. **attention: T. Inoue**
1-13-34 Hakusan-cho, **Phone: 81-45-934-5646**
Midori-ku, **Fax: 81-45-933-9486**
Yokohama,
Japan, 226

It has been a pleasure serving you and the industry.

Sincerely,

Gary B. White, President
ASTER HOBBY U.S.A., INC.

What's New?

The Willow Works, P.O. Box 150581, Nashville, TN 37215 -- phone 615-373-5829, announces a limited run of replacement boilers for the vintage Aster GER/Etat/Oest 0-6-0 locomotives. These locomotives, which are now almost 20 years old, were fitted with soft-soldered copper boilers and are now giving trouble in the form of recurring leaks at various external boiler penetrations and fittings. Many of these otherwise useful locomotives now sit idle because of wheezy, leaky boilers. Our new boilers will be duplicates of the original Aster component so far as size and shape are concerned, but several features will be included in their construction which will improve upon the original design. Please write or call The Willow Works for an information sheet listing the specifications of these high quality, silver-soldered replacement boilers. The Willow Works is also now offering best quality British made steam pressure gauges, 3/4" x 0-60 psi, for \$40.00 ppd. in the USA. Siphons custom made to fit your boiler connection are also available for \$25.00 ppd.

Spindle Mate, Inc., P.O. Box 202, Buffalo Creek, CO 80425 - phone 303-838-0372 or FAX 303-838-5709, has a really nifty gizmo for cleaning the sockets on all tapered tool connections. Remember how the drill chuck plugged into the Morse taper connection in your lathe tailstock (or drill press, or milling machine) spun the last time you were drilling -- and maybe turned your carefully machined part to scrap? Have you seen the articles and ads for crossbars to attach to your Morse taper tools -- the ones that are supposed to whang into the ways on your lathe to keep the Morse taper from spinning? Well, it isn't supposed to work that way! A tapered tool connection is designed to be a solid lockup that doesn't require a crossbar to keep it from spinning. The reason so many of them spin is because the socket isn't clean and dry. Spindle Mate sent us a sample of their *Spin L Mate*, a clever device that is designed to squeegee out that socket -- removing chips, varnish and oil in the process. It uses replaceable blades, kind of like windshield wiper blades, to accomplish this, and the good news is that it really works as advertised! After reading through the simple directions I cleaned the Morse tapers on our good ol' South Bend lathe, which have slipped and been a source of irritation ever since we got it. Once the socket has been thoroughly cleaned the first time with *Spin L Mate*, it takes only a few seconds to keep it that way. According to the literature furnished with our sample, the taper connection will just keep getting better and better as it is used. I'm pleased to report that we haven't experienced a single instance of taper slip since using *Spin L Mate*, and using a taper tool connection is now a pleasure instead of a nightmare. If you have had any slipping problems with your tapered tool connections (Morse, Jacobs, or whatever) and would like to stop it -- or if you have a new machine with no slipping problems and want to keep it that way -- I suggest you call or write Spindle Mate, Inc. at the address or phone numbers at the beginning of this report. Tell them you read about them in *Steam in the Garden* magazine and you desperately need more information about *Spin L Mate*.

I was a Customer Engineer in field service for IBM for more than 20 years, and spent a good portion of most days working on some really dirty, oily, greasy, grungy machinery. IBM furnished us with an outstanding shop towel, and I've been trying to find a source for these ever since I left IBM for the big-time publishing business. When Spindle Mate sent the samples of their Spin L Mate product, they included samples of.....yep, you guessed it.....my favorite blue shop towels. Called *Fine L Wipes* by Spindle Mate, these excellent shop towels are lint free (won't scratch your glasses - or the paint job on that priceless loco), super absorbent and tough as nails. They can be washed and re-used again and again, and they're still the best shop towel I've ever used. Call or write Spindle Mate at the numbers shown in the previous paragraph for more information on *Fine L Wipes*.

Radio Shack has a cordless phone flex antenna, part no. 43191 priced at \$5.99, that will replace the long, annoying and potentially dangerous whip antenna on your radio control transmitter. This "rubber ducky" will not reduce your transmitting range, but it will keep you from getting tangled up in the shrubbery or poking a bystander in the eye. This tip was submitted by Jerry Reshew.

Just received at our posh, luxuriously appointed, editorial penthouse suite, the following press release from **Railway Garden Ltd.** in Cambria, California. *"RGL has been sold! Same location, same great lines (Brandbright, Argyle, NG Australia). The RGL catalog has been delayed a bit while new owner Rimsky Russell and assistant Eugene Singer add more great stuff. Samuel will continue to answer questions and take orders until the middle of March, 1994, and then he will open his small mail order company called 'FALDERAL', specializing in railway whimsy models in electric and live steam. New RGL owners are long time model railway specialists and steam enthusiasts, and old customers of Samuel."* We welcome RGL's new owners to the small-scale live steam community, and we wish them and Samuel much success in their respective ventures.

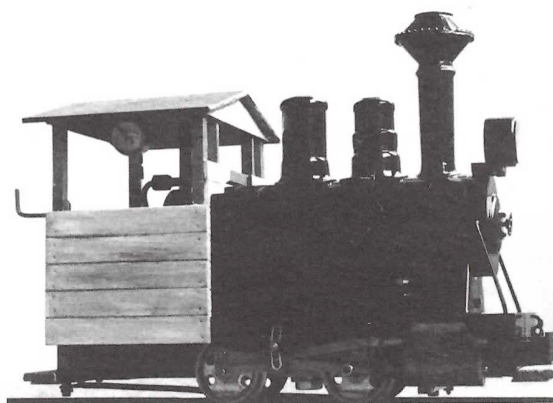
Larry Larsen Graphics, 23401 Schoenborn St., West Hills, CA 91304-3313 -- phone 818-999-9342, has complete dry transfer sets for the Large Scale Modeler. They have researched and photographed more than a hundred pieces of railroad equipment to ensure that the sets you receive are accurate and complete. Standard gauge sets are 1:32 scale and narrow gauge sets are 1:23.5, a compromise scale that will look "right" on both 1:22.5 and 1:24 scale models. LLG is also offering Custom dry transfer sets for your own private road name. They will design graphics just for your road from your own ideas, create an image for you from scratch, or use your own camera ready disk-based art. Wouldn't it be neat to letter your locomotives and rolling stock with professional quality dry transfers -- and to have your own professionally designed logo? Give LLG a call and check it out.

All you guys using EPI Gas in your gas-fired locos -- particularly those with the new Maxwell Hemmens Porter, which uses the EPI Gas Micro 100 cannisters -- need to know that Taymar, the USA distributor for EPI Gas, has been sold to the Coleman Company. A spokesperson at the Coleman Co. tells us that they will be selling direct only in large quantities -- \$500 minimum order. They also tell us that EPI Gas can be found at any camping or outdoor store that carries Coleman stoves. Coleman has a toll-free number and invites your comments, questions and inquiries. Give them a ring at 1-800-776-7189.

Decker's Trains, Rt. 1, Box 102-E, Hot Springs, SD 57747 -- phone 605-745-5487 is now handling some of Graham Whistler's fine videos of full-size railroading in the U.K. Now available are *The Ravenglass & Eskdale Railway* @ \$21.50 and *The Festiniog Railway* @ \$31.50, plus \$2.50 S&H. One other tape that is now being converted to NTHS format is *How to Drive Steam Locomotives*, which will probably be available by the time you read this for \$31.50 + S&H.

Aster Hobby Co., Inc., 1-13-34, Hakusan, Midori-ku, Yokohama, Japan, 226 -- phone 011-81-45-934-5646 or FAX 011-81-45-933-9486, has announced the availability of their 20th Anniversary Edition Live Steam Catalog. We received a review sample just a few days before sending this issue to the printer, so we were pressed for time and had no intention of giving it more than a quick look. Once inside, we were caught up in the beauty, the color and the magic.....there was no putting it down until we had looked at every page. This isn't a catalog -- it's a work of art! Every Aster locomotive since 1975 is represented, as well as the projects now underway that have not been previously announced. There is a technical section, very well illustrated, on boilers, burners, valve gear and many other aspects of live steam locomotives that is in itself worth the price of the catalog. Check with your Aster dealer for price and availability, or order direct from Aster Hobby Co., Inc. at the address above.

FAIRWIND GARDEN RAIL, 60 School Road, Wales Village, Nr. Sheffield, S31 8Q3, England, has introduced "Zak", a custom built American Logging Loco version of Tom Cooper's "Little Giant" live steam locomotive. Re-built to the popular 1:20 scale/45mm gauge, or in it's original 1:16 scale/45mm gauge. Each with a choice of two finishes to the hand built hardwood cab -- fresh-from-the-shop varnish or weathered & distressed. All four versions priced at £529 each, plus packing and shipping at cost. For a full specification sheet & catalog, send \$3 cash to Fairwind at the address listed above. And don't forget to tell 'em where you saw it!



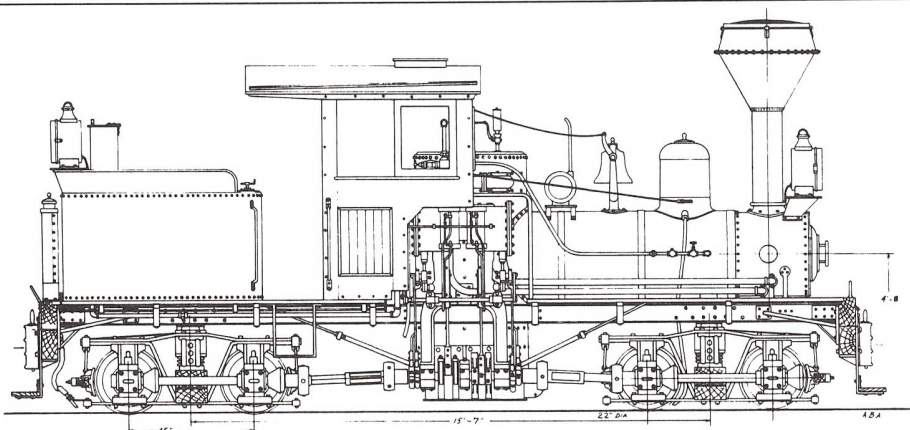
Rio Pecos Garden Railroad Co., 27136 Edenbridge Ct., Bonita Springs, FL 33923 -- phone 813-495-0491 or Fax 813-495-7264, has announced a water tower that's

just the thing for your Garden Scale steamers. Available as a construction plan set (#106 Water Tower) or as a finished model, ready to place at trackside. The finished model is all wood construction, built of pressure treated pine that has been stained and further treated against the ravages of the elements with two coats of Thompson's Water Seal. The nicely proportioned spout can be raised and lowered, and even the handle on the spout is functional. Our review sample came with the flat-top roof, but for those that prefer the look of a peaked, shingled roof, construction plan set #106A includes drawings for that alternative. Bob Osterhoudt at Rio Pecos tells us that the only items on our review sample that were purchased are the chain and pulleys, which came from Ozark Miniatures, and a fishing sinker from the hardware store to make the spout counterweights. The drawings in the plan set, which are actually blueprints with elevations and full-sized patterns, are neatly and professionally done. The package includes a materials list, construction tips, a photo of the finished structure and all the information you need to make your own fine looking water tower. Rio Pecos has even included the information necessary to make this a functional water tower. The completed structure, which measures out at 14-1/2" high and 9-1/2" in diameter, is a very attractive and realistic water tower that will look right at home on any garden railroad. The only thing we would change is the spacing of the tank bands, which should be spaced closer together at the bottom, as on full-sized water tanks. Contact Rio Pecos for more info about the water tower -- and while you're at it, ask about their catalog, which contains steam locomotives, track, railbenders, How-To videos, as well as other construction plan sets and finished structures that will help bring your garden railway to life.



Darex Corporation, P.O. Box 277, Ashland, OR 97520 -- phone 503-488-2224 or FAX 503-488-2229, has developed a new sharpener. The new product is the highly accurate Darex M-5 Deluxe Drill Sharpener. The M-5 Deluxe is an upgrade of the world's best selling drill sharpener, the Darex M-5. Like the versatile M-5, the Deluxe can sharpen virtually any angle, any point and any kind of drill from 1/16 inch through 3/4 inch. The point splitting and web thinning features produce modern high performance drill points. Similar to its popular predecessor, the M-5 Deluxe comes with two precision chucks, lamp, pedestal and a 115v 1/3 HP motor. These drill sharpeners can be enhanced to broaden the range of sizes and point styles with attachments available from Darex. Darex drill sharpeners start at just \$298. The company offers free thirty day trials with any of their sharpeners, including the M-5 Deluxe. For information and free color brochures contact Darex Corporation at the numbers listed above. You can call them toll-free at **1-800-547-0222.**





A 14-TON LIVE STEAM NARROW GAUGE CLASS A SHAY IN 1:20 SCALE

Drawn by Al Armitage

Now accepting reservations for our limited run of 25 locomotives. Even if you already gave us a verbal order for this engine, you still need to call or write to confirm your reservation. Standard features will include: Serial numbered, factory painted, 2-truck, T-Boilered Shay with 2 fixed cylinders (no oscillators), gas-firing, gearing for slow, realistic speeds, displacement lubricator, blowdown valve and water injection.

There are only a few guaranteed delivery slots still open, but we will keep a waiting list in case of cancellation. First come, first served! Please do not send any money now. Once your name is on the reservation list, we will notify you when your locomotive is next up to be built. At that time we will ask for a deposit. When your locomotive is complete, steam tested and ready for delivery we will ask for the balance. Our target price is around \$1500. Customs, shipping and insurance charges are additional. Deliveries are expected to begin in the summer of '94.

If there is enough interest to warrant it, we will build a second run, made up of post-1900 locomotives, once the run of pre-1900 locos is complete. Please let us know your preference. Pre-1900 locos (1st run) will differ from the drawing in that they will have no generator or electric headlamp, but will have an acetylene cylinder on the running board and a larger, old-fashioned gas headlamp.

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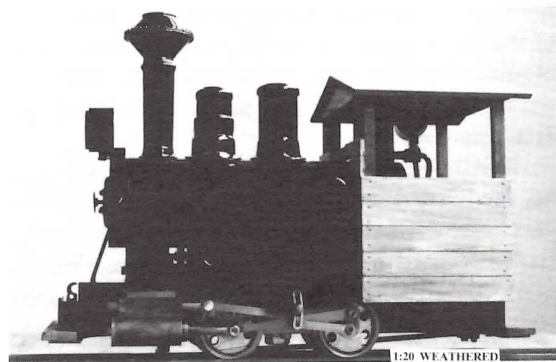
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The Steamchest

by Marc Horovitz

Coal Firing

Coal, as a fuel for little locomotives, is a world apart from other fuels like gas and alcohol. I've written about coal firing before in these pages. This time we'll get down to the details.

Coal, generally speaking, comes in three flavors: lignite, or brown coal; bituminous, or soft coal; and anthracite, or hard coal. All three are the same product in different stages of development. If this product continues to develop it becomes graphite or diamonds. For our purposes anthracite is the best, and the best of the anthracite is called Welsh Steam Coal. It is, or was, mined in Wales. Sadly, most of the mines that produced this coal have closed, and Welsh Steam Coal is getting harder to find. However, for our little engines, a few good lumps will last us a long while.

Anthracite burns much more cleanly than the softer coals, and has fewer impurities, like sulphur. It is these impurities that cause coal to smoke, which is fine for scenic effect, but the softer coals will also fill the tubes of a boiler with soot and cinders and clog the grate with clinkers much faster. Unfortunately, we must forego great clouds of toxic smoke in favor of efficiently burning fires that don't complicate our lives.

The boiler most commonly used for coal firing is the locomotive-type boiler (see illustration). This has a firebox that is (usually) surrounded by water the so-called water jacket. The firebox communicates with the smokebox through any number of fire-tubes or flues. Since this is an internally fired boiler, a blower in the smokebox is required to draw air through the fire, and the fire through the flues. Steam is raised with a suction fan in the usual way.

Dry-firebox boilers can also be used for coal. Coal can burn hot enough to damage soldered joints, so the dry firebox must be designed and constructed with this possibility in mind.

The firebox needs to be as deep as possible in a small-scale, coal-fired boiler. Fire is one of those things that can't be scaled down, and even a comparatively deep fire (in scale) isn't that deep in reality. A fire that is too thin will not produce the necessary heat, and will have difficulty staying lit.

The coals sit on an open grate at the bottom of the firebox. This grate should be easily removable so the fire can be dropped at the end of a run and so the firebox can be cleaned. Some grates are hinged in place and some will drop out entirely.

Grates are usually made of one of three materials. They can be fabricated out of steel bars or stainless steel, or they can be cast in iron. Stainless steel is the best choice for longevity, but because of the difficulty in working it, builders may want to opt for mild steel and just remake the grate when necessary. The impurities in the coal combined with the temperatures involved will eat up a grate in time.

An ashpan beneath the fire protects the track from burning bits of coal that might drop out, and it can also be used to restrict and control the air flow to the fire.

LIGHTING UP

If you've ever held a match to a piece of coal you'll have noticed that the black lump did not immediately leap into flame with great enthusiasm. Unlike gas or alcohol, lighting a coal fire is not an instantaneous thing, and must be approached with care.

The first step is to soak some small chunks of charcoal (from the barbecue) in alcohol or kerosene. Lay the fire with these, turn on the suction fan, and light up. The solvent should get the fire going well in a short amount of time. Gradually add coal to the fire. Apply just a few lumps at a time evenly over the grate area. As these begin to ignite, add more. When there is a little pressure in the boiler, turn on the engine's blower and remove the fan. The engine's own blower usually does a better job of drawing the fire than the fan, so you should see an immediate improvement in the fire. Be sure to keep the fire door closed except when adding fuel.

Once the fire is fully lit and pressure is up, you are ready to go. If the engine has a well-designed boiler with a deep firebox, you may be able to get five to ten minutes running out of the boiler before it requires attention again. Firing a miniature boiler on the fly with a shovel that's smaller than a baby's spoon is nearly impossible. Most folks stop the engine for refuelling. For the best results, coal should be added a little at a time in frequent doses. In this way the fire isn't smothered by great gobs of new coal being added all at once.

The design of the shovel is something that deserves consideration. One of my coal-fired locos came with a most irritating shovel. The end of the scoop to which the handle attaches is very square, and has the irritating habit of catching on the firebox door when the shovel is being withdrawn from the fire. An angled back-end would make removal much easier.

ADVANTAGES AND DISADVANTAGES

Coal burns very hot indeed, and because of this the grate area can be minimized. I've read of small-scale, coal-fired locos with a grate area as small as one square inch! Because of the BTU output, you'll find a well-designed coal-fired boiler to be very lively. It will be a challenge to keep the pressure where it should be, but below the pop off point.

And of course, coal smells and acts in a little engine the same way it does in a full-size locomotive. This may be considered an advantage or a disadvantage, depending on how your engine is performing at the time.

Another factor that may be considered either an advantage or a disadvantage is the fact that the fire requires a great deal more maintenance than other types of fire. If you are looking for an engine that can be lit and let go, coal firing is not for you. On the other hand, if you like the interaction between the engineer and the engine, coal firing can't be beat.

Coal firing is a dirty job. The engine will acquire a coat of grime that attracts dust and soot, and needs frequent wiping down to be kept looking good. Flues must be cleaned routinely, as must be the grate, or the boiler will fail to perform properly.

And finally, good coal may be hard to find. If you are forced to use inferior coal because that's all you can get, the engine will be more difficult to keep clean and keep running efficiently.

BUYING A COAL-FIRED ENGINE

The purchase of a coal-fired loco, like the purchase of any other, is fraught with peril, particularly if you are doing it long

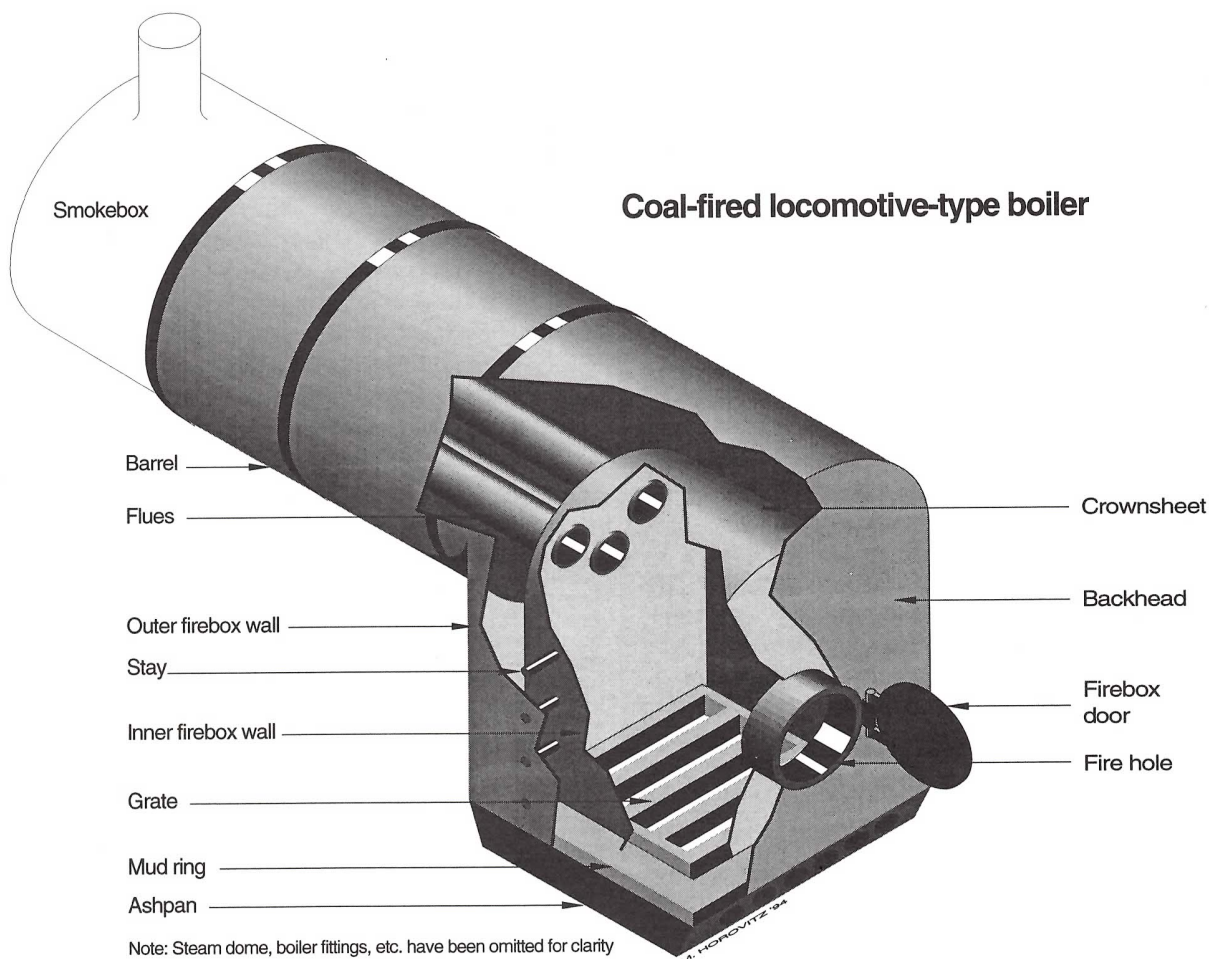
distance. The best thing to do is to see the engine in steam before you buy it and, if possible, steam it yourself.

If this isn't possible, then ask some pointed questions of the prior owner. I.e., How old is it? How well does it steam? How long between firings? Is it difficult to fire or temperamental in its behavior? Was the engine well cared for? Are there any problems that should be attended to? What kind of coal was burned in it? Etc.

If you are buying a new engine from the manufacturer, ask about the steaming and performance characteristics. Also ask for the names and addresses of other buyers of the same model, and get in touch with them. A satisfied customer is often a good recommendation. Ask if the maker can furnish you with a supply of coal, or if he can tell you where to get it.

So that's about it for this cursory examination of solid fuel. Coal firing is a unique experience, and it's not for everyone. It's fun, though, if you know what you are getting into.

Next time we'll talk about gas firing.



The Fitters Bench

by Crankpin

Digging Deeper Into the Mysteries of the Lathe

In all probability it will be after the new year before you read these words so I wish to begin by saying that I hope this finds that all of you had a very happy holiday season and a prosperous New Year. I regret to say that this past year at Crankpin Hall has been somewhat less prosperous than I had hoped as it seems that more coin of the realm made its way out than came in. First it was the roof on the Hall needing repair and then Old No. 6 needed a new muffler and tailpipes, and the list seemed to go on.

Workshop goodies, a number of which I was compelled to buy, predictably got more expensive, not to mention that the cat demanded an upgrade to that malodorous canned glop that she sees on the telly late at night; foul stuff that, and this with no significant decrease in the rodent population! But good cheer to one and all, for as long as the lads at the dam crank out a few KW every now and then and I can bleed enough juice off the Grid to make the workshop wheels go round, I shall count myself a lucky and prosperous man indeed.

In my last column I hoped to make you acquainted with the wide variety of lathes in use throughout the world today and to throw in a bit about their origins just for good measure. From this point onward, however, we shall concern ourselves solely with those BGSC lathes (remember what those are?) which are of a design and size suitable for the model engineer and amateur machinist. It should not be assumed that because these machines are smallish and are most often found in the amateur's workshop that they will not sometimes be found serving valiantly on the front lines of industry, or

conversely that lathes of industrial strength and quality are never found in the model engineer's workshop; nothing could be further from the truth. The primary lathe in my own humble workshop is one that was intended for industrial toolroom use rather than the home workshop and it makes quick and happy work of the large pieces that one encounters while building in the larger scales. But where the smaller scales such as the garden gauges are concerned, I cannot think of a single task that, with care, would not be just as well done on a small machine as on a large one.

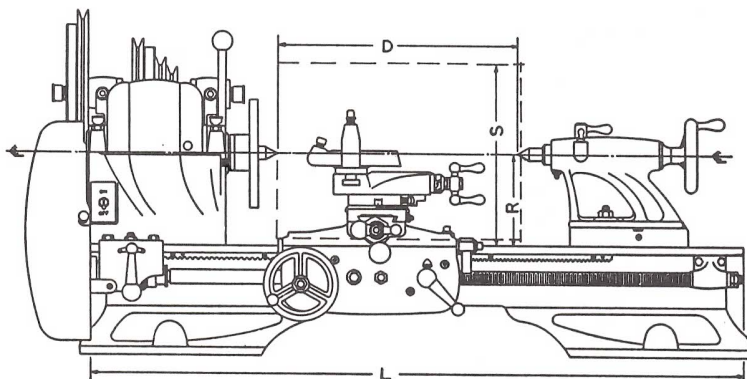
Most lathes are primarily identified by their **nominal** size which is usually stated in terms of the dimensions of the largest theoretical **cylinder** that can be accommodated between the centers of the machine. I will explain the "theoretical" part of this statement a bit further along. **Figure 1** is a profile of a typical bench lathe with the "cylinder", shown by the dashed lines, mounted between centers. When calling out a lathe size, the diameter or the radius of the cylinder is always given first, followed by its length, and the dimensions are always expressed in increments of inches or millimeters.

The diameter of the theoretical cylinder is indicated by Dimension "S" which represents the nominal size, or "**swing**", of the machine, and would be stated as a "5 inch (or 250mm) swing" lathe. Dimension "R" is center height, which I will say a few more words about in a moment, and Dimension "D" represents the maximum theoretical distance between centers.

I have stated the dimensions in the preceding paragraphs in both Imperial inches and millimeters, however, you will find that the manufacturer's specifications for many new or recently made lathes are now stated in terms which reflect ISO (International Standards Organization) dimensions which are Metric. Thus a lathe which once may have been of 3.5" centre height (7" swing) x 19" between centers might now be specified and sold as a 90mm (180mm swing) x 500mm machine. This will depend upon the manufacturer or the country of origin. Even though the ISO may be doing a fine job of coordinating dimensions amongst the nations of the world community, most of the lads around the shops persist in calling things out in feet and inches...and so shall I.

Now for a bit of confusion. It is conventional practice in the United Kingdom to size center lathes according to the nominal height of their centers **above the top surface of the bed ways**, indicated by Dimension R in **Figure 2**. As you can see from the illustration (shown looking towards the headstock), the center height dimension (R) will usually be a bit shorter than the radius of the cylinder (S) and that

FIG. 1



- D.....Distance between Centers
S.....Swing over Bed
R.....Radius ($\frac{1}{2}$ Swing)
L.....Length of Bed

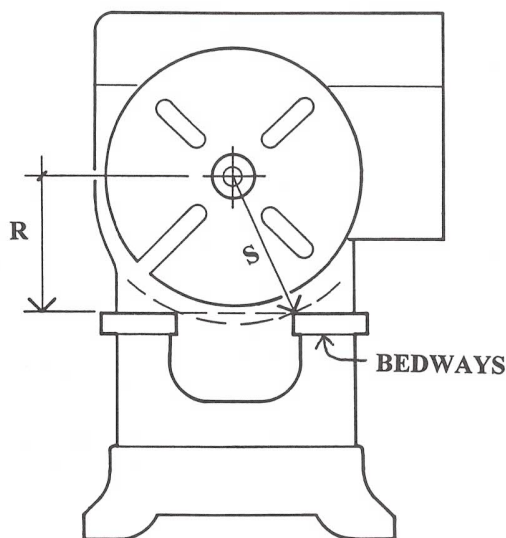


FIG. 2

will not necessarily be twice the center height. In the U.S. and on the continent, the nominal size of a lathe is traditionally identified by its “swing”, the aforementioned theoretical cylinder. Thus an English lathe of “3 inch center height” would be termed a “6 inch swing” lathe in the U.S. and in Europe. Conversely, an American “10 inch swing” lathe would be considered a “5 inch center height” lathe in the UK. Clear enough, I should think.

Having said all that, I have noticed that very recently there has been a change in the old ways of some British manufacturers or sellers in that many of their lathes are now being advertised by quoting their **swing** rather than the center height. I think this has come about not so much because they wish to get in step, but as a marketing approach which will increase the apparent value as machine tool prices continue to rise. For instance, £500 for a 2" (center height) lathe might seem a bit pricey, as opposed to (only) £500 for a 4" (swing) lathe -- now there's a better bargain! Same machine but bigger numbers, and who can blame them?

In order to explain my earlier reference to “theoretical” dimensions I must inform you that the typical center lathe, with a conventional carriage and cross slide, will not actually turn a cylinder that is anywhere near its full **nominal** size. The actual diametrical turning capacity of the lathe between centers is reduced by the height of the top surface of the cross slide above the bed, which will be apparent when you look again at **Figure 1**. Even though a lathe is sold as a 3 1/2" center lathe (7" swing), the largest cylinder that this machine is actually capable of turning is not 7" diameter but is more likely to be on the order of 4" diameter. Quite a difference! However, wheels or other objects that can be held in a chuck or on a faceplate (both to be dealt with in a future issue) can be very nearly the full size of the lathe capacity since they do not have to pass over the obstruction of the carriage and cross slide.

Another interesting and useful variation on the standard lathe design is the **Gap Bed** (**Figure 3**). This design, which is often used on large industrial lathes as well as on model engineering lathes, is used in order to increase the capacity of a machine without signifi-

cantly increasing the cost. On a Gap Bed lathe there is an interruption in the bedways at the headstock end which will allow workpieces that are much larger than the nominal size of the machine to be turned on a faceplate. For example, a lathe of nominal 3 1/2" center height which has a 1.5" deep gap can probably handle a wheel as large as 10" in diameter, depending of course upon how clever you are at mounting up the wheel. Using a lathe in this way is always referred to as “turning in the gap”.

Many lathes, especially the better quality machines of 3 1/2" center height and above, are made in two bed lengths, allowing the buyer the option of choosing from two **center length** capacities. In the average workshop discussion you may simply refer to the Long Bed and Short Bed models of a particular manufacturer and no further technical knowledge is usually required to hold up your end of the conversation. The lengths offered (*See Fig. 1, dimension “L”*) will vary between manufacturers and center lengths of 19" and 31" (*Fig. 1, dimension “D”*) are very common options in Britain as are options of 24" and 36" in the USA.

In industrial work the long bed model seems to be the machine of choice, due primarily to the need to handle the occasional long shaft or roller. You know, one can always work short pieces on a long lathe, but you can't easily work long pieces on a short lathe, so the industrial lads always buy the long'uns just in case. In realm of model engineering most of our work is done close to the headstock, or at least not so very far from it, so there is no compelling need for all that extra bed (or the extra cost). Should you find yourself putting the old eyeball to a long bed machine, either new or used, even though you may never have need of it, you will not be hurt by having the extra length between centers as it makes a very convenient spot to set the tea bottle.

To bring this episode to some sort of conclusion, and since I have been telling you about lathe sizes, it would seem appropriate for me to now tell you what size lathe to buy. This of course I cannot do because each of you will have different needs or expectations from a lathe and ultimately will have to make the choice for yourself. I can, however, give out a few general guidelines to help you in making a decision, and I consider all of these to be of equal importance.

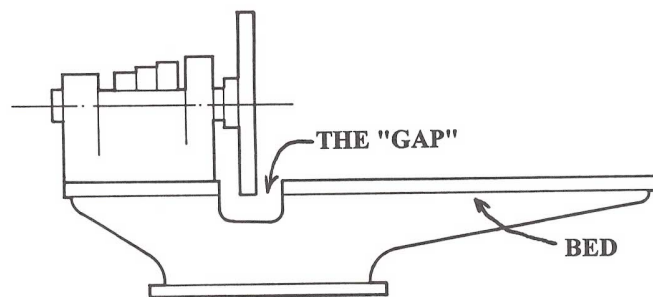


FIG. 3 GAP BED LATHE

First, consider your needs both for the present and the future. What scales will you build in? If you choose one of the garden gauge scales for the present, will you want to do larger work in the future? Will you restrict your building to locomotives, or will you

venture out do other types of work such as stationary steam engines? If you feel that your work will be in a relatively small scales, say less than 3/4", then one of the miniature lathes of 2" center height or thereabouts will probably be sufficient. To be sure, the 2" lathe will handle a good percentage of the work in a model of up to 3/4" scale, but if you have even the slightest notion that you will do any work above 3/4" scale, you should seriously consider lathes of around 3 1/2" center height or larger.

Secondly, as with plow horses and glasses of beer (and equally as important), buy the largest one you can afford, consistent with your projected needs. This is quite a difficult concept to convey through these pages (What? Old Cranky at a loss for words?!), but if you do your homework and resist the temptation to throw money at the first seller that comes down the lane, you will find that there is an optimum combination of size, price, and features that is just right for you, or very nearly so. You are now ready to go looking for that machine that fits your needs. As with bed length, which I mentioned earlier, no one was ever hurt by having a lathe too large for your specific need, but obviously if your future plans involve work only in scales of 3/4" or below, there is no need to have a 12" lathe laying about the workshop is there? You are not likely to actually use more than half of its available capacity and the money paid out for that extra unused capacity, could be put to use with great advantage elsewhere.

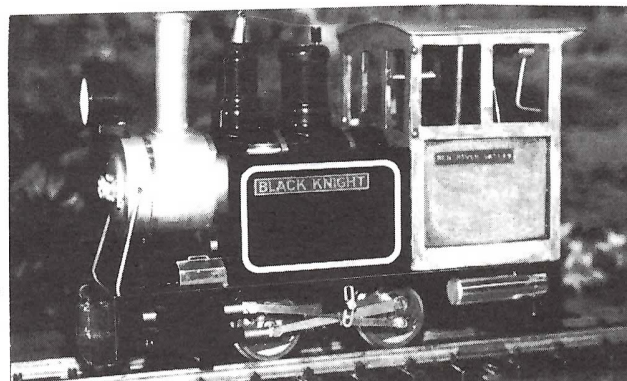
It is also very likely that you will gain several benefits by buying a machine that is a bit larger than your work requires. One of these would be increased flexibility since the larger machine will handle many tasks such as milling or boring that might be difficult for the smaller machine to do. Another would be increased operational control as larger machines will also tend to have more operating features such as quick-change gearing for thread cutting and powered cross and longitudinal feeds. The last of these benefits would be one of accuracy because a larger machine will also tend to be of heavier construction and therefore more rigid. That is not to say, however, that miniature lathes are not accurate; many of them are exceptionally accurate when used within their intended limits. All of these features will go a long way towards helping the average model builder do the job more quickly and accurately.

In our next episode I will continue on with lathes and go into some further detail as to some specific mechanical features, such as ways, bearings, and if space permits, the controls.

In closing for this month I have a question of sorts to put to general readership. Several of you have written to ask about the possibility that Yours Truly might come up with a locomotive construction article which would appear in serialized form within these pages. I think that is a bloody good idea, but a project of that sort takes a great deal of time to prepare and must be based upon just the right locomotive candidate. So what have you got to say for yourselves? If I should agree to tackle such a project, what sort of engine would you like to see and in what scale? I invite each of you to write to me in care of the SitG editorial offices to offer your suggestions. Until then, keep the tea kettle on and the cat out of the kippers.



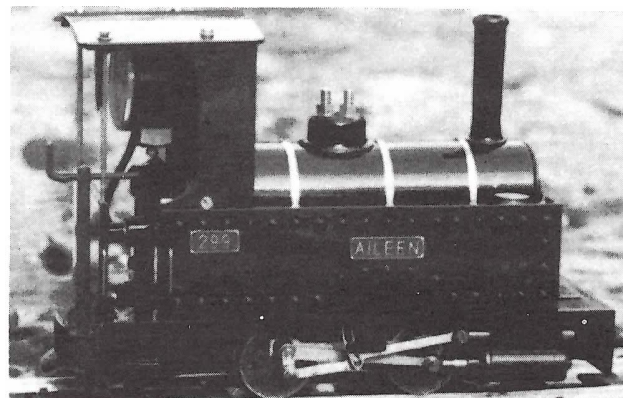
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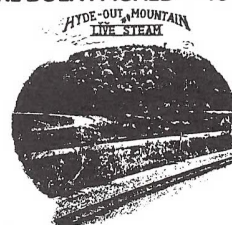
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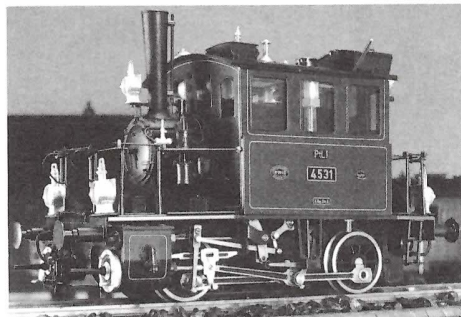
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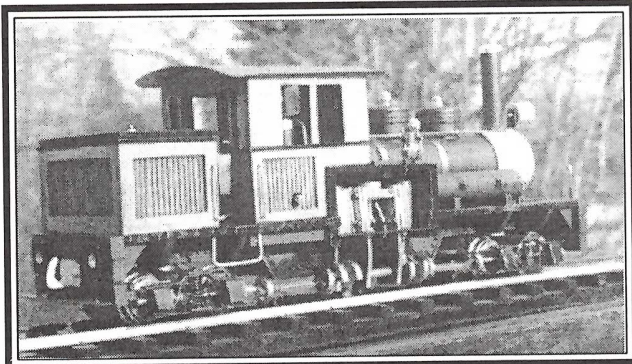
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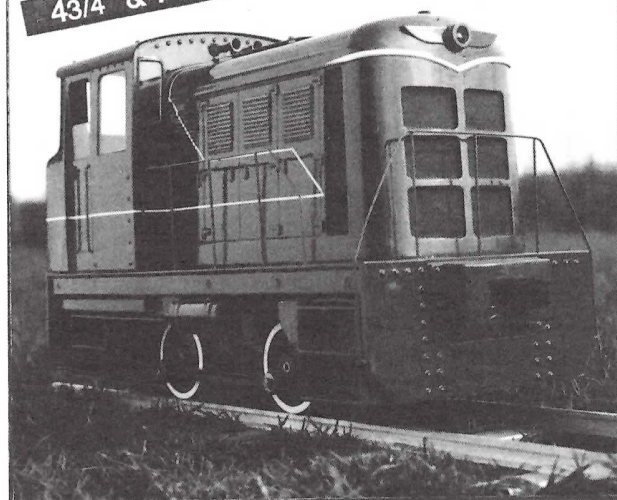
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Gazing Into the Fire

by Peter Jones

Workshop Planning

Several readers have been asking my advice about workshops and storage. One phrased his query "What is the right type of workshop for me to build" ?

There is no such thing as the Mark 1 Standard Approved Wife... chiefly because there is no such thing as the Mark 1 Standard approved Husband. Thus it is with workshops. It would be easy to describe a type of garden shed and say that this was "best" [whatever that may mean], but that would be a disservice. Beware of those who claim such things as best or worst. They may unwittingly be treacherous friends.

So let's start at the other end of the problem. Let's start with the requirements first. There are choices to be made. And at rock bottom, you have to ask yourself if you are a builder or a buyer. Obviously the model engineer is going to need a lot more elbow room than the guy who's happy to buy his models over the counter. The model engineer with some experience will know how to look after his needs, so we need not detain him further. But it is worth bearing in mind that his shop will see activities that are dirtier than the buyer. Engineering tends to fling dirt, oil and swarf in all directions. If the only need is to lightly tinker with a steam engine or build a wagon kit or two, then a piece of white faced blockboard is all that is needed.

Let's be honest; most people adapt what they have, rather than build purpose made shops. I went over the top and purpose built my workshop in the form of a narrow gauge railway coach. But I am a lovable eccentric and would not dream of commending the practice to others. No, in the main, we adapt a corner of a garage or a den and muddle along happily.

This shop often has to perform several jobs. As well as a loco building works, it may need to accommodate other family hobbies. Many a good model has been built next to a stripped down motorcycle. The place may also be a refuge. An enthusiast once observed that the cost of a railway room was less than that of alimony.

But given all of the constraints above, there are one or two first principles to look at. The main one is that any fool can be uncomfortable. You will turn out much better steam engines in a tiny, well lit, warm box room than in a huge, dark and cold workshop. You will turn out more models if you can simply step straight into the place. If it takes an hour to heat first and is right down at the bottom of the garden, it may remain unvisited for weeks on end, whilst you knock something up on a tray

on your knees. Dampness is a pain on those knees and on large slabs of cold metal.

De-rusting dripping lathe beds and cast wheels is not my idea of fun, despite plenty of practice. I know there will be folk who disagree, but I suggest that if you have a shop made in brick, block, concrete or stone, you really have to go the whole hog and fit insulation and background heating. I prefer timber construction with plenty of opportunity for a free flow of air when required. Out in the garden I keep a stone store for the really inflammable liquids and take certain fire precautions. But, here I go...already I am starting to suggest that what I do is best! It is such an easy trap to fall into.

Ask yourself harshly if you are one of life's neat people. I'm not. I am your basic, run of the mill untidy slob. For that reason, perversely, I keep my shop very tidy, and laid out shelves and surfaces to make that easy. Time spent in being tidy is never wasted. On the other hand, a soft, comfortable chair is a dangerous thing. It is insidious; a sapper of willpower. To many, it is essential, but I learned my lesson a long time ago. It was like giving up smoking: miserable at the time but worth it in the end.

So far, this has been something of a non-article; all a bit negative. So let's turn things round. Instead of talking about things to avoid, we'll take a look at some of the priorities to list when you want to fit out your own shop. And the greatest virtue is that one of comfort. Benches want to be a good height. There is an old axiom that when a vice is screwed to the top of a bench, the forearm holding a file or saw wants to be horizontal. If you are sat at a bench, you want to be able to get your knees underneath. The chair you sit on wants to be comfortable. Workshop time can be very precious; you don't want to forfeit any through fatigue that can be avoided.

Even in a large shop, you will find that your normal working area, where you fiddle with things, need only be quite small. The biggest thing you normally play with is a yard length of track. Playing round with steam engines needs even less space. I like to have a comfortable and clean workspace devoted to general fiddling. On top of the by-now battered worktop, I lay a second offcut of white faced chipboard. It is the place where the light is best, day or night. I try and lay out my handtools ergonomically: the ones I need most closest to hand.

There is no need to be uncivilized; I keep a radio handy [NOT a TV] and have an intercom rigged up to the house.

There are plenty of power points. I also have a music stand...this is easily moved around and is perfect for drawings and illustrations that would otherwise clutter up the workbench. Because I'm untidy, my containers of screws, gaskets, wheels etc, don't have tops on them. I like to see what I have got without the need to keep taking lids off. Even if I took them off it would be very unlikely that they would get replaced.

Talking of small containers, you can never have enough of them. I keep a cardboard box where there is always a large assortment of containers available. I try and avoid deep ones because you can't see what you've got without tipping the contents out. Although it is considered dreadfully Non-U by some, the rectangular tobacco tin has a lot going for it. There is often a need for a regular collection of a particular type of receptacle. I like the ice cube mould from a fridge. If you are stripping a mechanism down, it makes sense to lay out the screws in the order you removed them. You may think that you can dismantle a steam engine and put all the screws into a cardboard box. But after five minutes at most, it is unlikely that you will remember which screw went where. Even screws of the same diameter and thread often are of different lengths for a good reason.

Finally I would like to touch on the vexed question of storage. In G scale the models and spare bits are bulky. There is a well known law which states that the contents of a workshop will expand automatically until they occupy 110% of the space available. The secret is to think vertically. If you have shelves with files and other hand tools on, they need only be 4" above each other. Anything more than that is waste. In any workshop, you need to be able to freely move around in a comfortable amount of airspace. Don't infringe on that. But this often leaves a great deal of wasted space. I keep long thin strip on racks suspended from the ceiling. Look at the bits of space that never get used and see if you can fill them sensibly. Put plenty of shelving from worktop to ceiling, but make sure that the shelves get narrower the higher they get. Try and avoid having to put things where you can't see them or where they are hard to get at. Try and think flexibly. Your needs will change with the years. Just because you have kept your metal strip stored in one place for years, it doesn't mean to say that it should stay there forever.

I think that what I have been trying to say is that, whilst there is no such thing as the perfect workshop for everybody, it's your priorities and resources that will virtually design yours. Don't worry too much about impressing other people. A magnificent workshop won't automatically make you a good model engineer, but getting yourself comfortable goes a long way toward helping the process along.



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The second model will be dual-motored with metal worm gears transmitting power to the wheels. This model does not have flycranks and side rods, which gives the locomotive more of an American look. This model is available in a basic version and in a "Super" version with extra details added.

Each of the models runs on a 7.2 nicad battery pack for hours of operation on one battery charge. Available colors include black, green, blue and maroon, with special colors available upon request. Frame colors are red or black.

Any of the Salem Steam Models battery or steam locomotives are available from Doubleheader Productions.

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Loco Review - Maxwell Hemmens Porter

by Ron Brown

Technical Specifications

- Description:** Model of a generic 0-4-0 locomotive of the type built by the Porter Co. in Pittsburgh, Pennsylvania, USA.
- Scale:** 16mm (1:19)
- Gauge:** 45mm/1-3/4" (gauge one)
- Length:** 18" overall
- Width:** 4.375"
- Height:** 6.5"
- Weight:** 3.5 lbs.
- Min. Radius:** 2.5 ft.
- Cylinders:** Two double-acting, 12mm bore x 12mm stroke. Piston valves made from stainless steel, hardened and ground.
- Valve Gear:** Piston valve control for forward and reverse motion. Conrods have hardened bushes with hardened steel conrod pins.
- Wheels:** Stainless steel on stainless steel axles.
- Boiler:** Copper with center flue and cross tubes. Pressure tested to 160 psi.
- Duration:** 20-35 minutes, depending on ambient temperature, grades, load and skill of the engineer.
- Firing:** Internally gas fired (EPI Gas Micro 100 cannisters).
- Lubricator:** Displacement type.
- Couplings:** Link & pin multi-level pocket on front and rear.
- Price:** \$1675.00, including two micro servos and radio controlled whistle.

Available from: Rio Pecos Garden Railroad Co., 27136 Edenbridge Ct., Bonita Springs, FL 33923 -- phone 813-495-0491 or FAX 813-495-7264 -- Railway Garden Ltd., 4210 Bridge St. #5, Cambria, CA 93428 -- phone/FAX 805-927-1194

It's here! The new version of the Maxwell Hemmens Porter has finally arrived. It was delivered in perfect condition, which is always a relief. The packaging has been well engineered so that the locomotive is protected from rough handling on its long journey "across the pond".

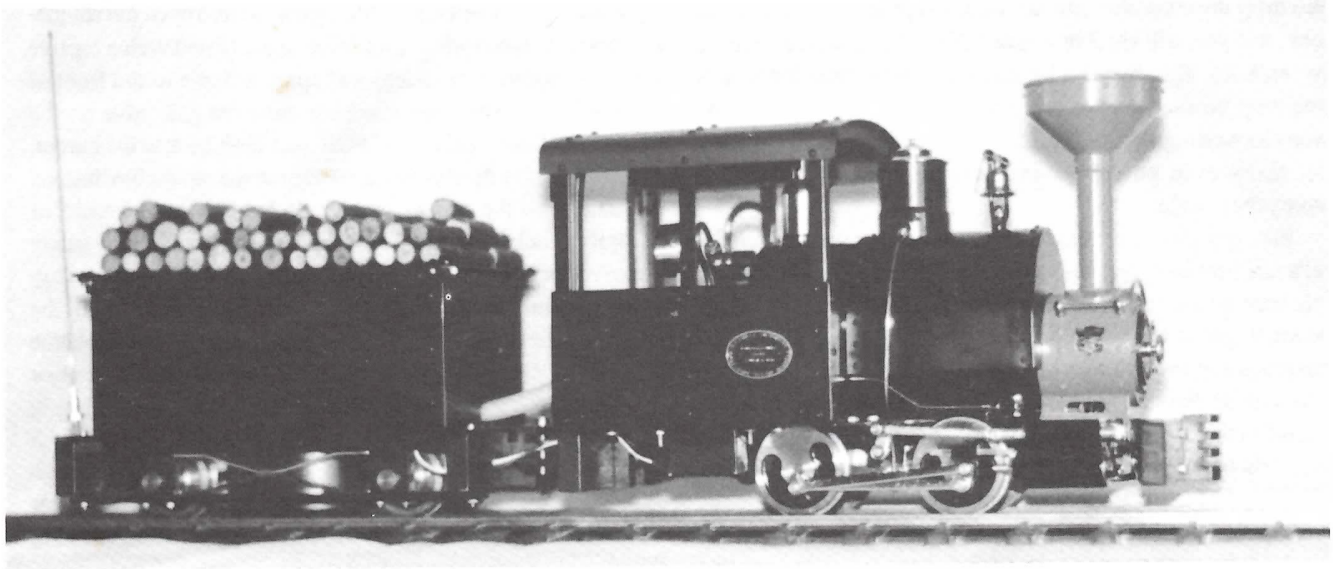
Rumor has it that the Porter is available in three versions: factory built (like our review sample), factory-painted bolt-together kit, and unpainted kit. Since we have no information on the two kit versions, our review will cover only the factory built version, but if you think you would like to put one together yourself and save some money, don't hesitate to ask your dealer.

Those familiar with the earlier version of this engine will find this latest version to be very similar, but with some important changes. The most noticeable change is the redesigned cab and tender shell, both of which are now all steel and fitted

for quick removal.

The steel cab isn't as quaint and charming as the older mahogany cab, but it grows on you and actually looks quite realistic. We heard more than one person comment that they like the new version better - I guess beauty really is in the eye of the beholder. The quick-removal feature is great, allowing instant and total access to all the fittings, valves, etc. inside the cab.

The tender shell also has the quick removal feature, making access to (or installation of) the fuel tank and radio control gear a simple matter. Sorry to say that the tender isn't as easy to look at and love as the locomotive itself. From an engineering standpoint, it's just fine. From an appearance standpoint, it's just a box on wheels and is as plain as they come. This can be easily changed by any craftsman with a desire to transform a plain metal box into an attractive tender.



Brand new Maxwell Hemmens Porter, factory stock except for the Deans base loaded vertical whip antenna at rear of tender. This antenna does a great job of stopping the R/C glitches.

Photo by Ron Brown

A couple of things I do like inside the new tender is the addition of two brackets -- one to hold the radio receiver and the other to hold the battery pack.

Appearance changes to the engine include the addition of a wood running board to the saddle tank side and a handrail to the front of the smokebox. A headlight is rumored to be coming soon, but our review sample had no headlight or bracket.

Couplers have been changed from the hook & chain type on the old Porter to a nice link & pin pocket on the new loco. We found that a Kadde coupler shank can be trimmed down to a perfect fit in the pocket, making this coupler system very versatile.

Other differences are more subtle, but in our opinion all are positive improvements or upgrades. I like the idea that every engine comes equipped with a micro servo for throttle and direction control mounted and ready to plug into your receiver. If you prefer manual control, this is not a problem, but for those that want to fit R/C, it's a 10 minute job at most. Just add your receiver and battery pack to the tender, fit a Deans base-loaded vertical whip antenna to the rear of the tender, and you're done.

This locomotive is a real pleasure to operate with radio control. Because the Porter cylinders are fitted with piston valves rather than slide valves, steam admission is controlled by another piston valve. This means that a single servo (using only one channel and a single stick on the transmitter) can control both speed and direction. With a 2-channel transmitter, this leaves one channel free to do something else.....like blow the whistle.

Yes, the Porter is available with a very nice whistle as an optional extra. As with everything else I've seen from Maxwell Hemmens, the whistle and whistle control valve are beautifully

engineered. The whistle itself is tucked neatly away under the left side of the saddle tank, and the valve and servo are mounted in the left front corner of the cab.

The whistle can be easily adjusted to achieve the best whistle sound by screwing the upper portion up and down the threaded mounting shaft. For such a small whistle it has a nice, clear sound and is plenty loud. The first time I blew the whistle on our review engine, I was running it on blocks on the dining room table. Faithful Assistant was watching, and when I blew the whistle she clapped her hands over her ears and ran out of the room. Not bad for such a little whistle!

You've heard me say it before...every Maxwell Hemmens engine I've ever seen shows outstanding engineering and excellent craftsmanship. A look in the cab is like looking at a work of art or a piece of fine jewelry. This reflects care in design and in manufacture that result in an engine that, given proper care and lubrication, will give a lifetime of pleasure to the owner and will still be running a generation or two down the road.

Standard items on this engine that reflect this philosophy of QUALITY include a water glass, pressure gauge, blowdown (boiler drain) valve, lubricator drain valve, special stainless steel tools to make it simple to get at the steam valve, blowdown valve and lubricator refill cap without burning your fingers, bushed connecting rods, hardened and ground stainless steel piston valves, stainless steel wheels and more.

A unique feature on this engine is the fuel tank...there isn't one. Most of the complaints we hear about gas-fired engines have to do with difficulty in filling the tank. This was true of the early Porters, but not this new one. The tender is designed with a deep, circular well that holds a cannister of EPI Gas butane/propane fuel. Simply screw the gas valve onto the cannister

and drop the cannister into the well. No problem filling a fuel tank, and you will get 3 or 4 runs before the cannister needs to be replaced. This fuel is a bit more expensive than the brands you may be used to, but when you look at the fact that you won't be wasting any fuel in refilling the tank, it probably comes out about even on cost -- and definitely way ahead on the annoyance scale.

So...how does it run? Good question. Let's take it out on the rails and find out. First we'll use a good quality machine oil and lubricate all around. Don't forget to turn loco & tender upside down to get at the valve gear eccentrics & motion, the axle bushings and everything else that moves. Don't forget the axle bearings on the tender. Now set it right-side-up and take the top off of the displacement lubricator, then open the drain valve to get rid of any water. Top it off with steam oil (never use any other kind of lubricant in a steam engine lubricator!) up to the level of the cross-tube and replace the cover.

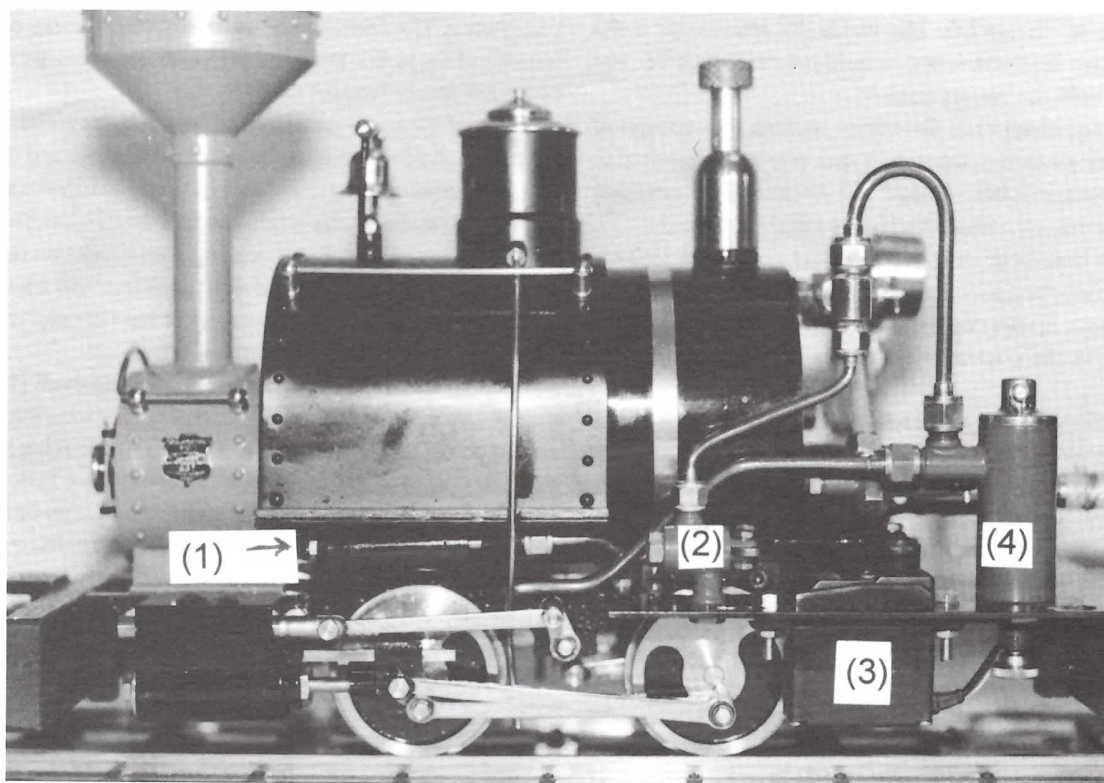
Add distilled water to the boiler, keeping an eye on the water glass until it's full. Since water glass tubes can give deceptive readings in these small sizes, an easier way to do this is to fill the boiler completely full, then remove 25 or 30 cc's to allow adequate steam space and prevent priming.

No need to fill the fuel tank, and we've already installed a

fresh cannister of EPI Gas in the tender, so let's open the smokebox door by unscrewing the number plate (fitted with a captive screw -- another nice touch) and apply a flame to the front of the smokebox while just cracking open the gas valve on the tender. The flame will give a "POP" and flash back to the burner.

If it's hard to light or wants to burn in the smokebox instead of settling on the burner, you've probably got a blocked or partially blocked gas jet. This is very accessible and easily removed for clearing. I do not recommend poking wires or anything else through these jets, as the holes are quite small, the jet is made of brass, and it doesn't take much to ruin it. Hold the jet up to a strong light and look through it from the hollow (burner) side. You can see quite easily if it's got something in it, and it's generally easy to clear by blowing through it by mouth -- or with a cannister of butane fitted with a standard filler nozzle. I do recommend keeping at least one spare gas jet in your steamup kit. They're inexpensive, and even if you don't need it, there's a good chance your friend will.

Once the fire is lit, let it burn on a low setting for a minute or two to warm up. This is a good time to switch on your transmitter and receiver (after making sure that no one else is using the same frequency) and check to be sure that everything is working as it should.



This photo of the Porter with the cab removed gives us a better look at a few interesting features of this locomotive that aren't readily seen with everything in place. (1) indicates the whistle, which is hidden under the left edge of the saddle tank. (2) is the whistle control valve, which is connected to (3), the whistle servo. (4) is the displacement lubricator and its drain valve, the latter being located below the footplate.

Photo by Ron Brown

Now you can crank up the fire to raise steam more quickly. Don't be alarmed by the loud burner noise when you've got the fire cranked up -- once steam is raised you can turn it back down so it's barely audible. This boiler/burner combination will maintain operating steam pressure at a very low setting, and is much more economical of both gas and water consumption with the burner at a low setting.

My early model Porter will easily pull a logging train of a dozen, or two dozen, or even more axles at very realistic speeds -- and will keep it up for 30 minutes plus. It looks like the new Porter will easily meet or exceed that.

Back to our test drive! Once pressure is up above 25 lbs. or so (the safety valve won't lift until pressure reaches 80 lbs., far more than you need to drive this little loco), I like to lay a rag or towel over the stack and run the engine back and forth a few times to warm the cylinders and clear the condensate without spattering oily water all over the loco, rolling stock and everything else within range.

Once the condensate is cleared, the engine will respond smoothly and positively to movement of the controls. After a few easy runs to loosen some things up and get others properly seated, the Porter will creep along at very prototypical slow speeds, yet will pull a surprising load or climb the steepest grades without complaint. A very versatile engine, indeed.

We'll back our engine down into the yard and pick up a train, then slowly move out until we're on the mainline and clear of the last switch. Don't forget to whistle for your departure! Ease a bit more throttle in and the engine will pick up speed, showing a very nice steam plume while it's rolling along.

Our early Porter, Gwendolyn, has had the exhaust tube extended to the top of the stack, and it has the most marvelous steam plume of any loco in our engine house. I haven't modified our new Porter yet, but I'm sure this little trick will be just as effective on it.

Change speed up and down a bit to get the feel of the throttle, then pull into a siding and drop a flatcar. Nothing to it -- this loco handles as sweet and easy as can be.

Keep an eye on the water gauge glass, and when it gets down close to the bottom it's time to head for home. Back down into the yard again and drop your train, then turn off the gas and move the engine to the steaming track on residual steam.

Once on the cool-down track, you should close the steam valve with the special wrench supplied (don't you dare use those needle nosed pliers!), then open the drain valve on the bottom of the displacement lubricator and open the steam valve again to blow out the water that has accumulated during this run. Refill the lubricator with steam oil now, since it's much easier to do when the engine is warm.

If this is the last run of the day, let's open the blowdown valve at the bottom of the water gauge glass and drain the boiler. Leave the blowdown and steam valves open, otherwise the vacuum created when the boiler cools can pull the oil out of the displacement lubricator into the boiler, coating the inside of

the boiler with oil. This can be a devil to get out.

Make sure your radio transmitter and receiver are switched off, and then take some time to wipe down the still-warm loco with a soft rag. The accumulated spatter of steam oil comes off much more easily when it's still warm, and this is a good time to admire your little charge while checking for loose nuts, bolts, fittings or anything else that might need your attention. This is a fine opportunity to strengthen the bond between man and machine.

Okay, okay.....maybe that last was a little corny, but it's real easy to form strong attachments to these little steam engines!

Were you impressed with your test drive? I knew you would be....it's amazing how many converts are made to live steam, and how many of these little engines are sold, with a simple test drive! Did you notice how everyone admired the really nice steam plume as your engine drifted past? I don't know what it is, but everyone (especially the ladies) loves this engine.

My early model Porter has never failed to draw an admiring crowd wherever and whenever it's steamed up. One time we had a good sized crowd standing in a steady drizzle, just watching the Porter drift past, shrouded in a cloud of steam. I'd have to say that a sight like that really captures the spirit and the essence of this great hobby.

If you got the impression in reading this review that I like this engine, you got the message right. What's not to like? Okay, let's not beat around the bush...the tender is ugly. But a little time spent at the workbench will cure that. Besides, I've noticed that it's looking better and better as time goes by. Remember the VW Beetle? Could we have a cult classic in the making here?

If you must have a wood cab, that's no reason to keep you from considering this excellent locomotive. Rio Pecos Garden Railroad Co. makes a beautiful wood cab that's a drop-on replacement for the steel cab. Take a look at their ad in this issue and you'll see what I mean.

A minor niggle...the drawbar between tender and locomotive is too long, making it impossible to reach the radio receiver with the servo leads. Shorten it up, or do as I did and make a new one from some scrap brass.

Other than that microscopic complaint, it's a great little engine for novice or grizzled veteran. Excellent engineering and fine craftsmanship, accurate representation of the prototype, well mannered, powerful enough to satisfy anyone, yet easy for the novice to handle. And don't forget that it's got plenty of charm, charisma and personality. All this adds up to a wonderful long-term relationship.

We've got two Maxwell Hemmens Porters in our engine house now, and wouldn't want to part with either one of them. I guess that really says it all.



Making a Good Engine Even Better

by Jerry Reshew

Simple Mods to the LGB Frank S.

In 1990 LGB introduced the FRANK S to the public as alternative motive power for the LGB rolling stock much favored by garden railroaders. The engine was built by ASTER of Japan, but not without a large dose of input from the German engineers and market research folks at Ernst Paul Lehmann Patentwerk in Nurnberg. This committee approach resulted in a funky and user friendly narrow gauge engine that was a commercial flop, but one that has endeared itself to the live steam novice and old hand alike. The sinister safety warnings in the instructions and the oven-like control knobs may have cost LGB some customers, but the robust FRANK S has become a bit of a cult classic among live steamers, who smile as their little green engine chugs around the track with minimum fuss.

The engine needs a bit of simple modification to eliminate some of the toy-like aspect designed into it by the folks at LGB. Two modifications will be described - one is purely cosmetic and the other is functional. Both are simple changes and no drawings are needed - just follow along and you will be able to do both mods in about an hour.

1. The confidence builder:

Remove the ugly "on-off" plates from the gas valve and the throttle valve by first unscrewing the polished steel pins in the plastic knobs, removing the knobs, and then unscrewing and removing the plates. Replace the knobs and you are finished. A simple change, but doesn't it look a lot better? We are forced into remembering that counterclockwise is open and clockwise is closed, but we don't have to be rocket scientists to remember this.

2. Lets see some steam!

The engineers at LGB installed a condensate tank in the smokebox to capture steam oil before it passes out the stack. While the idea worked, the capture of the oil also gave the steam a place to cool and condense and resulted in an engine which looks somewhat sterile on a cool evening when a plume of steam is part of the delight of live steam. Removal of the tank and lengthening of the exhaust pipe is the next project, now that you have your confidence up. You will need the following:

Large screwdriver
Miniature screwdriver
6mm nut driver or wrench
Solder and soldering iron (I prefer a small torch)
#35 drill (.110) and electric drill
Copper tubing (.09" bore, 5/32" OD,
available at most hobby shops)

a. Prepare the copper tubing first, since this is the only real work that you will have to do. Cut off a 3" section and then drill out one end 1/4" deep with the #35 drill chucked up in your Dremel or electric drill. You might want to start with a smaller drill and work up to #35 progressively if you have a problem with this step.

b. Remove the air compressor assembly on the right side of the engine. This is held in place by a large screw under the running board.

c. Remove the smokebox rim and door by unfastening the three small screws which hold the assembly in place. The top screw is just behind the headlight and in front of the stack.

d. Unscrew the stack from its retaining nut and remove. The plate containing the headlight and whistle will now come off, as will the generator.

e. Turn the engine over and remove the cap nut from the exhaust pipe using the nut driver. The exhaust pipe can be pulled free of the condensate tank at this time.

f. Remove the large black screws in the smokebox which hold the tank bracket to the boiler. The bracket and tank are now free to be removed.

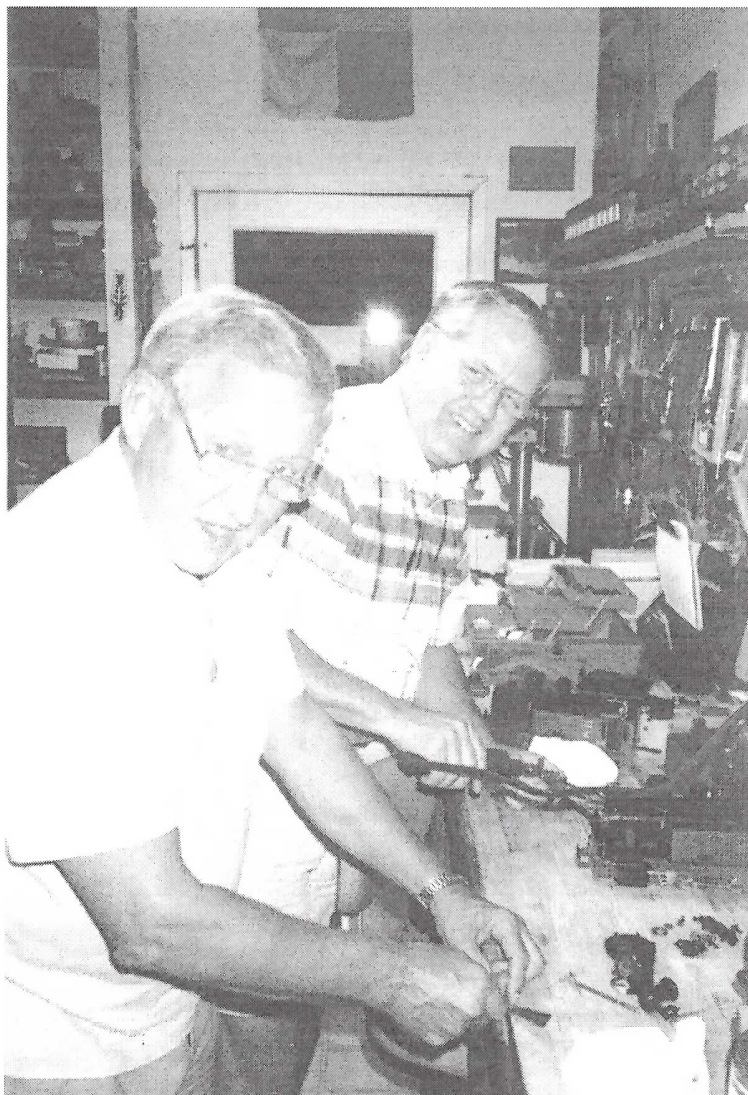
g. Clean the end of the exhaust pipe by sanding the 1/4" portion which will go into the copper tubing. Mate the two and solder.

h. Reassemble the exhaust pipe to the steam chest and align the extension to point up the stack. It should end about flush with the top of the stack for best results.

i. Reassemble in reverse order - simple, wasn't it?

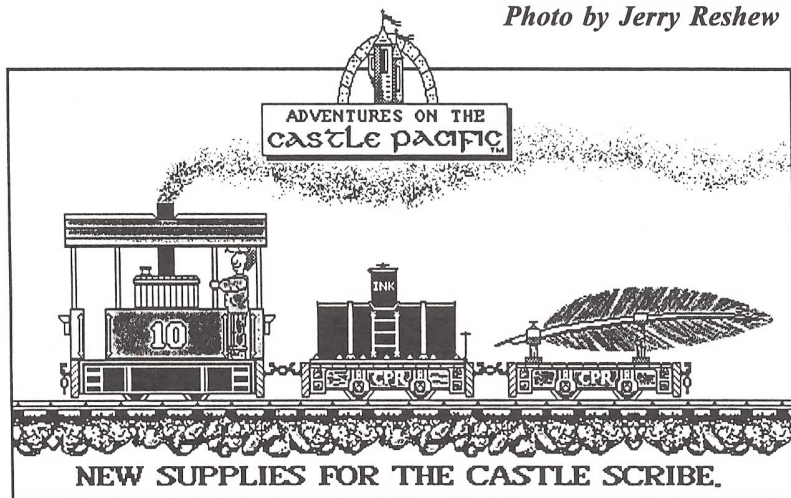
The engine will now be much easier to light and will provide a nice plume of steam on cool days. A bit of steam oil will now become your cleaning and polishing agent as a thin film will be deposited on the FRANK S during every run. Full size engines always wore a patina of oil, why shouldn't ours?





Folger Whicker, left, of Diamondhead, Mississippi, and Mike West of Charleston, South Carolina seem to be having a great time implementing Jerry Reshew's suggested modifications on their own LGB Frank S locomotives.

Photo by Jerry Reshew



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1994 Calendar of Events

May 20, 21 & 22 -- Steamup on the Mountain View & Western, 7 Abbott Rd., Wayne, NJ 07470 -- phone 201-696-3747. See photo report in this issue for a look at this beautiful, 185' dual-track mainline, elevated running track. Meths and distilled water provided. 10mm & 16mm types equally welcome. Please RSVP!

May 28-29 -- Pennsylvania Live Steamers Memorial Day Steamup. Rt. 29, 1 mile north of Rt. 113, Rahns, Pennsylvania. Elevated gauge 1 double track mainline, with steaming bay, turntable and 3 track storage yard will be in operation. Also available, ground level tracks for 1/2", 3/4", 1" and 1-1/2" scale trains. Bring your engines! Food is available on site, with lodging nearby. For more info, contact Harry & Paul Quirk, P.O. Box 215, Springtown, PA 18081 -- phone 610-346-8073.

June 5 -- STEAMBOATS ONLY, a Radio Controlled Model Steamboat Meet at Meadowland Park Pond, off South Orange Ave., South Orange, New Jersey. Registration begins at 9:00 am, first boat in the water at 10:00 am. For information contact: Ron Hermann, 201-891-3020 or Charles Roth, 908-638-8341.

August 27 -- 6th Annual Steamup and Open House on Ron & Marie Brown's Silo Falls Scenic Railway in Newark Valley, New York. Ground level gauge 1 garden railway with moderate grades. For more info, send a SASE to P.O. Box 335, Newark Valley, NY 13811, or call 607-642-8119. Please RSVP early!

September 16-18 -- Second Annual Indiana Transportation Museum small scale steamup will be held on the museum grounds in Noblesville, Indiana, a suburb of Indianapolis. Five elevated 380 foot loops plus steaming tracks and storage tracks will be operating. Water and fuel will be provided. For further information contact: John W. Bloxdorf, M.D., 2540 North Ninth Street, Terre Haute, IN 47804. Phone 812-466-1007.

Because of publication lead time, please send info for Calendar of Events well in advance. Include name of host and location of event, with address and/or phone number to contact for complete information. Some basic info about the site is also useful (ie. ground level or elevated, minimum curve radius, ruling grade, etc.).

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NEW FROM RIO-PECOS!

Now taking orders for a Wood Cab for the New Maxwell Hemmens Porter, as seen at the National Gauge One Steamup in Diamondhead, Mississippi. The Cab is handcrafted of Mahogany and White Oak, with a black metal removable roof. Price: \$85.00 inc. S&H. Please allow 6-8 weeks for delivery.



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Build a Fuel Tank for Gas Firing

by Charlie Mynhier

photos by the author

drawings by Harry Wade

Anyone who has attended either of the two National Steamups at Diamondhead, Mississippi has seen and admired the work of Charlie Mynhier of Houston, Texas. Charlie is a lover of miniature steam engines and a talented engineer, a happy combination. His scratchbuilt locomotives, stationary boilers and steam pumps are unique and delightful, a testament to Charlie's ability to design a mechanism and bring it to life.

We are fortunate to be able to bring you a series of construction articles by Charlie, in which he will present an attractive little live steam loco that he has designed just for you, the readers of Steam in the Garden magazine. It is Charlie's intent, and our own as well, that this series will be presented in a manner that will make it easy for even the greenest novice to jump right in and start building this engine.

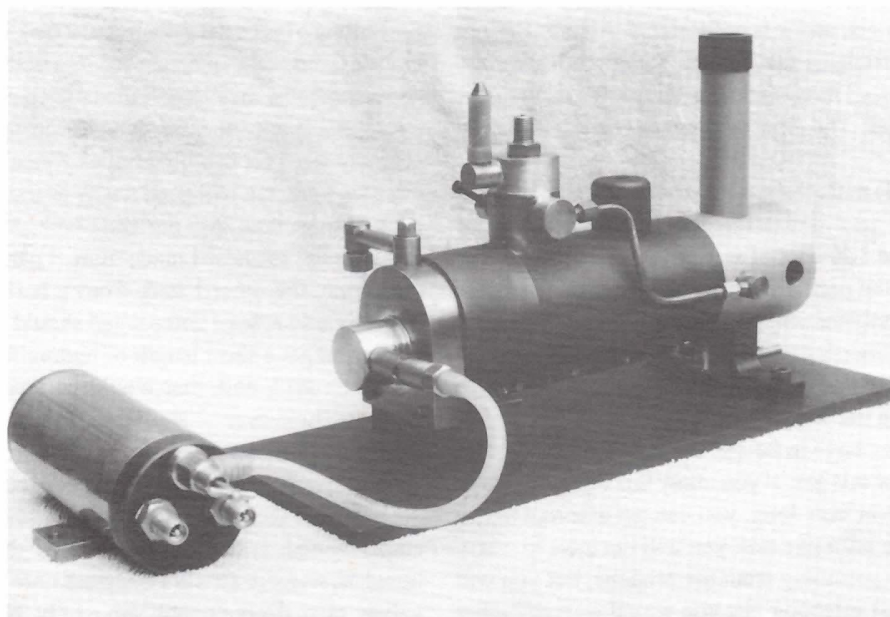
It has been our policy not to present any portion of a series until we have the whole thing in our hands, but we are going to deviate from that policy in this instance because we feel

that each article in this series can stand alone. For example, this first article in the series is on building the fuel tank, followed by articles on building the burner, and then the boiler, and so on. Each of these is a useful and valuable article in its own right, and we don't want to delay beginning the series until Charlie finds the time in his busy schedule (he and his wife recently had a new baby, and most of you will have some idea of how much time a new baby can take) to complete the whole series.

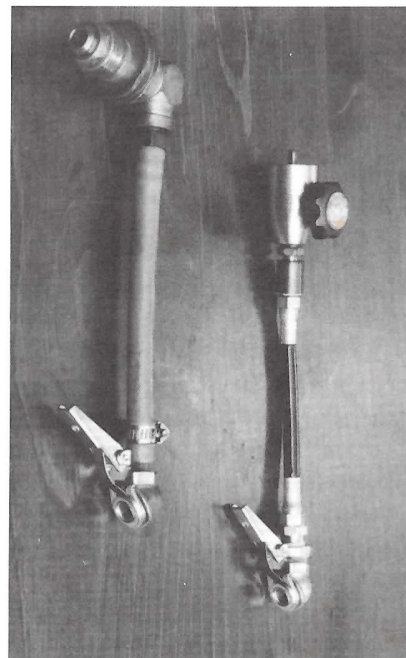
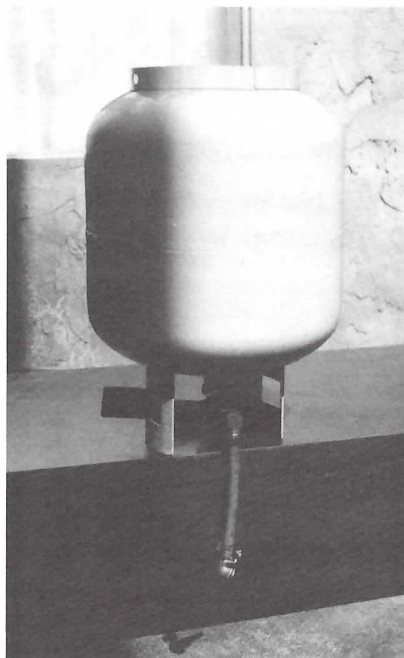
We hope that you will enjoy this construction series, and we invite you to send us your comments. We also hope that many of you will follow the series, building your own locomotive, stationary engine or whatever moves you. And when you do, please send some photos to share with the rest of us. - ed.



The boiler I've designed for this project is a center flue design with internal gas firing. It is simple and easy to build,



The boiler, burner and fuel tank as built by the author and sent to SitG to show us what it was all about. We've fired the boiler several times and used it to operate stationary engines. The fuel tank, subject of this first article in a series, is very easy to fill. We took it apart to see how it was built, and it looks like it could withstand a direct hit by a nuclear warhead! The whole package does exactly what the author says it will do, and we've enjoyed having it around to tinker with. The steam dome cover is not in place in this photo.



Here are some examples of how you can transfer propane to your new fuel tank. Photo at left shows a standard hardware store propane torch cylinder with the adapter hose described in this article. Center photo shows a standard barbecue grill propane tank in the inverted position, ready to transfer liquid propane to the fuel tank. Photo at right shows two types of adapter hose for use in transferring fuel into the tank.

and suitable for either stationary or locomotive service. It is a very good steamer, and it will start generating steam in less than 2-1/2 minutes! The fuel will be propane, I use propane because it is easy to get, and it is economical. Also it does not have the transfer problems that butane has in cool weather. However, propane does have some characteristics that require careful consideration. The first of these is the much higher pressure.

I have a refillable tank, the kind you can get for an outdoor barbecue grill. I can get this tank filled for \$7.50. It will last for about two years, and I do a lot of steaming.

I have checked the pressure in this tank and found it to be over 150 psi at the ambient temperature in my very warm shop. I don't have air conditioning and it does get warm down here in Houston. I have heard that this pressure can get over 400 psi if the tank is left out in the sun.

Another thing we have to be careful with is the very cold liquid temperature of this gas. If you allow this liquid to stay in contact with your skin very long, you can get a severe freeze burn. If you do get a burn like this, you will not have to worry about some kind of poisoning from the propane, but you will need to guard against infection like you would with any other burn. By the way, gas can be liquefied two ways -- one way is to compress it, and the other way is to remove the heat from it. Propane is compressed until it liquefies before it is stored in tanks, this is the reason for the high pressure. The boiling temperature of liquid propane is 40° below 0° F; if the pressure is allowed to escape, the liquid will boil and the escaping gas will

carry away the heat until the temperature is 40° below 0. The reason the liquid propane in your tank is at the ambient temperature is because of the pressure.

Pulling a barbecue grill propane tank behind a G scale locomotive is out of the question because of the size. However, I do know that some men have pulled a propane torch bottle. This is OK, but I think the best thing to do is build a tank that is properly sized for this little boiler. Since we are going to build our own tank, we will need a way to transfer the gas from the main storage tank into our little tank. Study the photograph, and you will see how I made mine. I cannibalized a torch and made one, the other I took from a barbecue grill. The hose needs to hold at least 250 psi and should be about 5-1/2" long. If you can get a short length of hydraulic hose with 1/8" NPT thread on each end, that would be ideal, because hydraulic hoses will hold over 1000 psi min. The air chuck can be found at most auto part stores.

Now is a good time to explain the procedure for transferring the gas from the main tank into our little tank. With the main tank inverted so that the valve is on the bottom, where the liquid is, and the air chuck locked onto one of the little tank valves, open the main tank valve fully. Now use a short length of 1/8" rod to vent excess pressure from the other little tank valve. This will allow liquid propane to flow into the little tank.

When venting, use the 1/8" diameter rod to push the valve core stem down, hold it down for about two tenths of a second, then let up and wait about two seconds, then vent again, and wait, vent and wait, vent and wait, until liquid spews out of the

valve you are venting from. Remember that liquid propane is 40° below zero, and if you allow too much to escape, the seals will freeze inside the valve and the valve will continue to leak, perpetuating the freeze until all of the gas has escaped. If this happens to you, drop the little tank into a bucket of water to try to get some heat into the frozen valve, this will stop the leaking. With practice and very brief venting, you will be able to avoid this. It is good practice to close the main tank valve and bleed the line after filling the little tank.

We will make our tank out of 1-1/2" type "L" copper water pipe. This little tank will fire the boiler for over 30 minutes, though of course the exact duration will depend on how much you open the valve.

Be aware that pressure vessels are potentially hazardous! This fuel tank is over-designed for safety, and I have pressure tested it to over 1000 psi. Never use a newly constructed pressure vessel without first performing a hydrostatic test (*see Hydrostatic Boiler Testing by Harry Wade in January/February 1994 SitG*).

Now let's start the construction of our little fuel tank. The first thing we will make is the shell. Start with a 3-1/4" length of 1-1/2" pipe. This pipe will have an OD of 1-5/8", and an ID of 1-1/2", though the exact ID (see ** on end cap drawings) will probably be 1.510" to 1.520". Also, the ID may be elliptical. It is important that you know these dimensions before you make the end caps.

If your lathe is big enough to chuck up the pipe with 1/2" protruding from the chuck, then do so, and face the pipe square. Remove and re-chuck to face the other end so that the pipe is 3" long. If your lathe is smaller, then you will have to hold one end in the chuck while the other end protrudes through a steady rest while you are facing it.

If your steady rest is too small to accommodate the 1-5/8" pipe, then you will have to turn a wooden plug and force it into one end of the pipe while chucking the other end. Center drill the wooden plug and use the tail stock center to hold it steady while you are facing it. Remove from the chuck, remove the plug and force it into the other end while chucking the end you have already faced, then face until the pipe is 3" long.

If you try to face the pipe while it is sticking out from your chuck 3-1/4" without support, it is almost certain you will make scrap.

The base is made from 1/4" x 1" x 2-1/4" brass bar. Drill two holes, and cut the radius per drawing. Solder the base to the shell, using 5% silver solder. This solder is strong and it melts at about 450 degrees. The low temperature will not anneal the pipe. We need all the strength this pipe has, and we certainly don't want to soften it with high temperature solder.

Make the valve end cap out of mild steel. I bead blasted, then blackened mine with chemicals used in finishing guns. The design calls for two 1/8" NPT tapped holes. When tapping these holes, remember to stop tapping when (7) threads remain on the tap. If you run the tap all the way down into the cap, the hole will be too big because pipe threads are cut on a taper of

3/4" per foot. You can see that the deeper you go with the tap, the larger the hole will be.

I made the back end cap out of mild steel, and blackened it like the valve end cap.

The outlet valve is made from 3/8" hex brass, per the drawing. The side nipple is made from 1/4" brass rod and soldered with low temperature solder. The end plug is made from a 3/8" diameter brass bar, and is machined for a .001/.002 press fit.

Don't forget to install the O-ring before pressing the end plug into the outlet valve body. The O-ring is #006. This is a standard SAE dash number. Viton or any of the other compounds will work.

The valve stem is made from 1/8" diameter stainless steel rod, with a 3/32" diameter stainless steel cross piece soldered in with 45% silver solder. This solder is very strong, and it melts at 1370°F.

The stay bolt is a 1/4-20 UNC x 3" long socket head cap screw, and the washer is 1/2" OD x 1/4" ID x 1/8" thick brass. You will need two of these washers, one for the stay bolt and one for the valve. You will also need two #010 O-rings to put under these washers to seal off the stay bolt holes.

If you cannot find a 3" long screw for your stay bolt, you can use two 2" long screws by cutting the head off of one and making a coupling as shown in the drawing. **THIS SCREW IS A VERY IMPORTANT PART OF THIS TANK!** Unless you know exactly what you are doing, don't try to make your own screw. Use only commercially available, aircraft quality, socket head cap screws!

The valve end cap must be made out of steel, as described in a previous paragraph. The back end cap may be made from brass or steel. Both these caps use O-ring #027.

The two filler valves were purchased at an auto parts store. I soldered 3/16" OD brass tube extensions into them before installing them in the valve end cap. These extensions should protrude approximately 5/8" into the tank (measured from the end of the valve), and they are necessary in order to leave a small expansion space in the top of the tank when we fill it. Remember, we fill through one valve and vent through the other, and we quit filling when liquid spews out of the valve we are venting from. Remember to remove the valve cores before soldering the extensions in, so that the seals are not damaged by the heat.

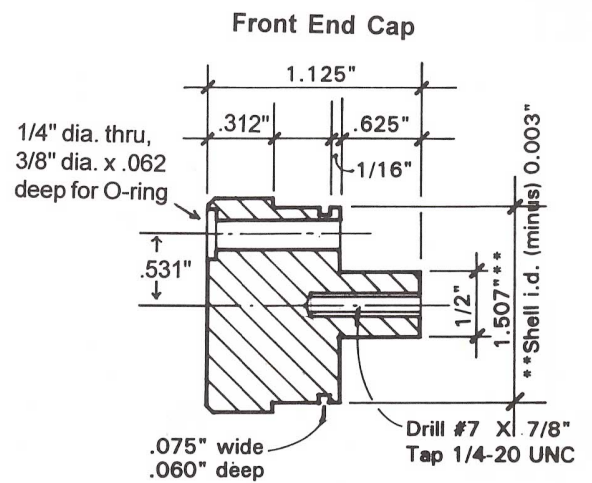
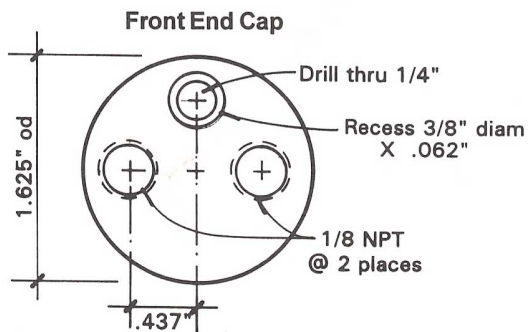
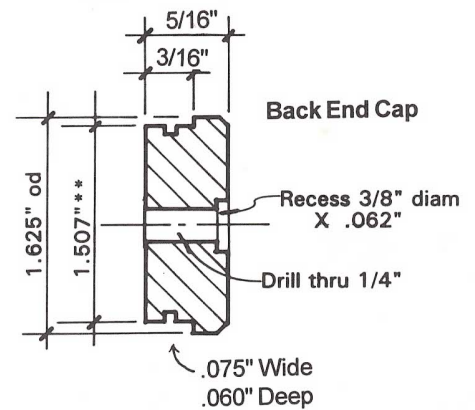
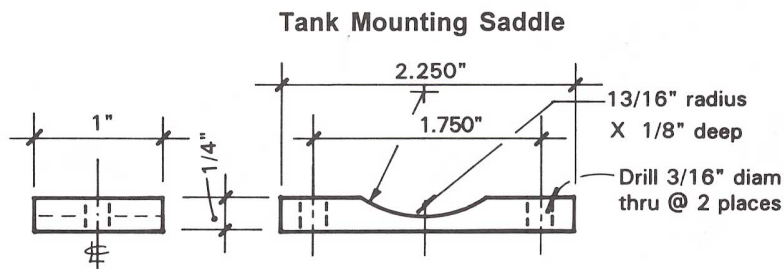
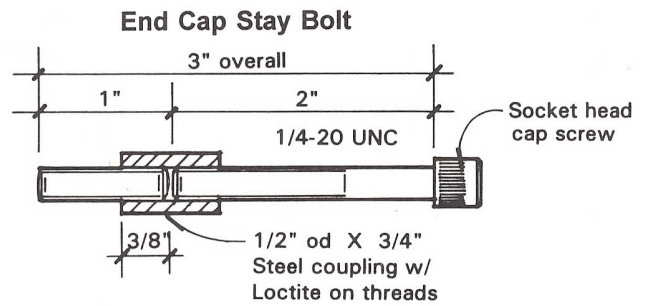
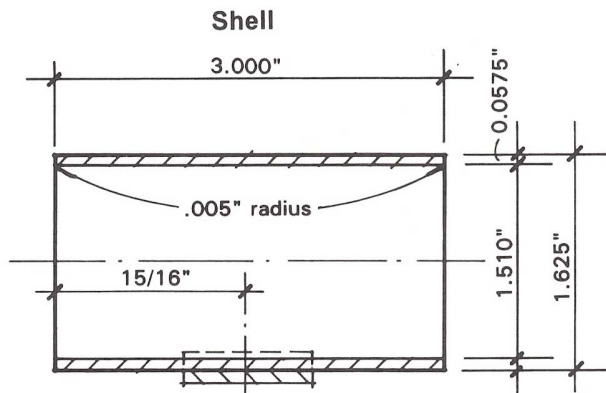
Model airplane engine fuel line (the silicone kind) makes a good hose to connect the tank to the burner. Be careful with the silicone tubing. It will withstand high temperatures, but is very easy to cut or tear.

That's it! You've built a fuel tank that can be used with the boiler and burner described in this series, or you can use it in a project of your own design. The important thing here is that you've built it yourself, and we hope you've learned some new skills and techniques.

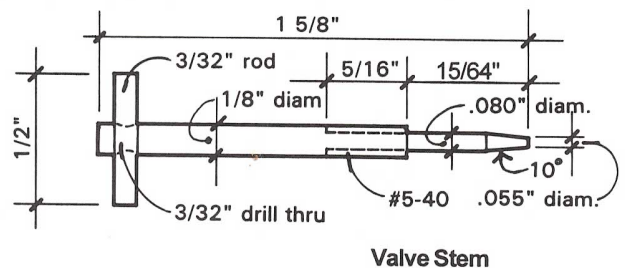
Next time we'll make the burner. See you in two months!



DRAWINGS NOT TO SCALE



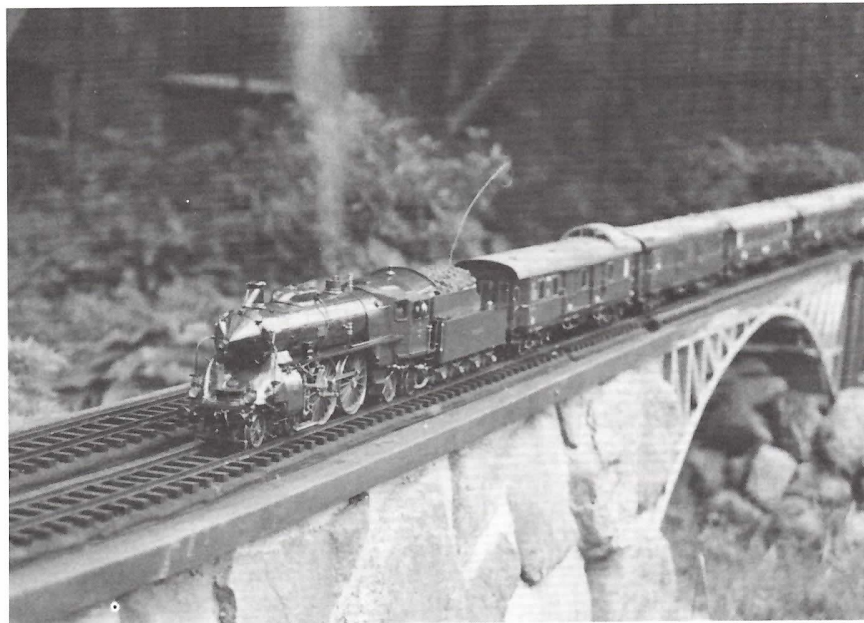
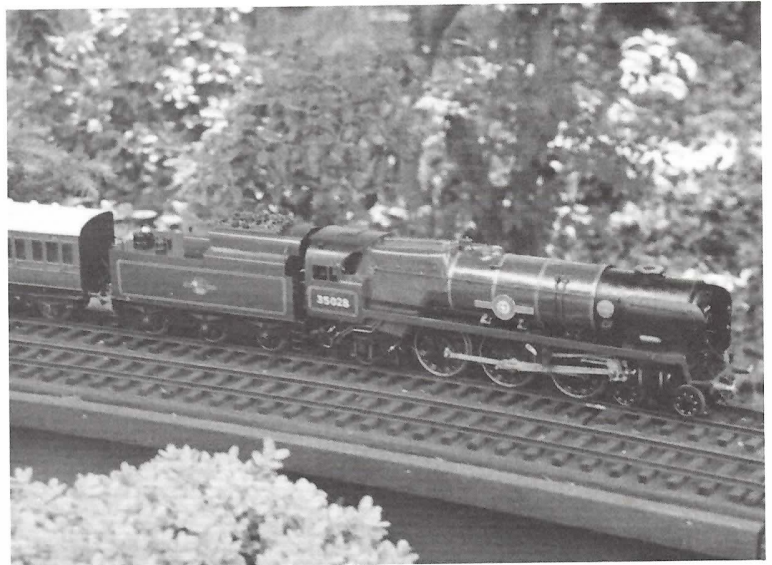
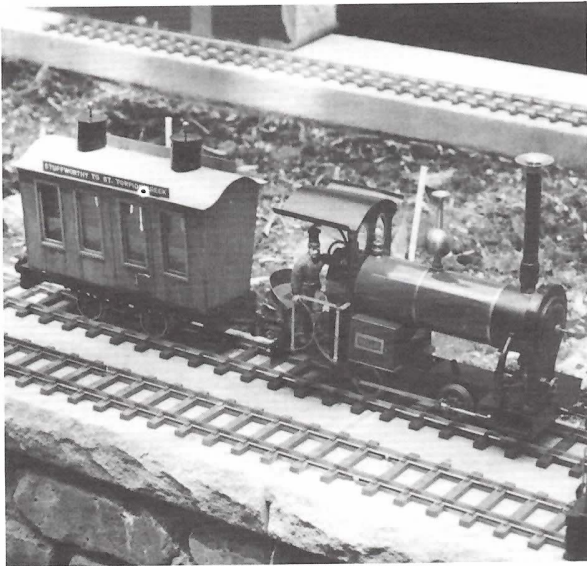
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Steam in New Jersey -- a Photo Report

by Marty Maloy

On May 23 & 24, 1993, and again on June 19 & 20, live steam enthusiasts from all over the northeastern US and Canada gathered in New Jersey to socialize and run live steam engines on Marty Maloy's Mountain View & Western, a double track running line with few structures. Marty says, *"This is no cutesy LGB tight radius electric affair. We run under steam -- 10mm, 16mm, no prejudice here. Track maintenance for smooth, fast running comes first in our philosophy."* What follows is a photographic report of those meets.



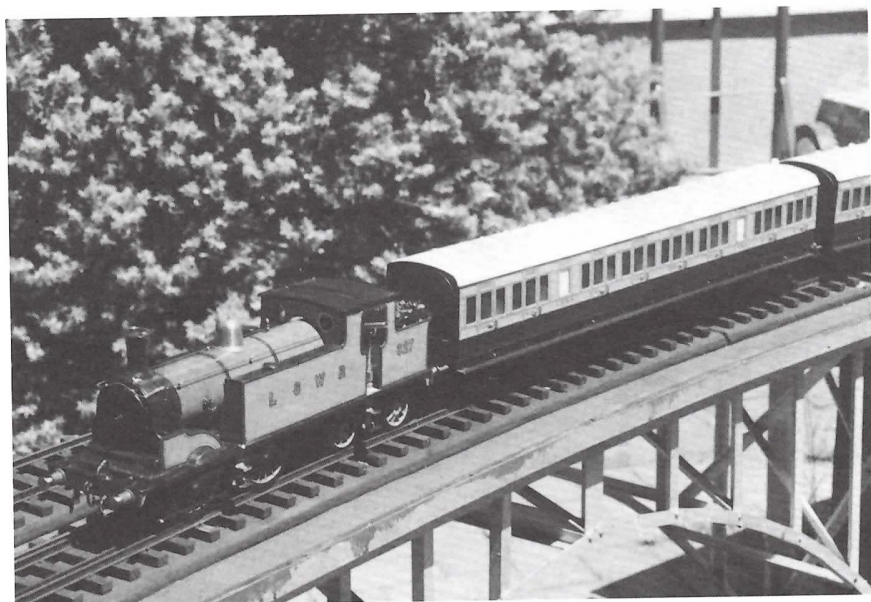
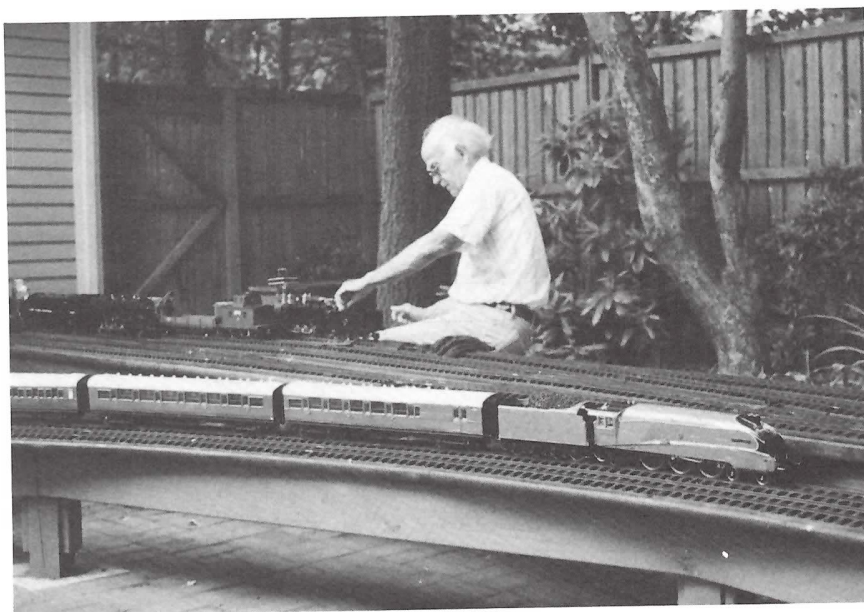
Top Left: Paul Huntington's fine narrow gauge whimsy. The loco is a Mamod conversion and the coach is all Paul. Delightful whether running or sitting.

Above: A close-up view of Paul Huntington's wonderful S. R. rebuilt Merchant Navy Pacific, built by Paul. Alcohol fired, 10mm scale, multitube boiler, axle and hand pumps, beautiful job. Shown crossing "Woods Arch" bridge with David Morgan-Kirby's rake of Southern coaches. The bridge, built by Marty Maloy, is made of 3/4"x 1/2" aluminum angle.

Below left: Barry Harper's radio controlled Aster Bavarian 4-4-4, seen here hauling a rake of Wilag Maerklin repro's with reworked trucks for proper back to back & equalization. The MV&W was designed to run these express trains -- code 250 steel rail and 14' minimum radius curves on a level raised structure of pressure treated 4 x 4's.

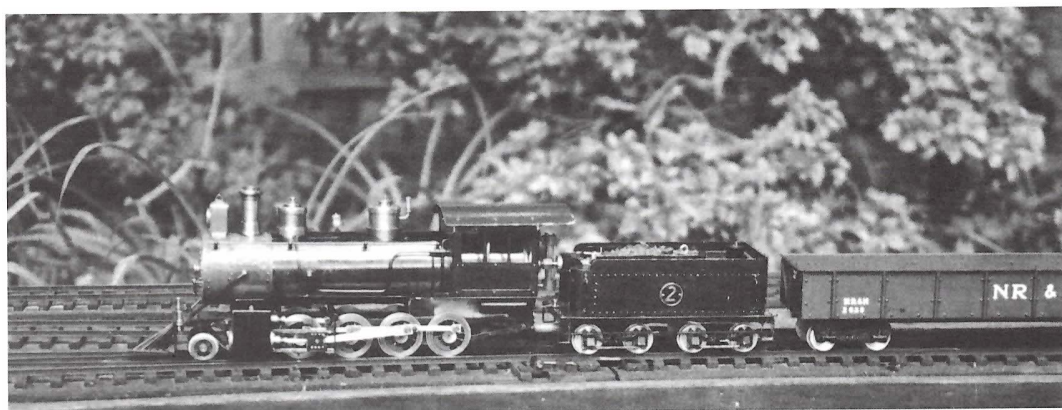
all photos by Marty Maloy

Right: Rudy Kouhoupt fiddles with his ancient Consolidation as Barry Harper's ASTER A-4 MALLARD roars by with a Southern rake. These Tenmille coaches have internal lighting -- we ran the train at night and what a sight! MALLARD is radio controlled and as fast as her namesake. Good show, Barry.



Left: Pemberton Models LSWR M-7 0-4-4 Tank pulling 3 J&M coaches in LSWR livery. This loco was modified by Dave Stick of Toronto to a 2-wick burner, arch and axle pump placed in series with the hand pump. The loco has a single inside cylinder. Two-tone green loco, with coaches in salmon and brown with white roofs. A very pretty little train.

Right: Rudy Kouhoupt's homebuilt Consolidation.

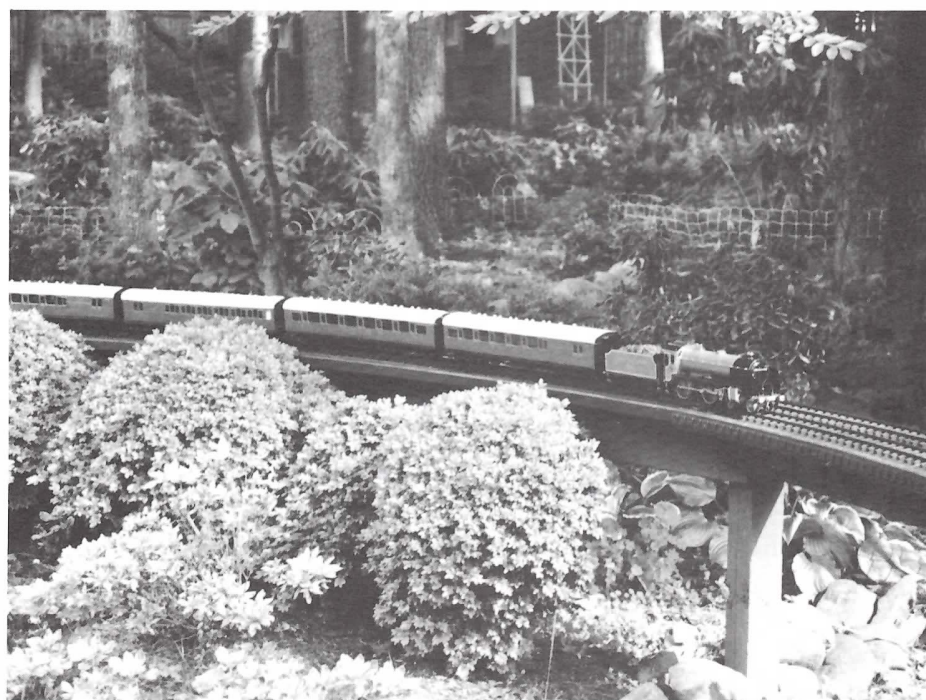




Left: Bob Mosier wears a big grin as he tweaks his Aster Schools. Where else could you have this much fun...legally?



Right: David Morgan-Kirby sipping meths as his train sails by.



Left: Southern Green! Aster Schools and a rake of coaches thunder around a curve as it passes through the woods. What a beautiful setting! Who says elevated railways have to look sterile and lifeless?

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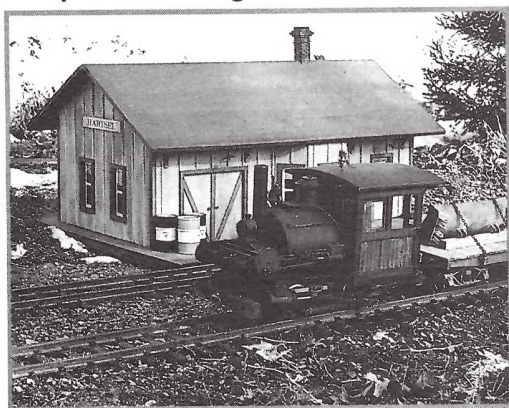
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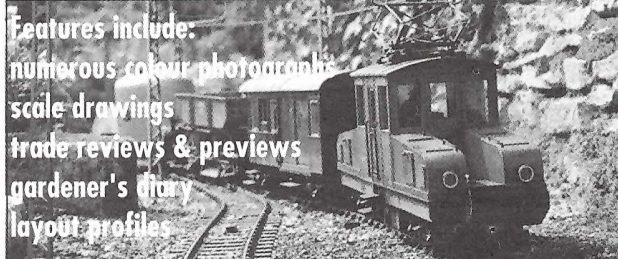
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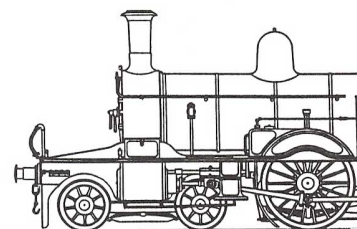
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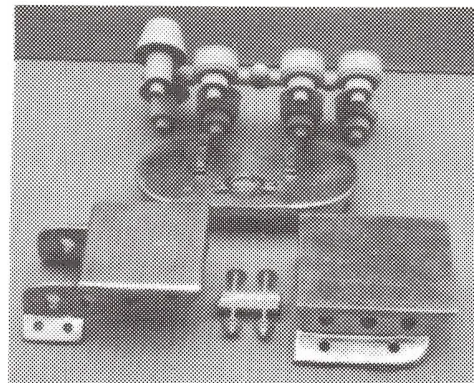
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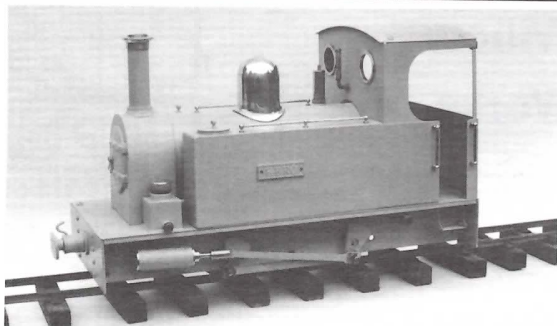
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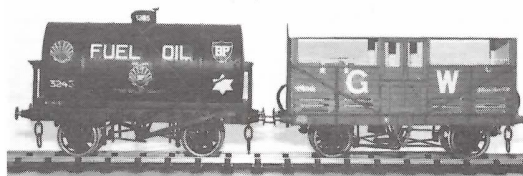
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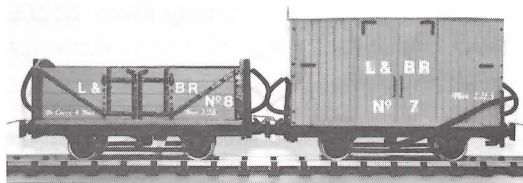
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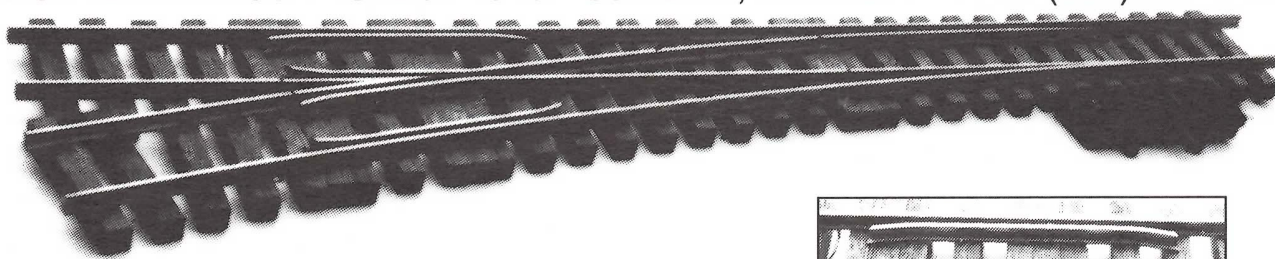
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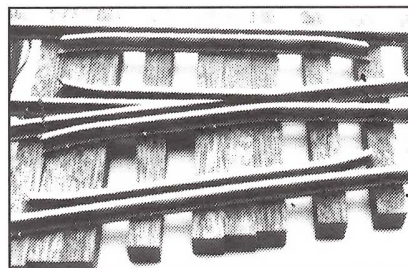
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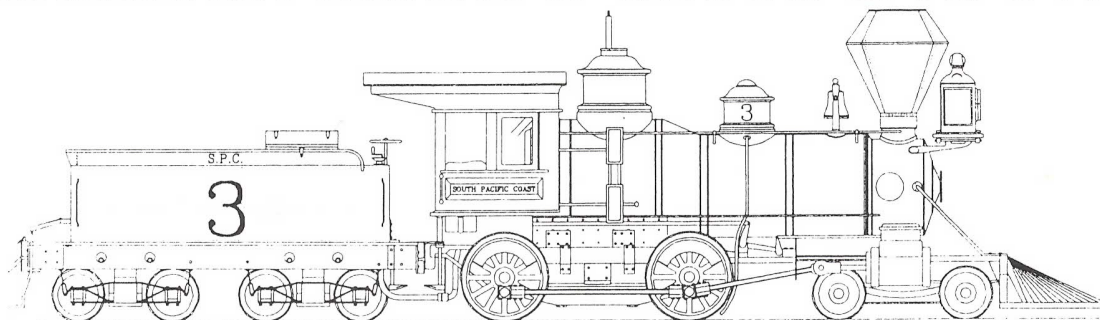


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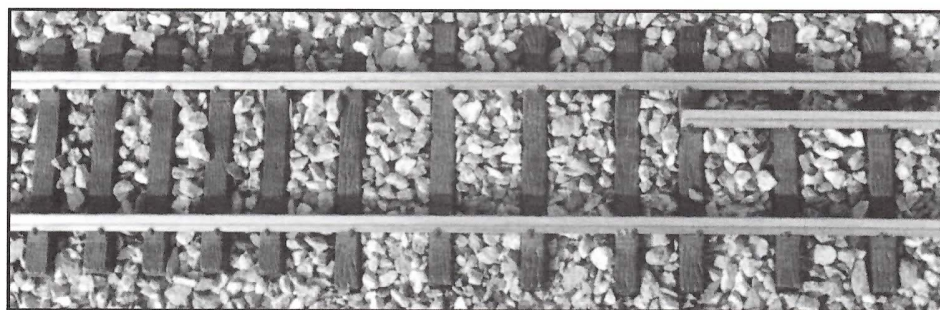
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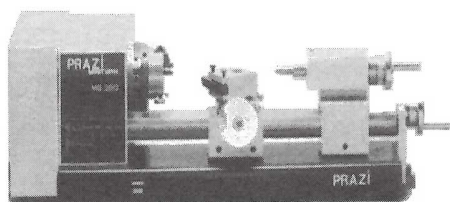
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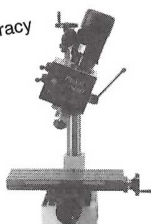
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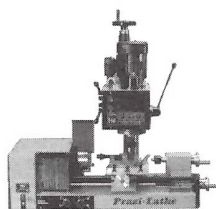
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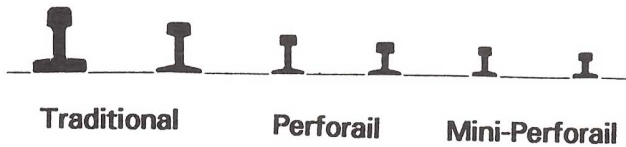
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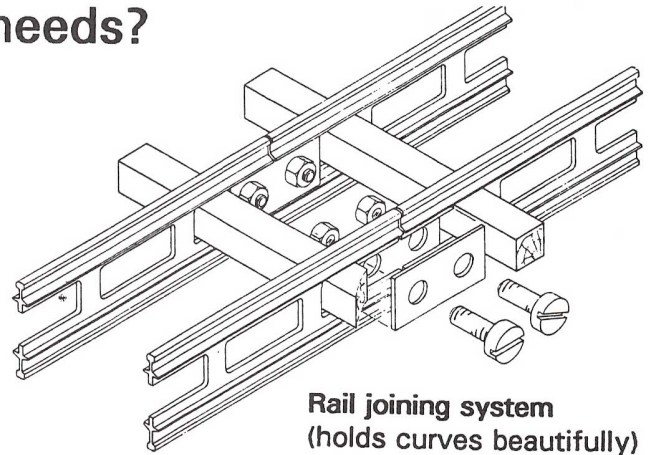
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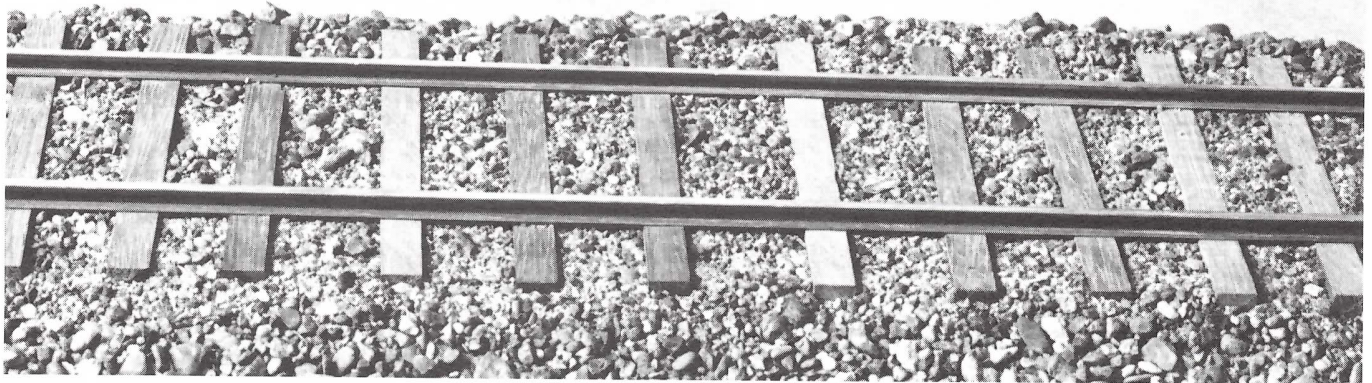


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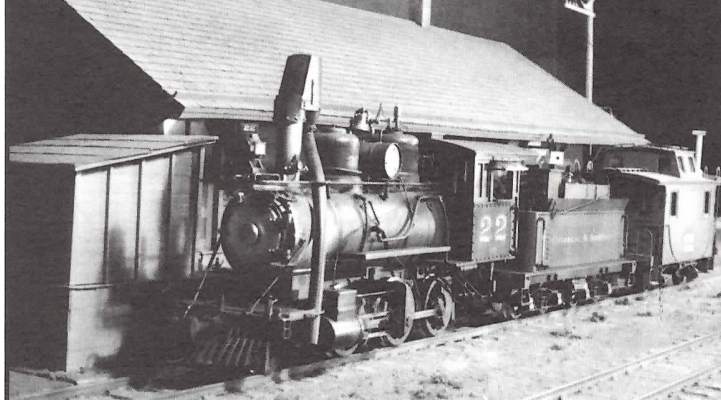
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We are receiving a great response from customers who have bought the 1994 New Model Porter, saying that not only is the quality first class, it steams and steams along.

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The price of the Porter is \$1675.00 delivered to your door, excluding local taxes.

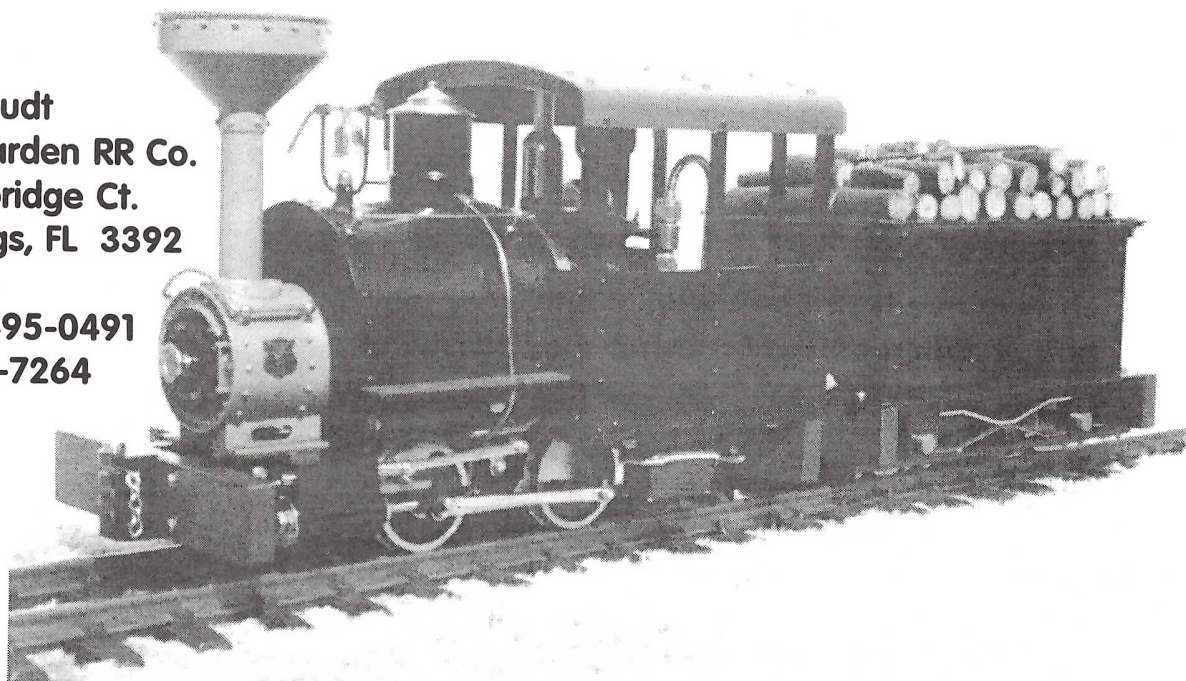
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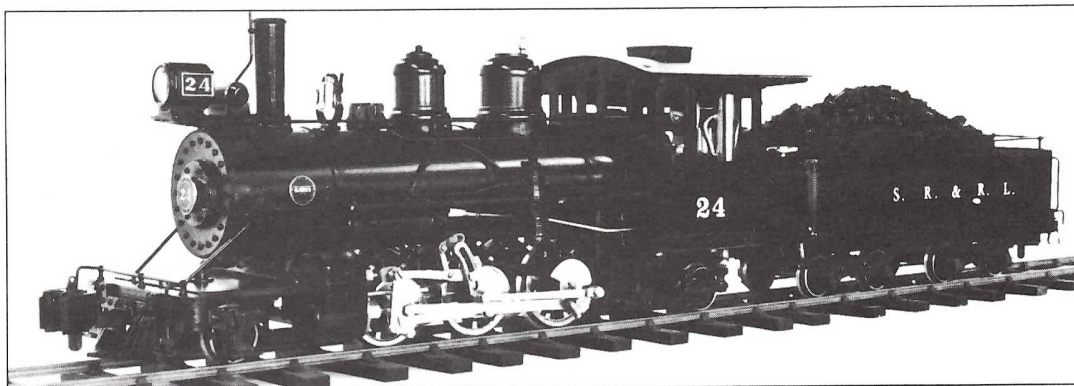
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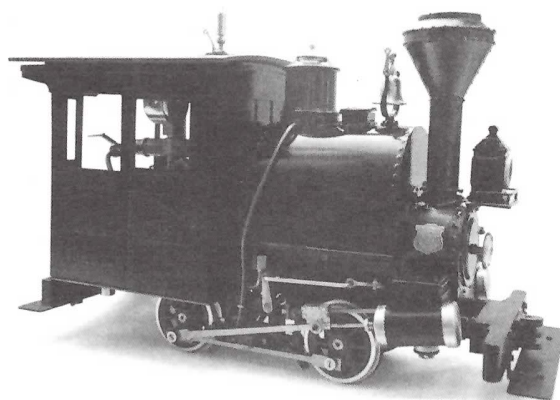
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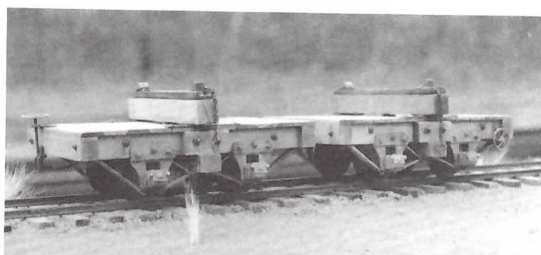
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Steam Just Half-A-Bubble-Out-of-Plumb by Anonymous

An interesting comment was overheard at the steamup in Diamondhead last January from John Bloxdorf, MD, who, after overfilling his butane tank, wandered around muttering "MyLanta, MyLanta..."

Which got me to reminiscing about the old gas bombs we'd spring on Mom in the kitchen. So, except for the cleanup factor, if you pull the safety valve, drop in some baking soda and vinegar and give a quick shake...



Some, but not all, of the participants in the National Steamup at Diamondhead, Mississippi. I don't want to sound like a broken record, but this really was a terrific event!

*Photo by
Carol Jobusch*

END OF THE LINE

As you read in Gary White's letter in this issue's RPO, Aster Hobby USA has closed their doors as of December 30, 1993. It's always sad to see a tradition come to an end, and Gary and Ann White have certainly become a tradition in the best sense of the word in our small-scale live steam community over the past six years as they represented Aster Hobby Co., Inc.

Gary assures me that they will continue to be a part of the small-scale live steam scene, and he is looking forward to enjoying the hobby and being "just one of the guys".

Now let's squelch a disturbing rumor that is making the rounds.

No, Aster Hobby Co. Inc. is not bankrupt. They are not closing down. They are not abandoning their customers and friends in the U.S.A.

What they are doing is retrenching their position, like so many other businesses have done and are doing in today's harsh world economic climate.

Their customers in the U.S.A. will continue to be served by Aster's dealer network, all of whom are named in the new Aster 20th Anniversary Catalog (see *What's New?* in this issue), and a few special importers, who have not yet been named.

I hope this will take care of any

questions about the Aster situation. If not, get a copy their new catalog (which every live steamer should have anyway - it's loaded with lots of useful information) and look it over. Still have questions? Call or write one of their bonafide dealers listed in the catalog, or Mr. T. Inoue at Aster Hobby Co., Inc., in Japan.

Rumors are an unavoidable part of life, but they can be very harmful to an individual, a business, or even a hobby like small-scale live steam.

Our hobby is growing, but we're still a relatively small community and very vulnerable to gossip and rumor. Please don't be a party to spreading rumors that can hurt or damage the reputation or standing of another. 'Nuff said!

In the next issue -- a report (with photos) on the excellent National Steamup held at Diamondhead, Mississippi last month -- Part two of Charlie Mynhier's construction series -- and lots more. See you on the steaming track!



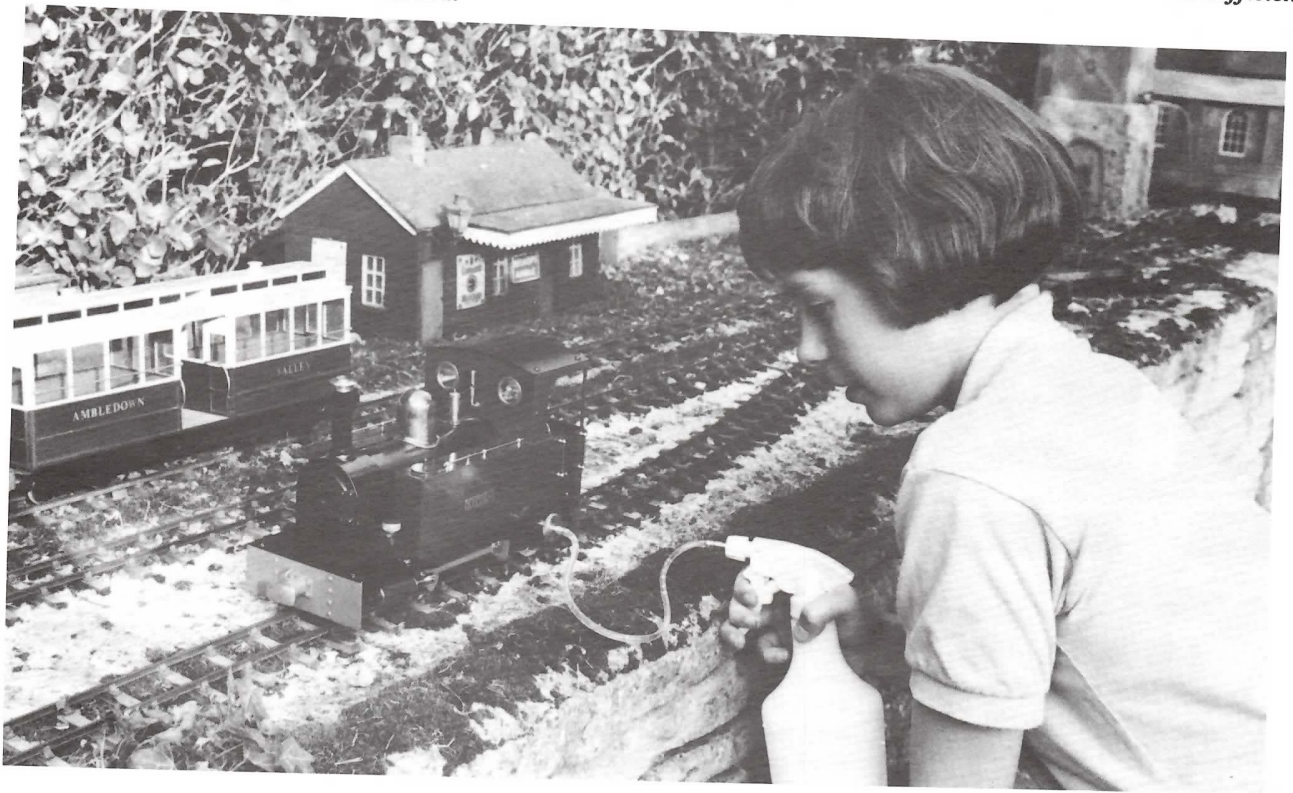
ERRATA: I goofed in issue #20 (what, again?). The photo of the Shay in the Geoffbilt ad is actually one of Geoff's Hydeout Shay modifications, and not the Shay that he designed and is now building and selling. The photo in his ad in this issue is really Geoff's own Shay -- honest!

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Steam Scene.....Along the Rails

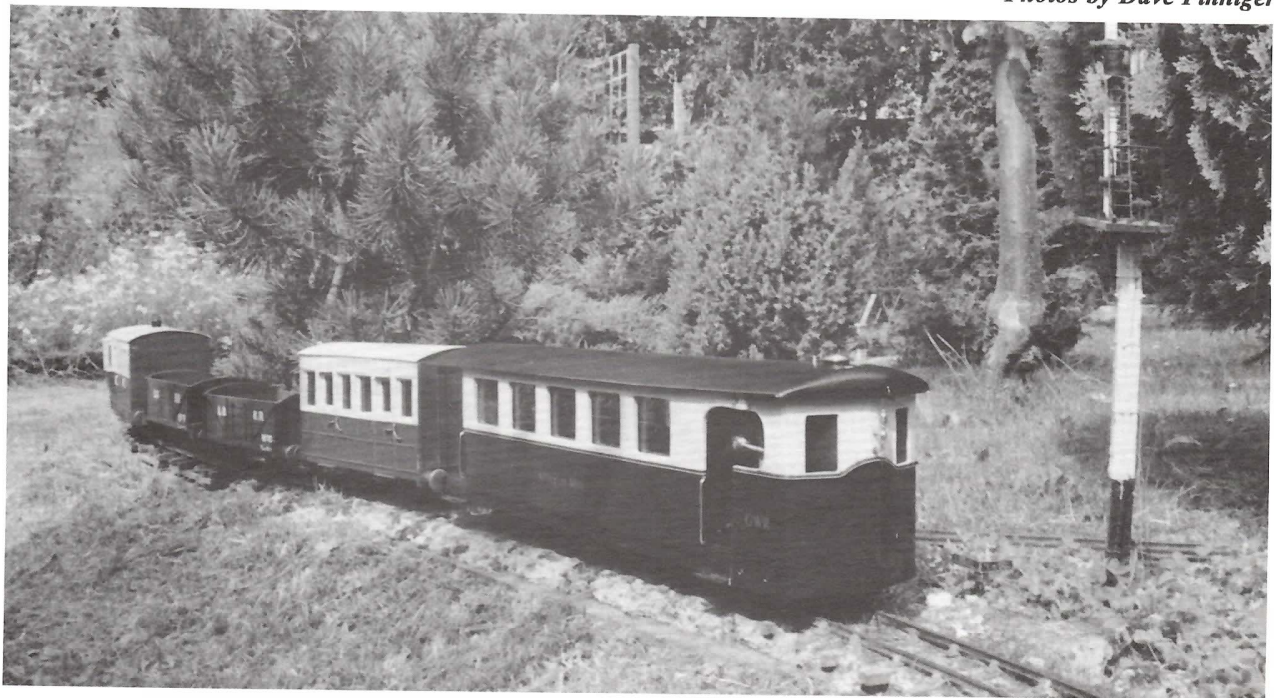
We invite you to send in your favorite photos for this feature, always labeled with vital information like photographer, subject, where, when and why. Mail them in to SitG, P.O. Box 335, Newark Valley NY 13811. Please include a SASE with sufficient postage if you'd like your photos returned.



Above: Mike Chaney's "KITTEN" being refilled with water by Lucy Pinniger for the next train out from Bishops Amble. Just another part of the daily activity on Dave Pinniger's Ambledown Valley Railway.

Below: Locomotion steam railcar on test on the AVR, hauling a mixed "extra" from Higher Buxton to Bishops Amble.

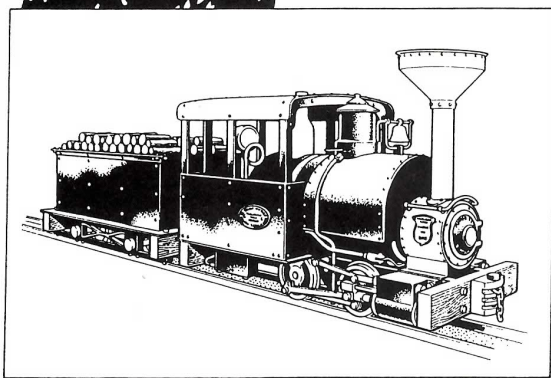
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