

CHAPTER 2

THE MASON BOGIE PROJECT

BY JIM BARRON AND DAVID FLETCHER

PHOTOS BY JIM BARRON, ANDREW BERNAT, PETER BUNCE, AND DAVID FLETCHER

1:20.3 SCALE

PREFACE

SEVERAL YEARS AGO an architect from Australia, David Fletcher, posted photos of his 1:24 scale scratchbuilt Denver, South Park & Pacific Mason Bogie on the MyLargeScale.com website.

The reaction from modelers around the world prompted David to offer an online "master class" on how to build a 1:20.3 scale model of the locomotive. He put together a detailed instruction manual and drawings for other locomotives in addition to those of the Mason Bogie.

David worked out all the techniques to build the loco-

motives and worked with Barry Olsen, of Barry's Big Trains, to provide a frame, mechanism, running gear, and drivers. Unfortunately problems arose resulting in a three year delay and Barry's ability to provide only a very few mechanisms.

David also developed artwork for commercial decals, sponsored a laser cut frame and valve gear set, and provided other assistance, all with no thought of profit or gain, simply to provide a service to fellow hobbyists.

The result was a small fleet of scratchbuilt locomotives. Photos of four appear on the following pages.



Jim Barron's prizewinning model.



THE COMPONENTS

BY DAVID FLETCHER

THE FOLLOWING COMPONENTS were part of the collaborative project:

Vance Bass and I designed laser cut wood kits for the cab and pilot. They now are available from Bronson Tate Architectural models.

The rear truck is a magnesium bronze casting from Barry's Big Trains. So are the side and main rod castings. Chuck Meckem in Washington state used a CNC machine to create the original three-dimensional masters. Bronson Tate now offers a styrene kit for the Mason Bogie tender truck.

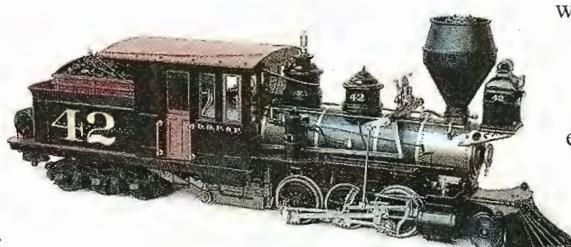
The six wheel drive and (hidden) mainframe were a special project by BBT. Unfortunately Barry was able to produce only eight units so I designed a laser cut, snap-together bar frame to replace it.

I developed a complete valve gear and crosshead set on my own from laser cut 1.2mm stainless steel.

I created the reverse links on a three dimensional CAD program and Chuck Meckem used a computer to machine masters for Barry to cast. The laser-cut valve set also includes a stainless steel reverse link option.

Jim Barron created masters for the bell hanger assembly and the "star" handrail stanchions visible at the front of the locomotives. They are truly works of art.

Jim Barron also created highly accurate Mason drivers using Barry's Big Trains' C-16 wheelsets as a starting point so they would fit onto the BBT chassis. Jim and Rich Schiffman then sent the masters to a manufacturer in China and the result was a completely new casting with



stainless steel tires.

Jim's model has highly modified Bachmann 4-4-0 cylinders although my online instructions described how to scratchbuild them. The domes are from Hartland Locomotive Works. Aristo-Craft C-16 domes work just as well.

Jim based his colors in part on some dark blue schemes William Mason dabbled with in the 1850s. A few extant color lithographs from Mason Locomotive Works show the original schemes. For example, Mason's 4-4-0 Amazon came in both dark green and dark blue schemes, each with red-orange wheels. The dark blue scheme seems reasonable for William Mason although sometime in the late 1860s and certainly by the 1870s, when his company built the 2-6-6T Bogies, Mason had moved to dark greens. By the late 1870s the company seemed to favor chocolate brown. Most 2-6-6Ts probably were dark green and later brown, either with matching wheels (as was the trend in the late 1870s) or red wheels; nobody is certain. The blue scheme also makes sense even though we have no specific data to support blue engines from the 1870s.

Jim's loco represents no specific D,SP&P locomotive; it features details from several engines he likes such as the headlight bracket unique to D,SP&P Number 46. It is closest to D,SP&P Number 44 (formerly Number 8, the *Lake City*). By late 1883 when the South Park had added air brakes to the fleet, all the fancy paintwork was gone. The D,SP&P had repainted all Masons at least once and, after the Union Pacific assumed ownership, it painted them black in 1885.

David Fletcher's scratchbuilt Mason Bogie was the inspiration for the entire project. David writes, "My model is almost entirely handmade since I built it months before anybody designed or produced commercial parts. It does have the complete Barry's Big Trains chassis and cast rear truck sideframe and was the prototype for my laser cut valve motion kit. The BBT wheel cranks extend farther out than those on the Mason prototype so the guides had to be longer and that required adjusting all the valve motion. My locomotive also has C-16 drivers as I built it before Jim Barron's wheels were available."

THE HUNGRY HORSE TIMBER COMPANY MASON BOGIE

BY JIM BARRON
PHOTOS BY THE AUTHOR

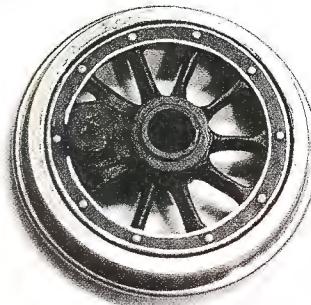


IN ABOUT 2002, when I decided to build my 1:20.3 scale Mason Bogie, I had no computer. My good friend, Rich Schiffman, printed the online information for me and, over the next five years, I spent about a thousand hours piecing together a model.

Delays in the production of key parts, one lasting about three years, were responsible for the extended construction time. In the meantime, I busied myself

creating patterns for drivers, the unique Mason bell bracket assembly, and star handrail stanchions. The brass star stanchions are at the front of the loco, on either side of the stack. Incidentally, the bell on my model is from Bachmann and I replaced the solid wheels from the lead and trailing trucks with more accurate spoked wheels from Tenmille, available though Brandbright in England.

I did use Barry Olsen's (Barry's Big Trains) side rods



Jim modified almost every limited production commercial component of his model, such as the tender truck (**above left**) and headlight (**below center**). Others he fabricated himself and made available to the group. They include correct Mason drivers (**above right**), star handrail stanchions (**below left**), and bell assembly (**below right**).

and David Fletcher's main rods, both stainless steel. But I fabricated all the brass running gear parts visible in the photos. I also extensively reconfigured Barry's parts for the pilot truck.

Although it was impossible to cobble them into a perfectly accurate truck the appearance now comes as close as was practical.

David's instructions explained how to build a model from styrene but I prefer brass. Since that already was a major point of departure, I used it as an opportunity to re-engineer my model for easy disassembly. Once I had strayed that far from David's guidance it was logical to wander even farther off course: I rebuilt or modified nearly every detail of the model as David described it.

For example, while the headlight began as a commercial plastic part from Hartland Locomotive Works, I heavily modified it, even to the point of making up a new bezel. I similarly reshaped the Hartland brass domes to a more proper contour; the pop valves on the steam dome are 1:48 scale Trackside Details castings.

The plastic leaf spring assemblies David suggested we use were disappointing so I replaced them with brass castings from Trackside Details and a number of handmade parts. They, as most other pieces, are removable should the model ever require disassembly.

I scratchbuilt the headlight bracket from brass. I also built up the brackets for the tender's air tank.

Once I had gone that far there was no turning back. I built up the smokestack's spark arrestor from strip brass and alumi-

num screen. It includes every detail you would find on the original full size arrestor. But, to add further to the challenge, I engineered it to accept a commercial smoke unit and that required a lot of extra work. The stack emits four puffs per driver revolution, just as it should.

The smokebox front is a modified Bachmann part. I turned it on a lathe, removed the molded bolts, and repositioned every detail to match those of an actual Mason Bogie. I built up the number plate and installed a custom etched numeral. The same manufacturer also provided the builder's plates.

Incidentally, the brass projection at the bottom of the number plate is a handle for opening the smokebox door. And I am especially proud of the

hardware beneath the smokebox; I fabricated my own brass patterns and built up the assembly from castings of those patterns. It is a virtually perfect replica of what you would find on an original Bogie.

I also included a pair of handles, one on either side of the stack, for





the grate shaker. Look for them in the close up photos showing the stack base.

Most of the model's parts are functional. They include the bell assembly, the ash pan hardware, the Johnson bar, and the assembly (beneath the engineer figure's left leg) for keeping chain tension constant on the Johnson bar. The chain itself is from a toy bicycle I found at Toys-R-Us. (What on earth was I doing there in the first place?)

Nobody seems to know exactly how a Mason Bogie's bell and whistle cords operated. I worked out logical configurations for both so whether Mason did it the same way is immaterial; that's how the Hungry Horse Timber Company shops set them up.

David Fletcher's suggested parts included a styrene tender but I was dissatisfied with the appearance of the rivets. I dreaded the tedium of installing individual rivets so I cut thin sheet brass into three pieces, used a Northwest Shortline riveter to impress rivets into each, soldered together the sections to form left, rear, and right tender panels, and slipped the resulting "veneer" over the styrene tender shell. Then I built up the flared section and the brass rails, soldered everything in place, and had something much more satisfactory in appearance. It might

be worth mentioning that the dual row rivet pattern actually appeared only on the eight-driver Bogie. I simply prefer it and, since it does follow Mason building practice, I suppose Hungry Horse Timber could have ordered such an option.

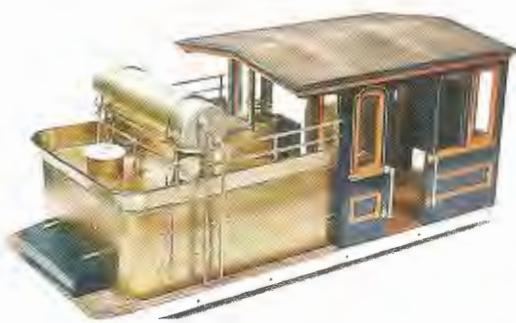
Now that I have admitted my distaste for individually applying rivets, I am a little reluctant to admit I did put on the boiler's rivets one at a time. But they are droplets of CA I applied with a pin.

I completely detailed the cab interior. The steam gauge face is from a photo, its cover is glass, and I scratchbuilt the rest of the gauge from brass. I also built up the backhead's steam gauge tower. I turned the kerosene lantern from acrylic rod. The base is from Hartford Products and the cup surrounding it from Trackside Details. Most other parts also are from Trackside Details.

The color of Russia iron and how best to replicate it has been subject to discussion and debate for decades. I studied everything I could find and concluded the best and easiest way to approximate it was with automotive paint. I used DupliColor® Chrysler Light Iris, available as an aerosol spray.

The rich dark purple color of the cab is a half-and-half combi-





nation of Floquil GSX Blue and Wisconsin Central Maroon. That simple mixture provided exactly the shade I wanted.

David Fletcher created the decal and lettering artwork and Stan Cedarleaf produced the decals for my model.

David's lettering is gold but I asked Stan to substitute silver for my model. I hand painted all the silver striping with the exception of that on the firebox brackets. They are decals and applying them was nothing short of unbearable.

I have approached this article as a description rather than an explanation of how to duplicate at least

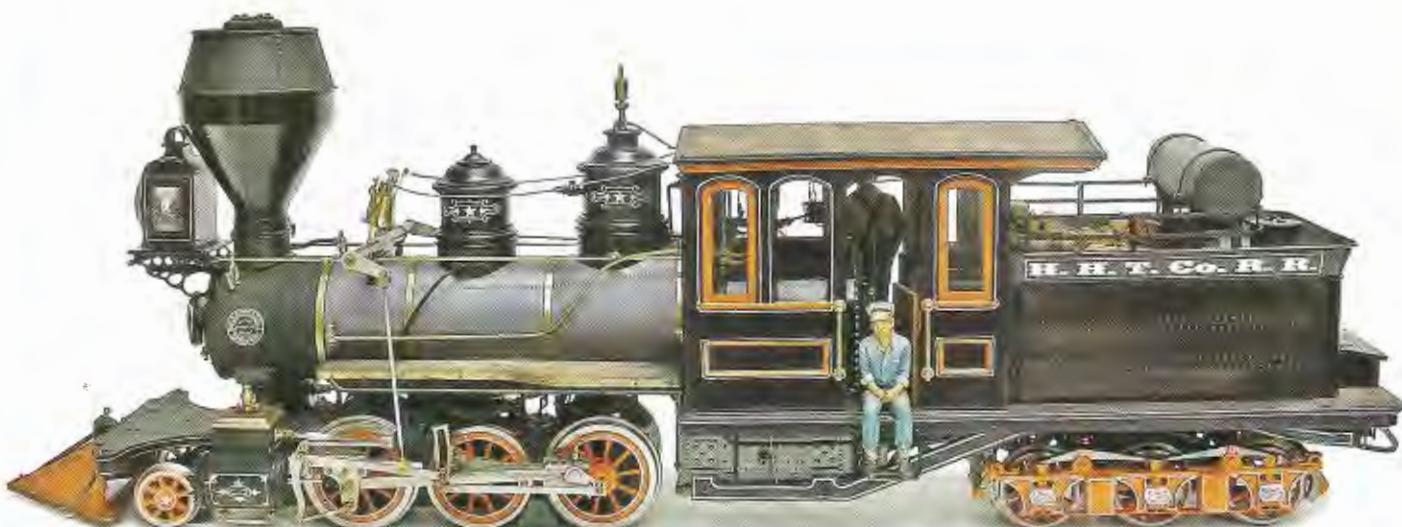
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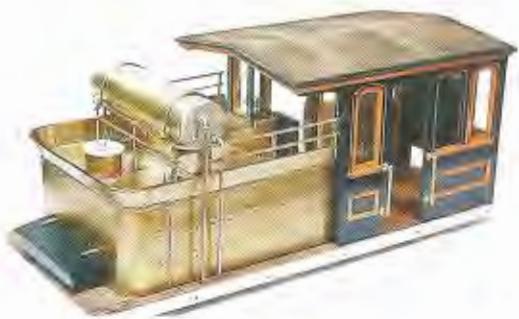
Without Rich Schiffman's help, I never could have built my Mason Bogie.

Along with printing all the information I

needed, Rich also encouraged and worked with me, wired the sound system, and let me use his camera to photograph every step of construction. The Bogie earned First Place Locomotives at the 2007 National Narrow Gauge Convention in Portland, Maine. Even had

it won nothing I would build it the same way again.





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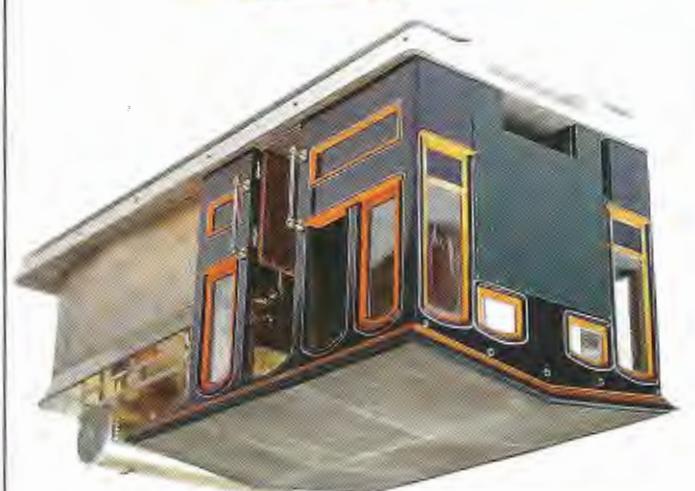
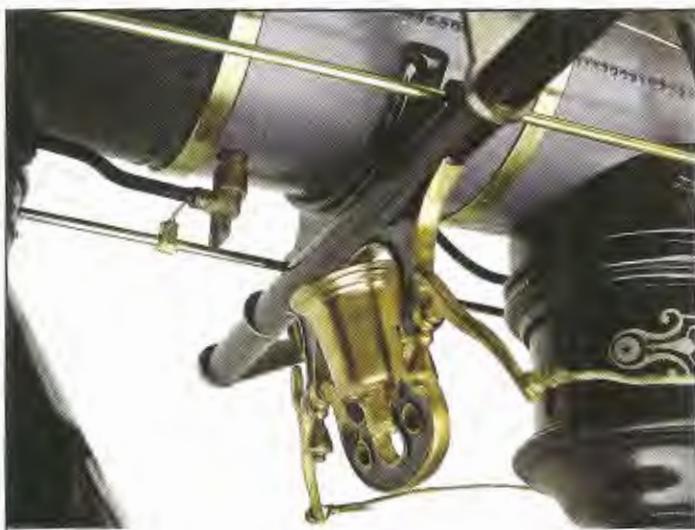
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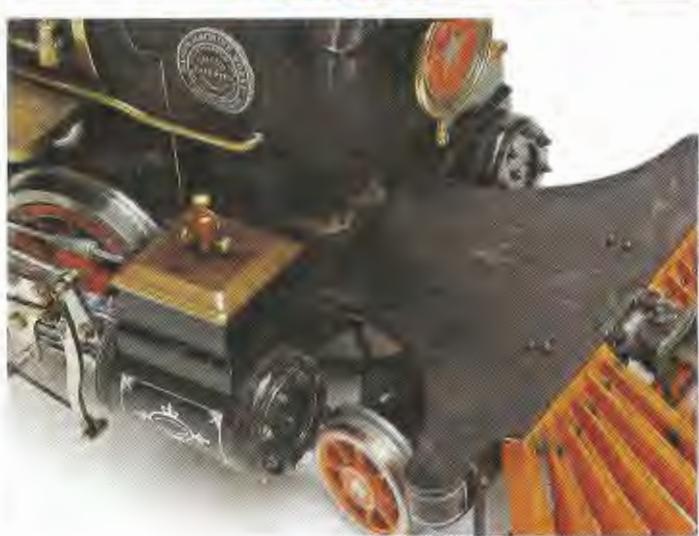
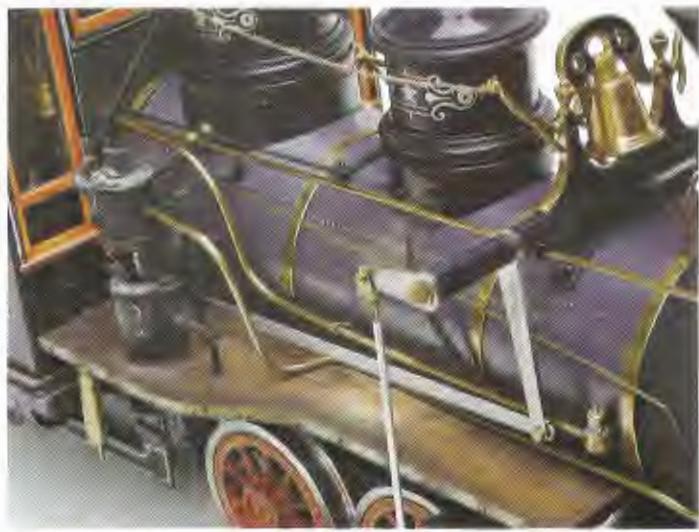
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Andrew Bernat writes, "Denver, South Park & Pacific Railroad Number 8, the *Alpine*, is my first (and so far only) scratchbuilt locomotive. The Lake and Claret color scheme comes from a lithograph and may be somewhat fanciful but I like it. Either way it is immaterial because the D,SP&P had no *Alpine* (but did have a Number 8)."

"The model runs on batteries (they fill the boiler) and has an Airwire 900 control system with Phoenix sound. I am exceedingly pleased with the result but I doubt it is really 'scratchbuilt'. Sure it is mostly bits of plastic (including a shampoo bottle in the stack and film canister domes) but others provided the critical parts.

All I really did was carefully follow David Fletcher's instructions so I really consider it a kit where I had to collect or create most parts. "I would encourage anyone to look at Fletch's online Master Class series on MyLargeScale.com and to start cutting plastic. Not only does David create drawings, figure out the details for you, and provide assembly instructions; he also holds the project together when problems arise. It's been great fun!"

ANOTHER PAIR OF BOGIES

Peter Bunce writes, "I live in England and always have liked the D,SP&P and its Mason Bogies.

A long time ago I searched the Internet for 'Mason Bogie' and found a group on MyLargeScale.com starting to build a 1:20.3 scale Bogie. I had never built a model but joined the project anyway. The leader was David Fletcher, from Australia, and the website is in the United States. The Internet does bring us all together. David made available the critical parts,

something especially important to me both as a beginner and as someone living on a different continent.

"Help always was available, too, and over the years I built my model of the *Como*. The loco is mainly styrene and PVC with a laser cut plywood cab and stainless steel valve gear; it has specially cast drivers from China.

"Although the Mason began as my first 'scratch build', unavoidable delays in obtaining parts put the project on hold for three years. In the meantime I converted a Bachmann 4-6-0 to a South Park Cooke Locomotive Works Mogul and photos of that model appeared in the **2005 NARROW GAUGE ANNUAL**. Neither project would have been possible without David Fletcher's literally priceless help."

