STRUCTURE KIT-BASHING

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I've been asked to present a clinic – this clinic – on kit-bashing structures. This is a tough subject because of the way our brains are wired – differently!!

I once had a bunch of guys over to help finish up a display layout for the 1972 NMRA Convention in Seattle. We needed a little sand shed for the loco facilities, so I got out my stash of Northeastern lumber and put one together in 15 minutes, plus another five minutes to paint it. Its floor plan was square, it had a mildly sloping one-piece roof, four corner posts, horizontally-scribed walls, a roof hatch, and a grab iron at the edge of the hatch. The shed was about an inch and a half tall at its highest edge.

One of the fellows was amazed. He asked "how did you know what to do?" This, in essence, is the problem. Some of us – myself included – are visual thinkers, others are verbal thinkers. (A very few – bless them – are both.) It's nearly impossible to turn you verbal thinkers into visual thinkers. About the best I can do for you is suggest that you take lots of photos, leaf through lots of period railroad and architecture books, and Xerox the structures that appeal to you. Use these as starting points for kitbashing and scratch-building (Fig. 1).

As a structural engineer by training, I can tell you ac ouple of basic rules to follow. Perhaps the most important is to preserve vertical continuity. By this, I mean DO NOT locate a window or a door below a column. The column is a primary structural member, meaning that it has to transmit the increasingly-additive load of each storey down to the foundation. Therefore, it cannot be interrupted with a gap. Figure 2 shows this principle.

Rule two has to do with free spans e.g., how deep a structural member should be between supports to look reasonable. This rule applies primarily to bridges, but also to elevated walkways and pipe bridges between adjacent structures. Rather than quoting you an explicit rule, my suggestion is to search for a girder or truss bridge in any scale that happens to be long enough to span your chasm. Then you can alter its portal width (make larger if HO, smaller if O), but otherwise leave it alone. Figures 3 through 5 show this principle. Note that one of these bridges is HO, one is O, and the last is S. They all work because, mathematically, bridges are scale-less. For each type, for a given span, it must have a given depth to carry a given load.

The worst-looking model bridges are the ones that have been significantly lengthened or shortened, or are just plain wrong for the situation. Figure 6A shows one of these. This bridge style is best suited for a swing-bridge application (Fig. 6B) in which the pivot pier is beneath the bridge's central peak. Without a central pier, the top chord should be straight rather than peaked. This model bridge violates some secondary principles too. For one thing, bridge engineers would use a much more economical deck bridge instead of a through bridge unless there is a need for the extra clearance beneath the bridge – e.g., navigability or extreme flooding. A secondary anomaly is the extremely lightweight diagonal structural members. Half the diagonals on the side panels should be beefier, and there need to be lateral beams across the top at the vertical column joints (Fig. 6C). Finally, the bridge is curved to accommodate the curved track. A prototype bridge would be straight between piers, and slightly widened to accommodate the required side clearances on the curve.

Some modelers lengthen or shorten stock bridges to suit special situations. However, a double-length bridge span can support only an eighth of the load for which the single length is designed. Conversely, a halved bridge is much too bulky-looking – it can support eight times the load of its intended full-length size. The doubled bridge can of course be used for lighter-weight applications such as pedestrian overpasses, or even as medium-duty vehicular bridges. Figure 7 shows a double-lengthened Atlas HO truss bridge in service as a pedestrian overpass.

Shop all the other scales to find a bridge that fits your situation, and be prepared to modify its width or portal size.

The following photos show several kit-bashed buildings on my layout. Among the most versatile kits for kitbashing are the Korber HO power house and the HO Revell/AHM engine house. My one Korber power house kit has become three separate buildings on my NYW&B – a stores warehouse and adjacent shop building for my engine facilities (Figs. 8 and 9) plus an auto dealership (Fig. 10). And I still have parts left over. I used several AHM engine house kits to make an office building (Fig. 11), a security guardhouse (Fig. 12), and a generating plant for my catenary (Fig. 13).

Another kitbash on the NYW&B is my Troy passenger terminal, built from two Walthers HO "Bailey Savings & Loan" kits (Fig. 14). The only S-specific modifications I made to the passenger terminal were to install the doors upside down, and I also cut a new doorway for a Grandt Line S scale door into the right side for a Railway Express office

My Cornwall Bridge station flat was built from two Plasticville bank buildings (Fig. 15). Each panel is pretty much stock except for the section that I modified into a lunch counter and news stand (Fig. 15a). I used a leftover Plasticville bank part to create the showroom window in my auto dealership, shown earlier (Fig. 16).

There are other smaller kitbashes here and there. My signal bridge (Fig. 17) is made from parts of three O/S Plastiville signal bridges, reassembled in a different order. The primary vertical columns are O scale rail. I use HO NJ International cantilever signals elsewhere on the layout (Fig. 18). Each of these had the center section of its vertical mast replaced with a longer latticed column from a Central Valley laced girder kit. The signal target on this one is from Plasticville; elsewhere I have used S scale targets from S Scale America (formerly Oregon Rail Supply).

One of my bridge tender shacks was bashed from an Atlas HO interlocking tower (Fig. 19). Another started as leftover parts from a Plasticville O/S interlocking tower. I simply reduced its footprint by 25 percent by eliminating one of the four windows on each side (Fig. 20).

In closing, it really helps to keep all your leftover unused plastic pieces, parts, and cuttings from all the plastic kits you construct over time. I have such a large stash of these that I go there first for materials to bash any of a number of “new” structures and structural details.


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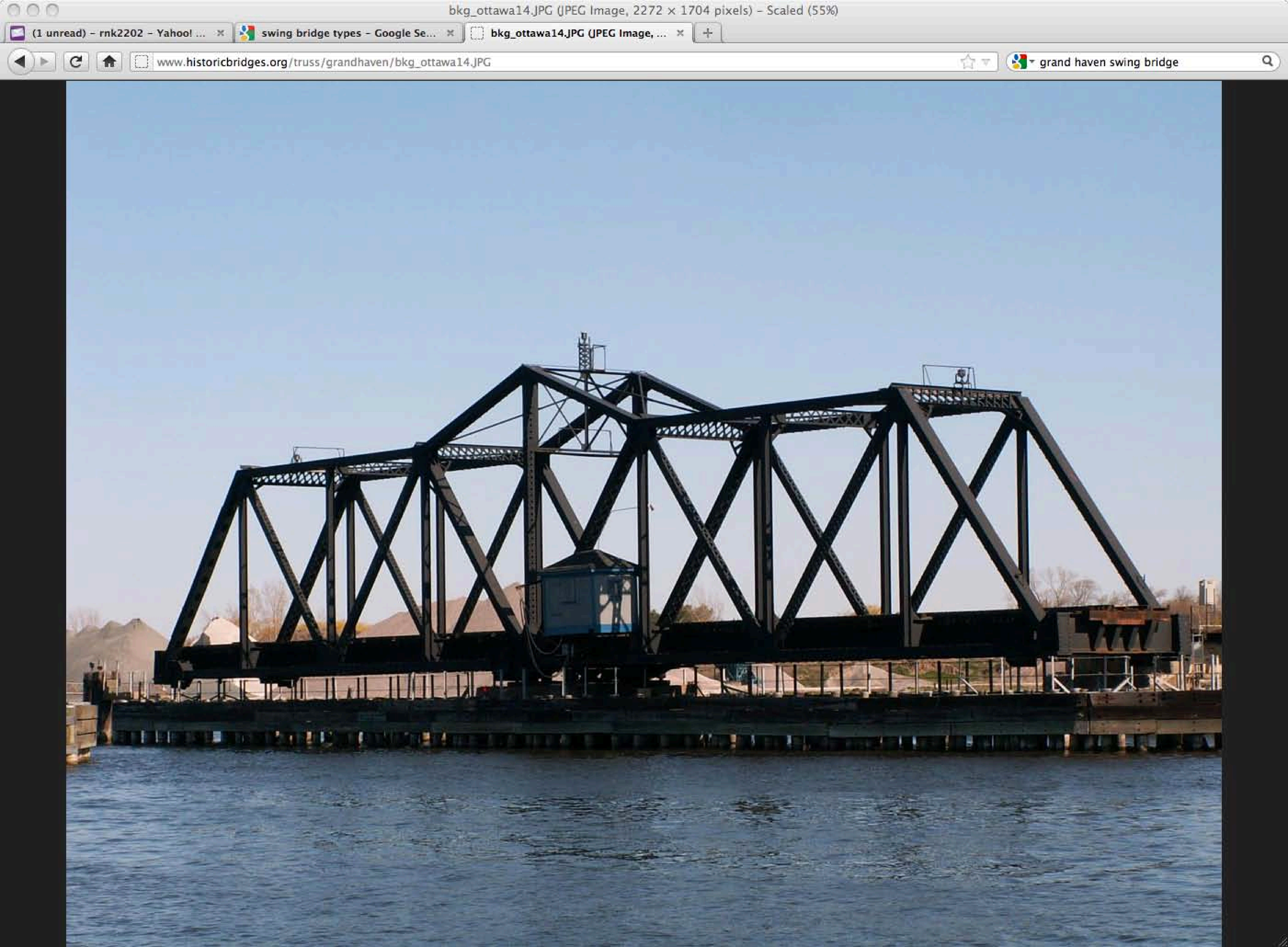
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