Gnome Miniature Engineering

Canadian Prime Minister Jean Chrétien was the godfather of Gnome Miniature Engineering of Cambridge, Ontario. When he and his friends cancelled the original Canadian purchase of EH101 helicopters, several engineers involved with the naval

version found some time on their hands, and we set up a small engineering operation to fill the gaps in our work. A return to Bombardier to continue work on the development of the CL-327 unmanned aircraft was a completely absorbing diversion until that company decided that there would never be any significant market for what are now commonly called ‘drones’. Then there came some contract work and consultancy in specialised areas, but it was also a chance to do some of the miniature engineering that we all enjoyed, for fun and profit.

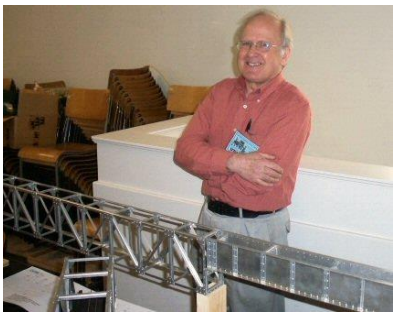
A few months were spent buying tools, building benches, and creating a workshop, while we started the design of a series of garden railway turntables; something that was in demand and hard to find at the time. All the manufacturing and assembly is done locally and each bridge comes with a guarantee that everything is assembled right here in Canada by underpaid, exploited and abused immigrant labour. The first year`s operation yielded a net profit of $40, which earned me a tax audit that must have cost the other taxpayers thousands of dollars.

A feature that we wanted was real rivets; the real blood, sweat and tears kind of rivets that my grandfather made in Scott’s shipyard in Greenock in Scotland, so special tools had to be bought or designed and made to do this. A basic requirement was that all materials must survive outdoors in all climates, and we think we’ve got that right. Most structural parts are aluminium alloy, threaded fasteners are stainless steel, and the decks for the outdoor bridges are red cedar; basswood for indoors. The brass builder’s plate comes from an etcher in Scotland. Before the turntable design was completed we were persuaded to change direction and build an operating bascule bridge, beginning with an 0 gauge version, on the assurance of a good market for it. People love it - so they tell us - but they don’t buy very many of them. Since then we’ve concentrated on a series of plate girders and Warren trusses

that have a wider appeal and are easily adapted to special requirements. Part of the basis of the design was a need for bridges that follow prototype proportions, though the small details are necessarily unprototypical - there's a limit to how small a rivet you can use, even if you employ gnomes. The bridges are marketed as "multi scale miniature structures" for S, scale, 0 scale and larger, because they are not, and don't claim to be, scale models: they are small bridges for small railways.

I suspect that my grandfather might not have approved of all this. Who but an idiot would still be riveting bridges when welding has become so highly developed? On the other hand, he might have marvelled at the paperless process of CAD design, e-mailed drawings and laser cutting that lets me do this. After a period with aircraft composites, I still don't much care for knitted structures that are glued together, especially if you have to fly in them, so I am enjoying my relaxing forays back into the 19th century.

The business is more interesting with the specials. It's not the way to get rich quick: the prices can be quite high, but so are the costs. However, there can be a lot of satisfaction in taking on what looks like an impossible job and having a happy customer at the end of it; the proud owner of a unique structure. By far the biggest and my favourite special went to Istanbul to display a magnificent 7 ¼" gauge live steam L&SWR Adams 02. By far the ugliest of them all – a series of five double deck plate girders – went to Ostrava in the Czech Republic. The rest are scattered in and between Anguilla in the Caribbean, California, Idaho, Michigan, and a few in Canada with one in British Columbia. There are even some in Cambridge, Ontario, including a complete elevated railway.



It came as a surprise to realise that the first bridge was built ten years ago. Since then, Frank, the saintly and patient designer of the first bridges, decided to take early retirement, feeling that he had peaked at the age of 80, and Heinz, the electrical collaborator, found himself developing medical electronic devices that provide a steadier income than bridges, so this has become a one man operation. Shipments still head out at a steady trickle that is just manageable, and there is hardly ever such a thing as a perfectly standard bridge - everyone wants his own variation and I am usually happy to provide it. One customer wanted her bridges painted the brightest possible red, and they turned out rather well.

http://gnomengineers.com/

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