

Process followed to design, build and finally produce the 'Virtual Tour of Marbury Hall'

Only a few photographs of the hall exist, and there are no plans other than a rough outline on old ordnance survey maps, so I needed to draw up (on a computer) a working set based on all these photos and it entailed a bit of guesswork in some areas, because although the attractive (posh) parts were well covered, things like the working side of the hall – servants quarters, kitchens, dairy etc. – weren't so photogenic. Getting the accurate sizing for the plans involved a lot of brick counting - 3 bricks and their mortar layers measure one foot.

Next a rough model was built to make sure that the plans actually worked, and to try to work out how all the different roof levels fitted together, and finally to compare it to the photographs to make sure the proportions were visually correct. The original structure was built from 5mm thick foamcore board, a lightweight board used for architectural models, and thin card. Needless to say, there were many faults and a lot of trial and error was needed to get it all to work. The Hall has a very complex roof and this was the source of many headaches. Once that was finished I then moved on to the much more detailed version 2.

This has a core cut from building insulation foam and is clad with computer printed paper sheets of the walls, roofs, dormers and chimneys; the printed brickwork is all sampled from colour photos of the hall taken in the 1960s. Details were fabricated from balsa wood and thick card. The biggest decision was at what point to stop adding detail, to make sure that something would be available for the public to see, so don't expect the doors and windows to open!

It is built to approximately the same scale as OO/HO model railways (1:76).

All graphic work was done using CorelDraw. Printing was done using an inkjet printer which I found out could be persuaded to print images on paper up to nearly a metre long, which saved having to hide any join lines.

Production of the model proceeded as follows: initial research and plan drawing 3 months, prototype model construction about 1 month and then detailed model construction about 2 months followed by another month repairing rain damage after the rangers' hut roof leak, adding additional detail and photographing.

Creating the VR model used a device which I originally built 2 years ago for producing VR pictures of miniature fantasy figures for my son's on-line shop, so that customers could view them from whatever angle they chose. The figures were typically 3 to 10cm high, so the device needed significant modification to handle the hall model which is about 75cm across. Simply put it produces a ring of 60 photographs taken in 6 degree steps, automatically triggering the camera and then advancing the turntable-mounted model to the next position. Commercial software is used to convert these 60 images into a VR representation. All the clever stuff on the photographic rig is handled by a small program running on an Arduino micro-computer.

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August 2017