



Bridge of the Month No75, March 2017 Twemlow



Gosh, March 2017, three score years and ten! For more than half that time I have been working on arches or, as I prefer to say masonry bridges. Of course, I look at arches elsewhere too, and indeed see arches where others don't.

This month has been busy. There was the Surveyor/BD&E Bridges conference, a tender for some work on MSI in Manchester which involved an inspection there. I managed a week off (though that took in the Manchester visit and on a side trip from that I got to visit Twemlow.

Hamish continues to develop modelling skills, and I am getting a little better at the photography that goes with it. A good recent one is this from about 150 photos all taken within 3m of the ground: <https://skfb.ly/6o6oH> I would be very interested to know what people see here so do email me.

And once again to say it is time to start thinking about seminars. Any potential hosts out there? Or topics people would like to see covered?

So what is special about Twemlow

The first thing to note is the stable it comes from. Same line, same engineer as the famous Stockport viaduct but with the advantage, from our point of view, that it is a bit lower (so accessible) and hasn't been widened. You will find it [here](#), just outside Crewe. As you can see below it is substantial.



The engineer was G W Buck who did much of the bridge work for the early Stephenson lines, though probably not the Liverpool and Manchester. One of his characteristic styles is brick rings bonded through but in two layers.

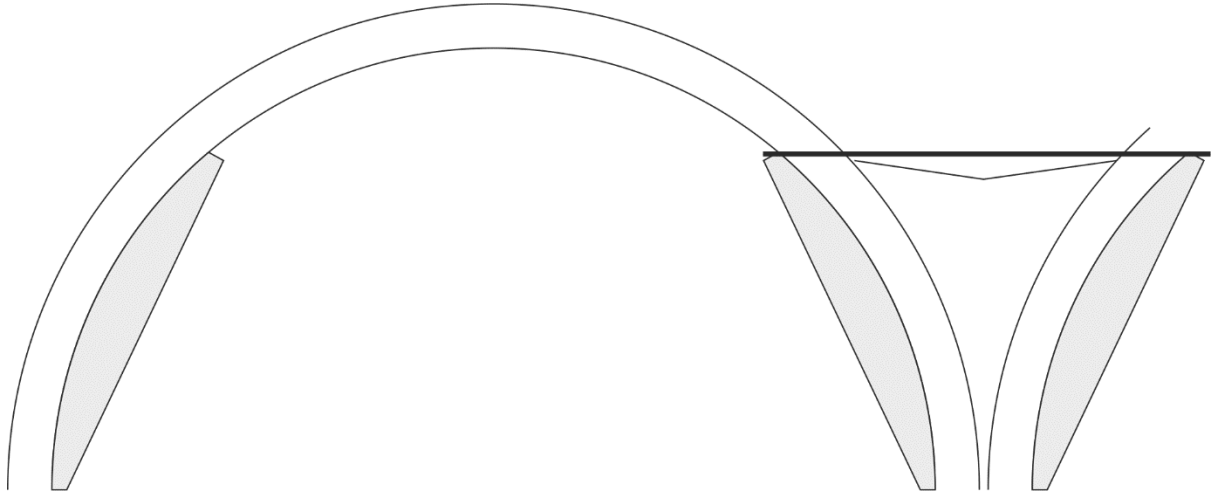


Perhaps I will come back to this photo shortly but first a picture from Manchester north of Deansgate where this same line was linked through to the L&M.

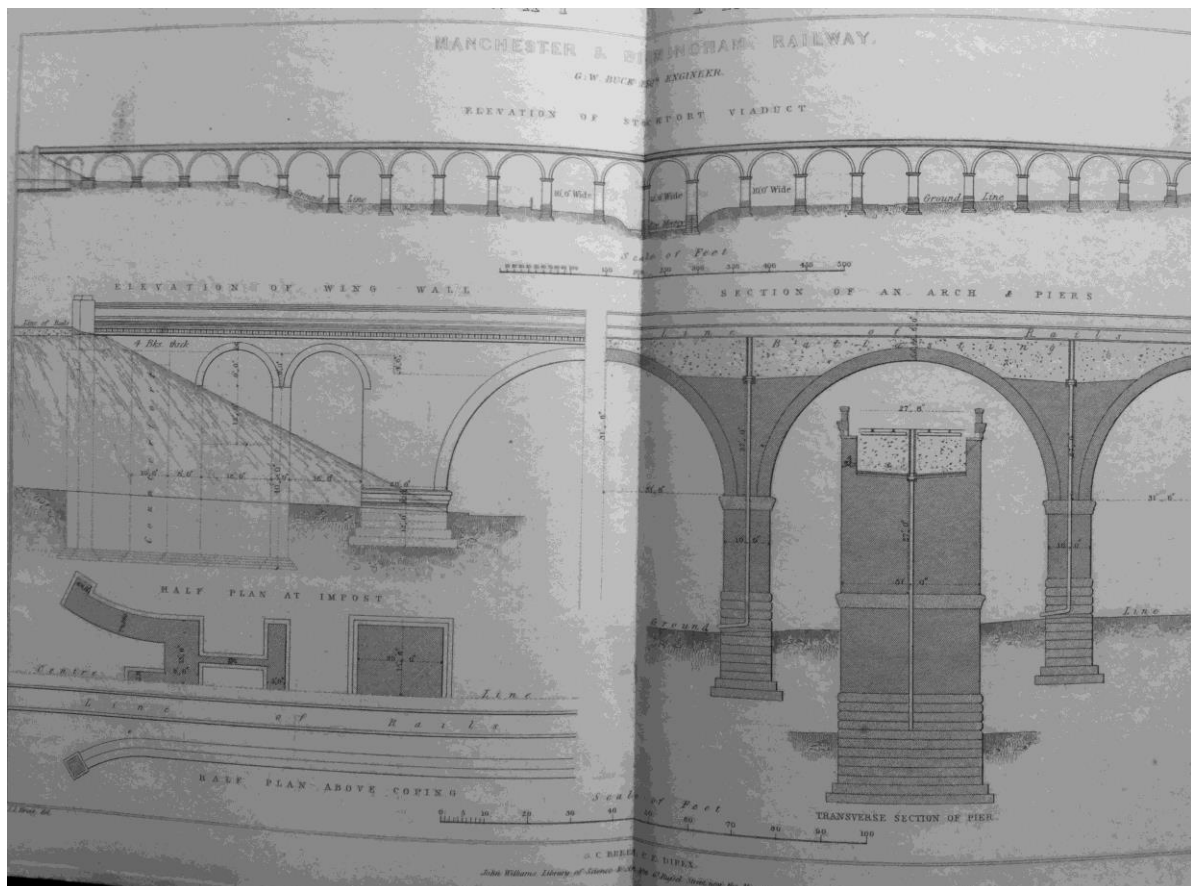


Shorter, flatter arches but the same detail. And at that point something occurs to me:

63ft spans (which these and Stockport are) are large and demanding of centring. Twemlow, being lower and in a rural setting, might well have been a warmup, with the centres reused for Stockport when it got up to level. And the 30ft radius here is really quite close to what I assumed on the viaduct through Manchester, so just possible they were cut down. Or even, that for these large semi-circular arches pier stability was greatly enhanced by building the pier section between light centres simply tied at the top, in which case 40ft span centres would naturally be immediately available.



I don't imagine there would be any evidence of that now, though I do have some drawings of Stockport to check. [A copy for download at higher resolution is here.](#)



Now back to that second picture. There is a lot of water coming out from the brickwork above and below the stone plinth. We can sensibly assume that the plinth doesn't go right through and that the

water is therefore coming down through the brickwork. Buck took his backing to about half depth As shown in the sketch, and sloped it down to the centre of the pier where a drain ran down to ground level. On the drawings he shows a larger pipe running up to the surface to allow the drain to be kept clean. I wonder whether those have been buried?



Looking up further there is a lot of patching. Many generations I should think. That drain must surely be new, reflecting the deck slab that was installed a year ago (or was it two?). There is a small rain projecting from the spandrel rather lower which might reflect an attempt to improve drainage at top of backing level.

To the right of that drain is moss growing very locally on the arch edge. Surely there is a crack to promote that.



A broader view of a less patched spandrel shows lime runs, which once again reflect the level of the solid material (if solid is the right word).



And here is that drain I mentioned. Down through the middle of the pier from the centre of the backing and discharging nicely above the foundations. Perhaps not ideal.



Zoom out again and the lime runs show under the arches too. That inverted V water stain on the pier needs a bit of further investigation but I was with friends and couldn't leave them standing in the cold.



Here we have separate brick rings and a complete spandrel reskinned. I wonder what that is hiding?
And one last:



If you look closely, the headers and stretchers in the ring do match what is happening at the edge but one wonders whether they are actually snap-headers anyway.

And before we leave, did you notice the cracks by the brackets under that box in the third picture? The spandel wall is lifting on a V above. I wonder whether that is damage from the work of chopping out the holes or the steel embedded is corroding and expanding.

And that is number 75.

Bill