



Bridge of the Month No41, May 2014 Natland



It's been a long time coming, but perhaps today I can begin to catch up. I think May, June and July are going to be brief.

What is going on? Well I have been ill on and off. I have been very busy with paid work (though as so often the work grows and the pay doesn't so the rate doesn't look so good. Just to finish it all off, a month ago my wife Sue fell out of the front door and broke her elbow so that she has been needing more care than ever.

The big project of the moment is monitoring work on railway viaducts in the edge of Manchester. That is raising questions about our (well at least my) understanding of how viaducts work and also how much their response to live load can vary from span to span. I need to write a lot of that up but some of it will be difficult. It really needs a book (or even perhaps an eBook that can include clips of video) rather than a paper.

A new project just starting on moving arch bridges instead of demolishing them. Those two jobs alone will keep me stretched till I get off to New Zealand for November as usual. I was hoping to get a break before that but Sue's accident effectively killed that idea.

As a result of all this, all plans for seminars etc are on hold, except for one at the Scottish Lime Centre on 29th August. Even that one will perhaps become a day trip rather than a week visiting friends as I had planned.

This lovely little bridge was pointed out by my friend Meg Hill when I visited her. Natland is right beside Oxenholme in the Lake District. It crosses the river Kent in [Hawes Wood](#).



This is the upstream side. The cutwater at the right is a clear indicator of another span, though here it is a normally dry flood relief arch. Note that the bridge has clearly been widened considerably. The rock foundations have provided a firm base for a long life.





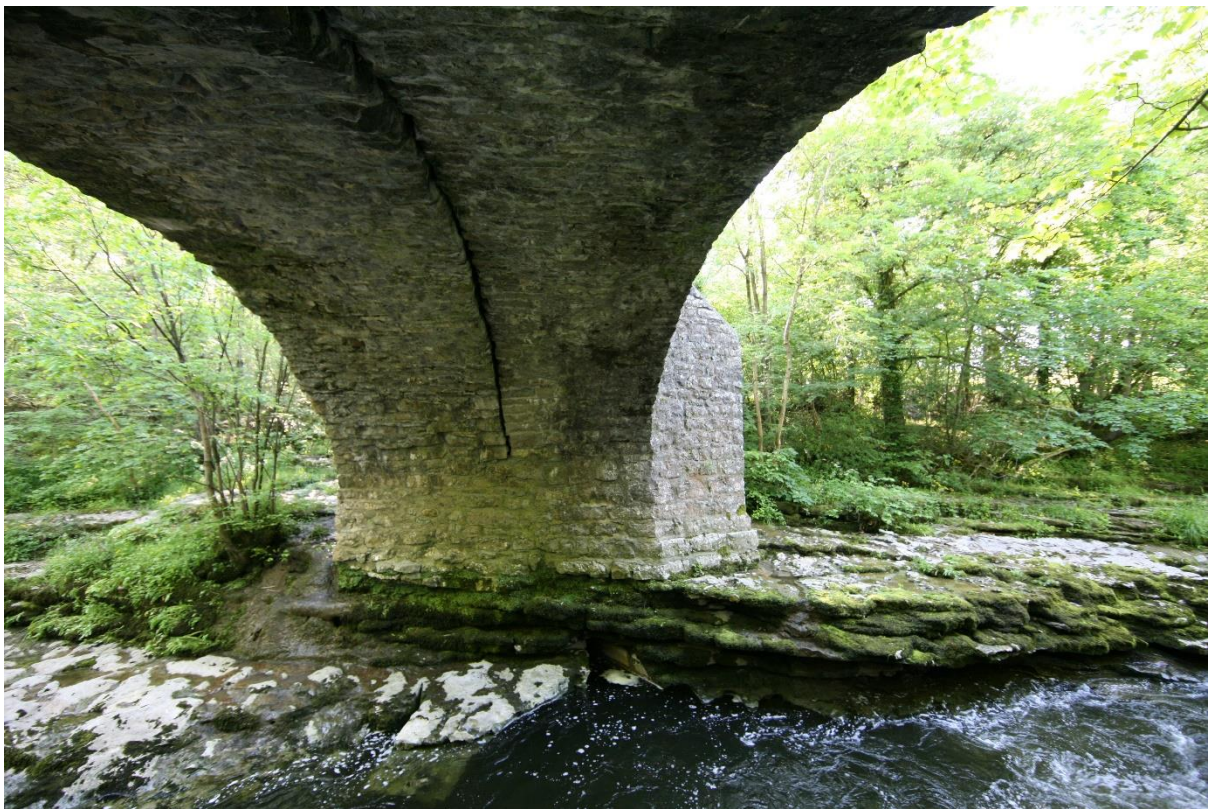
This side span was built in a single width.



The downstream side arch is built from slatey material selected rather than cut and laid, in places. At odd angles. The pier is widened as a solid piece and one wonders whether the widening and the construction (or reconstruction) of the side span were done together.



The question of which part came first is difficult but there are clues.



The downstream side is lower, which would frequently indicate that its centre was placed under the edge of the upstream, and the arch then dropped.

Looking closer at the same picture, though, the left hand side of this joint is square and the right hand has notches, which suggests the right hand (upstream) part is newer.



I didn't measure but this is a small car so the width between parapets is probably only about 3.5m, say 4m overall. Of this, about 60% is probably original so 2.4m over parapets. That would leave a comfortable 1.5m carriage width clear on the old bridge. The narrower part would only have been 1m wide between parapets so no more than a pack horse bridge. That is, of course possible.

