

Bridging the Stour at Wimborne‡

Colin Divall

Dorset's River Stour is hardly a major waterway but bridging it at Wimborne was still a challenge for the Southampton & Dorchester's (S&D) consulting engineer, William Scarth Moorsom, particularly given his tight budget. With other rivers, such as the Avon at Ringwood, geography and the lack of commercial navigation permitted low, timber structures. But at Wimborne the hill on the Poole side of the Stour was a problem. Moorsom had, of course, been responsible for the Birmingham and Gloucester's Lickey Incline (1840) but his 1844 survey for the S&D avoided anything worse than 1:100 around Wimborne – still the line's steepest gradient. This forced Moorsom to propose a clearance of 24 feet over the Stour; not huge, but not trivial either, and requiring Wimborne station to be built on an embankment.¹

Although it only became a consideration when the S&D's Act was passed in July 1845, Moorsom and his directors also had to factor in the railway's likely doubling. The lower cost of building a single-track span had to be weighed against the higher cost overall if the bridge had to be rebuilt. The decision passed to the LSWR when it took control in February 1846. Better placed to bear short-term pain for longer-term gain, it decreed that the formation and overbridges be wide enough for the second line: but most underbridges were probably built for single track.

The Stour viaduct was to prove an exception. However drawings for an early design, and a revision dated December 1846, show a single-track, timber viaduct with strengthening ironwork.² While both Moorsom and the S&D's resident engineer, Samuel Clegg, signed the drawings it is impossible to say how the work was divided.³ As the man on site (indeed he was probably living in Wimborne), Clegg was perhaps responsible for the bulk – possibly in tandem with James Beatty, trusted agent of the contractor, Samuel Morton Peto.⁴ This design did not last long. In March 1847 Moorsom told the S&D's directors that a double-track viaduct would save an estimated £490 at an immediate cost of £1050; probably in anticipation of approval, pile driving in the river bed had already stopped.⁵ The LSWR agreed to the change just over three weeks later.⁶ This was under two months before the first trains were to cross the Stour; in mid May, a local newspaper reported that an "excursion trip" (in fact an inspection train) had crossed "the valley of the Stour... upon a viaduct of timber".⁷

Design work had probably started before formal approval was granted, and wooden construction made this tight deadline possible. Perhaps Peto's experience with similar structures also helped. The Board of Trade's inspector, Captain Coddington, indirectly noted the contractor's influence, remarking that for bridge supports on the S&D more than 30 feet tall "a construction in all respects similar to that upon the Bricklayers

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Arms branch of the London & Brighton Railway has been adopted", built by Peto in 1844.⁸ The raking timbers supporting the track bed at Wimborne must have been this sort of height, given the water was around 27 feet below.⁹

However we have no engineering drawings of the Stour viaduct as built, and evidence from the well-known engraving in the *Illustrated London News* is ambiguous. Although it is important to remember such depictions were never intended to be taken literally, there are good reasons to think that, once allowance is made for the obvious vertical distortion, much of the general scene at Wimborne was fairly accurately drawn.¹⁰ Moreover Dr Nicholas Bill, an expert on early-railway timber structures, thinks the depiction of the viaduct is plausible although he doubts that the riverbed piles would have been vertical – the raking timbers probably continued down into the water, as shown in the earlier, single-track design.¹¹ What then are we to make of the comparison with the ILN's engraving of Peto's earlier structure?



Fig. 1. The Stour viaduct. Extracted from *Illustrated London News* (5 June 1847).

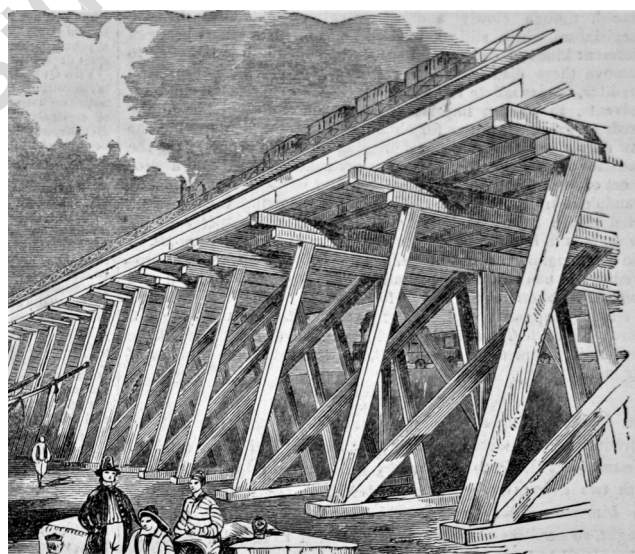


Fig. 2. The Bricklayers Arms viaduct. Extracted from *Illustrated London News* (4 May 1844).

There is an obvious similarity to the fencing. More significantly, the double beams supporting the trackbed at Bricklayers Arms agree with the description Coddington gave for spans of 18 feet or more on the S&D, although this detail cannot be made out with any certainty for the Stour viaduct.¹² All this weighs a little in favour of a design input from Peto, or at least his agent. So too does the fact that some contractors did not have a high opinion of Moorsom; one of his major designs – a timber-lattice bridge over the River Nore on Waterford & Kilkenny Railway (1846) – was reputed to have been found wanting and re-worked by the contractor.¹³ On the other hand it is hard to make out the detail of the internal bracing to the trestles at Wimborne – it *might* be “similar” to that at Bricklayers Arms. And an obvious difference between the two designs lies with the cross-braced timbers between trestles, along with the – presumably iron – lateral tie rods. Coddington made no note of these features, making it harder to be convinced that his Bricklayers Arms reference applied to the Stour viaduct. Of course, it is possible the engraver misinterpreted the sketches from which they were working, although I think that unlikely. On balance I’m persuaded that Peto did have some influence on the design. But we shall probably never know for sure unless contemporary drawings of the design miraculously appear.¹⁴

Coddington made clear the viaduct was built for double track. Was the LSWR’s expenditure worth it? That depends on how long the viaduct carried a second line. It is not clear it ever did; the S&D was not doubled south of Wimborne until 1863, by which time the viaduct had probably been replaced. It had certainly gone by 1864.¹⁵ Train weights and, in particular, locomotive axle loads increased markedly from the 1840s to the 1860s, severely limiting the life of timber bridges.¹⁶ That at Wimborne almost certainly survived into the mid-1850s, as the Dorset Central Railway’s parliamentary plans, deposited in November 1855 and probably surveyed no more than a few months earlier, show the viaduct and the embankment on the Poole side consistent only with the timber structure. The base layer of the LSWR’s terrier, which probably dates from the route’s opening, echoes these details.¹⁷ The viaduct had perhaps done well to survive this long. In July 1854 the *Southern Times* reported that on reaching “the viaduct between Poole and Wimborne” passengers on a train from Dorchester found “the bridge... to be on fire to the extent of 20 or 30 feet. The draught through the interstices caused the flames to rage with violence, but after much difficulty they were extinguished by the passengers and officials.”¹⁸

Thus all we can say with any confidence is that the viaduct was rebuilt between, say, 1855 and 1864. While it is plausible this happened before the line’s doubling in 1863, this remains supposition.¹⁹ Nevertheless there is an intriguing possibility that the original viaduct briefly carried a second track. Colonel Yolland’s report of September 1860 on the Dorset Central Railway noted that

This single line joins the Up line of the London and South Western Railway at Wimborne – the Up line not being continued further west than Wimborne, at the present time. In

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consequence of this arrangement, there is no regular junction, but all trains are to work in and out of the Up Platform of the London and South Western Railway...²⁰

Perhaps this track was laid on the original viaduct in its last years: or perhaps not.

The second crossing: Bridge 76

The replacement brick and wrought-iron viaduct – finally designated Bridge 76 by the LSWR – lasted well over a century; until early 1978, having carried its last train in May 1977.



Plate 1. Bridge 76, looking SW towards Poole, April 1977. Photo: C. Divall.

The pattern of land ownership and the width of the surviving embankment, on the Poole side, strongly suggest the replacement must have been built on the same alignment, from underneath. This was common in the mid-19th century. There was no room for the alternative, building alongside.²¹

The earliest known image, from about 1892, shows the viaduct probably much as it was some thirty years earlier. Beauty is in the eye the beholder, and this is arguably about as handsome as a plate-girder structure can be: the brick parapets broke up the girders' slab-like appearance. Note too the gas lights – probably mainly for the benefit of shunters, who were forced out along the viaduct when working the down yard.

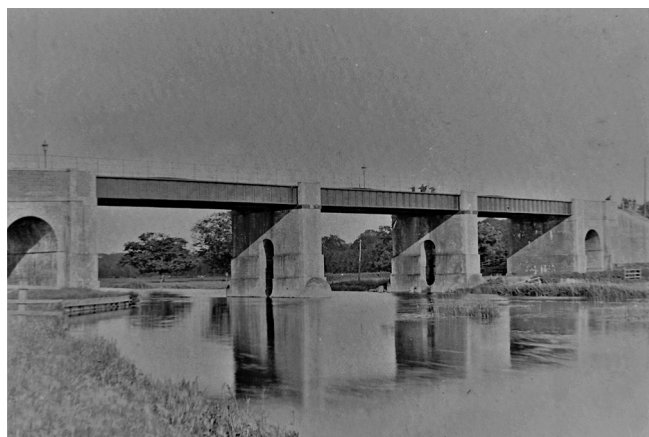


Plate 2. Bridge 76, ca 1892. Photo: E.J. Brett, courtesy Roger Guttridge.

Assuming the parapets had only been added for aesthetic reasons, they were probably removed once repairs were needed. They certainly had to go when the outer wrought-iron girders were strengthened, as the brickwork would have needed considerable modification to accommodate the substantial beams added to the original metalwork.



Plate 3. The girder reinforcements, April 1977. Photo: C. Divall.

Removal also made maintaining the bedstones easier, not to mention repainting the iron work. The central girder had already been reinforced by the early 1890s – the top of the arc-shaped ironwork can just be seen in the photograph. It is just possible this was part of the original design.

The main strengthening took place around 1912 – the well-known Butterley Company of Derbyshire quoted £415 for the metalwork in January that year.²² In the late 1880s and early 1890s the Board of Trade had pushed railway companies to review the safety of older bridges in the light of increasing loadings. But the LSWR's return to the 1891 survey did not note the viaduct as of concern; this is consistent with the photograph.²³ Inspection records for Old Road bridges ca 1909-34 survive, but for the viaduct I only have the data for after 1920. In that year considerable work, including raising girders and repairing bedstones was done to "make good... serious defects".²⁴ Photographs from 1977 suggest that the main work was on the east side of the pier closest to the Poole bank.



Plate 4. Raised bedstone, April 1977. Photo: C. Divall.

The bedstone on the other side was not built up so it is possible that the foundations had partly subsided, perhaps due to scouring when the river flooded. After these major repairs, only minor maintenance was recorded up to 1934. Even this could be dangerous though; in September 1924, Cyril Herod Cox, a 25-year-old married man from Wimborne working for a Dorchester contractor, drowned when he fell into the Stour from scaffolding while cleaning and painting the ironwork.²⁵

The viaduct made an attractive short cut. Railway workers needing to access the engine shed (closed 1923) at Wimborne Junction, the signal box (1933), and the nearby Canford siding (1953) simply walked across the viaduct. Members of the public who did so were trespassing, which did not stop them. Crossing from the Canford side cost one distinguished figure his life; William Beckett, Conservative MP, banker and a LSWR director was run over by an up train on Sunday 23 November 1890.

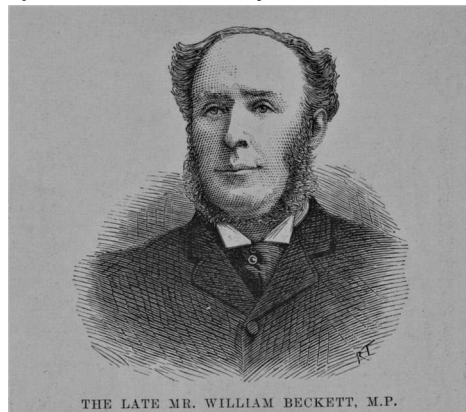


Fig. 3. Illustrated *London News* (29 Nov. 1890).

Beckett was carrying over £105 in cash and an envelope “with a lady’s address”, prompting speculation locally that he was visiting his mistress.²⁶ A strong wind played a major part in his death, the inquest coroner opining that perhaps not one man in forty would be able to “hold his way” when a train was passing under such circumstances.²⁷ Indeed it “was only by considerable care” while making a formal visit to the site of the fatality that the coroner and jury “avoided coming into contact with the engines and carriages” of a passing train.²⁸ Even for the experienced, the tight clearances and lack of refuges made the viaduct a dangerous place.

End of an era

The second viaduct lasted for just over a century, although in its last years reduced to a single track. After the Old Road’s closure to passenger trains in May 1964 the viaduct’s up line was taken out of use, on 24 July 1966, and removed shortly afterwards; a slew connected the surviving track across the river with the up line from Broadstone, allowing the rest of the down road to be lifted.²⁹ If the Dorset Central’s deposited plan of 1855 is to be believed, this arrangement echoed that of the previous century – although in the 1850s

the slew was apparently located on the viaduct. The all-timber trackbed makes this plausible.



Plate 5. Bridge 76, 10 April 1974. Photo: C. Divall.

With just a residual, weekday goods service, plus the occasional working to the exhibition-train depot in Wimborne's down yard, the temptation to cut across the bridge certainly did not lessen. By the early 1970s deterioration of the decking on the disused up side forced BR to lay timbers across the roadbed, further enhancing the unofficial footpath's attractiveness. On the last day of passenger trains, Sunday 1 May 1977, the local population made good use of this 'facility', doubtless unaware that they were standing near the spot where Beckett had lost his life some 86 years before.

Demolition was now more or less inevitable. A last-minute attempt to turn the route south of Wimborne into a heritage operation faced the insurmountable challenge of long-planned major road schemes. BR's view that the viaduct was in poor condition – a judgment challenged by a structural engineer – did not help.³⁰ At a century old, the riveted wrought-iron plate girders were perhaps near the end of their life, although when in 1973-74 BR had reviewed the future of the line north of Wimborne, it had seen no impediment to keeping the line southward open, at least in the short-term.³¹ In any case by the time I returned briefly to Dorset in mid-February 1978, demolition was well under way. A few days later, it was almost completely gone.



Plates 6 and 7. 18 February 1978. Photos: C. Divall.

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Plate 8. Towards Poole, 26 February 1978. Photo: C. Divall.

With hindsight it is easy to lament the viaduct's loss which even if it were not carrying trains could have provided a much more pleasant way of accessing Wimborne from the Castleman Trailway than the present route along the traffic-choked Poole turnpike (the B3073 in modern parlance!). But hindsight is a wonderful thing.

My thanks to Peter Russell for additional sources, and to him, Steve Smith, Colin Edwards, Philip Brown and Graham Bowring for comments on drafts.

- 1 Sections of the Southampton & Dorsetshire Railway 1844 (deposited 30 November 1844), section D15, Dorset History Centre [DHC] QDP(M): R3/9.
- 2 Southampton & Dorchester Railway, Elevations and section of Wimborne Viaduct etc. (1846), DHC D-611/8.
- 3 Letter from S. Clegg (12 Jan. 1847), Southampton & Dorchester Railway Company, Minutes of the Board of Directors, Southampton City Archives, D/Z 416. Clegg was the son of the better known pioneering gas engineer of the same name.
- 4 J.G. Cox, *Samuel Morton Peto (1880-1889): The Achievement and Failings of a Great Railway Developer* (Oxford: R&CHS, 2008), esp. pp.29-31.
5. Southampton & Dorchester minutes, min. 523.
- 6 Southampton & Dorchester minutes, min. 557.
- 7 *Salisbury & Winchester Journal* (22 May 1847).
- 8 Board of Trade, Report on the Southampton & Dorchester (22 May 1847), TNA MT6/4/30.
- 9 *Illustrated London News* (5 June 1847); L. Tavender, *The Dorchester and Southampton Line*, Ringwood Papers No 3 (Ringwood: A.E. Baker, 1995), fig.15. By the 1920s the river bed was around 35 feet below the spans; Book of condition and maintenance records, Southampton & Dorchester Line Structures (ca 1909-34), private collection. This volume was recently sold to an unknown buyer; my thanks to David McGhie for making some of the data available.
- 10 I am grateful to Dr Jill Murdoch for insights into the popular illustration of C19th railways.
- 11 N. Bill, per. com. (18 Feb. 2016); N. Bill, 'Timber-lattice bridges on railways in the UK: 1840-1870', *Proceedings of the Institution of Civil Engineers - Engineering History and Heritage* 166/3 (August 2013), pp.136-45.
- 12 A similar design was proposed for the bridge over the Ringwood turnpike. Southampton & Dorchester Railway, Plans, sections and elevations of Turnpike Road bridge No 11, Wimborne Minster, etc. (1846), DHC D-611/5. The 1846 drawings for the viaduct incorporated 20-foot spans; these included design elements commented on by Coddington.
- 13 N. Bill, per. com. (11 Feb. 2016); 'Captain William Scarth Moorsom', *Minutes of the Proceedings of the Institution of Civil Engineers* 23 (1864), pp.498-504, at p.502; W.S. Moorsom, 'Description of the viaduct erected over the River Nore, near Thomastown, in the County of Kilkenny', *Minutes of the Proceedings of the Institution of Civil Engineers* 11 (1852): 426-34.
- 14 Records might have been lost in the bombing of the Southern Railway's Waterloo civil-engineering offices in 1941. J. Evans, per. com. (27 Nov. 2014).
- 15 LSWR, Additional Works & Lands (Nov. 1864), DHC uncatalogued accession.
- 16 N. Bill, per. com. (18 Feb. 2016), A.C.G. Hayward, 'Train loads on bridges, 1825-2010', *International Journal for the History of Engineering and Technology*, 81/2 (Jul. 2011): 159-91.
- 17 Dorset Central Railway, Plans and Sections Session 1856 (Nov. 1855), DHC uncatalogued accession; LSWR Terrier Brockenhurst to Hamworthy Junction (n.d.), p.105, Network Rail Archive.
- 18 *Sheffield & Rotherham Independent* (5 Aug. 1854).
- 19 Although the BoT report on the doubling south of Wimborne refers to the "numerous bridges and viaducts", none of the - sparse - detail is helpful. BoT, Report on second line of rails, Wimborne to Wool (5 May 1863), TNA MT6/27/60.
- 20 BoT, Report on Dorset Central Railway (20 Sep. 1860), TNA MT6/296/9.
- 21 LSWR Terrier, p.105; N. Bill, per. com. (18 Feb. 2016).
- 22 LSWR Engineering Committee (16 Nov. 1911, 11 Jan. 1912), TNA RAIL441/62. The committee had budgeted £750 for the job. I am grateful to the late Mick Hutson for this reference.
- 23 Copy of the Circular from Board of Trade... on the subject of Bridges under their Lines of Railway, etc., Cmnd. 7961 (London: HMSO, 1896), pp.43-6.
- 24 Southampton & Dorchester Line Structures.
- 25 *Western Gazette* (26 Sep. 1924). The jury's verdict of accidental death came with a rider that safety precautions were inadequate.
- 26 Quote from *The Times* (26 Nov. 1890); M. Holroyd, *A Book of Secrets: Illegitimate Daughters, Absent Fathers* (London: Chatto Windus, 2010), pp.36-8.
- 27 *Western Gazette* (28 Nov. 1890); *Hampshire Advertiser* (26 Nov. 1890); *Manchester Guardian* (25 Nov. 1890).
- 28 *The Times* (26 Nov. 1890).
- 29 BR(SR) South Western Division Weekly Notice P/EW27 (1966).
- 30 G. Russell, per. com. (17 Dec. 2021).

eastdorsetrailways.org