



The Institution of Civil Engineers

Panel for Historical Engineering Works

NEWSLETTER

DECEMBER 1995 No.68

CONTENTS

- *The Bridge of Sighs*
- *The Chairman's Column*
- *Correspondence...*
 - ...*Noah Hingley and Sons and J U Rastrick*
 - ...*letter from Brian Haskins*
 - ...*letter from Stephen Jones*
 - ...*Professor Williams writes*
 - ...*The Soho House and Archives Appeal*
 - ...*The Identification of Water Towers*
- *HEWs in the NEWS*
- *Editor's Note*
- *Record Form Update*



Ponte dei Sospiri, Venice

The Bridge of Sighs

D L B Thomas

There are at least four bridges that go under the name 'The Bridge of Sighs'. All are single span masonry arch flying bridges, three being covered, one open, two serving a penal purpose and two academic.

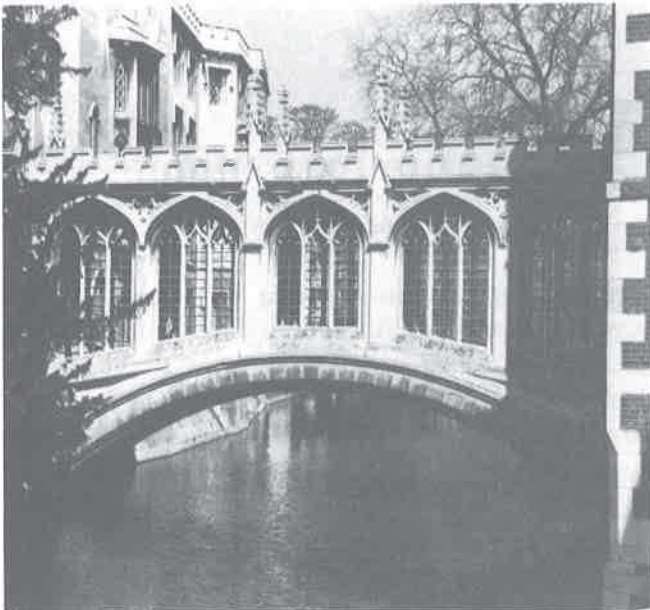
The first to be built, and probably the only one that is world famous, is The Bridge of Sighs in Venice - the *Ponte dei Sospiri*. This spans one of Venice's canals, the *Rio di Palazzo*, and forms a walkway between the first floor of the Ducal Palace and the first floor of the prisons. It is built in the baroque style in Istrian ashlar and has a three centered arch. The voussoirs on either face are decorated with eleven heads, the centre one being the Lion of St Mark. The spandrels contain a relief that symbolises justice and one of the arms of The Doge Marino Grimani who had the bridge built. There are windows covered with cast iron tracery grills in the parapets and these, it is said, give rise to its name. After a prisoner had been

sentenced in the Ducal Palace he would be taken across the Bridge of Sighs to serve his sentence in the prisons and, as he passed a grill, he could take one last look at his relatives standing on the Bridge of Straws just below. An occasion for sighing, no doubt, because Venetian justice was harsh and, until Casanova disappeared in the middle of the eighteenth century, no one had escaped from the prisons. The bridge was built about 1600 and was thought to have been designed by Antonio da Ponte, who was responsible for the Rialto Bridge nearby. Ruskin, however, suggested that the designer was Antonio Contino and, incidentally, considered that the bridge was 'a work of no merit'.

The Bridge of Sighs in Chester crosses the Shropshire Union Canal a little to the west of the Northgate. It served a similar purpose to that in Venice but differs in two important respects. It is not a covered bridge and now has only dwarf parapets although there probably were higher parapets when it

was in use. Also, it is a completely unadorned structure. It has a segmental arch with a rise/span ratio of about 1:4 and constant 12 inch (300 mm) deep voussoirs. The spandrels are squared coursed rubble and there is a string course on either side surmounted by dwarf parapets of dressed sandstone. It was built around 1772 when the Chester Canal was being cut so that prisoners could cross from the old Northgate gaol to the Chapel of St John, now the Blue Coat Hospital. Condemned prisoners made their way across to receive the last rites before their execution and could be excused the occasional sigh. The bridge is now blocked and no longer usable.

The two other bridges of this name are in Britain's traditional seats of learning, Cambridge and Oxford. The Bridge of Sighs in Cambridge (HEW 1941) is in St John's College and crosses the River Cam south of Magdalene Bridge. It is a single span ashlar masonry arch bridge built in the mock Gothic style. It has a segmental arch with a rise/span ratio of about 1:5, moulded voussoirs, decorated spandrels, Gothic windows with grills and castellated and pinnacled parapets. It was built in 1831 to the design of Henry Hutchinson to afford access within the college grounds from the old building of St John's College to the New Court.



Bridge of Sighs, Cambridge

Unlike the other three, Oxford's Bridge of Sighs crosses dry land, New College Lane, and joins the two parts of Hertford College. It is a single span masonry arch bridge with a segmental arch of rise/span ratio about 1:4. Masonry is ashlar and the whole is decorated with elaborate devices that seem to have been drawn from a variety of sources. The crown of the arch on either side bears an armorial shield, one being supported by a pair of cherubs.

These are flanked by cartouches embossed with the date of construction, 1913, and the name of the College Principal of that time, Henry Boyd. The bridge was designed by Sir Thomas Jackson and, in general form but not detail, is more reminiscent of Venice's Rialto Bridge than *Ponte dei Sospiri*. How did the Cambridge and Oxford bridges get the name? It has been suggested that the sighs were those of undergraduates after a hard day in the examination room but it seems more likely that the name derives from the fact that both bridges bear a passing resemblance to the Venetian prototype.

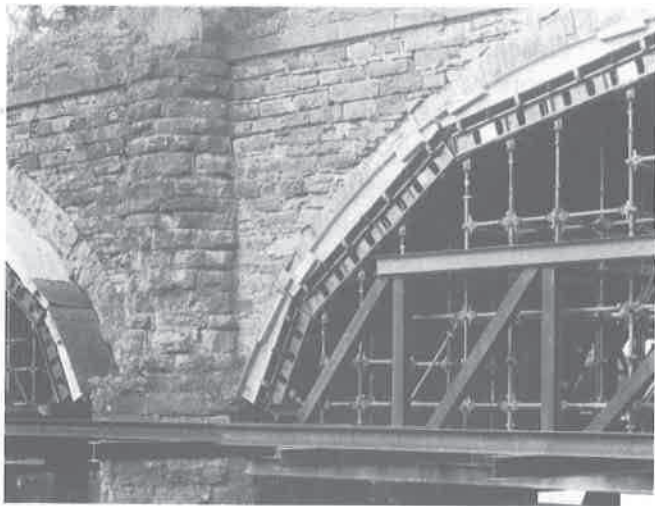
If any reader knows of other bridges that bear this name I would appreciate hearing from him. *Please send any information to the Editor at the address on page 7.*

The Chairman's Column

Roland Paxton

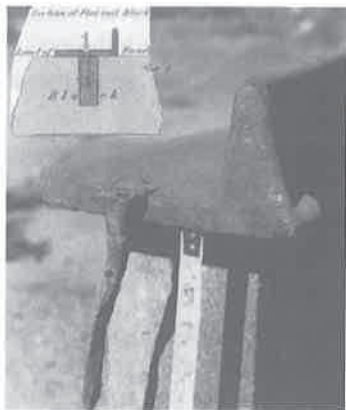
The Thames Tunnel saga seems at last to have reached an agreed compromise, although one that has yet to be approved by London Docklands Development Corporation (NCE, 25 October and 2 November). My understanding of the compromise is that Brunel's tunnel will not now be irreversibly shotcreted, but that the tiling will be removed and a separate concrete lining will be placed immediately in front of its historic interior to the form of the original surface. In time this would look like the original. The central archways would be retained and also four original bays at the Rotherhithe end of the tunnel. This is a much more satisfactory outcome than seemed possible before the tunnel was listed on 24 March, but it has only been achieved at great cost. According to London Underground, listing has meant a doubling of the temporary closure time and a doubling of the cost of the work from £12m to £24m. These considerations underline the need for the Panel to take all possible steps to avoid seeking last minute listings in future, by ensuring that all 'landmark' historical engineering works are appropriately listed. In the last Newsletter I undertook that the Panel would check this out. In the replies received so far some surprising omissions have come to light in each member's area, particularly relating to underground works. Other areas may well have similar omissions and members who have not yet responded are urged to do so as soon as possible. To facilitate this exercise English listings will be checked centrally at headquarters on request.

About £350,000 of work has now been completed on the Panel-initiated Lough Milton Viaduct

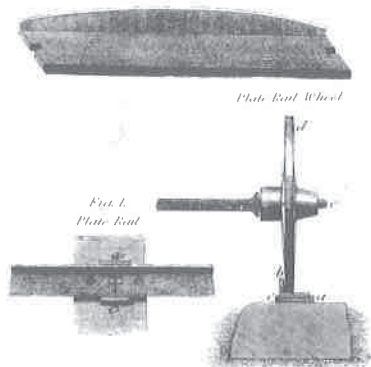


Laigh Milton Viaduct refurbishment
concrete surround to pier 3 - September 1995

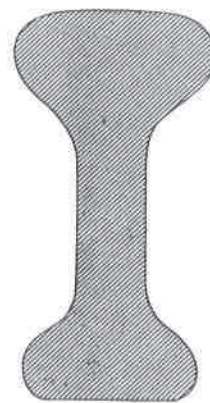
Conservation Project. Barr Limited have now secured temporarily all four arches and permanently stabilised with concrete collars the lower parts of two of the three piers. The cause of the leaning pier has not yet been determined beyond all doubt, and in order to provide further data Dr Colin Stove and I recently carried out further high frequency radar scanning. Exciting recent finds on site have included a now very rare Jessop cast-iron plate rail of c.1809 from the Kilmarnock and Troon's 4ft gauge plateway and a wrought iron edge rail (c.1846?) almost identical with Whishaw's section 4.



Jessop cast-iron plate rail and W.I. spike
c.1809 found at Laigh Milton Viaduct



Jessop's cast-iron plate rail



4

Whishaw section 4 edge-rail (1840's)

Readers of Newsletter no.66 may recall the concerns expressed about the deteriorating Forth Bridge and my taking part in the *Evening News* organised boat inspection of its flaking exterior. I am pleased to report that a decision has now been taken to increase substantially the rate of maintenance. Congratulations to Railtrack for having the courage and wisdom to change tack and also to the *Evening News* and others on their effective campaign. On October 12 the *Evening News* reviewed the key advice received from their inspection party during the boat trip as follows:

Although not in danger of falling down, rust was gaining hold and the proposed £500,000-a-year painting maintenance was not enough to guarantee the structure's long term future ... We called for Railtrack, which inherited the bridge from British Rail, to be relieved of responsibility and for an independent trust to be set up ... even embattled Railtrack, while insisting that there was no threat to the bridge's structure in its hands, said it would welcome such a trust.

Our expert team included leading engineers, Heriot-Watt University Professors Roland Paxton and Paul Jowitt. Professor Jowitt summed up a nation's fears. 'This is a fantastic structure, but it looks awful and its appearance does not encourage a lot of public confidence in the long term future of the bridge.' Professor Paxton said: 'I think the problem will get worse if they carry on at the present rate of spending.' At that time Railtrack said it would not even start painting the bridge's main supports for seven years, spending its £500,000 budget on more crucial lattice metal.

With more than £1m now to be spent this year and a pledge to paint the main tubes at the same time as the latticework, today's revelation is a clear victory, but it took sustained campaigning backed particularly by Professor Paxton and MP's Eric Clark (Mid-Lothian) and Tam Dalyell (Linlithgow)...

From abroad I have been pleased to receive Vol.V, No.2, 1995 of IHTA West Virginia University's 'Field Notes', which features an article by staff member Edward Winant on the hydraulic design of New York's Croton Aqueduct. The Panel was delighted to have Professor Alan and Mona Prasuhn as its guests at its autumn meeting in Aberdeen and to receive a first hand account of ASCE's History and Heritage Committee and its work. The Panel is presently helping to locate a possible HEW of international status in Ireland which is worthy of being awarded an ASCE landmark plaque.

The Panel's close association with the Japan Society of Civil Engineers is continuing and it gives me much pleasure to congratulate its Historical Studies Committee on launching a Newsletter in November with our valued correspondent Mr Hiroshi Isohata as its editor. How appropriate that its first number will carry an update on the Thames Tunnel issue! I was also honoured to receive an invitation from Dr Osamu Shinohara, Chairman of the Editorial Committee of HSCE of JSCE to write a paper about Laigh Milton Viaduct for inclusion in their 1996 annual bulletin. He also expressed his appreciation of the close relationship between his committee and the Panel. This sentiment is reciprocated. All I have to do now is write the paper!

Correspondence ...

NOAH HINGLEY AND SONS AND J U RASTRICK - A REQUEST FOR INFORMATION P D HINGLEY

I am at present very actively engaged on two studies, one on the 'family' ironworks of Noah Hingley and Sons of Netherton, Worcestershire, best known for making chain and anchors for many great ships including the *Titanic*, *Lusitania*, *Mauretania*, etc. The other on the life and works of John Urpeth Rastrick (1780-1856). I would be very grateful if anybody could advise me of:

1. Any deposits of Rastrick papers other than those in London University Library and in the record offices of Cwmbran, Shrewsbury, and Cardiff.
2. Any relics of Rastrick other than those I already know about, viz: the stationary engine in the Science Museum, *Agenoria*, *Stourbridge Lion* (bits of in the Smithsonian Institution), tomb in Brighton Cemetery, Chepstow bridge, the New Foundry at Stourbridge, the commemorative Clock Tower at Bridgnorth, the canal pumping station mentioned in a recent issue of the PHEW Newsletter, and the obvious civil engineering works on the Brighton Line.
3. Any documentary material or photographs relevant to Noah Hingley and Sons to add to those I know about in Dudley archives, the Black Country Museum, Lloyds' Register archives and in the works of the late Keith Gale.
4. Any identifiable relics or products of Noah Hingley and Sons; I know about the anchors at Ostend and at the National Maritime Museum, plus those still attached to *Titanic* and (presumably) *Oceanic* plus various relics at the preserved chainshop at Mushroom Green, the Birmingham Museum of Science and Industry, and the windows, plaque and churchyard memorials at Halesowen Church. I would be especially pleased to hear from anyone with memories of the works whether first - or umpteenth - hand (both my grandfather and great-grandfather worked there).
5. The whereabouts of any papers formerly in the collection of Mr C E Kenney (d.1973), an engineer who was a Fellow of the Society of Antiquaries and a member of the Newcomen Society.

Any suggestions readers can offer will be warmly welcomed; please ring me at Faversham (01795) 531224 (evenings) or write to: 10 Capel Road, Faversham, Kent ME13 8RL. I need hardly add that any expenses will be reimbursed and such help will be most gratefully received and duly acknowledged in any publication which may result.

* * * * *