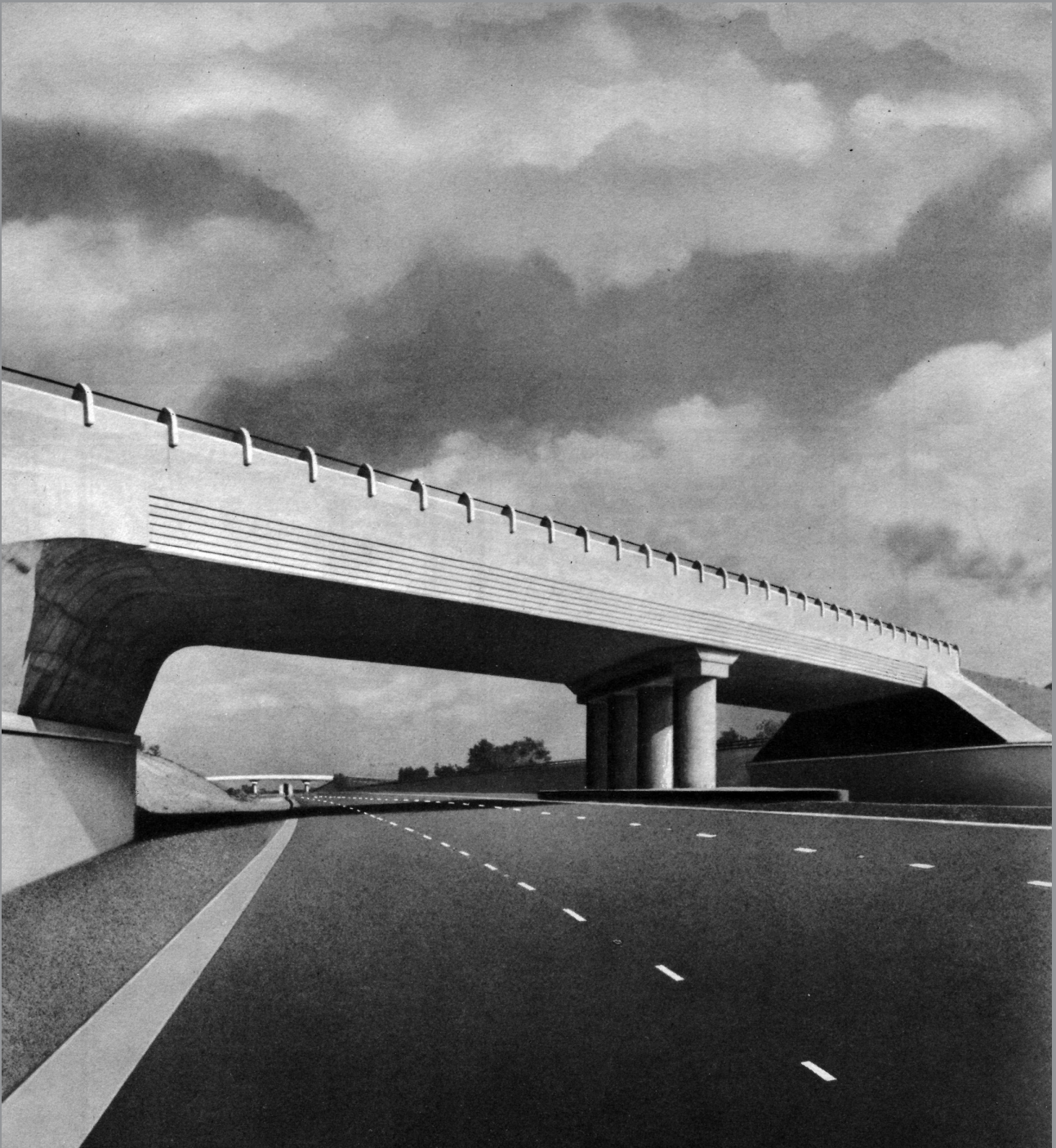


Bridging the Gap

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ON July 30, 1870, a visitor to the Niagara Falls noted glumly in his diary that “the impression of the waterfall was gripping, but not what I had expected”. Having travelled from Northern Europe to reach this scenic spot, the traveller—a railway engineer—was frankly disappointed. The landscape was flat and dreary, and only seen from very particular angles did the falls live up to their sublime reputation. What consoled the disillusioned tourist, however, were the many beautiful bridges built to accommodate traffic, commerce, and sightseeing around the falls: “The proud Clifton suspension bridge with its 1269’ span, 300’ above the river, was light and beautiful. The picturesque bridges across to Goat Island and “Three sisters”—all in pleasant harmony—give to the place a decidedly attractive character” he enthused.¹ Regardless of its reputation as the most spectacular natural scenery in the world, to our railway engineer, Niagara was saved only by the sublime spectacle of the bridges.

By Mari Hvattum

THE disappointed engineer was not alone in his fascination for bridges. Although the 19th century witnessed an ever-increasing interest in the natural landscape, the man-made environment held an even greater attraction, especially once it got big enough, fast enough, or complex enough to take on some of the sublimity of nature. The American historian David Nye has coined it the ‘technological sublime’, seeing the obsession with railways, roads, bridges and dams as a particular characteristic of Modern aesthetic sensibility.² Bridges play a key role in this new sensibility, both as objects in their own right and as tokens of an entirely new landscape, created and shaped by infrastructure. Mediating between the natural and the man-made, symbolising man’s mastery over nature, the bridge was, to 18th and 19th century eyes, a super-symbol of Modernity. And yet, the bridge in itself is ancient, and has been a key motif in architecture, painting and garden design for millennia. The 20th century fascination for bridges draws on both these strands, making their cultural history a fascinating and somewhat paradoxical story.

Bridges and the Modern Transportation Landscape

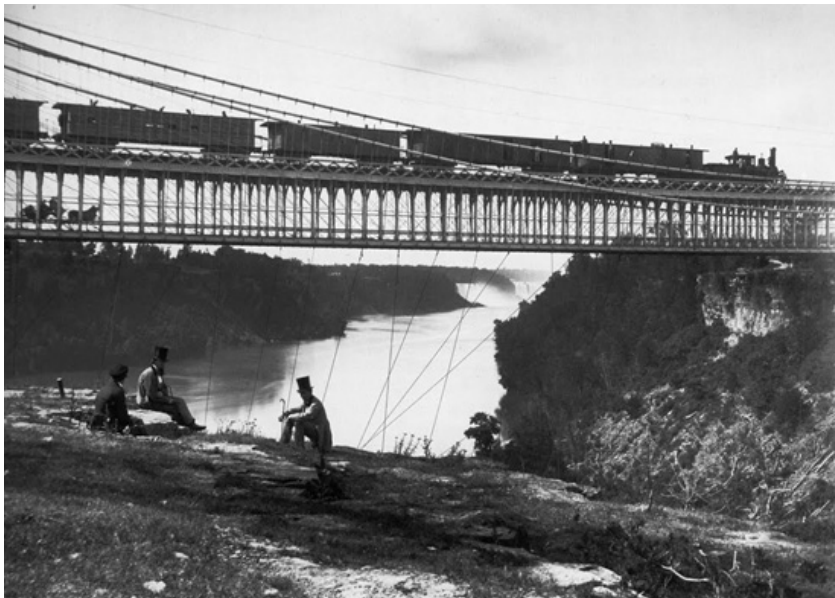
Modernity is mobility, articulated not least by means of Modern infrastructure. From the ambitious road-building projects of the *École des Ponts et Chaussées* in 18th century France, through North-American canal building, English railway development, Nazi *Autobahns*, and American Parkways, infrastructure has been considered both a harbinger of global Modernity and an articulation of the native landscape. The German historian Thomas Zeller, for instance, shows how the Nazi *Autobahn* was

conceived as much as an aesthetic orchestration of the German landscape as an economically efficient transport network.³ Wolfgang Schivelbusch’s study of the early railway landscape, J.B. Jackson’s analysis of the North American car-landscape, or Alison Smithson’s reading of the English motorway come to similar conclusions, pointing to the close links between infrastructure and landscape perception.⁴ Bridges play a particular role in this perception. Built precisely where the terrain resists passage—where rivers, lakes, canyons or ravines make smooth passage impossible—bridges epitomize the dramatic transformation to which the landscape is subjected by Modern engineering. Early Modern bridge design reflected this drama. As the brief for a 1791 bridge building competition at the *École des Ponts et Chaussées* put it:

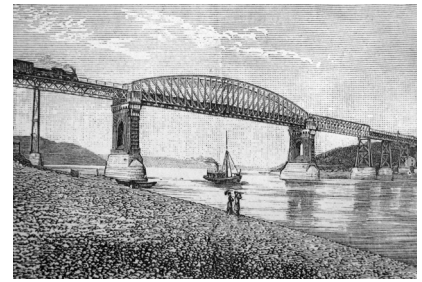
Before projecting, it is essential that one examine carefully the sites and proportion of the bridge to the objects which surrounds it: in a wealthy and beautiful town, one builds a light bridge, enhanced by the beauties and agreements of architecture to which this kind of structure is susceptible; in the countryside or in a small town, a light and simple bridge; amidst the mountains, a heavy and bold bridge. If one seeks to build a bridge next to a substantial rock, it is essential that its construction combine a stability recognized and demonstrated by calculation, a boldness and a form as astonishing and remarkable as the mass which is adjacent to it.⁵

The quote above is taken from the French historian of technology Antoine Picon, who has studied the particular aesthetics at work in 18th century bridge building. While the enlightenment engineer subjected nature to dramatic transformation, he did not conceive it as violation, Picon argues. Rather, to join up the countryside was understood as an act of completion: fulfilling a potential that nature had left unfinished.⁶ The bridge, then, became not only a practical device but a powerful cultural symbol with its own particular aesthetic codes. Not merely part of an

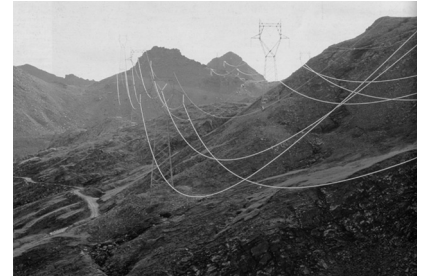
< M1 motorway junction bridge in Buckinghamshire by Sir Owen Williams & Partners. The Motor Magazine 4, November 1959.



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abstract network, bridges were conceived in relation to their local context and their particular construction process. The latter was particularly important, as the often dangerous process of constructing bridges added to their sublime character; “Since the bridge was born of the suffering of the engineer and his workmen, and since it courted danger in braving the abyss and the impetuosity of the river, it was regarded as sublime” writes Picon, pinpointing the processual aesthetics invested in bridge building in Modern Europe.⁷

If the sublime became a key aesthetic category for describing bridges—used to coin everything from Fowler and Baker’s Forth Bridge to Calatrava’s Alamillo—sublimity is not the only aesthetic quality ascribed to bridges in the Modern period. In the 18th century garden, bridges were used as picturesque elements in the landscape, giving character and beauty to particular places and views along the garden path. Bridges enhance the view, giving depth and definition to the scenery, wrote the garden theorist Thomas Whately in 1770.⁸ This picturesque practice survives in the way bridges are described and experienced in 19th and 20th century travel literature. In his 1874 guide book to Norway, for instance, Christian Tønsberg described the “splendid bridges” as the highlight of the railway journey, giving visual variety to an often tedious landscape.⁹ Brimming with enthusiasm, these guide book authors describe the bridges not only as technological or infrastructural marvels but as beautiful and interesting objects, adding to the character and beauty of the natural landscape. In an interesting anticipation of the 20th century aestheticization of technology voiced by Modernists such as Sigfried Giedion and Le Corbusier, 19th century

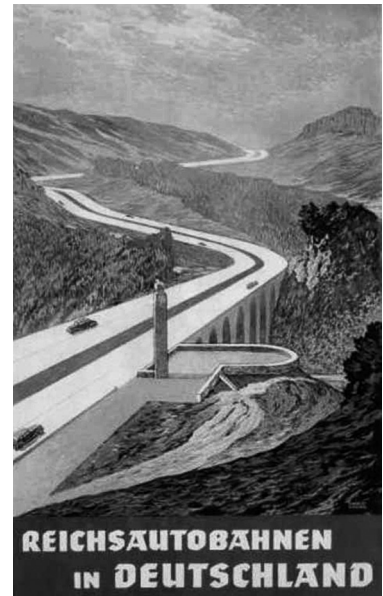
guidebooks celebrated the bridge as the quintessential expression of the Modern age.

Given their profound symbolic and aesthetic significance, it is no wonder that bridge design became such an iconic task in the 20th century. Yet it was a fraught task, a balancing act between many conflicting demands. When the engineer Owen Williams—responsible for the English M1 motorway from 1951 until 1959—launched his design for the M1 motorway bridges, for instance, critics attacked his chunky structures for being out of sync with the *Zeitgeist*.¹⁰ As the architectural historian Nikolaus Pevsner observed: “Sir Owen evidently wanted to impress permanence on us, and permanence is a doubtful quality in devices connected with vehicles and means of transport. Elegance, lightness, and resilience might have been preferable”.¹¹ Caught in the crossfire between ‘firmitas’, ‘utilitas’ and a very time-specific understanding of ‘venustas’, Sir Owen’s bridges were deemed deficient, responding neither to the mobility of the route nor to the qualities of any particular place.

Bridges play a significant if paradoxical role in Modern imagination. Joining the landscape into a navigable network, the bridge is part of a placeless system of infrastructure. As a constructed object, however, the bridge is part of a particular context, contributing to creating, recreating and interpreting places. As Heidegger reminds us: the river banks are not banks until the bridge links them. And although bridge construction and bridge design has changed greatly during the last centuries, this dual challenge remains. The bridge is a route as well as a place, and its particular position in the cultural imagination rests on this duality.



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Figure 1. Niagara Suspension Bridge, 1859. Photo by William England.

Figure 2. Railway bridge at Minne, Norway. Xylography. In Christian Tønberg, *Norge, Illustreret Reisehaandbog*, 1874.

Figures 3 and 4. Utility poles crossing landscape published in *Rassegna 63, Electricity*, 1995. Archivio Storico Enel.

Figure 5. Highway junction at old 101 Pacific Coast Highway, San Diego, 1947. Photo by Howard Rozelle.

Figure 6. Poster of the Reichsbahn headquarters for the German Reiseverkehr. Design by **Robert Zinner**, Berlin, 1936. © DHM, Berlin.

Figure 7. Autobahn near Irschenberg, today A8 Highway, published in *Die Strasse*, 1936.

Notes

1. Carl Abraham Pihl, diary entry, July 30, 1871. In Terje Colban Pihl and Anders Colban Følid (eds.) *Jernbanebyggeren* (Oslo, 2000), 22. For more on Pihl and his photographic survey of the Norwegian railway landscape, see Mari Hvattum "The Man who Loved Views: C.A. Pihl and the Making of the Modern Landscape" in Hvattum et al (eds), *Routes, Roads and Landscapes*, Farnham, Ashgate 2011.
2. Nye, David, *American Technological Sublime*, Cambridge Massachusetts: MIT Press, 1996.
3. Zeller, Thomas, *Driving Germany. The Landscape of the German Autobahn, 1930-1970*, Oxford and New York, Berghahn, 2007.
4. Schivelbusch, Wolfgang, *The Railway Journey: the Industrialization of Time and Space in the 19th Century*, Los Angeles, University of California Press, 1986. John Brinckerhoff Jackson, "The Abstract World of the Hot-Rodder", *Landscape* 7.2, Winter 1957-58. Alison Smithson, *AS in DS: an eye on the road*, Baden, Lars Müller, 2001.
5. *Programme de pont de pierre propose aux élèves des Ponts et Chaussées pour le concours de 1791*, archives of the *École des Ponts et Chaussées*. Quoted in Antoine Picon, *French Architects and Engineers in the Age of Enlightenment*, Cambridge, Cambridge University Press, 1992, 219.
6. Picon, 229.
7. Picon, 231.
8. Whately, Thomas, *Observation on Modern Gardening*, London, Payne, 1770, 72.
9. Tønberg, Christian, *Norge, Illustreret Reisehaandbog*, Christiania, Chr. Tønberg, 1874.
10. Peter Merriman discusses the debate around the M1 motorway bridges in his book *Driving Spaces*, London: Blackwell 2007, particularly in Chapter 3, "Designing and Landscaping the M1".
11. Pevsner, Nikolaus, *Northhamptonshire*, Harmondsworth: Penguin 1961, 66, quoted in Merriman, 86.

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