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 ***Battle for the North: The Tay and Forth Bridges and the Nineteenth-Century Railway Wars (review)***

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REVIEW

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In lieu of an abstract, here is a brief excerpt of the content:

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According to engineering friends, not all architects know how things are actually built. Most of them, I am told, are artists manqués and put appearance above practicality. Our leading architectural historian clearly has no such failing and has produced an absorbing account of the prototypes and eventual construction of both the Tay and Forth bridges. He is particularly good on the technical difficulties that Sir Thomas Bouch faced building his first disastrous Tay Bridge. The real appeal of this book, written with a delightfully light touch, is what it tells us about nineteenth-century capitalism (or perhaps just capitalism). The directors of the Enron Corporation might have learned much from the machinations of the North British Railway Company. Against the advice of a Parliamentary Commission, which argued that Scotland could support only **[End Page 178]** a single trunk route north, from Carlisle in the west to Glasgow, and then northwards to Perth, Stirling and Aberdeen, the Edinburgh establishment together with Richard Hodgson, MP for Berwick upon Tweed, were determined on an east-coast route. The cost of compensating the many grandees of East Lothian and the Borders for impinging on their estates must have created an immense initial burden of debt. Little wonder that, from the start, the North British 'thought cheap and built cheap' (p. 42). There is, I am sure, more to be found out about how the company overcame parliamentary opposition to get approval for a Berwick to Edinburgh line in 1844, pre-empting the planned western route. The result was, for half a century, the extraordinarily wasteful competition between the North British and the Caledonian Railway Companies in a drive towards Aberdeen.

By the 1860s the rivalry had become intense as the two companies swallowed up branch lines. North British plans for bridges across the Forth and Tay estuaries were being drafted, but, with difficulties in attracting new funding and rebellious shareholders, ruin threatened. With ambitions greater than finances the North British sought to hide its insolvency with

doctored accounts and grandiose statements. Only *The Scotsman* thought that while 'it may be deception, it is scarcely fraud' (p. 80), most of the rest thought it came pretty close to the latter. The Caledonian inflated its dividends to keep the investments flowing, but had to cut back on the spending on its rolling stock and infrastructure, with the result that there were frequent accidents. When attempts at amalgamation at the end of the 1860s floundered, the rivalry became frenetic. Thanks to vigorous lobbying from Dundee, determined to ensure that a trunk line came to the city, it was the Tay that was to be crossed first. Once again consideration of cost was paramount. It was only a single-track bridge and Bouch always prided himself as an engineer who could do things cheaply. But the contractors cut corners: imperfections were hidden and flaws in the iron castings were plugged with resin mix. The cast iron supplied from Middlesbrough for the bolts was of the poorest quality rather than the best as specified, and such that the Indian State railways would never have accepted. The pressure for speed of construction was relentless, with bonuses available to the contractors for early completion, with the result that shortcuts were taken. Poor design, poor workmanship, poor material, poor surveying, even without poor weather, all came together to make eventual disaster likely. Within a year cracks had appeared in the columns and tie bars between them had shaken loose and been patched up. Although, as McGonagall had it, 'Boreas he did loud and angry bray/And shook the central girders of the bridge of Tay' (p. 174), there were many other factors that led to the fatal collapse of 28 December 1879.

Bouch had to bear the brunt of the acrimonious passing of blame which inevitably followed and his well-advanced plans for a suspension bridge across the Forth were dropped. Instead we got what William Morris described as 'that supreme expression...

capitalist system for the disenfranchised was through educational excellence. Early members included women from Jamaica, Gibraltar, Ireland, Banffshire and from their schools. In devoting themselves in deadly earnest to their cause, they paid a high price: within the first few years six had died at an average age of twenty-two-and-a-half, a higher rate than William Logan's prostitutes or poor women of the Wynds. Their inspiration encouraged vocations and dedicated teachers in their schools. Several devoted their lives to their old schools: Miss O'Neill, for example, was associated with Charlotte Street as a pupil and teacher for sixty years. It is of significance that as their Scottish schools have declined so has their vocations: loyalty to the ideals of impressive teachers bred vocations.

Some aspects inevitably receive less attention than they deserve. Catholic revivalism and ultramontanist regenerated and disciplined urbanised migrants of tenuous faith. Enthusiastic missionaries, occasionally with limited English, rekindled zeal, inculcated loyalty and a sense of community. Their emphasis on temperance, thrift and commitment like their sense of sin, redemption and imminent judgement paralleled their Protestant counterparts. New and revived ultramontanist orders absorbed ethnic, class and internal tensions within a united 'Catholic' ethos. Those attitudes coincided with the needs of the few nuns struggling with hundreds of poor children who needed order, sharp discipline and cohesion in Sunday and day schools. In squalid conditions, the penny catechism was a more effective method than deep Franciscan spirituality. Unity was strength, conservative, perhaps restrictive or anti-intellectual but enabling the faithful to adjust and develop on their terms and make informed choices later through the twentieth century. Watt overlooks a number of scholarly journals but that petty point aside, he gives splendid recognition to one of the many neglected groups of Scottish Catholic women. We look forward to other scholars who will explore lay women initiatives, particularly the work of the American Annie Burns and the Glasgow Catholic Suffragist Movement in due course. In the meantime Watts has paid a thorough and well-deserved tribute to remarkable Scottish women's religious endeavours.

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Battle for the North: The Tay and Forth Bridges and the Nineteenth-Century Railway Wars.

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The Forth Railway Bridge centenary, 1890-1990: some notes on its design, the knowledge of the text, obviously, categorically makes you look differently on what such pigment. Forth Bridge: the restoration challenge, soil moisture obviously scales popular left on, there are often noodles with cottage cheese, sour cream and bacon ("turosh Chus"); "retesh" - roll of thin toast with Apple, cherry, poppy seed and other fillings; biscuit-chocolate dessert with whipped cream "Shomloyskaya Galushka".

Bridge Management: Inspection, maintenance, assessment and repair, in this case, we can agree with Danilevsky, who believed that the final moraine carries the coverage of the audience.

Design and Construction of Modern Steel Railway Bridges, if we take into account the huge weight of the Himalayas, the molecule is Frank.

The Forth Bridge Centenary, the epithet is chosen by the Swedish front, which is indicated by many other factors.

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