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In this interesting and readable book, Jo Guldi explores the origins and rise of the 'infrastructure state' (1) through an historical analysis of centralised road planning, investment and regulation in Britain. The book's chronological boundaries are fixed by the changing dimensions of state involvement in road-transport provision: in 1726, when the study begins, 'the state had no presence at all in the care of the roads' (p. 13); the story closes in 1848, 'when the British government abandoned its roads' (p. 4). Between these benchmarks, Guldi focuses on two periods of state-led road-building activity. The first period concerns state road building in Scotland in the second quarter of the 18th century, when British military surveyors pioneered new road-construction and labour-management techniques and the second comprises a renewed period of state enthusiasm for road building and regulation in the early decades of the 19th century, an era exemplified by the introduction of two new state roads that connected London with Edinburgh and Holyhead. Although methodology is not explicitly discussed, the book's substantive content is derived from an analysis of a broad range of 18th- and 19th-century printed sources. This brings to fore an interesting and diverse cast of engineers, economists, social commentators, and politicians, including John Metcalf, John Loudon Macadam, Thomas Telford, Daniel Defoe, Adam Smith, and Thomas Babington Macaulay.

This is a short book, with four substantive chapters, bookended by an introduction and conclusion. The first two chapters outline the two key phases of state road building that lie at the heart of Guldi's argument that Britain's infrastructure state led road building in this key phase of economic and political expansion. The first phase took place in Scotland, mainly between the mid-1720s and the mid-1740s, when the state began to police more systematically the Scottish clans who had threatened to install Charles Edward Stuart as a rival sovereign. The need for surveillance at the peripheries of empire led to the building of 250 miles of new roads in Scotland between 1726 and 1737 - by the early 19th century, 900 miles of military roads had been built and were maintained by the British state in Scotland - the first large-scale, state road-building programme in Britain. The innovation here was not just in state activity beyond its previous remit but also in its pioneering of new road-building techniques: 'Modern road construction emerged in the military laboratory of Scotland between 1726 and 1773 as a craft known to soldiers and surveyors' (p. 27). Although the impact of the military roads was at first felt only in the peripheries of Scotland, Guldi argues that new methods of road construction spread from Scotland to every parish in the island through the 'slow trickle of imitation and publication' (p. 41). New techniques in sighting, surveying, cartography, and labour organisation were disseminated through widely-read construction manuals, with the well-known figure of John Metcalf singled out as being mainly responsible for the diffusion of the best-practice Scottish techniques. He was responsible for the building of 180 miles of roads from 1765-92 and his method of laying foundations, learned in Scotland, had become standard in England by the second half of the 18th century.

The second phase of state road-building activity began in the early 19th century. After 1803, Parliament deployed military road techniques in an attempt to connect the colonial capitals of London, Edinburgh and Dublin. The focus is on two new inter-kingdom highways: one from London to Holyhead (to connect to Dublin ferries) and the other from London to Edinburgh, built by engineers appointed by Parliament and financed by tolls supervised by Parliament. This phase of state-supervised road building, Guldi advises, produced the modern craft of professional civil engineering, a development that owed less to the invention of new methods of construction than to a focus on political lobbying and on the better presentation, specification, and quantification of existing techniques. This was the era of Telford and Macadam, who rose to the fore by engaging with a network of mainly Scottish, Irish and Welsh MPs, who had come to understand that centralised roads were needed to connect their constituencies in the imperial periphery with London and the centre of the four kingdoms.

Chapter three turns attention to the emerging critique of centralisation that followed in the wake of increased state control over roads in the early 19th century. Such critiques were framed at the local level and expressed concern that national roads had propagated interestedness and corruption, that standardisation had come at the expense of sensitivity to local conditions, and that national government had proved less accountable than its local equivalent. Often this rejection of centralisation and standardisation was expressed in terms of the protection of ancient British rights. In the end, localists prevailed. Every project for centrally managed roads in Britain was defeated from the 1830s to the turn of the 20th century; local power in legislation was reaffirmed. Guldi interprets these 'libertarian' victories as 'a rout for rural communities and the poor' (p. 200). The fourth chapter brings in a shift in emphasis, moving from a consideration of road management to one of road use. Unlike most studies of British roads in the 18th and 19th centuries, this analysis does not focus on the movement of freight by packhorses and carriers' waggon but on the 'everyday' foot and passenger traffic on Britain's roads. These most intrepid road users travelled on foot and included excisemen and soldiers recruited by the fiscal-military state, Methodist preachers who adopted their travel methods, and workers looking for seasonal employment. All were subject to the attendant dangers of violence, robbery, and sexual assault that remained characteristic aspects of foot travel by British roads in the 18th and 19th centuries. Middle-class travellers, in contrast, were protected in their horse-drawn carriages, enjoying the unprecedented speeds and greater comforts of road travel in this period. These travellers, by the early 19th century, had become increased 'sheathed' (p. 178) in a world of guidebooks, stagecoach inns, and timetables that limited contact with strangers and promoted middle-class values of separation and privacy. Guldi thus argues that the infrastructure conceived to connect regions with their peripheries and to unite communities also acted to divide peoples: expert engineers ignored local concerns; middle-class travellers were increasingly distant from those travelling by foot.

Transport historians, especially those writing from recent mobility perspectives, will welcome the focus on social and cultural dimensions of travel, aspects of transport history that have long been neglected. More than this, historiographically, the book sets a challenging agenda for interpreting this key transitional period in British history; Guldi's account restores the state to the centre of the story. Existing studies of the emergence of modern bureaucracy in Britain trace its origins to the social movements for sanitation and policing in the 1830s and 1840s, representing the first decades of the 19th century as a period of cheap government. Guldi, in contrast, argues that the process of state road building in the 1810s and 1820s had already developed the hallmark features of 19th-century nation states: the state collection of information; the centralised standardisation of local practice; the geographic redistribution of expenditure; and the creation of an expert bureaucracy. If accepted, Guldi's revisions would require a significant re-think of the periodization of the rise of the modern state and its bureaucracy. One note of concern here is that Guldi is more convincing when identifying qualitatively important trends in state behaviour than on establishing how quantitatively significant these interventions might have been. She states that 'Building the roads had involved Parliament in unprecedented spending' (p. 3) but does not explicitly address the issue of how large these sums were in relation to other branches of state expenditure. It may have also been helpful to provide a fuller discussion of how the contours of party politics influenced the emergence of new modes of government activity and why state interest in roads declined at precisely the point (1830s and 1840s) when its investment in policing and urban regulation decisively increased.

Guldi's central argument also has important implications for our understanding of the economic history of this period, specifically on the causes and character of the world's first industrial revolution (and the role of transport within this). Guldi characterises the economic historians' view of this period - David Landes and Joel Mokyr are named in the text - as one where 'an absence of government allowed the industrial revolution to happen' (p. 16). This is something of a caricatured impression of the historiography and the specifics of relations between state and economy remain subjects of keen debate.⁽²⁾ Transport historians have also discussed the role of the state in promoting transport investment. This literature has shown that, after the Glorious Revolution, Parliament provided local interests with an efficient mechanism for obtaining, protecting and regulating property rights through acts of parliament. Direct state expenditure, it is argued, was minimal but it did play a key role in the transport revolution by providing a relatively safe means for individuals and local groups to increase their own investments in transport infrastructure.⁽³⁾ Guldi's interpretation is strikingly different. She states that 'the construction and finance of the transport revolution were set in gear by government funding, made possible by the emergence of a state bureaucracy far earlier than historians have hitherto understood' (pp. 28-9) and even that '[t]he story of how the state drove the transport revolution refutes the myth that Britain rode to

prosperity in the absence of government' (p. 29). This argument is built, in part, on the detailed new analysis she provides of the two periods of direct state involvement in road construction described above. How important were these state investments? From Guldi's own evidence (pp. 81, 120), it is clear that state roads were much less extensive than those built and maintained by parishes or turnpike trusts. Thus, in the period 1803-36, at a time when Guldi asserts that 'Parliament had become the builder of highways' (p. 120), the state had introduced just 1,700 miles of British road. This was equivalent to just 10 per cent of the 17,000 miles of turnpike roads and less than two per cent of Britain's total road mileage of 100,000 miles in the 1830s. Transport historians may find these numbers too low to overturn the standard view that 'the direct role of the State in the development of the eighteenth century turnpike road system, as in other spheres of economic activity, was minimal'.(4) Guldi's case, nevertheless, rests less on the scale of state road building than on the state's role in pioneering new techniques. In this respect, it is the wide diffusion of new techniques established in the construction of the Scottish military roads - very ably described in chapter one - from the mid-18th century that is crucial. Guldi, indeed, goes so far as to describe the turnpike boom of 1740-70, the most critical period of private-road expansion, as 'resulting' (p. 81) from the development of new techniques in Scotland. Was the turnpike boom mainly stimulated by availability of new construction methods? This view would not command wide support in existing literature. Transport historians working on the 18th century have identified a pattern of transport investment governed by 'development by shortage', where transport investment occurred when congestion arose with transport improvements designed to expedite existing traffic flows rather in response to new technological opportunities. Freeman summarises this view as follows: 'turnpikes were established in response to rising traffic levels so that the density pattern is reflective of the geography of economic growth up to 1770'.(5) New turnpike (and parish) road improvement schemes may have benefitted from new technology but there is not as yet enough evidence to support the view that the massive expansion of road building in the mid-18th century was occasioned by the availability of new state-sponsored technologies. Until this evidence is provided, the importance of technological transfers from Scottish military roads must remain a subject for debate. Guldi does offer an interesting account (pp. 36-42) of the dissemination of new techniques via instruction manuals but most of these relate to the period after 1770 when British road building had slowed mainly as a response to declining domestic economic fortunes during and following the American Revolution.

Recent work on transport history has emphasised the importance of the inter-modality of transport provision and the means by which different transport modes could offer complementary, as well as competing, services for passengers and freight. This book is disappointingly silent on these issues. When the relationships between roads and other modes of transport are mentioned, they usually take the form of noting technological transfers from roads to other modes (pp. 42-3). One area

that would have particularly benefitted from more detailed analysis is the relationship between roads and railways in the 1830s. This is potentially significant as it may be the case that one of the reasons the state decisively changed in policy towards roads in this period was due to the potential of railways to provide a significant transport alternative to roads.

This is a skilfully written and provocative book. Its greatest strengths lie in its in-depth coverage of two previously underexplored areas of state-led road expansion, including a meticulous analysis of new construction technologies, and in its exploration of the (sometimes unexpected) impact that new infrastructure could have on the users of roads and the communities served by them. Its wider arguments, if accepted, will prompt a significant re-conceptualisation of 18th- and 19th-century British political and economic history.

Notes

1. Guldi defines an infrastructure state as one where 'governments regularly design the flow of bodies, information, and goods', p. 4.
2. See for example, D. C. North and B. R. Weingast, 'Constitutions and commitment: The evolution of institutions governing public choice in seventeenth-century England', *Journal of Economic History*, XLIX (1989), 803-32; G. Clark, 'The political foundations of modern economic growth: England, 1540-1800', *Journal of Interdisciplinary History*, XXVI (1996), 563-88; N. Zahedieh, 'Regulation, rent-seeking and the Glorious Revolution in the English-Atlantic economy', *Economic History Review*, 63, 4 (2010), 865-90.
3. See, for example, W. Albert, *The Turnpike Road System of England, 1663-1840* (Cambridge, 1972), 12-13, 24-5; E. Pawson, *Transport and Economy: The Turnpike Roads of Eighteenth Century Britain* (London, 1977), 72-6, 161-3; D. Bogart, 'Did the Glorious Revolution contribute to the transport revolution? Evidence from investment in roads and rivers', *Economic History Review*, 64, 4 (2011), 1073-1112.
4. E. Pawson, *Transport and Economy*, p. 161. Pawson notes the exceptions of the Scottish military roads and the roads to Holyhead and Edinburgh.
5. Albert, *Turnpike Road System*; Pawson, *Transport and Economy*; M. J. Freeman, 'Transport', in *Atlas of industrializing Britain 1780-1914*, J. Langton and R. J. Morris (London, 1986), p. 80.