

Review

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their marginal product given what happens to coaches.

The book can serve very well as a text for an advanced class in sports economics, a supplementary text for a course in industrial organization, a professional research monograph, or just a high utility pure consumption good.

Finally, I would like to point out what the reader of this book will instantly realize; that this is a work of love which combines meticulous attention to rigor with infinite caring for the subject. It will endure.

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N Economic History

Forging industrial policy: The United States, Britain, and France in the railway age. By FRANK DOBBIN. Cambridge; New York and Melbourne: Cambridge University Press, 1994. Pp. xii, 262. \$39.95. ISBN 0-521-45121-3. JEL 94-1653

Politics and industrialization: Early railroads in the United States and Prussia. By COLLEEN A. DUNLAVY. Princeton Studies in American Politics: Historical, International, and Comparative Perspectives. Princeton Studies in Business and Technology. Princeton: Princeton University Press, 1994. Pp. xiv, 303. \$39.50. ISBN 0-691-04769-3. JEL 94-1655

In these books, two talented young scholars undertake ambitious comparative studies of nineteenth century railroad policies. Neither of the authors is an economist, but both have developed excellent research designs and have produced sophisticated books that merit the attention of economists.

Frank Dobbin, a sociologist, asks how nineteenth century business and government policy makers in three countries addressed four problems associated with railroads: planning, finance, technological and managerial coordination, and pricing and competition. By "planning," Dobbin means route layout and issues of eminent domain and compensation. He finds that "state planning was literally never considered in Britain," while "private

planning was never considered in France" (p. 6). In the United States, the controlling principle was community self-determination, and private decision making predominated. But units of government influenced routes because they financed about a third of American railroad investment in the period before 1850. In France, the central government spent millions of francs underwriting the expense of tracks and roadbeds, but left operations to private companies. In Britain, government had almost no direct role in railroad finance.

Similar contrasts appear in Dobbin's third category, technological and managerial coordination. British businessmen introduced the 4' 8½" "English gauge," forever saddling many railroads all over the world with tracks too narrow for the heavy loads of the future. In other ways, however, British engineers and managers built for the ages, with liberal use of stone and iron. Through private associations, they coordinated schedules and standardized employment practices. Meanwhile, the government followed a hands-off policy for almost everything except safety. In France, by contrast, nearly all decisions involving technology and coordination were made by state engineers. The Americans, short of cash and always in a hurry, often built bridges of wood, and in the early days used wood even for tracks, onto which they nailed iron strips. Public and private regimes in different states produced competing regulations and varying track gauges that sometimes made through shipments impossible. Before the 1887 legislation creating the Interstate Commerce Commission, there was almost no federal role except for land grants, which ended in 1872.

Rate structures and competition also followed different national patterns. In Britain, price and merger policies were left largely to the private sector. Rates in France were essentially dictated by the government to the six companies awarded regional monopolies. In the United States, price and competition policies wound their way through deliberations by evanescent private cartels on the one hand and state and federal legislatures, courts, and commissions on the other. In the end, the dictates of the market governed

American policy toward rates and competition.

Thus, Dobbin asserts, an overall national pattern emerges for each country. Because British policy makers defined the public interest as the protection of entrepreneurs and the maximization of the number of firms, price competition was muted and the system was not rationalized through mergers. In France, the public interest was defined by state technocrats, who rejected the idea that unfettered market forces could produce an overall result good for the nation. Only in the United States did both private behavior and public policy encourage price competition and mergers. The Americans alone were prepared to go wherever the market took them.

By way of conclusion, Dobbin argues that academic models of neoclassicism in economics and realism in political science are modernist conceits, socially constructed. He finds that the industrial organization of every country reflects and results from its political order. Such sweeping assertions go well beyond his evidentiary base, as he acknowledges. But his arguments are provocative, and one has to admire a young scholar with the fortitude to undertake informed speculation and inference.

Colleen Dunlavy, a historian and political scientist, is very much more careful in her study of Prussian and American railroad policy in the 1830s and 1840s. Her book is an effective engagement of a boldly chosen topic, and she has done exemplary research in both American and German archival sources. She begins by saying that an "invisible paradigm" (p. 45) would lead us to imagine that the powerful Prussian state followed an interventionist policy, while the more liberal American regime remained *laissez faire* in its approach. But in fact the exact opposite turns out to have been true. Dunlavy argues that the disparate approaches of Prussia and the United States arose from "the distinctive patterns of policy-making that the two political structures engendered in a capitalist context" (p. 42). The federal system in the United States encouraged mercantilist rivalry among states and even cities for the prize of trade with the trans-Appalachian West. States opened their coffers in order to promote ad-

vantageous railroad routes. By contrast, the Prussian government could not encourage railroad development directly because to raise the necessary funds it would have had to convene a parliament to increase taxes, and that assembly might have led to the kind of political liberalization the monarchy dreaded. Until 1848, the Prussians therefore "chose to rely on private capital to build the railroads, a decision that forced them to moderate regulatory demands" (p. 43).

Railroad men in Prussia, dealing with a unitary state, were able quite early to form effective private associations that promoted interfirm cooperation on such matters as standard gauges, interconnections, rates and fares, and even methods of construction. In America, associational activity burgeoned, but the multiplicity of jurisdictions and the separation of powers among branches of government made it difficult for private groups to secure credible commitments. Even the mixed pattern of American construction, with some roads built solidly and others shoddily, derived not only from a shortage of capital but also from the heterogeneity of jurisdictions and the participation of state and city governments in financing. Whereas Prussian engineers agreed almost to a person that roads should be durably constructed, American engineers took a variety of approaches even though many of them had been trained at the same place (West Point).

"Thus," Dunlavy concludes, "from state policies through interest associations to the technology itself, these two contrasting political structures pushed early railroad development in divergent directions" (pp. 43–44). Even more strikingly, the requirements of each system later influenced the evolution of each country's political system. In Prussia, capital requirements to deal with railroads ultimately forced the convening of a new parliament, with resulting political liberalization and, ironically, nationalization of most of the Prussian rail system. In the United States, the railroads' economic power and sprawling reach compelled a centralization of policy making and thus hastened the birth of the modern federal government.

Dunlavy gives us a meticulously layered argument buttressed with ample primary evi-

dence and full reference to the large theoretical literature that underlies her discussion. She also includes a wealth of empirical data: systematic numbers on density of construction, track mileages, construction costs per kilometer, comparative rates. She is especially good in relating technology to cost, as for example in a chart (p. 211) plotting the average speed of passenger trains in the two countries (fast in Prussia, slow in America) against expenditures on construction (high in Prussia, low in America).

What, in the end, can economists learn from these two books? Basically, that the house of capitalism contains many mansions, that there are multiple avenues to effective economic development, and that arguments rooted in economic and technological determinism should be viewed with skepticism. These are valuable lessons, convincingly delivered. Yet the two authors themselves skirt the edges of other determinisms, political in the case of Dunlavy, cultural in the case of Dobbin. So both could use a dose of the same tonic they so effectively prescribe.

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The word and the sword: How techniques of information and violence have shaped our world. By LEONARD M. DUDLEY. *Studies in Social Discontinuity*. Cambridge, Mass. and Oxford: Blackwell, 1991. Pp. ix, 356. \$34.95. ISBN 1-55786-246-X. JEL 95-0264

This is a study of how innovations in communication and war have influenced political units—states—and the relations of power between and within them. It draws cases from the full sweep of recorded human history, from Sumer (3500–3000 BC) to the decline of superpowers in our own time. Although the author may claim too much, he has given us a fascinating and provocative exercise in macrohistory.

The first question is why a book in which human capital matters only to the tax collector and steam traction only to the general staff should be of sufficient interest to economists and economic historians to earn scarce space in these pages. Jonathan Dudley is an economist, and it is as an economist that he approaches the subject. Indeed, I am not sure

that others, made skeptical at the outset by the ambitious sweep of the work, will be terribly receptive to an argument that economists should find it at least ingenious and intriguing. Unfortunately, not all of us will be comfortable or concerned with the historical knots through which Dudley proposes to slice with his economist's sword. It would be a shame if the book thus fails to find its audience.

Dudley defines a state in terms of two functions: taxation and the organized, legitimate use of force. The two are closely connected, because taxes finance armies, which in turn control the territory from which taxes are levied. The key to how states will evolve lies in the technologies of communication and of warfare, specifically in their returns to scale. Greater scale economies increase the optimal size of the political unit, on the internal margin (taxing capacity) if they improve communication, on the external (territorial) margin if they give an edge in warfare to the big battalions. The case studies deal with writing, printing, mass media, and the microchip in the first category (all but the last scale-promoting), and metal armor, heavy cavalry, artillery, and rail transport in the second. Only heavy cavalry worked against large armies, leading to the demise of the Roman empire in the West and the end of universal hegemony as a realistic aim. The cases are adduced in support of the thesis; they are also asserted to be more important in influencing political fortunes than other possible examples, such as naval advances or the alphabet (or the decimal point, for that matter).

One chapter of narration is devoted to each case, with quite a wealth of detail. Specialists will have to decide whether the discussion does justice to the historiography, but the accounts are readable and well argued. A final chapter pulls the argument together and extends it. This discussion is if anything more ambitious than what precedes. The innovations are classified both in terms of scale effects (as before), and according to whether they favor the private or the public sector. Interestingly, among the numerically dominant scale-promoting innovations, the advances in communication shift resources to the public sector, because they enhance the