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THE ROCK ISLAND LINE JE POZORUHODNE PEKNOU TRATŤOU

THE ROCK ISLAND LINE IS A MIGHTY FINE LINE

Výskum informačných a komunikačných technológií má tendenciu byť ovládaný perspektívami technologického determinizmu a teóriami sociálneho formovania. Bola vyvinutá teória sietí založená na požiadavkách účastníkov, ako alternatívny prístup pre pochopenie a interpretáciu sociálno-technických zmien. Bola použitá pri veľkom množstve technológií a zvykla sa používať na preskúvanie, ako technológia konštruje a je konštruovaná rozličnými tretími nezúčastnenými skupinami a ako spoločnosti podporujú svoje záujmy publikovaním textov a riadiace orgány „zmocnením sa kontroly“ nad technologickým pokrokom (Bowker, 1992). Tento článok využíva účastnícko-sieťovú teóriu, aby sa preskúmalo, ako sa vplyvní činitelia v procese sociálnej zmeny pokúšajú stabilizovať sily vo svoj vlastný prospech. Spôsobom analógie s rapidným vývojom globálnej komunikačnej infraštruktúry pre káblové, telefónne, PC, TV služby a podobne, sa článok zameriava na najvýznamnejší vývoj komunikačnej infraštruktúry počas 19. storočia - železnice, a to hlavne na úlohu tejto technológie v otvorení amerického západu.

Research into information and communication technologies tends to be dominated by the perspectives of technological determinism and theories of social shaping. Actor-network theory has emerged as an alternative approach for understanding and interpreting sociotechnical change. It has been applied to a wide variety of technologies and been used to explore how technology both constructs and is constructed by different stakeholder groups and how companies promote their interests through published texts and the courts to “seize control” of technological developments (Bowker, 1992). This article borrows from actor-network theory in order to explore how influential actors in the process of social change attempt to stabilise forces to their own advantage. By way of analogy with the rapid development of a global communication infrastructure for cable, telephone, PC, TV services etc., the article focuses on the most significant development in the communication infrastructure during the nineteenth century - railways, and in particular on the role of this technology in the opening up of the American West.

Actor-network theory (ANT) rejects the deterministic notion that technology is the cause of social change. It prefers instead a view that sees “technology, the social world, and the course of history as rather messy contingencies”. (Bijker & Law, 1992, p. 8) Technological development needs to be understood in the context of developing patterns or networks of a complex set of heterogeneous elements, which conventionally we conceive of as separate, such as the technical, the social and the “natural”. From this standpoint, a question that might be asked is how it happens that technologies are able to achieve some kind of stability at particular times and “why it is that they take the form they do, rather than some other shape”. (Bijker and Law, 1992, p.8)

Recent work into the development of the cable industry in Scotland has used actor-network theory in order to identify critical events that have influenced the construction of the UK market for Household Information Systems (Somerville, 1997). Such an approach recognises a range of stakeholders and actors (e.g. companies, government departments, published texts such as annual reports, social groups, consumer organisations, stock dealings, standardisation bodies, regulators, on-line systems and software). A crucial objective of this study has been to show how various actors attempt to create stability amidst turbulence and uncertainty.

I propose to tell a narrative about a parallel communication and information network that emerged in the last century - the railway. More specifically, I would like to offer some thoughts on how it ever came to pass in the United States that that there developed such a configuration of rail tracks as could be conceived of as a “system”. From a deterministic perspective, the railroads were part of an inevitable process that would “develop” and “civilise” the American hinterland and establish coherence and order across the United States from East to West. According to this version of history a communication network would unfold as if with a pre-programmed utilitarian purpose. See, for example, Smith and Marx’s discussion (1994, pp. 9-11) of how the railroads were represented as part of an iconography of progress. Thus, it would appear that technology was bound up intrinsically with manifest destiny and had the power to tame deserts and wildernesses and to convert savages: “wherever the iron horse travels, he will carry, not only the rich production of our soil, but our laws, our liberty, and our religion”. (Meinig, 1993, p. 348) From another point of view, the nineteenth century texts that aggrandised the numerous railroad projects with their rhetoric of progress, expansionism, prosperity and advance of the nation were another element of a complex set of actor-network relationships. Through their propaganda, their advertising, their descriptions in the press and the speeches made about them, the railroads came to be what they

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were. In other words, they were constructed by the hacks, the PR men and scribblers hired by railroad companies and newspapers as much as by the navvies who physically laid the tracks.

Before pursuing this, though, something more might be said to justify the claim that railroad history offers an insightful analogy for thinking about contemporary developments in communication and information technologies. "The pace of change", "globalisation", "space/time compression" - all are part of the rhetoric used to describe contemporary life and warn of a future in which information technologies will revolutionise society beyond recognition. It is a happy coincidence that at the time of writing BBC Radio 4 is running a serial about the impact of the telegraph in the nineteenth century, entitled "The Victorian Internet". A salutary lesson to be learnt is that there is nothing especially original about many of the afflictions that we ascribe to current use of the internet. When the telegraph was introduced into the USA there were problems of access, ownership and monopoly, security, and conflicts between the needs of business and domestic consumers (Duboff, 1983). The telegraph opened up new possibilities for espionage and warfare; so significant was it in the field of journalism that it inspired newspaper titles. There were online romances and there is even a record of an online marriage in 1876 (Standage, 1999).

In the mid-nineteenth century the interdependent industries of the telegraph, railroads and the press provided the infrastructure needed for the emergence of major corporations and the development of revolutionary new managerial systems (Duboff, 1982). In their own era they were implicated in change on a scale that was unimaginable only a few decades earlier. With news able to travel in seconds rather than weeks there was a form of globalisation and space/time compression, or "annihilation of space by time", as Marx called it (Marx, 1858, p.524). Standage (1999) describes the process whereby we imagine that our own generation is "poised on the very cusp of history" as "chronocentricity": "today we are repeatedly told that we are in the midst of a communications revolution but... if any generation has the right to claim that it bore the full bewildering, world-shrinking brunt of such a revolution, it is not us - it is our nineteenth-century forebears (pp. 199-200).

Actor-network theory would contend that there is no grand narrative by which the history of the US railroads can be told: "ANT cannot be told. Cannot be told as a single narrative. As an overall story about the growth of a centred network with its successes and reverses. And instead imagine that it can only - and best - be represented as a set of little stories, stories that are held together (if they are) by ambivalences and oscillations" (Law, 1997, p. 12). So there are numerous potential plots, themes, characters and materials that can be interwoven. There are visionaries and manipulators, entrepreneurs and robber barons, publicity campaigns and grand rhetoric, newspapers of mass communication and telegraph wires, politicians and lobbyists, stock-market dealings and dealers, legal adversaries, imported labourers, steel, coal, inhospitable landscapes, geographical and geological obstacles and so on. Meinig (1993) describes railroads as, "a machine

ensemble in which roadway and vehicle were technically conjoined; a new geographic phenomenon. Learning to handle such things under the pressure of investors and competitors was intensive practice for a truly national - continental - scale of life in the modern world" (p. 347). The second sentence here implies a level at which technical objects and humans were "conjoined".

With the advantage of hindsight we can attempt to make sense out of transportation history, construct cause and effect relationships and say confidently that it was inevitable that the technology of the railroad would supersede that of the waterways. It was not, though, a simple matter of one technological system replacing another. Sometimes railroads were integrated with waterways; at other times they were intended to provide a faster and rival method of transportation (Meinig 1993). On occasions the army assisted private companies with surveying and track laying but such partnerships were fairly random and certainly not part of any coherent or centralised plan (Meinig, 1993, p. 235). When the first railroads were built, during the 1830s, around the Eastern seaport towns, it was still the era of the steamboat. It was not until about 1845 that the railroads began to look like they would emerge as a superior form of overland transportation. Even then, though, it would seem that the demise of water transportation was exacerbated by a period of drought (Meinig, 1993, p. 337). Rapid as the development was at this time, the most significant growth occurred in later decades with the emergence of some kind of infrastructure in the hinterland regions. By 1860, 30,626 miles of track had been laid. This increased to 52,922 by 1870 and to 93,267 by 1880 (Meinig, 1993). A key feature of the early period was the relative restriction of building to coastal regions and a separation between north and south created by the absence of bridging across the Potomac and Ohio rivers at Washington, Cincinnati, Louisville and Cairo, as well as the fact that there was no single company operating across this geographical boundary.

Three stages of development can be traced: firstly, railroads that developed supplementary to water transport; secondly, networks that developed between East Coast cities and established ports; thirdly, a general movement westwards towards the Appalachians. The westward routes rapidly developed their own momentum driven by "the relentless need to extend further so as to capture western produce before it ever reached a river landing or before it was diverted by a competitive rail line to a river port" (Meinig, 1993, p. 326). However, this was not a case of technology being exploited in any planned or coherent way. Individual states had their own aspirations and promoted specific projects and disrupted others. Thus, they were significant actors who attempted to "shape a network to serve their own interests" (Meinig, 1993, p. 338) but, at the same time, there were federal plans for a centralised system, driven to some extent by military aspirations. Burrell (1997), citing Hoskin and MacVe (1986), explains how "the US railway system in the nineteenth century acted as a transmitter of West Point's military forms of thinking into the very heart of the USA" (Burrell, 1997, p. 31). However, centralisation was never likely to win support in a new country where forces militated against the idea of any single metropolis being at the centre of a network. "In France all roads radiated

from Paris; in the United States there was a determined effort to not have them radiate from Washington" (Meinig, 1993, p. 350). The most powerful shapers of a network were not government or military planners but rather the "metropolitan capitalists who had access to the best information, credit sources, mercantile and manufacturing connections, and engineers - as well as political influence" (p. 338).

The pattern of railroad development, then, reflects the particular circumstances of North America so that if there ever was a "system" as such, it was quite different from that in Great Britain. In actor-network terms, the technology itself "starts to play different roles - but also to imply different roles for the actors round about it" (Law, 1997). Moving westwards there was an apparently unlimited potential for expansion but it was not the case, as it was elsewhere, of providing an updated communication infrastructure for some pre-existing order of settlement; the settlements themselves had to be constructed and were a *sine qua non* for westward development: "the overall pattern of early railroad building in the West was rather a muddle, in part because of narrow interstate programs and in part because so much of the region was still in such a malleable formative stage that there were few obvious points upon which to anchor larger strategies" (Meinig, 1993, pp 326-7).

Even by 1860 westward routes came to a halt at, or just beyond the Mississippi. The significant lines at this time cut a swathe from the north east, extending into Canada, down to the area of the Great Lakes, linking up Boston, New York, Philadelphia, Baltimore, Cincinnati, St Louis, Chicago, Detroit and Buffalo. To the south there were more fragmented links around the coastal towns of Richmond down to Wilmington, Charleston, Savannah and extending westward to Atlanta, Chatanooga, Memphis, Vicksburg and New Orleans. This was a "patchwork" of lines rather than a system or network and there were crucial obstacles that stood in the way of integration: "the many companies, patchwork of construction, different gauges, and lack of bridges across major rivers and even of connections within major cities greatly affected the movement of passengers and freight" (Meinig, 1993, p. 328). At this point, I would like to isolate one of these obstacles or actors - water - and consider its role in the actor-network relationship.

In 1856, the Chicago and Rock Island Railroad (C.R.I.) constructed a bridge across the Mississippi at Rock Island. This was important, strategically, for two main reasons. Firstly, it overcame a significant obstacle that stood in the way of a much more ambitious project - the creation of a northern transcontinental link to the Pacific (for which there would be generous financial rewards from government and by this time a few key players, from north and south, were jostling for advantage in the race to the Pacific). Secondly, it undermined the economic power of the South further by diverting transported goods away from a river route down the Mississippi to a new West-East railroad system, which would increase the power of Chicago and the Eastern seaports. Such a fundamental challenge to the interests of people whose livelihoods depended on water transportation was not to go unchallenged and

the Rock Island Bridge project was a crucial site of struggle between key actors whose interests were interwoven in the struggle for power between North and South.

The C.R.I. chose Rock Island as a crossing point because the island in the middle of the river - Rock Island - made the task of building a bridge across to Davenport, on the west bank, significantly easier and cheaper. A problem for the C.R.I. was how to justify such an ambitious project if it appeared merely to link up two towns whose commercial interests were tied up in river transportation. The solution was to locate the project within a grander scenario, which could be shown to override parochial interests and serve the "national interest". The town of Council Bluffs, further west on the river Missouri, was rapidly developed so that the bridge building project could be presented as a way of linking up with this new and "vital" town (Brown, 1977). This enabled the aspirations of the C.R.I. to be located within a wider discourse of western development and expansion in the national interest. Such capital intensive projects requiring the construction of settlements and shifting of populations were, of course, highly risky.

The bridge became a kind of test case in a power struggle between a complicated nexus of actors and the struggle itself was enacted partly through a series of court cases, which located the struggle between economic adversaries within a legal discourse, in which the conflicts would be framed in terms of justice and democratic rights. While it was still in its planning stage, steamboat owners from St Louis objected that the bridge was "unconstitutional, an obstruction to navigation, dangerous, and it was the duty of every western state, river city, and town to take immediate action to prevent the erection of such a structure" (Brown, 1977, p. 7). Such objections from Southern interests firmed up as soon as actual building started in 1854. At this time the Secretary of War was Jefferson Davis, soon to become President of the seceding Confederate States during the Civil War and a powerful broker on behalf of Southern interests. He ruled that Rock Island could not be a legitimate crossing point because of its former use as a military reservation. This move was rapidly followed by a federal injunction, taken out by the steamboat interests, which charged the bridge builders with trespass, destruction of government property and obstruction of steamboat navigation (Brown, 1977). In July of 1855 the judge ruled in favour of the Railroad Bridge Company (an offshoot of the C.R.I.). This set an important precedent for it was now officially declared and recorded that "railroads had become highways in something the same sense as rivers; neither could be suffered to become a permanent obstruction to the other, but each must yield something to the other according to the demands of the public convenience and necessities of commerce" (Zobrist, 1965, p.164). In legal terms, then, railroads were now on an equal footing with the rival technology that they were rapidly undermining and they had "translated" a key part of the state apparatus to reflect their interests.

When the bridge was completed in 1856 the Philadelphia Bulletin reflected a sense of Eastern triumph in its editorial: "now that civilisation has got safely over the Mississippi by steam, we

see no reason why we may not live to see her take a first class ticket in a lightning train for the shores of the Pacific“ (Brown, 1997, p.9). However, the East-West axis was not going to be developed uncontested. On May 6th 1856, just a few days after the bridge had been opened, a packet boat named the Effie Afton, which was steaming well away from its usual route between New Orleans and Louisville, collided with the bridge and set it on fire. This calamity was much appreciated by local river transporters, some of whom had already prepared a banner in advance for just such an eventuality, which read: “Mississippi bridge destroyed. Let all rejoice“ (Brown, 1977, p.9). The rivermen pressed home their advantage and were strongly supported by the St Louis Chamber of Commerce, which resolved to “assist vigorously in the prosecution of the case against the bridge company“ (Beveridge, 1928, p. 599). The front man for the Southern interests was the owner of the Effie Afton who sued the bridge company for damages, claiming that the bridge structure was an impediment to safe river transport. The bridge company hired Abraham Lincoln as their defence lawyer. Thus, the bridge fiasco intensified as a legal battle and embroiled on opposite sides two men, Abraham Lincoln and Jefferson Davis, who would play out the North-South struggle on a national and devastating scale five years later in military combat.

While the battle was being fought in the courts, the conflict was extended to the public domain by the newspapers of Chicago and St Louis (just at the time when newspapers were exploiting the new parallel technologies of telegraph and railroad to develop their own business interests). The Chicago papers accused St Louis of being the real plaintiff in the case, while making their own allegiances clear: “facts...do not warrant the incessant clamour kept up by those who insist that the magnificent structure shall be torn down...We trust that...the outcries of the St Louis and river press may be silenced (Chicago Tribune editorial, April 17, 1857, cited in Beveridge, 1928, p. 599). Meanwhile the St Louis papers made their own case: “The Railroad Bridge at Rock Island is an intolerable nuisance...It is utterly impossible for any man not an idiot to note the disasters at Rock Island and honestly ascribe them to any other cause than the huge obstruction to navigation which the Bridge Company have built there and insist shall remain, even though lives by the score and property by the million are destroyed every year...We have rarely seen such illustration of supercilious insolence, as have been presented by the bridge“ (Beveridge, 1928, p. 600).

Lincoln’s defence was built around two arguments, offering simultaneously a micro and a macro perspective on the incident. Firstly, he invoked the by now familiar discourse of manifest destiny in an attempt to persuade the jury that the expansion of railroads, and the crossing of rivers, was bound up with inevitable progress: “there is a travel from east to west whose demands are not less than that of those of the river. It is growing larger and larger, building up new countries with a rapidity never before seen in the history of the world. This current of travel has its rights as well as that of north and south“ (Starr, 1927, p. 108). Secondly, he scrutinised the internal “facts of the case“ with vigorous detail and produced empirical evidence, based on observations and

measurements of the river currents, to prove that the Effie Afton’s starboard wheel was not operating at the time of the accident: “the latter (Lincoln) was devoted to complicated matters: the river currents, their velocity, the position of the piers, engineering problems of river navigation, and the like, all being handled with mathematical precision“ (Starr, 1927, p.107). Thus, the jury was asked to reach a verdict on the basis of detailed evidence, as though there were no wider economic and political agenda and yet, ironically, that agenda is implied through references to the rights of “currents of travel“ made as a backdrop to the whole case.

When the jury failed to reach a verdict the moral victory was with the railroad, though there were a few more skirmishes to come. Now effectively in retreat, the Southerners attempted to rally by pressing, in 1858, for a congressional law forbidding bridges over navigable rivers. Although this failed, they won a pyrrhic victory later that year when a judge in an Iowa court declared the bridge to be “a common and public nuisance“ (Zobrist, 1965, p. 170) and ordered the part of the bridge that lay within the state of Iowa to be dismantled. The dispute was played out, then, at state and federal levels of the legislature. The C.R.I. duly appealed and the matter was finally settled when the Supreme Court of the United States ruled in their favour in 1862. A report on the final verdict describes the case as being: “valuable as marking the evolution of the Lincoln doctrine that a man has as good a right to go across a river as another has to go up or down the river, that the two rights are mutual, that the existence of a bridge which does not prevent or unreasonably obstruct navigation is not inconsistent with the navigable character of the stream“ (Starr, 1927, p.115). The economic interests of one alliance of actors (railroad owners, financial backers, politicians etc.) are expressed in terms of mutual rights and masked by the transformation of Lincoln, the bit part actor, into “the author of the American doctrine of bridges (Starr, 1927, p.116).

Thus, the geographical constraint of water implied one script for human settlement and economic activity, while bridges implied another. Railroad bridges became a powerful iconographic representation of a technology that could simply override the apparent constraints of the “natural“ landscape. Acts of sabotage against them were not uncommon. The events that took place in the aftermath of the Rock Island case reveal much about the skulduggery of railroad magnates in manipulating so-called “market forces“ and manoeuvring to establish strategic advantage in the race to complete the first transcontinental link. However, the story is a little too complicated to be continued here (see Agnew, 1950 & 1953; Brown, 1977; Donovan, 1962). In its muddled way this was a critical incident in railroad expansion and the development of a transcontinental “system“. It brought together a wide array of forces operating in the pre-civil war decade and illustrates how railroads used the courts to legitimise technological development.

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