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‘The telegraph and the bank’: on the interdependence of global communications and capitalism, 1866–1914*

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Abstract

This article uses the example of submarine telegraphy to trace the interdependence between global communications and modern capitalism. It uncovers how cable entrepreneurs created the global telegraph network based upon particular understandings of cross-border trade, while economists such as John Maynard Keynes and John Hobson saw global communications as the foundation for capitalist exchange. Global telegraphic networks were constructed to support extant capitalist systems until the 1890s, when states and corporations began to lay telegraph cables to open up new markets, particularly in Asia and Latin America, as well as for strategic and military reasons. The article examines how the interaction between telegraphy and capitalism created particular geographical spaces and social orders despite opposition from myriad Western and non-Western groups. It argues that scholars need to account for the role of infrastructure in creating asymmetrical information and access to trade that have continued to the present day.

Keywords capitalism, globalization, imperialism, information asymmetry, infrastructure, telegraphy

In 1911, Norman Angell published his now notorious book, *The great illusion*, arguing that increasing economic interdependence would make war superfluous. Global trade would lead to peace by making war too costly to contemplate; and humans would develop psychologically, Angell believed, until ‘the telegraph and the bank have rendered military force economically futile’.¹ Three years later, the outbreak of the First World War proved

* We would like to thank the editors and the two anonymous reviewers for their insightful comments.

1 Norman Angell, *The great illusion: a study of the relation of military power in nations to their economic and social advantage*, New York: G. P. Putnam’s Sons, 1911, pp. 184–5.

him spectacularly wrong. But Angell's argument on the impossibility of war did not just rely upon observations about the nature of capitalism. He intertwined his theory about economic interdependence with one about global networks of communications. He did not explain any further why he chose the telegraph as the only other institution along with banks that would eliminate the need for war. But, like many of his contemporaries, he assumed that global capitalism could only function in conjunction with global communications. In the latter half of the nineteenth century, trade and communications on a global scale had developed in strong connection with the emergence of a globe-spanning submarine telegraph network. By 1903 roughly 406,000 kilometres of submarine cables crossed the world's oceans. The highly important North Atlantic connection alone processed about 10,000 messages daily; the companies operating the twelve Atlantic cables represented a total estimated capital of £17 million, making them some of the most lucrative contemporary multinationals.² This article disentangles why Angell, along with other economists, government officials, submarine cable entrepreneurs, and colonial subjects, came to see global capitalism and communications as so intertwined that they no longer bothered to explain why the two fitted together. Similarly to today's scholars, they postulated the intricate connection between intercontinental telegraphic communication and world commerce without explaining the specifics of this link or its consequences for the structuration of the modern world.³

Analysing the structures, ideas, and mechanisms underlying the mutual interaction between communications and capitalism opens up new perspectives on the political, economic, and social geographies of the modern world. The historian Jorma Ahvenainen has argued that the global submarine cable network facilitated the very existence of 'world commerce' and 'world politics', but did not examine how this occurred.⁴ Other scholars have investigated how capitalism affected the specific market of communications companies.⁵ This article incorporates the business history of communications companies into global history to build upon and move beyond the mere idea that world communication enabled globalization processes of commerce, finance, and trade.

Scholars have tended to examine the connections between communications and politics (as well as between communications and the military) far more than those between communications and commerce or, more specifically, the emergence of global industrial capitalism.⁶ Some economic historians have focused on the telegraph's influence on the

2 Charles Bright, 'An all-British or Anglo-American Pacific cable', in Charles Bright, ed., *Imperial telegraphic communication*, London: P. S. King & Son, 1911, p. 39; Charles Bright, *Submarine telegraphs: their history, construction and working*, London: C. Lockwood, 1898, p. 144; Roland Wenzlhuemer, *Connecting the nineteenth-century world: the telegraph and globalization*, Cambridge: Cambridge University Press, 2013, p. 119.

3 On the concept of structuration as a bridge between structure and agency, see Anthony Giddens, *New rules of sociological method: a positive critique of interpretative sociologies*, 2nd edn, Cambridge: Polity Press, 1993, p. 169.

4 Jorma Ahvenainen, 'The role of telegraphs in the 19th century revolution of communications', in Michael North, ed., *Kommunikationsrevolutionen: die neuen Medien des 16. und 19. Jahrhunderts*, Cologne: Böhlau, 1995, p. 79.

5 Dwayne Winseck and Robert Pike, *Communication and empire: media, markets, and globalization, 1860–1930*, Durham, NC: Duke University Press, 2007.

6 Daniel Headrick, *The invisible weapon: telecommunications and international politics, 1851–1945*, New York: Oxford University Press, 1991; Jill Hills, *The struggle for control of global communication: the*

London and New York stock markets and have developed models to ‘calculate’ that influence, but few have written on understandings of the market and communications infrastructures.⁷ Others have investigated the political economy of Anglo-American communications or the economics of the cable business, but have paid less attention to contexts beyond the communications market or the interrelation between imperialism and the expansion of the world economy.⁸ Economists, too, have recently started to explore the media as a business and as a key influence in politics, though they have focused on the United States.⁹

This article uses the example of submarine telegraphy to substantiate how histories of communications and capitalism fit together and reciprocally influence each other in three important ways. First, the business history of communications companies would benefit from incorporating broader context beyond the firms, the analysis of the communications market as such, or the interrelation of communications and empire. As historians have shown for the Anglo-American sphere, the development of communications networks depended upon decisions made within firms about capital investments, profits, and potentially lucrative markets.¹⁰ This article further uncovers how cable entrepreneurs created the global telegraph network based upon particular understandings of cross-border trade following the logic of economic liberalism, profit maximization, and natural monopoly theory, while economists such as John Maynard Keynes and John Hobson saw global communications as the foundation for capitalist exchange based on telegraphic speed and the dematerialization of information.

During the nineteenth century, new communications technologies radically altered contemporaries’ experiences of time and space, which in turn fundamentally reconfigured business and investment strategies, structures, and decisions.¹¹ For the communications

formative century, Urbana, IL: University of Illinois Press, 2002; David Paull Nickles, *Under the wire: how the telegraph changed diplomacy*, Cambridge, MA: Harvard University Press, 2003; Paul Starr, *The creation of the media: political origins of modern communications*, New York: Basic Books, 2004.

- 7 Christopher Hoag, ‘The Atlantic telegraph cable and capital market information flows’, *Journal of Economic History*, 66, 2, 2006, pp. 342–53; Ranald Michie, *The London and New York stock exchanges, 1850–1914*, London: Allen & Unwin, 1987. For an important start, see Paul Johnson, *Making the market: Victorian origins of modern capitalism*, Cambridge: Cambridge University Press, 2010, part 3.
- 8 Daniel Headrick and Pascal Griset, ‘Submarine telegraph cables: business and politics, 1838–1939’, *Business History Review*, 75, 3, 2001, pp. 543–78; Richard R. John, *Network nation: inventing American telecommunications*, Cambridge, MA: Harvard University Press, 2010; Jonathan Silberstein-Loeb, *The international distribution of news: the Associated Press, Press Association, and Reuters, 1848–1947*, Cambridge: Cambridge University Press, 2014. On communication and empire, see Harold Innis, *Empire and communications*, Lanham, MD: Rowman & Littlefield, 2007.
- 9 Bharat Anand, Rafael Di Tella, and Alexander Galetovic, ‘Information or opinion? Media bias as product differentiation’, *Journal of Economics & Management Strategy*, 16, 3, 2007, pp. 635–82; Matthew Gentzkow, Jesse Shapiro, and Michael Sinkinson, ‘The effect of newspaper entry and exit on electoral politics’, *American Economic Review*, 101, 7, 2011, pp. 2980–3018; Matthew Gentzkow, Jesse Shapiro, and Michael Sinkinson, ‘Competition and ideological diversity: historical evidence from US newspapers’, *American Economic Review*, 2014, <http://faculty.chicagobooth.edu/matthew.gentzkow/research/competition.pdf> (consulted 20 June 2014).
- 10 John, *Network nation*; Joshua Wolff, *Western Union and the creation of the American corporate order, 1845–1893*, Cambridge: Cambridge University Press, 2013; David Hochfelder, *The telegraph in America, 1832–1920*, Baltimore, MD: Johns Hopkins University Press, 2012.
- 11 Roland Wenzlhuemer, ‘The dematerialization of telecommunication: communication centres and peripheries in Europe and the world, 1850–1920’, *Journal of Global History*, 2, 3, 2007, pp. 345–72; Stephen Kern, *The culture of time and space, 1880–1918*, Cambridge, MA: Harvard University Press, 1993.

market, these contemporary views on the interconnections between communication and commerce resulted in a duopoly of primarily government-owned landlines and primarily privately owned submarine lines. This created two distinct political economies of communications, both interlocking with the emergence of global industrial capitalism.¹² In business conduct, telegraphic communication eliminated the middleman and promoted business transactions based on speed, such as futures trading.¹³ The business history perspective on the private and multinational business of submarine telegraphy in particular shows how new (and faster) forms of economic interaction – as well as new forms of managing and financing commercial interactions – emerged.¹⁴

Second, the history of communications is also an economic history of the agents that structured and territorialized the modern world by creating myriad (market) identity spaces. Telegraphy enabled capitalist exchange, and understandings of telegraphy supported the development of particular global capitalist systems. This exchange not only consolidated existing markets, such as the transatlantic Euro-American trade, but later created new markets, such as the Pan-American and Pacific markets. Economists, too, saw global communications networks as the foundation for understanding the political organization of world trade. The ‘metaphorical constitution’ of the national economy enabled contemporaries to develop the notion of a national economic unity as a tangible object.¹⁵ German and Austrian economists extended that metaphor to the world economy.¹⁶ The business history of communications companies enables us to rethink the spaces of capitalism and how those spaces emerged.

Finally, the relationship between communications and capitalism reconfigured social interaction. The initial cable system seemed to cover the world, but it often followed imperial economic logic. Networks operated along pre-existing colonial trading and shipping lines, leaving many places ‘untouched’ by telegraphy.¹⁷ Simultaneously, contemporary understandings of capitalism affected where cables were laid and who could use them. The geography of global telegraphy therefore created particular understandings of the ‘world’ that excluded significant portions of its population. The article examines how the interaction between telegraphy and capitalism reinforced social orders that excluded most of the world’s population based on concepts of race, gender, and class from participation in global communication. Telegraphy affected many more people than its actual users, while

12 Simone M. Müller, ‘Beyond the means of 99 percent of the population: business interests, state intervention, and submarine telegraphy’, *Journal of Policy History*, 27, 3, forthcoming 2015.

13 Alexander Engel, ‘Buying time: futures trading and telegraphy in nineteenth-century global commodity markets’, in this issue, pp. 284–306.

14 On multinationals, see Geoffrey Jones, *Multinationals and global capitalism: from the nineteenth to the twenty-first century*, Oxford: Oxford University Press, 2005; Bruce Mazlish and Alfred Chandler Jr, eds., *Leviathans: multinational corporations and the new global history*, New York: Cambridge University Press, 2005; Mira Wilkins, ed., *The growth of multinationals*, Aldershot: E. Elgar, 1991.

15 J. Adam Tooze, ‘Imagining national economies: national and international economic statistics, 1900–1950’, in Geoffrey Cubitt, ed., *Imagining nations*, Manchester: Manchester University Press, 1998, pp. 214–15.

16 Quinn Slobodian, ‘How to see the world economy: statistics, maps, and Schumpeter’s camera in the first age of globalization’, in this issue, pp. 307–32.

17 For historiography on telegraphy, see M. Michaela Hampf and Simone Müller-Pohl, ‘Introduction’, in M. Michaela Hampf and Simone Müller-Pohl, eds., *Global communication electric: business, news and politics in the world of telegraphy*, Frankfurt am Main: Campus, 2013, pp. 7–32.

also spurring protests from around the globe about its perceived Western and capitalist hegemony. Depending upon their points of view, protagonists from across the world saw economic and communications networks as overlapping, coterminous, or mutually antagonistic. Figures primarily from non-Western contexts, such as Gandhi, viewed capitalism and communications as so intertwined that they simultaneously sought alternatives to both. Taken together, these three aspects reveal how communications and commerce together mapped the modern world, carving out non-congruent spaces of political, economic, and social interaction.

Overall, the article argues for a new chronology to understand the development of communications. In the 1860s, national developments made land telegraphy a concern of the state within European nations, while global submarine telegraphy became a private enterprise dominated by the theory of natural monopoly and intended to buttress existing trade routes. Global telegraphic networks were constructed to support extant capitalist systems until the 1890s. Submarine cable companies followed imperial logic only as far as it was profitable and solidified pre-existing commercial connections through telegraphy. In the 1890s, however, states and corporations began to lay submarine cables either to open up new markets, particularly in Asia and Latin America, or to use telegraphs for military, imperial, or strategic control. Changes to global communications (both wired and wireless) spawned ideas of developing new markets and using cables and wireless not just to reinforce existing networks of trade but also to support state geopolitical ambitions and exploit new markets. These reconfigurations only occurred within the political economy of global communications, not national networks. Ultimately, the success of global telegraph networks laid the groundwork for a system of intertwined communications and capitalism that has lasted until today.

On the economy of global telegraph communications

Jürgen Osterhammel has argued that ‘although telegraphy probably changed private lives less radically than the telephone or Internet did in later periods, its importance for commercial, military, and political activity cannot be underestimated’.¹⁸ The first terrestrial telegraph lines were laid in the 1840s and 1850s and intricately linked to facilitating military and political communication. Only in 1849 in Austria, 1850 in Prussia, and 1851 in France were they opened for public traffic.¹⁹ Thereafter, however, the telegraphs greatly affected the commercial world. In 1866, the successful completion of a durable transatlantic submarine cable inaugurated a new era by offering ‘instantaneous communication’ across the ocean. In the following years, cables were laid from Europe as far as India, Southeast Asia, Australia, Latin America, and Africa. Simultaneously, landline systems became denser and stretched into tiny towns in places as disparate as the Habsburg empire, British India, and the US West. By the late 1870s, almost any commercial centre could be reached from Europe via telegraph through a network spanning between 70,000 and 100,000 miles of

18 Jürgen Osterhammel, *The transformation of the world: a global history of the nineteenth century*, Princeton, NJ: Princeton University Press, 2014, p. 721.

19 Winseck and Pike, *Communication and empire*, p. 16; *The Telcon story 1850–1950*, London: Telegraph Construction and Maintenance Company, 1950, p. 25.

ocean cables.²⁰ In the 1880s and 1890s, popular connections were duplicated and even triplicated. The ocean network became increasingly densely linked with landline connections that were also expanding. In addition, technological developments, such as duplex telegraphy, enabled the passage of two or even four messages from both ends of the wire simultaneously.

The spread of telegraphy in the mid nineteenth century, in particular the private business of the submarine cables, drew from developing capitalist principles and, in turn, helped to shape global capitalist exchange. The creators of new infrastructure ran their enterprises as businesses following the new rules of nineteenth-century industrialism, natural monopoly theory, and managerial capitalism, the last of which meant separating capital from control as well as capitalists from managers.²¹ Until the early nineteenth century, private family assets generally financed firms, which expanded by reinvesting profits. This often meant that most of the company's capital was tied up and that companies relied heavily upon loans for routine operating expenses. As initial sunk costs increased substantially for new enterprises such as railways, metal production, and submarine telegraphs, it became increasingly difficult to mobilize sufficient start-up capital through older methods that relied upon large amounts of private capital. Firms thus began to develop new methods and company structures to mobilize capital and to channel savings into their undertakings. Alongside investment banks such as *Crédit Mobilier*, joint-stock companies became increasingly popular for infrastructure and transportation, including railways and steamships. Telegraph companies drew inspiration from railways in particular: many cable entrepreneurs – such as the Briton Daniel Gooch or the Canadian Sandford Fleming – had worked in the rail industry before entering the cable business.²² By the late nineteenth century, telegraph companies had become major multinational enterprises. They not only provided the infrastructure for faster stock-market interaction, but were themselves traded on the stock exchange.²³ Such firms formed a vital cornerstone in the rise of Western managerial capitalism.

As multinational companies, submarine telegraph firms developed a base in the 'global city' of London.²⁴ London became the nerve centre of global telegraphy for logistical, financial, and technical reasons. In 1868, the British government had bought all British landline cables through the Telegraph Purchase Bill. This freed up capital for investors, who turned to submarine cables to make a profit from communications technology. London housed the most knowledgeable engineers, as well as technical equipment and resources, and Britain's imperial outreach to Southeast Asia guaranteed cheap access to the cables' insulating material, gutta percha.²⁵ Until the 1890s, the manufacture of submarine cables

20 Cyrus W. Field, *Ocean telegraphy: the twenty-fifth anniversary of the organization of the first company ever formed to lay an ocean cable*, New York: printed for private circulation only, 1879, p. 34.

21 For the classic work on managerial capitalism, see Alfred Chandler, *The visible hand: the managerial revolution in American business*, Cambridge, MA: Harvard University Press, 1977.

22 On railways, see Colleen Dunlavy, *Politics and industrialization: early railroads in the United States and Prussia*, Princeton, NJ: Princeton University Press, 1994; Richard White, *Railroaded: the transcontinentals and the making of modern America*, New York: Norton, 2011.

23 Eric Hobsbawm, *The age of capital, 1848–1875*, New York: Vintage Books, 1996, pp. 214–15; Niall Ferguson, *The ascent of money*, New York: Penguin Press, 2008, pp. 120–2.

24 Saskia Sassen, *The global city: New York, London, Tokyo*, Princeton NJ: Princeton University Press, 1991.

25 John Tully, 'A Victorian ecological disaster: imperialism, the telegraph, and gutta-percha', *Journal of World History*, 20, 4, 2009, pp. 559–79.

was almost entirely confined to factories on the banks of the Thames; even in 1931, the great majority of the world's submarine cables were still manufactured by Telcon in London. Many other countries had to import the cables and equipment, and often the technicians and operators as well.²⁶ Nevertheless, the London-centrism of the cable business did not mean that its business geography was congruent with the British empire.

Telegraph companies not only partook in new forms of management. They also became a key example of how the market of infrastructural firms functioned based on the theory of natural monopoly. Both the state-run landlines and the privately run submarine cable system were organized according to the logic that the communications system would be most efficient if concentrated in a single firm.²⁷ As with railway tracks, laying telegraph cables required huge sums of initial capital. These large sunk costs created a very high barrier to entry for firms. Thus a very small number of business conglomerates, such as the Atlantic Pool, the Eastern and Associated Companies, and the Great Northern Telegraph Company, came to dominate global communication. The companies that did exist looked to lay cables where they had an assured customer base of large companies that could pay to send telegrams. The North Atlantic sphere represented the most important economic market of the time and its telegraph market was the most contested. In the 1880s and 1890s, several firms sought to disrupt the financial and working agreement of Atlantic telegraph companies to fix prices. By the turn of the twentieth century, however, the market had become an oligopoly. In 1900, thirteen submarine cables owned by four companies conveyed as many as 10,000 messages a day across the Atlantic.²⁸ The high barrier to entry remained a key principle for communications companies.

Three entrepreneurial systems came to dominate global communication after the 1870s. As they had neatly divided up the globe into spheres of influence, all of them enjoyed the benefits of a monopoly for particular markets. The Atlantic pool of companies, led by the Anglo-American Telegraph Company, controlled the Atlantic. The Eastern and Associated Telegraph Companies conglomerate grew out of the first transatlantic connection and was consolidated with the cable to India in 1870. Thereafter, the entrepreneur John Pender and his business partners established new companies to lay submarine cables to places as far-flung as China, Australasia, Malta, and Marseilles. Taken as a whole, these companies comprised the Eastern and Associated Companies. By the First World War, the Electra House Group (a synonym for the Eastern and Associated Companies) had become 'one of the world's most powerful multi-national conglomerates'.²⁹ In 1898, it owned over 50,000 miles

26 Helmuth Pfitzner, *Seekabel und Funktelegraphie: im überseeischen Schnellnachrichtenwesen*, Leipzig: Curt Böttger Verlag, 1931, pp. 47–8.

27 On natural monopoly theory, see Markus Wagner, 'Legal perspectives and regulatory philosophies on natural monopolies in the United States and Germany', in Günther Schulz, Mathias Schmoeckel, and William Hausman, eds., *Regulation between legal norms and economic reality: intentions, effects, and adaptation: the German and American experiences*, Tübingen: Mohr Siebeck, 2014, pp. 53–74; William Sharkey, *The theory of natural monopoly*, Cambridge: Cambridge University Press, 1989; Manuela Mosca, 'On the origins of the concept of natural monopoly', *European Journal for the History of Economic Thought*, 45, 2, 2008, pp. 317–53.

28 Institution of Engineering and Technology Archives, NAEST 17/105, Charles Bright, 'Imperial telegraphic communication and the "All-British" Pacific cable', *London Chamber of Commerce pamphlet series*, 40, 1902, p. 39.

29 J. Brown, *The cable and wireless communications of the world: a survey of present day means of international communication by cable and wireless*, London: Sir Isaac Pitman & Sons, 1927, p. 11.

of submarine cable (about one-third of all global cable mileage), represented a joint nominal capital of over £10 million, and carried about two million messages per annum.³⁰ The Eastern and Associated Companies held a near monopoly of lines between Britain and Central and South America, and total control of the Britain–India–Australasia route.

Finally, a third system emerged to connect other countries with regions of economic interest. While the Eastern system stretched eastwards to India and Southeast Asia, the Great Northern Telegraph Company – an 1869 amalgamation of Danish, Norwegian, Russian, and English interests – established telegraphic communication via the Baltic Sea and the Russian landlines with Shanghai, where it met the Eastern’s telegraph lines. Between 1871 and 1943, Japan and the Danish-based Great Northern Telegraph Company entertained a fruitful partnership thanks to their asymmetrical interests and capabilities. Based in a small northern European country that largely stayed out of world politics, Great Northern primarily wished to increase its revenue and protect investment. For Japan, the international telegraph link represented a major boost to its overseas trade and diplomatic relations. Government telegrams were charged half price and the exchange of information between Japan and the US, its largest overseas market for silk export, was reduced from several months to a matter of hours.³¹ The Great Northern Company became one of the fiercest and most important competitors of the Eastern and Associated Companies in the Chinese and Japanese telegraph markets.

In southern Europe, the Direct Spanish Telegraph Company (1872) established telegraphic communication between Spain and England with a cable from Falmouth to Bilbao. In South America, two important telegraph companies founded in 1873, the Brazilian Submarine Telegraph Company and the Western and Brazilian Telegraph Company, connected Brazil with other South American countries as well as Brazilian ports. These cables linked up to the system of the West India and Panama Telegraph Company and hence to North America.³²

While global telegraphy initially followed major trading routes and became vital for the development of managerial capitalism, it also changed how the global commercial world operated. For the investor, it enabled speedy transactions; most importantly for the entire business community, however, telegraphy fostered the creation of a new form of business to supply economic information – news agencies. The first news agencies emerged in the mid nineteenth century almost simultaneously with submarine telegraphy. In the late 1840s, Charles-Louis Havas, Bernard Wolff, and Julius Reuter recognized the importance of telegraphy for global news. Julius Reuter and Bernhard Wolff had fled to Paris just before the 1848 revolutions. They worked for Havas and built up a personal relationship with the owner, Charles-Louis Havas. The three continued to collaborate when Wolff moved back to Berlin to found his agency in 1849, and Reuter began his business in Aachen using pigeon post before he moved to London and founded Reuters Telegram Company in 1851. Reuters, Havas, and Wolff built on informal cooperation to create a formal global cartel in 1870

30 Bright, *Submarine telegraphs*, p. 167.

31 Daqing Yang, ‘From partnership to confrontation: Japan and the Great Northern Telegraph Company, 1871–1943’, in Hampf and Müller-Pohl, *Global communication electric*, pp. 117–45.

32 On these systems, see Daniel Headrick, *The tentacles of progress: technology transfer in the age of imperialism, 1850–1940*, New York: Oxford University Press, 1988, p. 105; Robert Boyce, ‘Imperial dreams and national realities: Britain, Canada and the struggle for a Pacific telegraph cable, 1879–1902’, *English Historical Review*, 115, 460, 2000, p. 43.

(though a contract may have existed as early as 1856).³³ The three agencies divided the global supply of news: each reported on an assigned sphere and exchanged this news with the others. In a manner that mirrored the three major global telegraph cable systems, the costs of global news collection pushed the three major news agencies to function as a form of oligopoly.

Those involved in news agencies, in particular Julius Reuter, also deliberately linked their content companies with infrastructure. In 1851 he established Reuters Telegraph Company alongside his Telegram Company, and built telegraph lines across Ireland and between Great Britain and the European continent. The telegram company predominantly served banks, brokerage houses, and leading business firms.³⁴ Reuter's venture into the telegraph service greatly influenced his news business: the Irish overland connection alone secured him an eight-hour advantage over his rivals on transatlantic news.³⁵ As costs for obtaining transatlantic news rose, Reuter decided in 1868 to enter the Atlantic telegraph market. Together with Baron Emil d'Erlanger, he launched the French Cable Company to secure cheap telegraphic rates. Soon after opening, however, the company had to bow to market pressure, being forced into a working agreement with the Anglo-American Telegraph Company.³⁶ Reuters was not the only media businessman to enter the telegraph market: in the 1880s and 1890s he was followed by the Americans Jay Gould and James Gordon Bennett, who both laid transatlantic cables to further their business ventures in American landlines and the press respectively.

Communication and news facilitated the emergence of the world economy, but the same was true in reverse, as economic globalization enabled the operation of news agencies. Some contemporary economists saw news as a form of global trade, believing that international news had developed owing to the international exchange of goods. Indeed, from 1851 to 1930, Reuters functioned more like 'a trading company operating in news'.³⁷ Others paradoxically thought that news had caused the increase in global trade, because the exchange of economic information had decreased the risks of global speculation.³⁸

Along with shaping the business history of cable manufacturing and news, telegraphy changed the broader conduct of trade and economic life. Beyond creating new intermediaries to transmit information, it integrated local markets within one larger system, synchronized the important bourses of London, New York, Paris, Berlin, and Buenos Aires, and reconfigured long-distance trade. Before telegraphy, corresponding over long distances

33 The cartel included Associated Press from 1893 to 1933/34. See Alexander Nalbach, "Poisoned at the source"? Telegraphic news services and big business in the nineteenth century', *Business History Review*, 77, 4, 2003, pp. 577–610; Terhi Rantanen, 'Foreign dependence and domestic monopoly: the European news cartel and US associated presses, 1861–1932', *Media History*, 12, 1, 2006, pp. 19–35; Heidi Tworek, 'The creation of European news: news agency cooperation in interwar Europe', *Journalism Studies*, 14, 5, 2013, pp. 730–42.

34 Michael Palmer, Oliver Boyd-Barrett, and Terhi Rantanen, 'Global financial news', in Oliver Boyd-Barrett and Terhi Rantanen, eds., *The globalization of news*, London: Thousand Oaks, 1998, p. 61.

35 Kenneth Beauchamp, *History of telegraphy*, London: Institution of Electrical Engineers, 2001, p. 80.

36 Hills, *Struggle for control*, p. 34.

37 Silberstein-Loeb, *International distribution*, p. 165.

38 E.g. Max Roscher, 'Über das Wesen und die Bedingungen des internationalen Nachrichtenverkehrs', *Weltwirtschaftliches Archiv*, 3, 1, 1914, pp. 37–59.

was trying: ordinary mail required a fortnight from Europe to North America, a month to South America, one to two months to the Far East, and about seventy days to Australia and New Zealand.³⁹ Before the 1840s and regular steamship travel to India, it took five to eight months for a letter from Britain to arrive in India, and a response could take two years. With the opening of steamship mail, this changed to six weeks in each direction. With the telegraph, it changed yet again to a matter of hours. Now, the electrical signals of the telegraph conveyed dots and dashes from Liverpool to Bombay within what seemed to be the blink of an eye.

This acceleration of information created new possibilities for control over large distances. Previously, seafaring merchants could not track their ships and freight once they left harbour. Telegraphy enabled merchants to keep account of their goods and sales figures from the comfort of their own offices every time the ships reached a port. Moreover, the telegraph reduced the time that ships spent in port and allowed them to travel farther to collect cargo.⁴⁰ The advent of wireless around 1900 expedited this process by enabling communication with moving objects on the sea.⁴¹ By permitting ship-to-ship communication, wireless made geographical obstacles such as oceans or markers such as the cables' landing places even more irrelevant.

These developments reshaped employment within global trade. As merchants could communicate directly with their ships, they no longer needed middlemen as intermediaries in long-distance trade. Around 1900, the telegraph expert Charles Bright pointed out that middlemen had almost become obsolete in some international commerce.⁴² However, telegraphy also created new types of investments, with new jobs for brokers. The loss of materiality in communications enabled new forms of market interactions, such as futures trading, that relied upon information about goods that investors never possessed. Futures trading meant the need for new types of intermediaries who could serve as investment brokers.⁴³

Alongside new forms of trading and employment, telegraphy promoted standardization in time-keeping, transportation, and stock-market prices through tickers. The Canadian engineer and main Pacific cable promoter Sandford Fleming, for instance, played a prominent part in enforcing the worldwide adoption of standard time zones from 1876 onwards, though much of the world still operated on different time regimes.⁴⁴ Futures trading and stock exchanges came to rely increasingly upon ideas of standard world market prices conveyed through telegraphy. As early as 1855, Marx believed that telegraph would 'transform the whole of Europe into one single stock exchange'.⁴⁵ Telegraphic ticker

39 Ahvenainen, 'Role of telegraphs', p. 21.

40 Byron Lew and Bruce Cater, 'The telegraph, co-ordination of tramp shipping, and growth in world trade, 1870–1910', *European Review of Economic History*, 10, 2006, pp. 147–73.

41 Heidi Evans, '"The path to freedom"? Transocean and German wireless telegraphy, 1914–1922', *Historical Social Research*, 35, 1, 2010, p. 227.

42 Bright, *Submarine telegraphs*, p. 172.

43 Engel, 'Buying time'.

44 Vanessa Ogle, 'Whose time is it? The pluralization of time and the global condition, 1870s to 1940s', *American Historical Review*, 120, 5, 2013, pp. 1376–1402.

45 Karl Marx, 'The commercial crisis in Britain', in *Gesamtausgabe (MEGA)*, vol. 14, Berlin: Dietz, 2001, p. 37.

machines in stock exchanges from the 1870s helped to provide constant streams of information about prices. This increased the strength of major trading centres and stock exchanges with excellent telegraph connections, particularly London, Liverpool, New York, and Chicago.⁴⁶

For investors, too, communications seemed to hold the key to global investment. Banks in London could now easily monitor their investments in Argentina. Nostalgically reminiscing about the world before 1914, John Maynard Keynes waxed lyrical about the Londoner who could ‘order by telephone, sipping his morning tea in bed, the various products of the whole earth, in such quantity as he might see fit, and reasonably expect their early delivery upon his doorstep’. Communications enabled the Londoner to engage in investment as well as personal shopping: ‘Without exertion or even trouble’, the lucky lay-about could ‘decide to couple the security of his fortunes with the good faith of the townspeople of any substantial municipality in any continent that fancy or information might recommend’.⁴⁷ The growth of global trade was deeply intertwined with global and imperial communications networks. The spread of ocean telegraphy created new mechanisms for structuring and financing global business interactions just as it strengthened the emergence of multinational firms themselves. The business history perspective sheds light on how strongly developments enabling the structuration of modern capitalism were linked with business decisions within global media.

The geographies of global communications and capitalism

Communications helped to establish and consolidate national, regional, imperial, and international spaces of politico-economic orders. After 1890 in particular, communications networks often functioned as ‘tools of empire’ meant to secure political control over an extended imperial territory. At the same time, joint conferences or institutions such as the Paris Postal Conference of 1863 or the Pan-American Conferences for international cooperation on trade in the late nineteenth century also created conceptions of unified spheres of collective Western action.⁴⁸ Analysing the interrelation of global communication and commerce gives scholars new insights into the structuration and functioning of these new market and identity spaces that contemporaries created along the lines of telegraphs and trade. Often, these spaces were congruent and overlapped with spaces of political territoriality.⁴⁹ More often, however, they simultaneously co-created and challenged national and imperial containers. Cable companies had to react to the challenges arising from

46 Alex Preda, *Framing finance: the boundaries of markets and modern capitalism*, Chicago, IL: Chicago University Press, 2009.

47 John Maynard Keynes, *The economic consequences of the peace*, New Brunswick, NJ: Transaction Publishers, 2009 (first published 1920), p. 11.

48 Daniel Headrick, *The tools of empire: technology and European imperialism in the nineteenth century*, New York: Oxford University Press, 1981; Richard R. John, ‘Projecting power overseas: U. S. postal policy and international standard-setting at the 1863 Paris postal conference’, *Journal of Policy History*, 27, 3, 2015, forthcoming.

49 Charles S. Maier, ‘Consigning the twentieth century to history: alternative narratives for the modern era’, *American History Review*, 105, 3, 2000, pp. 807–31.

mediating the maritime space between imperial territories, frequently at times of nationalist rhetoric. This tension came to a head after 1890.

Market and communication mechanisms could build national identity spaces through different forms of imagined communities. Benedict Anderson famously explained the rise of nationalism through revolutions in communication technology that enabled inhabitants of a proto-nation to understand themselves as members of a common community, though they never met in person. Print capitalism encouraged publishers to use the vernacular to reach as widespread an audience as possible. Profit motives facilitated changes in cultural understandings of political identity. Reading newspapers and novels gave geographically dispersed populations in Creole states in the New World the feeling of sharing a temporal existence as they witnessed the unfolding of fictional or nonfiction narratives.⁵⁰ Similar imaginary mechanisms were at play in the formation of an investors' democracy in the United States. The architects of war loans during the Wilson Administration believed that investments would transform every American into a citizen-investor as each citizen would 'own' a stake in the war. Investment was an act that both made and manifested citizenship; market-making in securities was a nationally bounded and a nation-building exercise.⁵¹ Yet, in the nineteenth century, the mechanisms of building the national were also intricately linked to the creation of international identities.⁵²

Beyond nations, infrastructure was used to create alternative regional spaces and markets. For instance, common electricity, road, and communication networks helped to create a material European Union before the institutionalization of economic and political cooperation.⁵³ In Latin America, US economic influence was limited in the 1870s and 1880s in terms of both trade and investment. British merchant houses, by contrast, conducted lucrative trading through busy steamship connections across the South Atlantic. American policy-makers increasingly saw such limited economic access to their southern neighbours as a national weakness. The US Secretary of State, James Blaine, urged US merchants, industrialists, and bankers to exploit Latin American markets for manufactured goods by elbowing the British aside. Together with South American investors, the American James Scrymser pursued a plan in the 1880s for a submarine cable network linking North and South America (without Europe) that would rival existing cables and market connections between Europe and Chile, Argentina, Brazil, and Uruguay. Scrymser was backed by various government officials from North and South America who sought to create a Pan-American market through international trade commissions and conferences. Scrymser's offensive against the Eastern and Associated Telegraph Companies' strongholds in the western hemisphere was part of a commercial expansion that pitted American capitalists and government against long-established British merchants in South America. He directed

50 Benedict Anderson, *Imagined communities: reflections on the origin and spread of nationalism*, London: Verso, 1991.

51 Julia Ott, *When Wall Street met Main Street: the quest for an investors' democracy*, Cambridge, MA: Harvard University Press, 2011.

52 Glenda Sluga, *Internationalism in the age of nationalism*, Philadelphia, PA: University of Philadelphia Press, 2013.

53 Alexander Badenoch and Andreas Fickers, eds., *Materializing Europe: transnational infrastructures and the project of Europe*, Basingstoke: Palgrave Macmillan, 2010.

cables from the Central American isthmus southwards along the west coast of South America to Peru.

Scrymser pushed for the expansion of US trade and investment in Latin America in order to replace the Germans and the French, as well as the leaders in that region. In the 1890s the United States moved into two important areas of long-term trade development with South America. On the one hand, the Bureau of American Republics disseminated commercial news and helped to create greater awareness in the United States about Latin American markets. On the other hand, Scrymser's Central and South American Telegraph Company tied these markets to industries in North America.⁵⁴ Although Great Britain remained the main sources of capital influx, long-term US investment in Latin America grew from US\$308 million in 1897 to US\$1.6 billion in 1914.⁵⁵

In a similar way, Canadian and American attempts to push for a cable from their respective west coasts to China, Japan, Australia, and New Zealand in the 1890s and 1900s were motivated by the plan to open up the untapped markets of the Pacific Rim nations and create an alternative market space to the Atlantic. Before these government-financed Pacific cables in 1902 and 1904, submarine cables had never served as a means to explore new markets or connections. Rather, they were instruments to accelerate existing economic, political, and cultural connections. Cable entrepreneurs refused to lay cables where there was 'not even a sandbank on which to catch fish' in the words of James Anderson, the managing director of the Eastern and Associated Telegraph Companies.⁵⁶ With the Pacific, in contrast, for the first time in cable history, two major submarine cables were laid to *develop* and not to follow existing trading relationships. This marked an important shift in the business history of submarine telegraphy. During the age of new imperialism, those multinational cable companies moved from acting as enterprises guided by the theory of natural monopoly and building on pre-existing connections connecting capitalist hubs to happily ceding some routes they saw as unprofitable to the state.

On the governments' side, economic and political ambitions for expansion merged. Canadian ambitions emerged with the railway engineer Sandford Fleming in the 1870s. For its advocates, the Pacific cable formed a central pillar of Canada's economic development strategy. In their attempt 'to extend trade in every direction', Canadian policy-makers looked particularly to their 'sister colonies' of Australia and New Zealand.⁵⁷ Before the 1890s, connections between these countries suffered from the exorbitant tariffs for sending a telegram from Canada via Europe to Australia. Thus telegraphy became part of the North American rivalry over westward expansion in the 1890s. The rise of the United States to become one of the world's leading industrial nations as well as the largest exporter of

54 Jorma Ahvenainen and John Britton, 'Showdown in South America: James Scrymser, John Pender, and United States-British cable competition', *Business History Review*, 78, 1, 2004, pp. 1-27.

55 Alan Taylor, 'Foreign capital in Latin America in the nineteenth and twentieth centuries', NBER Working Paper Series No. 9580, March 2003, <http://www.nber.org/papers/w9580> (consulted 14 August 2014).

56 James Anderson 1887, cited in J. H. Heaton, 'Penny-a-word telegrams throughout the empire', *Proceedings of the Royal Colonial Institute*, 40, 1908-09, p. 4. On cables to Latin America, see John Britton, *Cables, crises, and the press: the geopolitics of the new international information system in the Americas, 1866-1903*, Albuquerque, NM: University of New Mexico Press, 2013.

57 Library and Archives Canada, Mackenzie Bowell in 'Proceedings of the Colonial Conference, June 28-July 9, 1894', Ottawa: Printed by S. E. Dawson, 1894, pp. 21-30.

agricultural goods also called for new markets.⁵⁸ In 1901, President McKinley argued that the US was ‘in a state of unexampled prosperity’ and had to pay ‘urgent and immediate attention’ to the problem of exploiting new markets, particularly in China. Following an open-door policy, American politicians pushed for equal rights among trading nations with China and pursued the idea of US dominance in the North Pacific. For McKinley, this meant not just more ships and the Isthmian Canal but also ‘[t]he construction of a Pacific cable’.⁵⁹ In 1902 and 1904, two different Pacific cables were laid from the North American west coasts to Asia. Both, however, proved to be economic failures: the level of traffic never came close to covering the enormous initial costs. Communications cables could not simply magic new markets into existence; and political ambition and geopolitical rivalries proved less successful motives for cables than commercial imperatives.⁶⁰

The imaginary in markets and communication also constructed transnational and imperial identity spaces. In 1866, contemporaries heralded the ‘Great Atlantic Cable’ as the ‘missing link’ to show that inhabitants of Euro-America were not ‘only kin but kind’.⁶¹ In its far reach from Calcutta to Dublin and from Cape Town to Devonshire, the telegraphic network helped to construct imperial identities, whether British, French, Dutch, or German.⁶² Initially, all imperial nations relied upon the same cable networks. During the 1890s with the development of new imperialism, however, national concerns demanded new market structures within global communications as with the Pacific cables. Governments pushed for an all-American, all-German, or all-French network, and cables became a constituent part of imperial competition. This imperial scramble for control in communication markets reached its apotheosis in the British All-Red Route completed in 1902 – a telegraphic cable connection encompassing the globe that only touched upon British territory. This communications network came to be seen as crucial to imperial security and laid the groundwork for later radio broadcasts during the twentieth century.⁶³

While from the 1890s states and elites increasingly viewed cables as imperial projects, cable entrepreneurs and telegraph operators often identified more with maritime space and the business of telegraphy than with any particular empire or nation. On the one hand, this maritime business space of cable communication emerged from the profession of submarine telegraphy. As the submarine telegraph network expanded, a relatively small group of telegraph engineers, electricians, and cable operators came to work and travel the world in a way that beforehand was only open to the rich, diplomats, or those involved in the navy or

58 David Healy, *US expansionism: the imperialist urge in the 1890s*, Madison, WI: University of Wisconsin Press, 1970, p. 37.

59 Library of Congress, Early Motion Pictures 1897–1920, ‘President McKinley’s speech at the Pan-American Exposition, September 1901’, video and transcription by Thomas A. Edison, 11 September 1901.

60 Winseck and Pike, *Communication and empire*.

61 ‘The missing link found’, *Punch*, 51, 4, August 1866, p. 55, http://www.sciper.org/luceneweb/hri3/display.jsp?mode=sciper&file=PU1-51.html&reveal=issue_PU1-51-5#PU1-51-5-8 (consulted 23 June 2014).

62 On the interrelation of communication and empire, see Innis, *Empire and communications*; Winseck and Pike, *Communication and empire*; Christopher Bayly, *Empire and information: intelligence gathering and social communication in India, 1780–1870*, Cambridge: Cambridge University Press, 2007.

63 Simon Potter, *News and the British world: the emergence of an imperial press system, 1876–1922*, Oxford: Oxford University Press, 2003.

shipping. Laying or maintaining cables, engineers and electricians travelled the world's oceans and used their time during shore leave for 'sightseeing' in Egypt, the Caribbean, or India. Throughout their careers, the operators were usually stationed at two or three different cable stations. Friendship, family, and telegraphic ties soon connected operators with several other cable stations across the globe. As Charles Bright concluded, 'probably no branch of engineering ... len[t] itself so readily to a full sight of the world as that of telegraphy'.⁶⁴ On the other hand, the particular working structures of ocean telegraphs created a capitalist business sphere across national and imperial boundaries. Because of the high initial costs of an ocean cable, as well as preliminary technical difficulties, governments usually awarded landing rights with a twenty- to thirty-year monopoly concession. For the first Atlantic cable, the government of Newfoundland granted a fifty-year landing monopoly to the New York, Newfoundland and London Telegraph Company in 1854.⁶⁵ Such landing-right monopolies not only gave particular companies a strong position against their rivals, as the latter could not land their cables on the respective shores, but also helped cable companies to position themselves between governments and national spaces.

Ironically, government control over landing monopolies encouraged companies to cooperate behind the scenes and against nationalist sentiments. For the American Pacific cables, for instance, the landing rights along the shores of Southeast Asia made a cable landing for the American Pacific Commercial Cable Company impossible and a business solution happened behind closed doors. Only in 1921 did the American government learn that foreign companies owned 75% of this allegedly *American* company: 50% belonged to the Eastern and Associated Companies and 25% to the Danish Great Northern Company. All but one copy of the contract was destroyed; the remaining one was kept in London in a box with six locks that was never to be opened without the written orders of all companies involved or by court order.⁶⁶ Similarly, German and Dutch businessmen cooperated beyond imperial borders through the Deutsch-Niederländische Telegraphengesellschaft (German-Dutch Cable Company) to lay cables in the East Indies, while German and French entrepreneurs combined to lay a cable across the South Atlantic.⁶⁷ In the case of ocean telegraphy, business structures clearly benefited from an imperial capitalism but could run contrary to its territorial policy.

Regional, national, and imperial and international spaces of imaginary and practised communications and capitalism could also be overlapping and coterminous. They were seldom mutually exclusive. Indeed, the creation and consolidation of the national and the international worked both ways. Economic theorists from the German historical school believed that a world economy would emerge in an evolutionary process from ever larger political units.⁶⁸ In practice, however, the international could also be the incentive to create national structures and markets. In the case of the parcel post, international agreements

64 Bright, *Submarine telegraphs*, p. xiii.

65 New York Public Library, Field Papers, Newfoundland & T. C. New York, 'Company's description, July 1872'.

66 Winseck and Pike, *Communication and empire*, p. 170.

67 Griset and Headrick, 'Submarine telegraph cables', pp. 566-7.

68 Slobodian, 'How to see the world economy'.

forced the creation of national infrastructures in countries that did not already run national parcel post services.⁶⁹ In the end, global communications and capitalism interacted to co-create some of the myriad geographies and spaces during the long nineteenth century. Not everyone, however, partook equally and simultaneously in these geographies.

Telegraphy and social orders

Visions of global communications and capitalism were not just concerned with how the movement of goods and information could structure political spaces. They were also visions of particular social orders, often based on certain conceptions of the international cable business. Some contemporaries believed that global communications through the press and telegraph services had created a shared experience of simultaneity that turned people into world citizens within a global market and communications system. For example, in 1894 the economist John Hobson asserted that ‘this world-market represents the fullest expansion due to modern machinery of transport and exchange, the railway, steamship, newspaper, telegraph, and the system of credit built up and maintained by the assistance of these material agents’.⁷⁰ The global communications system both facilitated the evolution of modern capitalism and created new communal ties through news. ‘The immediate and simultaneous sympathy’ aroused by news reports, wrote Hobson, brought ‘a new element of sociality into the world. In this sense we may say that the world has been recently discovered for the mass of civilized mankind.’⁷¹ For contemporaries, it seemed as if communications had created the world as a concept for the masses.

Some of Hobson’s contemporaries even believed that their global communications networks would enhance world trade and create world peace through this all-encompassing if not all-inclusive world. Proponents followed the logic of commercial liberalism, then particularly prominent within the British empire. Liberals believed in a positive correlation between free trade, the establishment of international markets, and peace. Primarily influenced by Adam Smith’s *Wealth of nations* (1776), commercial liberalism had developed as a new international order in the nineteenth century which based itself on the freedom of trade and the rights of citizens to engage freely in private actions across the borders of states. From the eighteenth century onwards, influential thinkers such as James Mill, John Stuart Mill, Jean-Baptiste Say, and Richard Cobden had argued that close economic contacts made war irrational and useless.⁷² Liberals saw ever-faster means of transport and communication as essential tools for integrating markets into ever larger spheres of activity, and they expected the peaceful impact of the mid nineteenth-century trade revolution to occur on a ‘planetary scale’.⁷³

69 Léonard Laborie, ‘Global commerce in small boxes: parcel post, 1878–1913’, in special issue, pp. 000–000.

70 John Hobson, *The evolution of modern capitalism: a study of machine production*, New York: Charles Scribner’s Sons, 1902 (first published 1894), p. 98.

71 John Hobson, ‘The ethics of internationalism’, *International Journal of Ethics*, 17, 1, 1906, p. 17.

72 Paul Hirst, ‘Politics: territorial or non-territorial?’, in Jean Hillier, ed., *Habitus: a sense of place*, Aldershot: Ashgate, 2008, p. 78.

73 Jürgen Osterhammel, *Europe, the ‘West’ and the civilizing mission*, London: German Historical Institute, 2006, p. 22.

Both key protagonists of Manchester Liberalism, John Bright and Richard Cobden, represent the direct link between this concept of peace and global cable communication. The two merchants had been closely associated since their common engagement in the Anti-Corn Law League in 1839, an organization that challenged the Corn Laws, British protectionist policies that strictly regulated foreign agricultural imports and caused tremendously high food prices. Their success in repealing the Corn Laws in 1846 made Bright and Cobden national celebrities.⁷⁴ Largely created by the Anti-Corn Law undertaking, the politico-economic movement of Manchester Liberalism adhered to the principles of *laissez-faire*, non-interventionism, and free trade and saw the spread of universal peace as a logical corollary to its theories. In the words of John Bright, a Quaker, Manchester Liberals believed that free trade ‘would unite mankind in the bonds of peace’.⁷⁵ But free trade rested upon communication among trading partners through railways, steamboats, and cheap postage as well as telegraphy. After the Great Exhibition in 1851, Cobden negotiated with the Prince Consort that the exhibition’s profits should be spent on establishing transatlantic telegraphic communication. A decade later, Cobden and Bright were among the most important political allies of the American cable entrepreneur Cyrus Field.⁷⁶

This world, however, was not necessarily ‘universal’. Until the early twentieth century, international telegraphy was an elite phenomenon that consolidated power hierarchies of race, class, and gender. These understandings coincided neatly with the profile of capitalist investors and managers who constituted telegraphy’s main users. By creating a systemic discourse that focused on the exchange of goods and information, managers and communications experts frequently elided the human effects of these networks. Managers in cable companies, for instance, believed that the masses would not use telegraphy and that the telegram would not supplant the letter.⁷⁷ James Anderson, general manager of the Eastern and Associated Telegraph Companies argued that ‘people separated by a great distance do not either write or telegraph frequently to each other’.⁷⁸ He could not foresee a world united by anything other than trade.

These beliefs led submarine cable managers to create a pricing model for telegrams that relied upon high prices and low volume, rather than low prices and high volume. In the first decades of transatlantic cables after 1866, only about ninety companies exchanged cables. On the Atlantic telegraph market, tariffs between Great Britain and New York started out at £20 for a minimum of twenty words, but fell swiftly to £2 for a minimum of ten words from 1869 onwards. For the cable entrepreneurs, this extreme price reduction in the first three years of the cables’ service was a balancing act between recouping the initial investment by paying high enough dividends to the shareholders and attracting enough users willing to pay a certain price. In 1867, the Anglo-American Telegraph Company once tried a word rate of

74 On the Anti-Corn Law League, see Paul Pickering and Alex Tyrell, *The people’s bread: a history of the Anti-Corn Law League*, London: Leicester University Press, 2000.

75 Gregory Claey, *Imperial sceptics: British critics of empire, 1850–1920*, Cambridge: Cambridge University Press, 2010, p. 28. On Manchester Liberalism, see William Grampp, *The Manchester School of Economics*, London: Routledge, 1993.

76 Isabella Field Judson, *Cyrus W. Field, his life and work*, New York: Harper & Brothers, 1896, p. 243.

77 John, *Network nation*, p. 182.

78 ‘Telegraph companies and charges’, *Daily News*, 17 February 1873.

£1 for the traffic on their Atlantic cables, but only in 1872 did Henry Weaver, then traffic manager, first institute a regular word rate system, of four shillings per word.⁷⁹ These rates only covered the connection between Great Britain and New York or Boston; messages beyond these two points were additionally charged for the local landline connection, as well as for national taxes. A message from London to Austin, Texas, for example, cost £6 12s. 4d. in 1867 at an ordinary ten-word rate of £5.⁸⁰ People were even worse off if they attempted to telegraph a place ‘beyond the range of the Telegraphic System’, such as Fiji, German New Guinea, or the Marshall Islands, where messages had to be forwarded by ordinary mail.⁸¹ Owing to these tariff policies, the ocean telegraphs neither served as a medium of mass or social communication nor did they supplant ordinary mail. Instead, they furthered direct, point-to-point communication between centres of trade.

This system did not remain uncontested. Users continually found new ways to circumvent the hefty tariffs. First and foremost, they sent extremely brief messages. The quest for cost efficiency led to ever shorter telegrams and eventually to the ‘telegram style’, which omitted anything redundant or non-essential. Additionally, codes and ciphers were used and codebooks developed for different industries and purposes. Merchant communities used codes to convey as much meaning in as little telegraphic space as possible. ‘ELGIN’, for instance, stood for ‘Every article is of good quality that we have shipped to you’, and ‘STANDISH’ translated as ‘Unable to obtain any advances on bills of landing’.⁸² Often the codes were only relevant for a particular company or trading connection. In the 1890s, for instance, the American Seed Trade Association set up its own Telegraph Code Committee to create a code for the business and enhance ‘the co-operation of every member of the Association’.⁸³ Across the wires, those codes established a new and exclusive language for particular trans-oceanic merchant communities.

The use of codes created conflict between the business community and ocean cable companies. For the business community, the savings gained from using codes were frequently more important than secrecy. A single code word could convey many different meanings. Users devised myriad applications of the code principle: the word ‘unholy’, for instance, could express 160 different words or concepts. These codes reduced costs, increasing the number of telegrams sent and making cables ‘available for business and other purposes by many people who could not otherwise afford it’.⁸⁴ The cable companies in turn were quite biased against codes and ciphers, considering them to be unfair and defrauding them of their lawful dues. Codes made companies feel ‘deprived of anticipated profit by the economy of the commercial world, which has learned a new condensed language by which they can express all their wants’.⁸⁵ Laying a cable was one thing; making it pay was quite another.

79 Bright, *Submarine telegraphs*, pp. 143–4.

80 BT Archives, Anglo-American Telegraph Company Ltd., ‘Tariff Book, 1866–1871’, p. 9.

81 H. Thurn, *Die Seekabel unter besonderer Berücksichtigung der deutschen Seekabeltelegraphie*, Leipzig: S. Hirzel, 1909, p. 193.

82 Bright, *Submarine telegraphs*, p. 176.

83 American Seed Trade Association, *Telegraph code: for vegetable, clover, grass, tree, field and miscellaneous seeds markets, stocks, shipping, etc.*, New York, 1895, p. i.

84 Bright, *Submarine telegraphs*, p. 176.

85 Porthcurno Cable and Wireless Archive, James Anderson Papers, The Globe Telegraph Company, ‘Report of the proceedings at an anniversary banquet given by Mr. Cyrus W. Field, of New York at the Buckingham

In the end and despite codes, ocean telegraphy remained a service for the wealthy few – usually a white, male, Euro-American bourgeoisie.

Karl Marx and Friedrich Engels were among the first to address how telegraphic communication both formed and restricted social structures. In the *Communist Manifesto*, they described how ‘the bourgeoisie, by the rapid improvement of all instruments of production, by the immensely facilitated means of communication, draws all, even the most barbarian nations into civilisation’.⁸⁶ For Marx and Engels, the global expansion of the bourgeoisie relied just as much on communications as industrial modes of production and exchange. Telegraphic communications had co-created the bourgeoisie. While Benedict Anderson would see a common telegraphic language as generating imagined communities, telegraphy could offer ‘the promise of the universal connectibility of the international working class’ too.⁸⁷

Telegraphy also created two distinct communities in speculation and investment – one trading with real stock, the other with fictitious stock. The reconceptualization of business along the lines of managerial capitalism and stock trading on markets helped to popularize investment among the less wealthy. Simultaneously with the introduction of the telegraph ticker on the stock market, another phenomenon – bucket shops – popularized speculation for the masses. Telegraph tickers provided bucket shops with the same ‘real-time’ quotations as brokers at the stock markets. However, these shops never affected the actual prices of stock shares as transactions were fictitious and no commodities or certificates were ever exchanged. Still, people could win money on the shop’s loss. Bucket shops, although banned fairly swiftly, were a cheap way for people of limited fortunes to speculate at a very high risk.⁸⁸

Just as the expense of telegrams contributed to class divisions between those who could and could not afford submarine telegraphy, the global communication network supported processes of racial othering by reconfiguring mental maps of the globe.⁸⁹ Of all nineteenth-century technologies, the telegraph particularly embodied for many Europeans and Americans the ‘ultimate symbol of man’s power over nature’ and set ‘the West’ apart from ‘the rest’.⁹⁰ While global newsmakers at the time depended upon a ‘shrinkage of the globe’ through the instantaneity of news coverage, their reports, such as the ‘discovery’ of David Livingstone, created the notion of the ‘dark continent’ or ‘far-away’ places that lay outside the Euro-American system.⁹¹ As a consequence, those who did not belong to that ‘civilized

Palace Hotel, London, on Monday, the 10th March, 1873, in commemoration of the signature of the agreement on the 10th of March, 1854, for the establishment of the telegraph across the Atlantic’, p. 10.

86 Karl Marx and Friedrich Engels, *The Communist Manifesto*, London: Pluto Press, 2008 (first published 1848), pp. 38–40.

87 Martin Doll, ‘The wiring of the working class: on the interdependence of telegraphy and social-revolutionary discourses in the nineteenth century’, in Hampf and Müller-Pohl, *Global communication electric*, p. 93; Anderson, *Imagined communities*, p. 133.

88 David Hochfelder, ‘Where the common people could speculate: the ticker, bucket shops, and the origins of popular participation in financial markets, 1880–1920’, *Journal of American History*, 93, 2, 2006, pp. 335–58.

89 On mental maps, see Christoph Conrad, ‘Vorbemerkung’, *Geschichte und Gesellschaft*, 28, 3, 2002, pp. 339–42.

90 Iwan Morus, ‘The nervous system of Great Britain: space, time and the electric telegraph in the Victorian age’, *British Journal for the History of Science*, 33, 4, 2000, pp. 455–75.

91 Hobsbawm, *Age of capital*, p. 60.

world' were automatically deemed unfit to engage with telegraphy, let alone capitalist trade.⁹² In his letters about his expedition to Siberia on telegraph business in 1866, George Kennan dwelt on the 'backwardness' of the 'simple natives'. While resting in Anadyrak, he erected a telegraphic instrument and invited all the locals to see it work. Kennan took the locals' bewilderment as a sign of 'what a difference there must be between a people who could invent such a machine + a people who could not understand it after it was invented'.⁹³

Finally, communications and capitalism co-created a distinctively gendered world. At first glance, women were as much excluded from capitalist businesses as they were from global communications. In the history of global communications, women's greatest presence lies in their absence. They are portrayed as the patient and devoted wife of the entrepreneur or as the beautiful assistant, such as Anne Ellsworth choosing the famous first telegraphic words, 'What God has wrought'. Similarly, while women worked landlines, they were deemed too 'unintelligent' for the complicated ocean lines. Only during the labour shortage of the First World War and in the 1920s did cable companies employ female operators on the ocean lines.⁹⁴ Male contemporaries believed that women did not know how to operate the cables, let alone how to send a telegram correctly. Lady Mayo famously sent a letter-like telegram to her husband in India upon the opening of the India cable in 1870, an example that seemed to prove to male observers that women's chit-chatting nature was incongruous with the telegraphic style of business conduct.⁹⁵ Nevertheless, while women were not the primary users of telegraphy, they actually had a significant, albeit unrecognized, impact behind the scenes as investors. In the ocean telegraph business, many shareholders were women; and female capitalists were also very active investors in nineteenth-century sailing vessels.⁹⁶ Like other multinational organizations, cable companies fostered geographies of exclusion. But these did not go unchallenged.

Fighting for alternative concepts of global commerce and communications

Over the course of the nineteenth century, myriad groups sought to provide alternatives to this communications infrastructure and its concomitant economic and social systems. These attempts occurred both within the West and as a reaction to Western communications and commercial systems. Protests targeted the political structures implemented through commerce and communication, most notably in the form of imperialism, as well as the media system per se.

92 Michael Adas, *Dominance by design: technological imperatives and America's civilizing mission*, Cambridge, MA: Harvard University Press, 2006.

93 New York Public Library, George Kennan Papers, letter from George Kennan to his mother, 26 December 1866.

94 Thomas Jepsen, *My sisters telegraphic: women in the telegraph office, 1846–1950*, Athens, OH: Ohio University Press, 2000.

95 Simone Müller-Pohl, "'By Atlantic Telegraph": a study on Weltcommunication in the 19th century', *Medien & Zeit*, 4, 2010, pp. 40–54.

96 Helen Doe, 'Waiting for her ship to come in? The female investor in nineteenth-century sailing vessels', *Economic History Review*, 63, 1, 2010, pp. 85–106.

The economist John Hobson, for instance, would later critique the power hierarchies of communications and capitalism driving the new sociability that he had earlier celebrated. He saw imperialism as powered by a constant search for new markets to exploit. This market capitalism, according to him, destroyed traditional institutions.⁹⁷ The routes of market capitalism mapped neatly onto communications networks. Communications had not just facilitated ties between ‘civilized’ peoples but had also enabled particular political and economic orders. Hobson’s treatment of imperialism was simultaneously a denouncement of the British state’s involvement in the regulation of markets and communications. His views later influenced Lenin’s anti-imperialism.⁹⁸ Ultimately, such critiques of communications and capitalism revolved around the role of the state in facilitating the movement of goods across borders and information across telegraph lines.

Media reformers from the late nineteenth century often criticized the same structures as Hobson but they sought solutions through restructuring communications rather than capitalism. Numerous reformers tried to broaden access and integrate lower classes into communications systems by reducing the price of letters or telegrams. Elihu Burritt, for example, campaigned for an ocean penny post to link migrants to the US with their home countries.⁹⁹ From the 1890s until 1914, the British MP from Australia, Henniker Heaton, pushed for penny telegrams throughout the British empire, though he sought to connect the dominions rather than to enable universal access to communications technology. Both Heaton’s and Burritt’s campaigns were simultaneously reconceptualizations of capitalist structures: they sought to impose economic models of high volume and low price in communications rather than high price and low volume. These attempts envisioned international communications technologies as mass phenomena with significantly different supply and demand mechanisms.

From the 1890s, however, cables became a constituent part of imperial competition, and various rising powers attempted to overturn the cable system. Cable companies often had American investors, too, and did not always operate in the British government’s interests. Nevertheless, German academics, for instance, saw cables as national products and wrote extensively about the exact percentage of each country’s cables within the ‘world cable network’.¹⁰⁰ Competition over cables was not just an expression of geopolitical rivalries; it was also a fight over the information flows undergirding imperial and global exchanges. The Second Boer War (1899–1902) made clear what many European elites had long feared: Britain used its control over cables to censor the content sent through them. In response, the Germans, French, and Americans began to lay their own cables to bypass British cables, though this proved expensive and time-consuming.

Over and above laying cables, Germans in particular invested significantly in the new technology of wireless telegraphy to undermine the telegraph cable network dominated by Great Britain. The British often saw technologies as ‘instruments to stabilize an international

97 John Hobson, *Imperialism*, Cambridge: Cambridge University Press, 2010 (first published 1902).

98 V. I. Lenin, *Imperialism: the highest stage of capitalism*, 1917, <http://www.marxists.org/archive/lenin/works/1916/imp-hsc/> (consulted 23 June 2014).

99 Peter Shulman, ‘Ben Franklin’s ghost: world peace, American slavery, and the global politics of information before the Universal Postal Union’, in this issue, pp. 212–34.

100 Thomas Lenschau, *Das Weltkabelnetz*, Halle an der Saale: Gebauer-Schwetschke Druckerei und Verlag, 1903; Max Röscher, ‘Das Weltkabelnetz’, *Archiv für Post und Telegraphie*, 16, 1914, pp. 373–89.

status quo favourable to their nation, while Germans viewed products of engineering as tools to transform the international environment that stifled their political ambitions'.¹⁰¹ Wireless, too, seemed to hold great emancipatory potential to remove German dependence on British cables and content.¹⁰²

Inspired partially by Kaiser Wilhelm II's infatuation with new technologies such as wireless, the German government intervened in private enterprise. In 1903, it forced two competing firms, Siemens & Halske and AEG, to form a joint subsidiary, Telefunken, to perform research and development as well as to manufacture wireless receivers. Government contracts provided 70–80% of Telefunken's revenue in the first eight years of its existence. The navy was particularly vital, outfitting all ninety of its warships with wireless receivers in 1909.¹⁰³ After initial disputes with the Marconi company, the London conference of 1912 required both companies to make their wireless receivers compatible. By the outbreak of the First World War, Telefunken and Marconi were the two most significant wireless companies. The market looked much more like a duopoly than the cable market, which Anglo-American companies still dominated.

While Western actors often portrayed their communications and commercial systems as global, colonial subjects frequently perceived them as imperial impositions. Non-Western actors often opposed 'imperial' communications as the ultimate symbol of Western intrusion. From the Ottoman empire to Southeast Asia, Africa, and India, colonial subjects demolished telegraph poles, cut telegraph lines, and even attacked telegraph stations and personnel. In China and Japan, contemporaries feared that the telegraph system not only disrupted feng shui but also enabled unwanted Western economic and political influence.¹⁰⁴ In the Ottoman empire, in turn, power rivalries between Sultan Abdul Hamid II and local magnates sparked violent opposition to telegraph lines, which Anatolians cut in protest at the sultan's attempts to impose 'modernity' in the late nineteenth century.¹⁰⁵ In Africa, telegraphy could prove fatal: in 1907 a 'mob' of Moroccans attacked and killed a French doctor for installing a meteorological installation on his roof that they had mistaken for a wireless telegraph pole. In what was no isolated incident, African colonial subjects resisted Western communications and the commercial practices accompanying them.¹⁰⁶ Communications systems were both sites of imperial power and often violent contestation of that power.

Even more radical suggestions stemmed from anti-Western discourses. While in South Africa, Gandhi rejected the entire media system and sought to institute slow reading as part of developing an ethical self.¹⁰⁷ In India in the 1920s, he launched a mass movement that

101 Bernhard Rieger, *Technology and the culture of modernity in Britain and Germany, 1890–1945*, Cambridge: Cambridge University Press, 2005, p. 18.

102 Heidi Tworek, 'Magic connections: German news agencies and global news networks, 1905–1945', *Enterprise & Society*, 15, 4, 2014, pp. 672–87.

103 Michael Friedewald, 'Telefunken vs. Marconi, or the race for wireless telegraphy at sea, 1896–1914', Working paper, 2012, <http://ssrn.com/abstract=2375755> (consulted 18 August 2014).

104 Winseck and Pike, *Communication and empire*, ch. 4.

105 Yakup Bektas, 'The Sultan's messenger: cultural constructions of Ottoman telegraph, 1847–1880', *Technology and Culture*, 41, 4, 2000, pp. 669–96.

106 'Lawlessness in Morocco', *The Times*, 25 March 1907, p. 5.

107 Isabel Hofmeyr, *Gandhi's printing press: experiments in slow reading*, Cambridge, MA: Harvard University Press, 2013.

used the press to protest against Western economic systems and political structures.¹⁰⁸ Communications technologies became a ‘double-edged sword’ – Gandhi and Indian nationalists later used the imperial telegraph and railway networks to coordinate against the British.¹⁰⁹ After the First World War, meanwhile, communications technology spread Wilsonian ideas of self-determination to Egypt and China.¹¹⁰

In Japan, on the other hand, elites reacted to the introduction of telegraphy and Western commerce from the 1850s at first with scepticism and then with increasing determination to achieve independence by emulating Western systems. Japanese companies cooperated with a Danish firm to lay their own cables in the later nineteenth and early twentieth centuries, while Japanese news agencies increasingly sought to drive out Reuters from northeast Asia.¹¹¹ Around 1900, industrial communications had enabled Japan to become an important centre for exchange among Middle Eastern and South Asian intellectuals.¹¹² In the 1930s, Japanese elites dreamed that an autarchic communications network could provide the nervous system to feed the body of its autonomous economic sphere in East Asia, investing immense effort and finances to attempt to implement their plans.¹¹³

The Soviet Union, meanwhile, created communications networks mirroring their economic system of central planning. They chose to invest in loudspeakers to communicate information from the Party to the people rather than to install telephones, which would have allowed Soviet citizens to talk directly to each other. Like communist central economic planning, Soviet communications relied upon disseminating information from Moscow to many recipients.¹¹⁴ These vertical rather than horizontal connections formed the logic of both economic central planning and communications under communism.

Finally, after the Second World War, international organizations began to pursue a political project to counter Western media hegemony at the same time as decolonization challenged global economic systems. UNESCO began to investigate the international communications order and to question market dominance by Western companies.¹¹⁵ Ultimately, however, submarine cables laid the groundwork for a system still dominated by Western communications infrastructure and companies.

108 Chandrika Kaul, *Reporting the Raj: the British press and India, c. 1880–1922*, Manchester: Manchester University Press, 2003.

109 Daniel Headrick, ‘A double-edged sword: communications and imperial control in British India’, *Historical Social Research*, 35, 1, 2010, pp. 51–65.

110 Erez Manela, *The Wilsonian moment: self-determination and the international origins of anti-colonial nationalism*, Oxford: Oxford University Press, 2007.

111 Tomoko Akami, *Japan’s news propaganda and Reuters’ news empire in Northeast Asia, 1870–1934*, Dordrecht: Republic of Letters, 2012.

112 Nile Green, ‘Shared infrastructures, informational asymmetries: Persians and Indians in Japan, c. 1890–1930’, *Journal of Global History*, 8, 3, 2013, pp. 414–35.

113 Daqing Yang, *Technology of empire: telecommunications and Japanese expansion in Asia, 1883–1945*, Cambridge, MA: Harvard University Asia Center, 2010.

114 Starr, *Creation of the media*, p. 6; Larissa Zakharova, ‘Téléphones et télégraphes au pays des Soviets: vecteurs et procédés de circulation des techniques de communication en URSS (1918–1939)’, *Histoire, Economie, Sociétés*, 31, 4, 2012, pp. 75–90.

115 Francis Williams, *Transmitting world news: a study of telecommunications and the press*, Paris: Unesco, 1953. See also James R. Brennan, ‘The Cold War battle over global news in East Africa: decolonization, the free flow of information, and the media business, 1960–1980’, in this issue, pp. 333–56.

Conclusion

In 1914, Max Roscher proclaimed ‘a deep, fertile interdependence between the transportation of goods (and people) and that of news’. Summing up his dissertation on global communications and capitalism in a new journal, *Weltwirtschaftliches Archiv* (today known as the *Review of World Economics*), Roscher claimed that news formed the ‘basis of the exchange of goods’. News encouraged economic growth by reducing risk and prices, as well as by enabling traders to offer their goods further afield.¹¹⁶ He and others as diverse as Norman Angell, John Hobson, and Karl Marx all recognized a reciprocal relationship between global communications and capitalism that unfolded from the mid nineteenth century. For those writing prior to the First World War, communications was the unrecognized premise of global markets. The relationship between communications and capitalism was one of mutual interdependence and re-enforcement – but also a relationship where the underlying structures, ideas, and concepts needed little exploration or explanation.

In the intervening century, we have lost sight of the important interweaving of these two perspectives, perhaps because the First World War dealt a heavy blow to globalization or because the neoclassical focus on prices and simultaneity came to dominate economics over historical accounts. Although information asymmetry has become a key concept in economics, for instance, few scholars have examined how communications infrastructure can perpetuate and create information asymmetry in the first place. The geography of ocean telegraphs initially followed the major, often imperial, trading routes around the world: for instance, along the all-important cotton trade route across the Atlantic or the spice trade routes between Europe and India. Only in the late nineteenth century with new imperialist government policies did cable companies retreat from their premise not to lay cables in maritime regions without pre-existing customer bases. The transpacific cables from 1900 were the first cable connections for developing new markets, especially for trade between North America and Asia. These connections had political and social ramifications that historians have often neglected that frequently reinforced asymmetric access to global communications and capitalism, while promoting particular routes of global trade.

However, the logic of connecting communications and capitalism has remained until today. Cable communications after the submarine telegraphs followed the geographical logic and density of the global cable system from transatlantic telephone cables through to Internet connections. The world of fibre-optic cables looked surprising like the late nineteenth-century world of telegraphy until very recently. In 2009, a pan-African business consortium, SEACOM, laid 10,000 miles of submarine fibre-optic cable between the Arabian Peninsula and East Africa, connecting Kenya, Tanzania, Mozambique, Uganda, and South Africa with the world’s communication network. Their slogan, ‘Closing the final link’, indicated that the wiring of the world was still incomplete. Those formerly disconnected were finally tapping into the world communication and market system. In his opening address, Jakaya Kikwete, then Tanzania’s president, called the cable connection ‘the ultimate embodiment of modernity’.¹¹⁷ Just like Norman Angell one hundred years earlier, Kikwete

¹¹⁶ Roscher, ‘Über das Wesen’, pp. 57–8.

¹¹⁷ Lee Mwiti, ‘East Africa: sea cable ushers in new Internet era’, 23 July 2009, <http://allafrica.com/stories/200907230954.html> (consulted 3 August 2009); Diane McCarthy, ‘Cable makes big promises for African

took the link between world communications and commerce for granted. Both would lead Africa into 'modernity'.

This article has moved beyond just assuming a link to show how the mutual interaction between communications and modern capitalism co-created the distinct political, economic, and social geographies of the modern world. Ocean telegraphy allowed modern capitalist practices based on speed and information densification to emerge and succeed, while it simultaneously co-created modern market spaces which were congruent as well as challenging to imperial territoriality. In the end, its actors created a world dominated by familiar hierarchies. Communicating global capitalism created a distinctly Western modernity – albeit one, as this article also shows, that did not go unchallenged.

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