Asymmetries of Transnational Telegraphy, 1855–1939: Ideas, Materiality and the Use of the Telegram

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RESÜMEE

Asymmetrie ist ein zentrales Konzept für das Verständnis der Rolle, die der Telegraph in der Geschichte der Globalisierung gespielt hat. Dieser Beitrag zeigt diese asymmetrische Entwicklung des globalen Telegraphennetzwerks und setzt sich mit einer allzu systemorientierten Sicht und einer weithin unkritischen Charakterisierung des Telegraphen als Motor der Globalisierung auseinander. Zwei Trends in der aktuellen Geschichtsschreibung sind dafür besonders ermutigend: Einerseits haben verschiedene Forscher begonnen, den scheinbar revolutionären Charakter des Telegraphen kritischer zu beurteilen, indem sie mehr Aufmerksamkeit auf die technologische Entwicklung vor dem Telegraphen und auf Kommunikationsstrategien, die parallel zu ihm entwickelt wurden, gelegt haben. Andererseits haben Untersuchungen des Telegraphen im imperialen Kontext die wechselseitige Abhängigkeit der imperialen Mächte unterstrichen und dabei Konflikte um die Ausweitung des Telegraphennetzwerkes in den Blick genommen. Die Einleitung zu diesem Themenheft schließt damit, dass sie Ideen, Materialität und Gebrauch als drei Perspektiven identifiziert, unter denen die Untersuchung der inhärenten Asymmetrien des globalen Telegraphennetzwerkes besonders fruchtbar erscheint.

1. A monument to the limbs of technology

On 16 December 1922, at a small ceremony lasting less than an hour, a statue was uncovered at the Helvetiaplatz in Berne. The statue showed a sitting woman, joining hands with numerous allegoric figures on each of her sides. The designer of this lavish and overloaded monument was Giuseppe Romagnoli, more famed for the lira coins he designed for the *Banca d'Italia*. His design had been selected in the final round from

more than 100 proposals. While the woman herself stood for the International Telegraph Union (ITU), the other figures represented sentiments that Romagnoli felt characterized humanity at large, befitting the universal union created by the telegraph. Despite the large organizational effort required in producing the statue, enthusiastically decided at the 1908 ITU conference in Lisbon, the timing of the inauguration was indeed a bit off. Originally scheduled for 1915, at the fiftieth anniversary of the founding of ITU in 1865, it had been postponed due to the First World War. Thus, the presentation of the statue not only came at a point in history from which the importance of the telegraph would begin to decay, it also represented a slightly odd fifty-seven year jubilee.[1]

We may take the slight uneasiness and modesty of the presentation of the huge monument, as a starting point for the theme of this special issue: the asymmetry of technological globalization. Although this particular instance should not be seen as a sign of the general wisdom that monuments are erected when the subjects of admiration are long dead, it does open the door for important questions on how we see the role of technology in the historical process of globalization. The electric telegraph carries a special weight in this discussion. It is routinely invoked as an example of the beginning of global interconnectedness, and the many catch phrases coined by telegraph enthusiasts in the nineteenth century are repeated over and over again.

Just as the internet frenzy around the year 2000 was in dire need of corrective voices, it is an important task of historians to deconstruct the examples of exaggerated rhetoric used when assessing the significance of the electric telegraph. However, in this special issue, we take the discussion further. We aim to show, not only how the new technology in many instances failed to live up to expectations, thereby exposing the gap between the realm of ideas and the reality of material use, but also that in many cases it reinforced asymmetric relations of power and information access. The electric telegraph was part of a process that reorganized flows of information and communication, based on existing and developing needs, and in relation to alternative means of communication. The outcome was anything but a homogenous system catering to a higher purpose of universal communication, as imagined by the 1922 statue, representing as she was, some kind of goddess of telegraphy. Rather, the result was the uneven product of financial, political, technological, organizational and cultural pressures.

We may start to uncover this alternative narrative of the role of electric telegraphy in the history of technological globalization by moving from the Berne square to the fringes of the global system in the Australian outback. The ends of the line between Darwin and Adelaide met on 22 August 1872, bringing the typical congratulations from the world wide over that "the Australian colonies at long last were connected with the grand electric chain which united all the nations of the earth". However, the initial organic poles could not withstand "the voracious appetites and the menacing mandibles of countless millions

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1   Inauguration du monument commémoratif de la fondation de l'Union télégraphique, in: Journal Télégraphique 54 (1922) 12, 238-242.

of white ants", and had to be replaced with iron equivalents.[2] To Doris Blackwell, who spent most of her childhood and early adolescence from 1899 to 1908 in the outback where her father manned a relay station in the middle of Australia, the "singing strings" of the Overland Telegraph Line brought with them a variety of experiences. As a man of the telegraph, her father became a local figure of authority. He turned into something of a local judge in the absence of alternatives. On other instances telegraph personnel acted as stand-in doctors-at-a-distance, under the guidance of professional doctors from coastal cities sending their instructions in Morse to treat patients otherwise beyond their reach. The telegraph line even functioned as a literal lifeline. People were known to cut the lines in life-threatening situations, hoping those sent out on horseback for repairs would reach them in time.[3] Rather than an instrument of universal communication, the telegraph was a practical aid in solving problems of the periphery.

In a chillier place at other end of the globe, in the northern parts of Scandinavia, equally enthusiastic exclamations were delivered when the electric telegraph arrived, claiming that this "lightning fast means of communication", would bring the local inhabitants "out of the woods" and put them in touch with the rest of the world.[4] However, technological problems and extreme conditions of snow and frost soon put expectations to the shame. Often, the lines of the telegraph were subjected to sabotage. Rather than a symbol of universal communication, the telegraph represented the tension between the supremacy of the nation state and local inhabitants, and made visible the different interests of those eager to make use of the innovation, and those seeing it as an intruder and threat to their established way of life.

These brief anecdotes from opposing hemispheres demonstrate both the tremendous reach of the telegraph, as well as some of the complexity built into a material network of such global scope. In a way they correspond with some different generalizations that can be proposed regarding the electric telegraph and its global impact. Firstly, it can be claimed flat out, as some global history writing does, that the 'global era' began with the arrival of the electric telegraph and related transport technologies, such as railways and the steamship. A more nuanced position would address the shortcomings and integrate the historical evidence that the system did not quite reach all geographic localities or groups of people, but still claim that the flaws were ones that over time can be overcome. A more critical line of reasoning – and this is the one which we suggest in this special issue – does not attempt to 'save' the link between globalization and telegraphy, but instead portrays the build-up of the global telegraph as an inherently uneven process that by necessity, like any other (global) system of communications (or other infrastructures), reflected old and created new sets of tensions that were thus an inherent part of the system itself.

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2   D. Blackwell and D. Lockwood, Alice on the line, Sydney, 2001, 84-85.
3   Ibid., 36.
4   J. Harvard, Modernitetens depescher? Telegrafen och den norrländska pressens tidshorisonter 1850–1870, in: Presshistorisk årsbok, 2007 (24), pp. 27–47.

Although we should justly question accounts portraying the electric telegraph as a harbinger of globalization, and analyse the reality behind claims that it represented a homogenous and smooth running system, this does not imply assuming an a priori division between idea and reality. The idea of the telegraph was very much part of its historical presence. From the start proponents of the new technology picked up on this global dimension, along the lines of the ideas Romagnoli sought to give an expression in stone in his statue. For example, the first successful transatlantic cable in 1858 gave fresh momentum to eruptions of techno-evangelism linked to the telegraph, and enthusiasts likened the network to a "global nervous system".[5] Instead, we may argue precisely that the ideological significance is what most distinguished the telegraph from perhaps more important – but certainly less celebrated – technological developments: advances in shipping and overland transportation that had already dramatically improved long-distance connections prior to the existence of the electric telegraph.[6]

What the short depiction of Doris Blackwell's teenage years shows is that the well known celebrations of the telegraph as a global technology stand in stark contrast to the vast disparities embedded in the emerging telegraph system. Well connected citizens of urban centers existed alongside the less integrated users at the outskirts of networks. Additionally, not all welcomed the innovation. In remote areas telegraph lines were sabotaged, as they were seen as a foreign element in the landscape, or as a proxy for foreign oppressors.[7] Establishing lines in jungles, deserts and mountainous areas were no easy endeavors.[8] Storms or natural disasters damaged or destroyed the system locally. In short, the spread of the electrical telegraph was by no means an automatic process. It turns asymmetry into a key concept needed in order to understand the global telegraph throughout its trajectory.

2. The asymmetries of the global telegraph from systemic perspectives

In this special issue, we investigate the asymmetries between a unified idea of successful communication on the one hand, and the varied, more complicated conditions in the real world on the other. We explore the relationships between centers and peripheries, institutions and users, systemic and local experiences, precisely with the aim to give ex-

5   D. Czitrom, Media and the American mind: From Morse to McLuhan, Chapel Hill 1982; I. Morus, 'The nervous system of Britain': Space, time and the electric telegraph in the Victorian Age, in: The British Journal for the History of Science 33 (2000) 4, 455-475. For an in-depth discussion of this theme, see the contribution by Yakup Bektaş.

6   R. John, Spreading the news: The American postal system from Franklin to Morse, Cambridge 1995; Y. Kaukiainen, Shrinking the World: Improvements in the Speed of Information Transmission, C. 1820–1870, in: European Review of Economic History 5 (2001) 1, 1-28.

7   E. Baark, Lightning wires: The telegraph and China's technological modernization, 1860–1890, Westport 1997; Y. Bektas, The Sultan's messenger: Cultural constructions of Ottoman telegraphy, 1847–1880, in: Technology and Culture 41 (2000) 4, 669-696.

8   T. Diacon, Stringing together a nation: Candido Mariano da Silva Rondon and the construction of a modern Brazil, 1906–1930, Durham 2004; W. King, The Telegraph to Lhasa, in: The Geographical Journal 63 (1924), 527–531.

amples of the disparities of global telegraphy and the different forms of impact it had in different places at different points in time. Indeed the introduction of new infrastructure sometimes has the most dramatic effect on less developed areas.[9] Comparing cores and peripheries make visible not only the opportunities and connections that the telegraph provided, but also the exclusions and agonies involved. The understanding of hurdles and barriers provides an important corrective to the often heard observations regarding systemic strive towards expansion and homogenization. Localized telegraph realities provide an essential contrast to central agencies' attempts to create a unified, smooth running structure.

Such themes have been addressed in the work of historians studying so-called 'large technical systems' (often abbreviated as LTS), a concept referring to large material infrastructures providing communications, energy and transport. In an historiographical overview, Erik van der Vleuten distinguishes three broad research themes that have characterized LTS studies. First, scholars have targeted the history of the large technical systems themselves, posing questions regarding system building, institutional history, or the history of material networks, or of ideas. Second, historians have investigated the relation between changes in such systems, and societal change in general. Third, they have displayed an interest in the dynamics of LTS, trying to distinguish the various phases of system development and the drivers thereof.[10]

This latter aspect has become an object of considerable criticism. Such analyses have been based on an implicit assumption that the development of large technical systems follows a pattern of distinct phases, which through systemic expansion ultimately lead to lasting consolidation.[11] Partly in response to such criticisms phases of stagnation, decay and obsolescence were added. The tendency to view processes of infrastructure development according to a set of clear-cut phases that follow one another consecutively is found *a fortiori* in the work of policy-oriented scholars interested in uncovering the general laws of LTS development over time. A typical example is the work of Harmeet Sawhney, who tries to capture the development of wire-based telephony in a set of eight phases. After sprouting, the telephone developed into a feeder of the telegraph system and, for a while, encouraged it. After the formation of long-distance capabilities, competition kicked in.

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9   A. Kaijser, Nature's periphery: Rural transformations by the advent of infrasystems, in: Taking place: The spatial contexts of science, technology and business, ed. Enrico Baraldi, Hjalmar Fors, and Anders Houltz, Sagamore Beach 2006, 151-186.

10   E. van der Vleuten, Understanding network societies: Two decades of large technical system studies, in: Networking Europe: Transnational Infrastructures and the Shaping of Europe, 1850-2000, ed. E. van der Vleuten and A .Kaijser, Sagamore Beach 2006, 279-314. The idea of large technical systems was first advanced in T. Hughes, Networks of power: electrification in Western society, 1880–1930, Baltimore 1983.

11   Most clearly on this point, see J .Radkau, Zum ewigen Wachstum verdammt? Historisches über Jugend und Alter großer technischer Systeme, Berlin 1991; J. Radkau, Zum ewigen Wachstum verdammt? Jugend und Alter großer technischer Systeme, in: Technik ohne Grenzen, ed. Ingo Braun and B. Joerges, Frankfurt am Main 1994, 50-106.

As the 'new' system subsumed the older one, the feeder relationship was reversed and the conditions were put in place for a rerun of the cycle.[12]

Both the logic of system expansion prevalent in LTS literature and the evangelical notions developed in relation to the electric telegraph, ultimately lead to conclusions such as that national borders were obnoxious hindrances for the electric telegraph ('reverse salients' in LTS terminology) in the development course on the way to connecting the globe and providing unity and peace. We argue that regarding such power relations as hindrances holding back the full realization of system potential ends up producing a-historical accounts of telegraph developments.

3. The electric telegraph and the idea of global simultaneity

The electric telegraph has figured preeminently in many strands of research on the history of globalization, and has often been ascribed a major role in the process of globalization.[13] Synthetic works, such as Manuel Castells' influential work on the network society, have perpetuated traditional notions of the revolutionary nature of the new technology, claiming that the telegraph changed government, business and human interaction, as distance was "annihilated". Similar ideas have been prevalent in books and articles from the last decade discussing the emergence of contemporary communication technologies, tracing their roots, again, to the wonder of the electric telegraph, the "Victorian internet" as it has been called.[14] Nayan Chanda places the telegraph in a well known list of significant technological breakthroughs and concludes that it "ushered in an information revolution that continues to bring the world ever closer together".[15]

An observation recurring in most studies of the general role of the telegraph is that it separated communication from transport. In order to become 'instantaneous', the telegraph had to be cut loose from time-consuming movement over land or sea. Most prominently put forward by James Carey (1989), this argument is repeated with great perseverance, often underpinned with quotes from actors at the time. In a typical example Wilke says: "The telegraph made time irrelevant to communication because the transmission and the reception of a message occurred (almost) simultaneously. Space, too, was also virtually irrelevant. No longer did geographical distance determine the time it took to deliver a message. The telegraph did – as some experts claim – 'annihilate' time and space; distance 'disappeared'."[16] Such accounts conflate historical assessments of the technology as such

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12   H. Sawhney, The public telephone network: Stages in infrastructure development, in: Telecommunications Policy, October 1992, 538-552.

13   A. Bayly, The birth of the modern world 1780–1914: Global connections and comparisons, Malden 2004, 461; D. Held et al., Global transformations: Politics, economics and culture, Cambridge 1999, 43.

14   T. Standage, The Victorian internet: The remarkable story of the telegraph and the nineteenth century's online pioneers, London 1998.

15   N. Chanda, Bound Together: How Traders, Preachers, Adventurers, and Warriors Shaped Globalization, New Haven 2007, p. 63.

16   J. Wilke, The Telegraph and Transatlantic Communication Relations, Introduction, in N. Finzsch/U. Lehmkuhl

with the rhetoric of the mid nineteenth century, which painted the story of the electric telegraph in overly bright colors right after its invention: "Euphoric predictions greeted the advent of Morse's telegraph and the communication wonders that followed it".[17]
Perhaps the strong enthusiasm awakened by the seemingly limitless possibilities presented by the new technology explains why the electric telegraph became the primary object for a new breed of international organization. The International Telegraph Union (ITU) is often mentioned as the first modern intergovernmental organization, which came to serve as a model for many similar organizations.[18] While internationalists lauded this first universal 'international public union', [19] it was an open question whether the material networks themselves could match the vast scope and reach of the body that had already been created to steer its global governance. In a geographical sense, the electric telegraph reached some sort of global completion in 1902 with the closing of the 'Pacific gap', the laying of a transpacific cable. Contemporaries celebrated it as the capstone completing the 'girdle around the earth'.[20] The conflation of idealization and realization serves to further push research in the direction of the abstract idea of the technology. As Paul Gilmore reminds us, the "techno-utopian discourse imagined the telegraphic lines creating a national or universal body joining all of humanity together through economic interests and transparent communication", in effect presenting it as a universal tool for communication.[21] This way of abstracting the telegraph also means de-materializing it. Accounts of the telegraph as a historical phenomenon thus often portray it more as a beautiful idea or principle, rather than delve on the material structures and persons needed for its operation. In contrast to such notions "that better communications fostered harmony and understanding", Menahem Blondheim, in a critical analysis of the rhetoric greeting the transatlantic telegraph, concludes that international telegraphy implied a "dynamic of distancing", rather than what he calls "binding through".[22] Drawing on Lewis Mumford's concept of the "paradox of communication", he points out that the uniformity of the new medium, was inadequate to harness conflict and multifaceted reasoning, and rather than drawing people together, it made them aware of their differences. Also, although it is a trivial observation, the mere brevity of messages opened for

(eds), Atlantic Communications: The Media in American and German History from the Seventeenth to the Twentieth Century, Oxford 2004, 107.

17   E. Barnouw, Historical Survey of Communications Breakthroughs, in: Proceedings of the Academy of Political Science 34 (1982) 4, 13.

18   On the history of the ITU, see J. Ahvenainen, The International Telegraph Union: The cable companies and the governments, in: Communications Under the Seas: The Evolving Cable Network and Its Implications, ed. B. Finn and D. Yang, Cambridge 2009, 61-79; G. A. Codding, The International Telecommunication Union: An experiment in international cooperation, Leiden 1952.

19   Reinsch, Public international unions: Their work and organization, Boston 1911.

20   E.g. A. Heringa, Electrisch wereldverkeer: Economische beschouwingen over telegrafie en telefonie, Haarlem 1914, 98; T. Lenschau, Das Weltkabelnetz, Halle a. S. 1903, 7.

21   P. Gilmore, Aesthetic Materialism: Electricity and American Romanticism, Palo Alto 2008. 67.

22   M. Blondheim, 'Slender Bridges' of Misunderstanding: The Social Legacy of Transatlantic Cable Communications, in: N. Finzschand / U. Lehmkuhl (eds), Atlantic Communications: The Media in American and German History from the Seventeenth to the Twentieth Century, Oxford 2004, 153–154.

misunderstandings, and a vivid plethora of amusing anecdotes grew as part of the stories surrounding the new medium.[23]

It thus seems that the increased connectedness so eagerly sought for, where it was established, was a mechanical one, working best when little cultural negotiation was required, and information was depersonalized and abstract, as was the case with stock quotes and business information.

4. The history of technology and innovations

Against the backdrop of established narratives telling the story of a revolutionary transformation step by step, a new, more critically oriented historiography is gradually emerging. We single out two main points that we deem important in this new body of research. First, several accounts have started taking a more critical stance towards the supposedly revolutionary character of the telegraph. They are not only more closely scrutinizing what happened prior to the telegraph's advent, but also which alternative communicative strategies existed alongside the electric telegraph. Second, imperial history has traditionally displayed a larger sensitivity to issues of power, and the uneven distribution of it. Yet here too the understanding of the development of the telegraph has been that it allowed imperial centers increased control over far-flung territories. Geopolitical studies of the topic have equally delivered rather one-sided understanding of hegemonic control over the telegraph to the detriment of others.[24] Here we note the emergence of a much more multi-layered interpretation of the emergence of hubs in the telegraph system across the world, and the mutual dependence of various regimes upon the networks of one another. From relatively simplistic, if asymmetrical, centre-periphery models we are moving towards a richer understanding of global telegraphy as a system in which asymmetries are necessarily distributed throughout.

The first point relates to the fact that many of the more traditional accounts of the development of the telegraph focus on the telegraph as an innovative, new communication tool in the nineteenth century, without properly studying the actual patterns of use over a longer period of time. Such patterns, in turn, were part of a broader set of communicative possibilities worldwide. Instead of focusing too narrowly on the electric telegraph itself, there is good reason to look much closer at the intertwinement of infrastructures.[25] For example, it can be noted that the technological division between telegraph and telephony that we now perceive as natural was in fact, in the American case, the result of business and legal battles between large corporations. The respective industries were set

23   Ibid., pp. 155–156.

24   See, most prominently, J. Hills, The struggle for control of global communication: The formative century, Urbana 2002; J. Hills, Telecommunications and empire, Urbana 2007; P. Hugill, Global communications since 1844: Geopolitics and technology, Baltimore 1999.

25   G. Mom et al., 'Hop on the bus, Gus.' Editorial, in: Transfers 1(2011) 1, 1-13; J. Harvard / P. Lundell, 1800-talets medier: System, landskap, nätverk, in: J. Harvard / P. Lundell, 1800-talets mediesystem, Stockholm 2010, 7–25.

up as different branches, and the separation was motivated by business reasons rather than differences intrinsic to the technology.[26] Another relevant example is the continued reliance of the telegraph network (like similar networks) on not-so-very-modern elements of transportation, such as messenger boys.[27] The electric telegraph was part of a communicative totality. Instances such as the non-delivery of messages concerning deceased or dying family members gave occasion to questions of the responsibility of different parts of this totality. Sometimes the question of who should be held accountable for the damages emanating out of such non-delivery was solved through litigation.[28]

These observations resonate well with the gist of David Edgerton's study *The shock of the old*, in which he has unmasked the history of technology as a strongly innovation-centered discipline neglecting the study of technologies in use.[29] Technologies of communication have been central to innovation-centric techno-globalism, the macro-view on the relation between technology and society that holds that technology is turning the world into a global village. Edgerton reproaches techno-globalism for two main reasons. First, techno-globalism glosses over the reinforcement of the national to which such technologies have also often given occasion. Second, its innovation-centric character has been responsible for seriously mis-timing the impact of important communication technologies. The telegraph, for instance, is very much associated with the nineteenth century, despite the fact that it lived its heyday in the early twentieth century and that although total traffic dropped thereafter in some cases, it continued to carry large numbers of telegrams until well after the Second World War.[30] Although we do not wish to equate quantitative strength with the significance of particular technologies, remaining sensitive to numerical fluctuations nevertheless seems important. Furthermore, techno-evangelist accounts downplay earlier advances in traditional forms of communication.[31] Yrjö Kaukiainen has drawn attention to the substantial drops in the transmission times to get messages from point a to point b prior to the telegraph, some of which were so dramatic that they might qualify as 'revolutionary' themselves. Stagecoaches and steamers shrank the world to such an extent that Kaukiainen judges that the impact of the telegraph pales somewhat when compared with the previous gains.[32]

This challenges us to rethink the revolutionary notions that have often been invoked with regard to the telegraph, or to communications in general with the telegraph as

26   D. Hochfelder, Constructing an Industrial Divide: Western Union, AT&T, and the Federal Government, 1876–1971, in: Business History Review 76, Winter 2002.

27   G. Downey, Virtual Webs, Physical Technologies, and Hidden Workers: The Spaces of Labor in Information Internetworks, in: Technology and Culture 42 (2001) 2, 209-235; G. Downey, Telegraph messenger boys: Labor, technology, and geography, 1850–1950, New York 2002.

28   B. Malin, Failed transmissions and broken hearts, in: Media History 17 (November 2011) 4, 331–344.

29   D. Edgerton, The shock of the old: Technology and global history since 1900, Oxford 2007.

30   Ibid., 7; D. Edgerton, The contradictions of techno-nationalism and techno-globalism: A historical perspective, in: New Global Studies 1 (2007) 1, particularly 10–15.

31   D. Nickles, Telegraph diplomats: The United States' relations with France in 1848 and 1870, in: Technology and Culture 40 (1999) 1, 1-25, particularly 2 and note 3.

32   Railways started to make their impact felt from the 1830s, Y. Kaukiainen, Shrinking the World: Improvements in the Speed of Information Transmission, C. 1820–1870, in: European Review of Economic History 5 (2001) 1, 1-28.

a prominent part of it.[33] In fact, the notion of 'communications revolution' has been linked to many different types of communication at different points in time, not just the electric telegraph.[34] Equating the communication revolution with the arrival of the electric telegraph disregards available alternatives that existed and the uses that were made of them. There were real hurdles preventing fast diffusion.[35] The telegraph lines could never reach every hamlet, and until duplexing doubled it in the early 1870s capacity was limited to a single message being sent in one direction at a time.[36] Above all, the cost of using the technology made it a rather exclusive service in the early period. Switching over to telegraphy happened much more gradually than is often assumed. David Nickles highlights this aspect in relation to diplomatic practices and thus provides an apt illustration of the telegraph's impact to widen "the division between 'express' and 'bulk' information" pointed out by Kaukiainen. He demonstrates how diplomatic services continued to make use of ship-carried diplomatic pouches until at least World War One and often preferred to rely on telegram usage by commercial interests and the press for transmitting information concerning the situation abroad.[37]

Together commercial and press telegrams dominated the telegraphy market, particularly in its early days. In the United States, business provided 50-70 percent of telegraphy revenues, the press 30-40 percent, leaving less than 10 percent for personal messages and the like.[38] In any case, all groups of users continued to employ alternative means for communicating their messages alongside with their telegraph use. For long distance traffic, even diplomats used the technology sparsely, due to high costs.[39] The press too remained a large user of the postal system, especially for more in-depth messages not lending themselves to 'skeletonization'.[40]

Some authors have suggested that the qualitative difference setting electric telegraphy apart from communications systems preceding it was its bulk use. This argument does not do justice to Edgerton's call to keep an eye on technology-in-use. For one, it fails to capture the tremendous growth in letter writing in the heyday of the telegraph. In 1875

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33   For one example among many invoking the notion of 'revolution' in relation to the telegraph, see P. Griset, Les révolutions de la communication XIXᵉ-XXᵉ siècle, Paris 1991.

34   D. P. Nickles, Telegraph diplomats: The United States' relations with France in 1848 and 1870, in: Technology and Culture 40 (1999) 1, 1-25, particularly 2 and note 3.

35   C. Bertho-Lavenir, Histoire des télécommunications en France, Toulouse 1984, 32–34.

36   Duplexing was first proposed in 1853, but not made practical until the 1870s, inter alia through advances in accurate modeling techniques, see P. Strange, Duplex telegraphy and the artificial line: The beginnings of system modeling, in: Physical Science, Measurement and Instrumentation, Management and Education, Reviews, IEE Proceedings A 132, no. 8 (1985), 543–552.

37   D. Nickles, Telegraph diplomats (note 34). For a more general discussion of the relation between electric telegraphy and diplomacy, see D. Nickles, Under the wire: How the telegraph changed diplomacy, Cambridge 2003. See also J. Britton, "The confusion provoked by instantaneous discussion": The new international communications network and the Chilean crisis of 1891–1892 in the United States, in: Technology and Culture 48 (2007) 4, 729–757.

38   R. Kielbowicz, News gathering by mail in the age of the telegraph: Adapting to a new technology, in: Technology and Culture 28 (1987) 1, 34.

39   Nickles, Telegraph diplomats (note 34).

40   The term is used in Kielbowicz, News gathering (note 38), 33.

the Universal Postal Union administered the dispatch of 144 million letters. This very considerable number subsequently skyrocketed to 2,500 million letters by 1913.[41] Although the rise in population and alphabetization go a long way towards explaining this tremendous increase in letter-writing, it also means that there was a viable alternative to the telegraph that was used on a massive scale. Thus rather than replacing the older ways of communication, the electric telegraph co-existed with them in complex ways that merit more attention than they have hitherto received.

5. The electric telegraph, power, and empire

An important line of research explores the electric telegraph as part of what Michael Mann has called "the infrastructure of power", extending the abilities of the central administration into vast territories. Indeed, as Yakup Bektaş has shown, this was a key selling point when western entrepreneurs were trying to convince the Ottoman empire of the validity of the telegraph; it would be the arm of the sultan stretching all over the empire, his power omnipresent.[42] For the British Empire the telegraph proved instrumental in administrating colonies. Indeed, also in smaller countries, the telegraph often symbolized the presence of central power in distant localities, as the inauguration of new stations was symbolically completed by sending a telegram expressing gratitude to the monarch or head of state.[43]

Such phenomena, when placed in the perspective of ideas related to the telegraph, render it likely that it was also perceived as a symbol of power and national might. Subscribing to progress-oriented optimism was linked to subscribing to some form of nationalism, or at least implied respect for the central government.[44] This connection between technology, progress and nationalism has through the centuries showed up not only in relation to the telegraph, but in relation to a number of technologies, the advancement of which has been said to manifest the greatness of some nation or polity. Postcolonial perspectives too take the position that the telegraph was an instrument of power and tool for subsuming indigenous and other peoples around the world, through more efficient imperial administration.[45]

Against this perspective of technology and national might, we thus find the perspective that technology fostered globalization, and an important issue has been the importance of geopolitics and the control of the global communications. Daniel Headrick has discussed how the decreased costs of long-distance communications as part and parcel of

41   S. Pollard, The integration of the European economy since 1815, London 1981, 50.
42   Bektaş, The Sultan's messenger (note 7).
43   H. Heimbürger, Svenska telegrafverket: historisk framställning. Bd 2, Det elektriska telegrafväsendet 1853–1902, Stockholm 1938, 51.
44   As illustrated by the concept techno-nationalism. D. Edgerton, The contradictions of techno-nationalism and techno-globalism: A historical perspective, in: New Global Studies 1 (2007) 1, Article 1.
45   T. Eriksen, Globalization: The Key Concepts, Oxford 2007.

other technologies supporting imperial control may help explaining the timing of the new imperialism.[46] Others similarly have underlined the importance of geopolitical relations in the search for control of global communications by various hegemonic contenders.[47] Rather than emphasizing the competition involved between states, Dwayne Winseck and Robert Pike underline the mutual dependence among European imperial powers to acquire sufficient telegraphic reach across the globe.[48] In addition, over the last decade works have been gradually accruing that much more carefully reconstruct the build-up of such imperial telegraph networks. Just taking the Indo-European cable as an example, works have not only explored the role of the telegraph as tool of control from the viewpoint of the suppressed,[49] but also the dependence on the states lying between the United Kingdom and the Indian pearl in its global empire. This literature has laid bare the regional rivalries over the revenue generated from transit tariffs, in this case between Iran and the Ottoman Empire. Portugal's critical role in sustaining the British imperial telegraph network and its reliance on the revenue derived thereof point to mutual inter-imperial dependence in a similar vein. Additionally, it has highlighted the regional aims (control over the unruly Muntafiq tribe in southern Iraq, or over Baluchistan) in telegraph development as part of larger globe-spanning imperial schemes, as well as local resistance and attacks on lines as a form of protest against imperial rule or to undo the administrative centralization the wires had made possible.[50]

In a recent article Roland Wenzlhuemer has provided a detailed assessment of the electric telegraph from the perspective of centralization, looking at the emergence of telegraph hubs. He defines globalization as "the creation of new connections between hitherto isolated regions or the intensification of existing links"[51]. The key point in his argument is the increasing interconnectedness, and he strives to identify an increasing rate of exchange between an increasing number of people in places scattered around the world on

46   D. Headrick, The tentacles of progress: Technology transfer in the age of imperialism, 1850–1940, New York 1988.

47   J. Hills, The struggle (note 24); J. Hills, Telecommunications (note 24); P. Hugill, Global communications (note 24); P. Kennedy, Imperial cable communications and strategy, 1870–1914, in: English Historical Review 86 (1971), 728–752; P. Griset, L'évolution des télécommunications intercontinentales au XXᵉ siècle, in: History and Technology: An International Journal 8 (1992) 3, 231-245.

48   D. Winseck / R. Pike, Communication and empire: Media, markets, and globalization, 1860–1930, Durham 2007.

49   A. Worth, All India Becoming Tranquil: Wiring the Raj, in: Journal of Colonialism and Colonial History 9 (2008) 1; D. Choudhury, Telegraphic imperialism: Crisis and panic in the Indian Empire, c. 1830–1920, Basingstoke 2010.

50   S. Shahvar, Concession Hunting in the Age of Reform: British Companies and the Search for Government Guarantees; Telegraph Concessions through Ottoman Territories, 1855–58, in: Middle Eastern Studies 38 (October 1, 2002) 4, 169-193; S. Shahvar, Tribes and Telegraphs in Lower Iraq: The Muntafiq and the Baghdad-Basrah Telegraph Line of 1863–65, in: Middle Eastern Studies 39 (January 1, 2003) 1, 89-116; S. Shahvar, Communications, Qajar irredentism, and the strategies of British India: The Makran Coast telegraph and British policy of containing Persia in the east (Baluchistan) Part I, in: Iranian Studies 39 (2006) 3, 329-351; S. Shahvar, Communications, Qajar irredentism, and the strategies of British India: The Makran Coast telegraph and British policy of containing Persia in the east (Baluchistan) Part II, in: Iranian Studies 39 (2006) 4, 569-596; S. Shahvar, Iron Poles, Wooden Poles: The Electric Telegraph and the Ottoman: Iranian Boundary Conflict, 1863–1865, in: British Journal of Middle Eastern Studies 34 (April 1, 2007) 1, 23-42.

51   R. Wenzlhuemer, The dematerialization of telecommunication: communication centres and peripheries in Europe and the world, 1850–1920, in: Journal of Global History (2007) 2, 345–372, at 345.

the one hand, and the emergence of new and different hubs of communication on the other. In other words, more people got access to more long distance communication, but people in some places were better connected than others. Although his analysis implicitly points to the emergence of new kinds of asymmetries, he focuses on the universal character of the new technology, what he dubs – in the spirit, again, of nineteenth century communication enthusiasts – the "dematerialization of telecommunication". He argues that the flow of information was separated from the flow of people, and that this created a "new, virtual space in which established distances and limitations of time were suspended". The evangelist rhetoric of such key assumptions forms part of a conceptual framework, where he aims to show, with statistical certainty, which parts of the world (Europe) benefitted the most from the new technology. Interestingly, his many tables with data, presenting the result of statistical analysis of material from the ITU, can easily be interpreted as an illustration to how power in Europe combined with geographical realities. That Paris, London and Berlin, in different order depending on method of analysis, were central hubs of communication in Europe at the time seems hard to reconcile with the idea that the electric telegraph freed communication and made physical constraints of time and space irrelevant.[52] A more convincing explanation is that rather than a world united through communication, what emerged was a multi-centered world, as has been proposed by Chase-Dunn and Hall. Rather than uniting man-kind, the telegraph brought the business and politics power centers of the world in closer contact with each other.[53]

6. Three lenses on asymmetry: Ideas, materiality and use

We engage in these new developments, departing from a basic tenet: that any image of a unified, coherent, friction-free historical development is by necessity an ideological construct. Only in the realm of ideas, can technology fulfill the evangelical visions to which it is often held accountable. What we intend to do, is not to just engage in critique, but also to provide an informed analysis and examples of where asymmetries emerged, and what acknowledging them means for the history of globalization. We propose to do so by looking into three dimensions of the role of technological change in the history of globalization, focusing on the electric telegraph: ideas, materiality and use. The tension between and within these aspects of technology in society serve well to identify major disparities providing a more accurate account of complex processes.

In terms of ideas, the overarching narrative of progress can be complemented and questioned by highlighting the existence and spread not only of luddite resistance against technological change, but pragmatic reasoning on the shortcomings of the telegraph,

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52   Ibid.
53   C. Chase-Dunn / T. Hall, Rise and demise: comparing world-systems, Boulder 1997.

disappointment in reaction to unfulfilled promises, as well as localized imagery breaking down the grand narrative into pieces fitted to actual conditions.

Yakup Bektaş takes up the idea that the electric telegraph was not only to act as a powerful agent of social and cultural change, but also of moral and intellectual improvement, ultimately leading to a peaceful and unified world. These concepts rose to preeminence with the trials of Atlantic cable (1857–1866), and such futuristic imagination became part of popular culture, supporting beliefs in technology as "the new messiah." The article emphasizes the equivocal character of electric communication. That is, while it could serve empire, globalism, and internationalism, it also could equally serve nationalism and totalitarian regimes. Its meaning and value thus depended on its users and possessors' intentions and moral outlooks. This being the case, the electric telegraph, as Thoreau argued would not make communication any "worthier" (intellectually, morally), it merely allowed a faster (but not necessarily more "meaningful") expedition of what the old forms of media as newspapers were already doing.

The aspect of materiality addresses the tactile and physical experiences of the technology, the role of geography, and the limitations of the telegram as a technology of compressing time and space. In his article, Jonas Harvard shows how at the fringes of the system in northern Scandinavia, newspaper editors subscribed readily to the idea of a global network, but that the material conditions were far from realizing the ideals. By contrasting the time horizons of newspaper telegrams published in two parts of Sweden, separated by some 1500 kilometers, he provides an example of how the electric telegraph, instead of eradicating the importance of geographical localization, rather increased the relative difference in communicative opportunities between towns with a beneficial spot in the telegraph system, and those less fortunately placed.

Ana Paula Silva writes about a hard-nosed physical reality of the telegraph network: the need to boost the electrical signal at relay stations. In line with the emerging literature on the collaborations between and the mutual dependence of colonial empires upon the respective telegraph wires spanning their colonial spaces, she demonstrates how Portugal was a much more central 'telegraphic power' than its otherwise peripheral image might lead one to believe. The importance of use is apparent in the whole chain of actors, from operators, builders of telegraph lines, managers of the offices in cities, companies manufacturing equipment, news agencies and the members of transnational organizations deliberating tariffs and systemic agreements. She shows how the telegraph in the Portugese case was institutionally and technologically closely entangled with other communication systems. Use is not merely about tapping out telegrams, but all the varied exploitation of the technology that took place in different areas of society.

Frank Schipper zooms in on asymmetries of use. Portrayals of the electric telegraph as a harbinger of globalization depend on a significant increase of their use. Yet often the tariffs for sending a telegram were deplored as ridiculously high, "something like a misdemeanor to be repressed with fines" according to an 1885 editorial in *The Times*. Some reform-minded individuals took public stage in the late nineteenth century to start what the press identified as a 'crusade' against high telegraph tariffs in order to democratize

the use of the technology. This contribution analyzes the weight of arguments regarding flows in the reform proposals.

Together, the perspectives of ideas, materiality and use, serve as tools to map out the realities of the electric telegraph, and to position it more adequately in relation to the abstract and complex process of globalization.