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Technological Globalization:
The Electric Telegraph**

Herausgegeben von
Jonas Harvard und Frank Schipper



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Futurism, Universalism, and the Moral Agency of the Electric Telegraph

Yakup Bektaş¹

RESÜMEE

Die Idee, dass der elektrische Telegraph in der Lage sei, Grenzen zu beseitigen und nationale wie internationale Konflikte zu überwinden, begleitet seine Geschichte, war aber besonders stark in der Zeit seiner Entwicklung und Ausbreitung über den gesamten Globus. Stimuliert von der Aufmerksamkeit, die die Bemühungen um ein atlantisches Kabel (1857–1866) fanden, wurde dieses Motiv Teil der Popularkultur. Von S. B. F. Morse bis H. G. Wells stellten sich viele vor, dass er Kriege beenden würde, indem er mit den Missverständnissen zwischen Völkern und Nationen aufräumen würde. Nationalismus, Sektierertum und „Partikularismen“ würden verschwinden, eine „universelle Union“ oder ein „Welt-Staat“ würden entstehen. Zentral für diese Annahme war der Glaube, dass der elektrische Telegraph eine große Handlungsmacht habe, nicht nur in Bezug auf soziale, wirtschaftliche und politische Veränderungen, sondern auch für die geistige, moralische und intellektuelle Verbesserung der Menschheit. Wie allerdings schon H. D. Thoreau vorausgesagt hatte, konnte der Telegraph selbst die intellektuelle oder moralische Qualität der Kommunikation nicht verbessern, ohne intelligente und moralische Nutzer würde diese neue Kommunikationsform nur beschleunigen, was die alten Medien, wie etwa die Tageszeitungen, bisher schon getan hatten.

1 I am deeply thankful to Roger Sherman for his readings of and discussions on this paper from its gestation to completion. I benefited immensely from Ben Marsden's comments and suggestions. I thank Frank Schipper and Jonas Harvard for making me part in the first place of the session on "Asymmetries of Technological Globalization: the Electric Telegraph, 1850–1950" at the Third Annual Conference of the European Network in Global and Universal History (London, April 2011) that has resulted in this special issue and also for their kind support and suggestions during the writing of this paper.

Bringing the world into "one room"

The practicality of electric telegraphy, that is, the sending and receiving of information by electric signals was publicly demonstrated almost simultaneously in 1837 in Britain by William F. Cooke and Charles Wheatstone and in the US by Samuel F. B. Morse.² It then took several years of hard campaigning by inventors and promoters before the first lines were built and commercial service began. To attract the attention of railway companies, Cooke and Wheatstone in 1839 set up at their own expense a demonstration line of 13 miles, worked by their four-needle telegraphic apparatus, installed between Paddington and West Drayton on the Great Western Railway. It met with only little success as railway companies were not yet convinced of the practical value of the system to embrace it for the next several years.³ In the United States, Morse's government-funded experimental line between Baltimore and Washington, DC, a distance of 40 miles, was opened in 1844, bringing much publicity to the idea of electric communication. Thereafter, commercial lines and private telegraph companies thrived in the United States.

These successes marked the beginning of a tremendous development of human communicative technologies. But they also signified the beginning of a tremendous outburst of predictions and visions of the possibilities of cultural transformations brought by the technological development. This paper provides an in-depth analysis of the different aspects of these optimistic predictions and aspirations, and discusses the asymmetric relationship between the evangelical scope of such visions, and the more prosaic reality of the telegraph as an actually existing technology.

By the early 1850s, the electric telegraph was becoming established as a promising commercial enterprise on both sides of the ocean. Overland lines grew rapidly and began to connect not only cities but countries. Short undersea cables followed, beginning with the laying of the Dover-Calais cable in 1851. On that occasion, *The Times* proclaimed that "the sea is no longer an obstacle to the instantaneous transmission of information. The deep waters have been reduced by scientific skill to the highway of human thought."⁴ The Crimean War, a major European conflict that began in 1853, provided an international stage for further demonstrating the electric telegraph's capabilities and qualifications, with the introduction of field telegraphs and longer submarine cables. More importantly, governments, the public, and news reporters began to recognize electric communication's potential applications to politics, military affairs, and news reporting.

2 Of course, the idea of transmitting intelligence by electricity goes back several decades before this, and the work on a viable electric telegraph involved many others in Europe and in the US. For a brief account, see K. Beauchamp, *History of Telegraphy*, London, 2001, 20-50.

3 Marsden and Smith show that this effort owed much to Cooke's own private initiative in courting the Great Western Railway's directors, and especially in associating himself with its well known chief engineer, Isambard K. Brunel. The arrangement for this line was informal and the company (GWR) did not pay for Cooke's expenses. For an excellent account of this effort, see B. Marsden and C. Smith, *Engineering Empires: A Cultural History of Technology in Nineteenth-Century Britain*, 2005, 191-196.

4 *The Times*, November 15, 1851. This will refer always to "The Times" of London, if not otherwise stated.

Soon the electric telegraph network expanded rapidly first in Europe and in the US, and then around the globe both overland and under the sea, in spite of setbacks in long-distance submarine telegraphy.⁵ The wires spanned towns, nations, frontiers, mountains, rivers, seas, deserts, continents, and oceans. The wires and poles advancing across the landscape became physical representations and symbols of “progress,” “civilization,” and a technological world, and thus subjects for thought and speculation.⁶

Even as early as in 1845, reacting to “the unexampled rapidity with which the news of the result of the Sunderland election was brought to the metropolis” by the railway, a major editorial in *The Times* depicted Britain “in the very thick of a busy though peaceful revolution, not indeed political, or moral, but not without important moral and political bearings—a rearrangement of the internal communications of this country, amounting to a fresh construction of its social geography.”⁷ It declared that Britain had already become a “city,” crisscrossed by railways and roads, and served by canals and shipping lines. Asserting that the “distances” that have been shortened, for example by railways, “are already about to be annihilated in one chief aspect—for the communication of intelligence,” it optimistically predicted:

*The electric telegraph in a few years will bring, as it were, the whole population under one roof, and into one room. The metropolis will instantaneously transmit and receive information from every important point in the island. For every great need or emergency the very farthest point will soon communicate its tidings or its wants, and will receive immediate reply, announcing the certain arrival of the assistance or commodity required within twenty-four hours. The island will thus become one nervous system, with a scarcely less quick and infallible action than the human frame. Our metropolis will be the sensorium of one acutely sensitive and intelligent fabric. The most northern or western part will communicate its sensations as immediately as the finger or the eye transmits its noiseless tidings to the brain.*⁸

This conception (of “the island”) was soon expanded to encompass the whole globe as a single unit. The accounts of travelers and observers of telegraphs outside Europe attest to this emerging outlook. In his extensive travels as a British telegraph official along the telegraph lines to India in the early 1870s, Frederic Goldsmid asserted that the telegraph represented “the new characteristics of progressive civilization.”⁹ His voluminous report

5 By 1860, all of the long-distance cables, namely, the first three Atlantic (1857, 1858i, and 1858ii), Red Sea (1859), and Franco-Algerian cables (1860), had failed in spite of gigantic efforts and great financial expenditures.

6 For an account of this social experimentation, see Jeffrey Kieve, *The Electric Telegraph: A Social and Economic History*, London 1973, 4.

7 *The Times*, August 16, 1845. Sunderland is a borough constituency of the British House of Commons, created by the Reform Act of 1832. In 1845, there was a by-election there. Its distance to London is about 240 miles.

8 *The Times*, August 16th, 1845. For a discussion of the comparison of the electric telegraph with the sensorium, see I. R. Morus, ‘The Nervous System of Britain: Space, Time, and the Electric Telegraph in the Victorian Age, in: *British Journal for the History of Science*, 33 (2000), 455–475.

9 Sir F. J. Goldsmid, *Telegraph and Travel: A Narrative of the Formation and Development of Telegraphic Communication between England and India, under the Orders of Her Majesty's Government. With Incidental Notices of the Countries Traversed by the Lines*, Macmillan 1874, 63, 130.

with illustrations of telegraphs in vast exotic landscapes is a testament to the opening of new geographical and cultural frontiers. Likewise, other British travelers in Persia about the same time, for example, found in the telegraph lines and poles they saw there a comfortable familiarity, the feeling of home, companionship, and of "civilization."¹⁰ The same feeling pervades John Forrest's account of his journeys in the vast interior of Australia, which for a good part followed the newly built telegraph lines.¹¹ Similar reactions characterize the accounts and depictions of telegraphs in American accounts of westward expansion, reactions that likewise express themselves, for example, in the lithographic prints of Currier and Ives and the oil paintings of John Gast.¹² The representation in Gast's "American Progress" (oil on canvas, 1872) is especially revealing. Together with the railroad, the electric telegraph signified "civilization" in the "wilderness," and thus became a marker of territorial conquest, a "lamp" that dispelled darkness, a symbol of the march of progress and culture. In fact, "the foreign" itself was to vanish as there would be "no longer any foreigners" anywhere.¹³ The world was to become "one great neighborhood," again a much used phrase, similar to the "global village" of today.¹⁴

This new electric communication thus generated an extraordinary excitement and enthusiasm. Its advocates presented "electric agency" as an active force that was to transform the globe politically, socially, and morally, simply by means of swift communication. They spoke of girdling the world by electric wires, and hence metaphorically, by links of thought, humanity, peace, and even compassion. "The annihilation of time and space" accordingly became a popular cliché of the 19th century. For example, the motto of *The Telegrapher*, the journal of the American National Telegraph Union, published from about the mid 1860s, printed on its masthead, was "Is it not a feat sublime? Intellect hath conquered time." But what was to be banished or diminished were not just physical and geographical barriers and delays of time. The new electric communication was also expected ultimately to erase cultural differences, thus leading to the creation of a homogeneous world. Carolyn Marvin and others have perceptively discussed the characteristics of this new electric communication culture in the 19th century.¹⁵

10 C. Marvin, *When Old Technologies Were New*, 1988, 198; J. Kieve, *The Electric Telegraph: A Social and Economic History*, London 1973, 37, 140.

11 John Forrest, *Explorations in Australia* (1875). Also cited in Ben Marsden/Crosbie Smith, *Engineering Empires: A Cultural History of Technology in Nineteenth-Century Britain* (2005), 225.

12 On this narrative, see, for example, Merritt Roe Smith, *Technological Determinism in American Culture*, in: M. Roe Smith/L. Marx (eds), *Does Technology Drive History*, Massachusetts 1994, 1-36, esp. 9-13; See also J. F. Kasson, *Civilizing the Machine: Technology and Republican Values in America, 1776-1900* (1976, 1999), 174-180.

13 J. Hawthorne, June 1993, in: *Cosmopolitan* (February 1893): 450-458 (455). Quoted in C. Marvin, *When Old Technologies Were New: Thinking About Electric Communication in the Late 19th Century*, Oxford 1988, 201-202.

14 Morse himself uses this phrase often too. See, for example, see his statement in *The Times*, October 11, 1856. The phrase "global village" was popularized in the works of Marshall McLuhan in the 1960s. McLuhan believed that electric communication was ultimately going to create a world free from individualism and fragmentation, and which was to be defined by a collective identity with a "tribal base," and this was "the global village." This seems very much parallel to H. G. Wells's idea that as electric communications improved, "obsolescent particularisms" would disappear, leading to a "world-state" (See more on this below).

15 See C. Marvin, especially 191-231; J. Kieve, especially 190-210; see also T. Standage, *The Victorian Internet* (1999).

The appropriations of the electric telegraph by the enterprises of political and military organization were diverse and immensely fruitful. Journalists and news reporters used it effectively.¹⁶ Its applications to and effects on commerce and business relations and management, and the reorganization of commodity markets on a national and international scale were perhaps more significant. Accordingly, it could be argued that, say, by the 1890s, the political, military, and commercial promises of telegraphic communication had been indeed generally fulfilled.

But the bold promises claimed for a telegraphic world where peace, unity, equality, morality and humanity would reign remain yet to be fulfilled. Even now in the age of our much more varied, faster, more efficient and accessible electronic communications, such a world remains only a distant utopia. The particular promise or specific futurity of electric telegraphy to be explored here, then, is this now quaint idea that it would eradicate not only spatial and temporal frontiers, but also help create “a universal union,” a world where all peoples and nations would coexist peacefully, and that it would bring about moral and intellectual improvement. By “futurism” I refer to the outlook of those who talk about the future applications of a technology, especially speculating on its power and potential to change the world and human relations.

Marsden and Smith argue that the advocates of the telegraph routinely talked about their technology’s future applications and issued “manifestos of promise” to boost confidence in, and credibility of their technology and themselves.¹⁷ Such manifestos promised the many possible future applications of a yet unproven technology. Graeme Gooday goes further to reduce all electric futurity to a matter of mere promotion and consumption. Futurism was thus self-fulfilling prophecies: “if only enough people believed and acted upon them, they would become true.”¹⁸ Talking about a bright future was also a tactic for distracting attention away from immediate problems and difficulties, whether technical, financial or social. David Edgerton, for his part, associates technological futurism with the dominance in our thinking of an innovation-centric history of technology narrative.¹⁹

No doubt advocacy, whether for commercial or entrepreneurial ends, social or political agendas, personal advancement, fame or psychological needs was very much part of the story of futuristic speculation about electric communication. But, is it possible to reduce all futurism or future-bounded promises of electric telegraphy to commercial advocacy and promotion and consumption alone?

At least a good part of this electric futurism and enthusiasm was generated by the flourishing newspapers and magazines, which were benefitting from mechanized printing presses and the expanding readership of the mid-19th century. They readily advertised

16 On the story of telegraphic news reporting (by Reuters), for example, see D. Read, *The Power of News: the History of Reuters*, New York 1999.

17 B. Marsden/C. Smith, *Engineering Empires: A Cultural History of Technology in Nineteenth-Century Britain*, 2005, 179-180.

18 G. Gooday, *Domesticating Electricity: Technology, Uncertainty and Gender, 1880–1914* (2007), p. 150.

19 D. Edgerton, *The Shock of the Old: Technology and Global History since 1900* (2006), pp. ix-xvii and 108.

the age of “instantaneous communication” and speculated freely on electric communication for their own benefits, such as offering “instant” news from around the world. This excitement is clear, for example, in the editorial and news reports in *The Times* from the mid-1850s onwards. The *Daily Telegraph* (note the name) was founded in London in June 1855 specifically to meet increasing public demand for “instant” news about the Crimean War.

But perhaps, even more significantly, there were also people, without any financial or personal stake in the new technology, who genuinely believed that the electric telegraph was going to change human relations and improve their social and moral conditions. For example, the English academic and bishop Edward Copleston (1776–1849) wrote in his diary after witnessing Wheatstone’s demonstrations at King’s College in 1840, “Last night I was hardly able to sleep, from the strong impressions made on my mind by the stupendous discoveries and results of experiments by Mr. Wheatstone on electricity, and his most ingenious mechanical apparatus for an electric telegraph.[...] Gas and steam have done much, but this agent is destined to do much more, and to work incalculable change in human affairs.”²⁰ As a bishop, he no doubt took a professional interest in human social and moral improvement.

The characterizations of electric communication in the works of imaginative fiction such as Jules Verne’s *The Mysterious Island* (1874) and Edward Bellamy’s *Looking Backward* (1887) and *Equality* (1897), and Julian Hawthorne’s “June, 1993” (*Cosmopolitan*, 1893) are likewise culturally significant. This genre of science fiction offers, of all types of published writings, perhaps that view of the telegraphic future the most free of any commercial telegraphic interests. But one may find this “fictional” or fantasy form of a particular futurity revealed as well in non-fictional forms such as editorial opinions. In this paper, for practical reasons, the focus is restricted to the opinions, sentiments, and beliefs expressed in non-fictional literature by telegraph advocates or observers of the time: be they inventors, entrepreneurs, or people with no obvious commercial interests such as Bishop Copleston (above).

Morse’s “Universal Union” or *E Omnibus Unum*

A fine example of presenting electric communication in glowing and most optimistic terms by an interested promoter is a statement by Samuel F. B. Morse himself. For him, the electric telegraph came to be not just an apparatus but also a metaphor for a new world. In a talk at a public dinner in his honor in London in October 1856, Morse described electric telegraphy as “a benevolent project” which was “to bind all nations of the

20 Copleston’s diary continued with the well known statement that “It [electric telegraphy] far exceeds even the feats of the pretended magic, and the wildest fictions of the East.” Quoted in B. Bowers, *Sir Charles Wheatstone*, FRS, London 2001, 65–66; partly reproduced in B. J. Hunt, *Pursuing Power and Light: Technology and Physics from James Watt to Albert Einstein* (2010), 85

earth.”²¹ He spoke of “the magnificent future, of a world brought and held together in one great telegraphic brotherhood.”²² The telegraph, with “the mysterious agent” (electricity) as its “active soul,” he believed, would speedily encompass the whole globe.²³

In a language of rich religious and evangelical symbolism, Morse also presented the electric telegraph as a divine blessing with a mission. But “to make it the world-wide blessing its Divine Author intends, we should be recreant to our high trust if we permit a narrow selfishness, be it national or personal, to interfere with its progress.”²⁴ Its progress, thus Morse asserted, required “a union of all,” “a willing surrender of prejudice or pride, or any other ignoble passion that may thrust itself in the way.”²⁵ Perhaps alluding to disputes over his priority rights as the inventor of the electromagnetic telegraph, Morse was implying that such petty disagreements over who was the original inventor or discoverer should be put aside, because the world now has a responsibility to come together so the telegraph can expand speedily. This is an especially remarkable statement: Morse was inverting the usual rhetoric, saying that the expansion of the telegraph itself has become a moral end and the world has a duty to promote it.²⁶ When it fully prevailed, Morse claimed, it would bring about the “annexation” to Europe of America, and of the whole world, an annexation “which will awaken no national jealousy, but be the bond of a firmer peace and a better understanding.”²⁷

Thus, he believed the electric telegraph transcended commercial and national boundaries. That is, it should be put above the interests of family, state, and nation, which Morse specifically mentioned. Thus, “we must not look downward and backward, but upward and forward, until, by an united and harmonious effort, all nations shall be linked together in electric bonds, and the telegraph over the land and beneath the sea shall proclaim an universal union.”²⁸ To signify this, Morse suggested that a well known

21 The dinner was a major occasion that brought together accomplished inventors, entrepreneurs, and politicians, and it was presided over by William F. Cooke. See “Dinner to Professor Morse,” *The Times*, October 11, 1856. An editorial evaluation of this occasion and of Morse’s speech appeared in *The Times*, October 13, 1856. For more on this occasion, see newspaper clipping from the *Observer*, New York, October 30, 1856), Morse Papers, “Bound Clippings on the Telegraph,” Library of Congress, Washington, DC.

22 *The Times*, October 11, 1856.

23 *The Times*, October 11, 1856.

24 *The Times*, October 11, 1856.

25 Morse thus continued: “Did Columbus first discover America; or does Cabot, or some more ancient Northman, dispute the honor with him? Is Gutenberg, or Faust, or Caxton the undisputed discoverer of the art of printing? Does Watt alone connect his name with the invention of the steam engine, or Fulton with steam navigation? Did the French or the American explorers first discover the Antarctic continent? [...] And why is this the usual course of discovery and invention? There is a lesson (and a consoling one, too) to be learned from this voice of history. Man is but an instrument of good, if he will fulfill his mission; he that uses the instrument ought to have the chief honor, and he thus indicates his purpose to have it. It is surely sufficient honor for a man that he be a co-laborer in any secondary capacity to which he may be appointed by such a head in a great benefaction to the world.” *The Times*, October 11, 1856. By this statement Morse was trying to be conciliatory (a little witty too!) about disputes surrounding his priority rights over the invention (as with Joseph Henry) and also those later involving his telegraph business.

26 I owe to Roger Sherman this interpretation of the statement of Morse.

27 *Ibid.*

28 *Ibid.*

phrase, "by the substitution of a single word to suit the new condition of the world, be fitly adopted as the universal telegraph motto—not "*E Pluribus Unum*," the motto of the United States, meaning the unity of many (literally, "out of many, one"), but "*E Omnibus Unum*," or the unity of all, or "universal union."²⁹

"The Telegraph as Conservator of Peace"

On the occasion of the laying of the first submarine cable between Dover and Calais in August 1850, *The Times* extolled the electric telegraph as "more like a miracle than any scientific discovery or mechanical achievement of our time," which "has outdone" "the wildest exaggeration of an Arabian tale." It predicted that "[the] first and obvious effect of this instantaneous communication between the two most civilized and powerful nations of the world will be to unite them so closely in community of interests as to secure their cooperation in all designs that may promote the advancement of humanity and maintain the peace of the world."³⁰ The fictional wonders of Arabian tales became a repeated comparison for the marvels of electric communication and other applications of electricity.³¹

The idea of connecting Europe and America by electric telegraphy generated excitement and enthusiasm even before it became a practicable scheme technically and entrepreneurially. After the laying of the Dover-Calais cable in 1851, the prospect of a transatlantic cable was seen as a sure thing.

The Earl of Carlisle (George Howard, 7th Earl of Carlisle, 1802–1864), Lord Lieutenant of Ireland, speaking on Valentia Island (one of Ireland's westernmost points) at the start of the first attempt to lay a cable between this point and Newfoundland in 1857, assured his audience prophetically that "We are about, either by this sundown or by tomorrow's sundown, to establish a new material link between the Old World and the New."³² "This, our new link," he firmly declared, "instead of superseding and supplanting" the already existing "moral links" (race, commerce, friendship, literature, and glory), was to give them "a life and an intensity which they never had before."³³

William H. Russell, the reporter of *The Times*, who gained well-deserved publicity for his reports from the Crimean War, present at this gathering, emphasized the importance of Carlisle's speech in pointing out "the inestimable value of the telegraph as conservator of peace."³⁴ In fact, Carlisle asked, "Why, gentlemen, what excuse could there be for war, when the disarming message, when the full explanation, when the genial and healing

29 *The Times*, October 11, 1856.

30 *The Times*, August 31st, 1850.

31 Among many references in *The Times* alone, see, for example, the editorial in October 13, 1856, which compares "the works of genii" in Arabian Night tales to the works of "science in the modern times," whose main example is the electric telegraph.

32 H. M. Field, *The Story of the Atlantic Telegraph*, New York, 1898, pp. 143–144.

33 *Ibid.*, 144.

34 The phrase belongs to Russell. See William H. Russell, *The Atlantic Telegraph* (London, 1866), 21.

counsel may be wafted even across the mighty Atlantic, quicker than the sun beam's path and the lightning flash?"³⁵ As if conflicts and wars were all due to misunderstandings caused by lack of speedy communication among nations and the relevant parties and electric communication could correct them.

This attempt at laying the Atlantic cable failed badly. The second attempt in June the following year failed too.³⁶ A month later, the third attempt (the second attempt in 1858) succeeded in connecting Europe and America for the first time, creating a rapturous euphoria. It occasioned celebrations across the US, with New York going "wild with rejoicing," and, farther north, "a hundred guns were fired on Boston Common and the bells of that city continued their joyous peal for an hour."³⁷ Joseph Henry, the Secretary of the Smithsonian Institution, praised it as "an epoch in the advancement of our common humanity."³⁸ Telegrams were exchanged between the dignitaries of the Old and New World. These were extremely slow. For example, the ninety-eight word message of Queen Victoria to President Buchanan took more than sixteen hours to transmit.³⁹ Even this slow transmission came to an end after only a few hundred messages were exchanged, and the cable failed completely. It nevertheless showed the viability of undersea electric communication over such a long distance. The enthusiasm and excitement over a permanent electric link between Europe and America, frustrated by the failures, began to die off. Entrepreneurs and sponsors made great efforts to keep the public and governments interested. The fourth attempt in 1865 failed too when the cable broke. The fifth attempt in July 1866 was at last fully successful. This Atlantic cable of 1866 proved to operate reliably to the great relief and joy of its investors and promoters. The enterprise was hailed as the greatest technological triumph of the age.

The enterprise evoked one of the most colorful outbursts of extravagant imagery and exuberant prose of the 19th century, commemorating a technological triumph.⁴⁰ Publicity had been from the beginning very much in the minds of the entrepreneurs and financial backers of the enterprise. The company in charge of making the cable and

35 The immediately preceding part of the speech reads: "We may as we take our stand here on the extremest rocky side of our beloved Ireland, leave, as it were, behind us the wars, the strifes, and the bloodshed of the older Europe, and pledge ourselves, weak as our agency maybe, imperfect as our powers may be, inadequate in strict diplomatic form as our credentials may be, yet, in the face of the unparalleled circumstances of the place and the hour, in the immediate neighborhood of the mighty vessels whose appearance may be beautiful upon the waters, even as are the feet upon mountains of those who preach the Gospel of peace – as a homage due to that serene science which often affords higher and holier lessons of harmony and goodwill than the wayward passions of man are always apt to learn – in the face and in the strength of such circumstances, let us pledge ourselves to eternal peace between the Old World and the New." William H. Russell, *The Atlantic Telegraph* (London, 1866), 21.

36 There were altogether five expeditions, 1857, 1858i, 1858ii, 1865, and 1866. For a list of these attempts with graphic details, see B. Dibner, *The Atlantic Cable* (1964), 86-87.

37 On celebrations, see for example *ibid.*, 63-72.

38 Quoted in *ibid.*, 69.

39 *Ibid.*, 67.

40 For a study of the rich imagery and prose of the Atlantic telegraph, see C. A. Hempstead, *Representations of transatlantic telegraphy*, in: *Engineering Science and Education Journal* (December 1995), 17-25; See also G. Cookson, *The Cable: the Wire that Changed the World*, Gloucestershire 2003..

leading the whole enterprise engaged Russell, correspondent of *The Times*, to join the Atlantic telegraph expedition of 1865 on Brunel's Great Eastern as the official narrator and reporter together with Robert Charles Dudley as the artist. The cable broke only two weeks later, and the expedition was cut short. But Russell produced a book anyway, *The Atlantic Telegraph*, illustrated brilliantly by Dudley and published in the same year (1865), ahead of the 1866 cable. The book presents the project as a heroic battle over the power of nature, and anticipates its final triumph. The failure of the 1865 cable was only temporary, Russell assured his readers, and "the year 1866 will witness the consummation of the greatest work of civilized man, and the grandest exposition of the faculties bestowed on him to overcome material difficulties. The last word transmitted through the old telegraph from Europe to America was "Forward," and "Forward" is the motto of the enterprise still."⁴¹

Russell's narrative and the illustrations by Dudley, distributed widely, must have helped revive the waning popularity of the project in the face of failed attempts. John C. Deane, who accompanied this expedition as secretary of the company, also recorded the event in his journal, "Narrative of the Atlantic Telegraph Expedition, 1865," published in Macmillan's Magazine the same year.⁴² No match for Russell's lively and powerful rhetoric, Deane's diary is a day by day description of happenings on board the Great Eastern. Frequent if not daily coverage came in the newspapers of the day, especially *The Times* (London), and the *New York Times*. *Scientific American*, weekly journals such as *The Illustrated London Times*, and *Punch*, the British humor and satire magazine, vied among themselves to raise public interest, excitement and optimism. Watercolor prints and lithographs of the manufacturing works, cable-laying ships, themselves novelties, such as Brunel's Great Eastern, the largest ship of its time, and of entrepreneurs aimed to galvanize people's imagination. Presented with so much of what we would now call hype, the permanent Atlantic Cable gave an immense boost to the idea that the electric telegraph was shrinking the globe, and that it was a powerful agent for global peace and unity.

Making self-government "absurd"

"The Jubilee of the Electric Telegraph" in July 1887 (i.e., its 50th anniversary) brought together a large gathering of public figures, officials, scientists and telegraph engineers and entrepreneurs, who spoke about their visions of electric communication. Opening the meeting as the chairman, Postmaster-General (1886–1891) Henry Cecil Raikes (1838–1891) expressed the popular sentiment:

This great electric agency has all the future before it; those who are enrolled in its service are probably the disciples and apostles of a new and an absolutely beneficial dispensation, and with them rests the future, in no small degree, of the human race, and the means of

41 William Howard Russell, *The Atlantic Telegraph*, London 1865, 104.

42 Macmillan's Magazine 12 (September 1865)

*linking not merely ourselves to our distant colonies but by going forward in connecting the various races of mankind by binding island to island and continent to continent, thus doing in its own quiet, unobtrusive way, more than all the noisiest missionaries of peace and universal brotherhood have ever perpetuated.*⁴³

As the “universal brotherhood” was going to prevail, there was no longer need for the self-government or “Home Rule” (limited local autonomy) that dependent parts of the Empire, chiefly Ireland, were demanding at the time. (Ireland had been seeking its own government and parliament for decades. This had been causing public unrest and violence, making the issue a central question in British politics.) Sir William Thomson (later Lord Kelvin), who made crucial improvements to submarine telegraphy (he was knighted in 1866 for his work on the transatlantic telegraph) was among the intellectuals who believed that technology was making Home Rule unnecessary if not totally meaningless.⁴⁴ Speaking at this jubilee on behalf of science and engineering, and especially of ocean telegraphy, Thomson first paid homage to those who helped make electric telegraphy “so great a bond for all nations of the world,”⁴⁵ and then used the occasion to make his political statement:

*There was some political importance in the fact mentioned by the chairman that Dublin could now have its complaints, grievances, and gratitudes transmitted to London at a rate of 462 words per minute. That fact afforded ample demonstration of the utter scientific absurdity of any sentimental need for a separate Parliament in Ireland. He should have failed in his duty speaking for science if he had omitted to point out this fact, which seemed to be a very great contribution of science to the political welfare of the world.*⁴⁶

Irish himself by birth and politically liberal, Thomson had been a strong supporter of the Liberals, led by William Gladstone. The previous year had seen Gladstone’s attempt to pass his Home Rule bill for Ireland in an effort to pacify the Irish nationalist movement. Although the bill failed in the British Parliament, the move divided the Liberals. Those who opposed this scheme split from the party and founded the Liberal Unionist Association, becoming known as Liberal Unionists. Thompson himself objected to Gladstone’s scheme very personally and deeply and thereafter this issue became the central theme of

43 The Times, July 28th 1887.

44 For Thomson’s crucial work on submarine telegraphy, see C. Smith and M. Norton Wise, *Energy and Empire: A biographical study of Lord Kelvin* (CUP, 1989), especially 445–496, 649–722; see also B. J. Hunt, *Pursuing Power and Light: Technology and Physics from James Watt to Albert Einstein*, 2010, pp. 88–93.

45 Thomson paid homage to a good number of people from Coulomb and Ampère in France, Gauss, Weber and Steinheil in Germany, to Morse and Henry in America. He also praised Cyrus Field and John Pender, present at this gathering. Pender was a major British submarine cable entrepreneur and the second figure behind the Atlantic cable. The newspaper gave a summary of Thomson’s acknowledgement. See The Times, July 28th 1887.

46 The Times, July 28th 1887. A slightly different version of this passage appears in C. Smith/M. N. Wise, *Energy and Empire: A biographical study of Lord Kelvin*, CUP 1989, 806, and in B. Marsden/C. Smith, *Engineering Empires: A Cultural History of Technology in Nineteenth-Century Britain* (2005), 221. Both quote from William Thompson’s published papers (S. P. Thompson, *The Life of William Thompson, Baron Kelvin of Largs* (2 vols., London 1910). Thompson’s talk may later have been slightly revised for publication, or perhaps the reporter did not take it down with complete precision, or Thomson extemporized a bit while speaking.

his political work and his campaigns against the advocates of Home Rule in Ireland.⁴⁷ For the rest of his life he remained a staunch unionist and became the leader of Liberal Unionism in the west of Scotland.⁴⁸

As his biographers Crosbie Smith and Norton Wise suggest, for Thomson Home Rule “did not mean liberation and the establishment of nationhood but rather a return to internal strife, to rural barbarisms,” or narrow nationalism and religious factionalism.⁴⁹ He believed the pursuit of independence was a “chimera.”⁵⁰ Uneasy about Ireland’s divisive politics, religious and nationalist divisions, he sought Empire as a remedy. Thompson saw Empire operating above religious interests and nationalism, as the beacon of liberal ideals, individual freedoms, free trade, equality and toleration, which he probably considered as the source of British economic wealth, and social and industrial improvement.⁵¹ Hence he was convinced that Ireland would benefit economically and socially if stayed within the Empire, where it would be able to put its energies to industrial and economic growth. Thomson also justified his stance by referring to the technological developments of his day.

Whether directed specifically to this end or not, most of Thomson’s effort was surely in harmony with the grand imperial project, that is, to make Empire operate better physically, commercially, politically. With his engineering work he intended to make electric communication more efficient and navigation smoother, swifter, and safer. Thomson’s work on submarine telegraphy, his inventions such as the mirror galvanometer, his improvements to the magnetic compass, sounding equipment, astronomical clock, and tide meter serve a similar end. Furthermore, most of his speeches as Lord Kelvin in the House of Lords again concerned navigation and maritime affairs such as mail steamer contracts, load lines, and seamanship, and other practical problems of particular concern to an imperial power, such as weights and measures.

47 A perceptive account of this political cause of Thompson is given in the final chapter of C. Smith/M. Norton Wise, *Energy and Empire*, 799–814. See also I. Hutchison, *Lord Kelvin and Liberal Unionism*, in: *Journal of Physics: Conference Series* 158 (2009), 1–19.

48 *Ibid.*, 6–14.

49 Smith/Wise, 806.

50 Hutchison, 8.

51 To highlight this view of Thomson seeing Empire as the embodiment of liberal values and freedoms, Smith and Wise (See Smith/Wise, 806, 811) refer to a line in a class essay of 1838 (“Oration”) that Thomson wrote when he was 14: “Tis liberty that crowns Britannia’s isle,” which they believe came to have for Thomson “a more than symbolic significance.” They do not seem to realize that this line did not belong to Thomson himself but was a quote from a poem (“A Letter from Italy,” 1701) by Joseph Addison (1672–1719). But it still well reflects Thomson’s later view of Empire. For this poem, see *The Works of the Right Honourable Joseph Addison, with Notes by Richard Hurd*, D. D., Lord Bishop of Worcester, London 1854, 4 vols, vol. 1, 28–the line is on page 37. The complete couplet is: “Tis liberty that crowns Britannia’s isle, And makes her barren rocks and her bleak mountains smile.” Addison had obtained an official pension to travel to the Continent in the late 1690s. Written while he was there, “A Letter from Italy,” was in part a poetical travel journal, a kind of report on the state of things in Europe in comparison with Britain.

"The Moral Influence of the Telegraph"

Two years later, Lord Salisbury, Britain's last Prime Minister of the Victorian era, speaking to the Institution of Electrical Engineers (originally Society of Telegraph Engineers) in 1889 declared, "The electric telegraph has achieved this great and paradoxical result: it has, as it were, assembled all mankind upon one great plane, where they can see everything that is done, and hear everything that is said, and judge of every policy that is pursued at the very moment when these events take place."⁵² Salisbury knew this was not factually true. Perhaps, then, he believed that this was a future world that he imagined electric communication might be creating.

The prominent historian of the Victorian period Asa Briggs states that Lord Salisbury placed the electric telegraph far above the steam engine as he believed it had a direct influence upon "the moral and intellectual nature and action of mankind."⁵³ Questioning the meaning of this phrase, Briggs suggests that Lord Salisbury was perhaps referring to "the potential of things rather than their actual impact."⁵⁴ The term "moral influence," along with the more common "civilizing influence," was a phrase frequently used to refer to the social and "spiritual" powers of telegraphs and railways.

In 1881, *Scientific American*, a popular science journal, even carried a commentary titled "The Moral Influence of the Telegraph" in the aftermath of the assassination of President James Garfield, and remarked how on that occasion the telegraph "welded human sympathy and made possible its manifestation in a common, universal, simultaneous heart throb."⁵⁵ That is, this example showed that "instant communication" was making the whole world "kin," emotionally close.⁵⁶

*We have just seen the civilized world gathered as one family around a common sick bed, hope and fear alternately fluctuating in unison the world over as hopeful or alarming bulletins passed with electric pulsations over the continents and under the seas. And at last, on the same day, the nations stand in sympathetic mourning: a spectacle unequalled in history: a spectacle impossible on so grand a scale before, and indicative of a day when science shall have so blended, interwoven, and unified human thoughts and interests that the feeling of universal kinship shall be, not a spasmodic outburst of occasional emotion, but constant and controlling, the usual, everyday, abiding feeling of all men toward all men.*⁵⁷

The "moral" here is presumably equated with "kinship of humanity" and the responsibility of all men for all men. The electric telegraph, then, was going to help tighten the

52 Quoted in A. Briggs, *Victorian Things*, London 1988, 382-383

53 Ibid. 382

54 Ibid. 382.

55 *Scientific American* (October 15, 1881), 240

56 It asserted that electric telegraphy made possible the "truth" of Shakespeare's saying that "One touch of nature makes the whole world kin," and thus gave "a signal demonstration of the kinship of humanity." *Scientific American* (October 15, 1881), 240

57 *Scientific American* (October 15, 1881), 240, also quoted in Marwin, 199-200

bonds of fellowship. One of the best examples of this conception of the unifying of the globe by technology is a beautiful remark of William Gladstone, the liberal, that "each train that passes a frontier weaves the web of the human federation."⁵⁸ Writing in 1901, H. G. Wells asserted that as electric communications advanced "obsolescent particularism" would melt away.⁵⁹ This would then lead to a "world-state at peace with itself," his political ideal.⁶⁰

This line of universalist and moralist thinking of technology reaches its modern culmination in Henry Ford's *My Philosophy of Industry* (1929), which exalts "machinery" as "the new messiah."⁶¹ One of the passages that expresses this exaltation best is:

*Machinery is accomplishing in the world what man has failed to do by preaching, propaganda, or the written word. The airplane and radio know no boundary. They pass over the dotted lines on the map without heed or hindrance. They are binding the world together in a way no other systems can. The motion picture with its universal language, the airplane with its speed, and the radio with its coming international programme – these will soon bring the world into a complete understanding. Thus may we vision a United States of the World? Ultimately, it will surely come.*⁶²

This optimistic view has been a dominant narrative of technology, especially of electric communication. Such universalist, moralist, and progressive accounts overshadow the fact that electric communication was appropriated in diverse and sometime opposing ways. Thus, when examined carefully, stories of technological globalism and imperialism will often be found to be intertwined with those of factionalism and nationalism. For example, the electric telegraph played a role both in making and unmaking empires. Imperial governments willingly adopted it to tighten their grip on power, and spread their propaganda, and thus manipulate information more easily. But nationalists and independence advocates also appropriated it to serve their own agenda too.

Globalism and empire-building versus nation-building

The Indian Mutiny of 1857 hastened the British government's effort to establish telegraphic communication with India. But as the mutiny occurred when long submarine cables (the Atlantic and Red Sea lines) were failing, the government and entrepreneurs

58 Quoted in Briggs, *ibid.*, 382.

59 Quoted in Briggs, *ibid.*; also quoted in S. Kern, *The Culture of Time and Space, 1880–1918* (2003), 229.

60 Wells remarked that "the world grows smaller and smaller, the telegraph and telephone go everywhere, wireless telegraphy opens wider and wider possibilities of imagination." Quoted in S. Kern, *The Culture of Time and Space, 1880–1918* (2003), 229.

61 H. Ford, *My Philosophy of Industry*, 1929, (edited and perhaps mostly written by Ray Leone Faurote), begins with the chapter titled "Machinery, the New Messiah," 3–24.

62 H. Ford, *My Philosophy of Industry*, 1929, 18–19, also quoted in D. Edgerton, *The Shock of the Old: Technology and Global History since 1900* (2006), 113–114.

pushed for a presumably more reliable overland telegraph to India.⁶³ Out of many possibilities, the government sanctioned the shortest route, which traversed Ottoman Turkey.⁶⁴ Communication between London and India was duly established in 1865 via Turkey (but from there by a submarine cable through the Persian Gulf on to Karachi). An alternative line was built by Siemens from Europe to Persia via Russia the following year. Overland telegraphs like these that crossed other nations did not give Britain the control it wanted, however. Therefore as soon as long submarine cables become reliable in the early 1870s, Britain began to lay them across all the oceans of the world.

At the Telegraph Jubilee in 1887, John Pender (1816–1896), a major submarine telegraph entrepreneur, and one of the two chief promoters – Cyrus W. Field being the other – behind the Atlantic cable, proudly informed his audience that “Twenty years ago there were only about 2,000 miles of submarine cable.⁶⁵ There are now 115,000 miles.”⁶⁶ Britain had “as much submarine cable as would go round the earth five times.” If he was asked “where did all this submarine telegraph extend to,” he would answer by “those beautiful lines” (from a poem by Lord Byron):

*“Far as the breeze can bear, the billows foam,
Survey our Empire, and behold our Home!”⁶⁷*

He then rephrased it:

Wherever the British ship penetrated and the British flag waved the submarine telegraph was to be found. When the history of those past 50 years was written it would be shown that telegraphy, and more especially submarine telegraphy, had done much to confederate the great colonies of the mother country, to spread civilization throughout the world, and to have made as near as possible this great world of ours one common country.⁶⁸

This statement illuminates the significance of the electric telegraph to the British Empire and its expansion. The wires and cables were not only symbolic markers of territory and conquest. Most crucially, by making communication fast and safe, the electric telegraph helped the central government manage and maintain the Empire more effectively. In his now classic *The Tools of Empire* (1981), Daniel Headrick identifies electric telegraphy – together with railways and steamships – as a major instrument of European imperial expansion.⁶⁹ Would the imperial expansions of the late 19th century (say, British,

63 In the United States, what became known as the Collins Overland Telegraph or Russian-American Telegraph was a project that emerged at the same time in an effort to connect America and Europe via the Bering Strait and Russia over a route of about five thousand miles. Western Union abandoned this project shortly after the final success of the Atlantic cable.

64 Bektaş, Sultan's Messenger

65 Pender must have been referring only to the British government owned submarine cables. ...

66 The Times, 28th July 1887

67 From Byron's *The Corsair* (1814), Canto the First (1): The first six lines are: “O'er the glad waters of the dark blue sea, Our thoughts as boundless, and our souls as free, Far as the breeze can bear, the billows foam, Survey our Empire, and behold our Home! These are our realms, no limit to their sway- Our flag the sceptre all who meet obey.” E. Hartley Coleridge (ed.), *The Works of Lord Byron*, London, 1900, 7 vols, vol. 3, 227

68 The Times, 28th July 1887.

69 Headrick's central point is technological innovations such railways and telegraphs were the crucial tools for

French, German, American and Japanese) have happened without the telegraph (and other technologies such as railways, steamships and more lethal guns)? But even more problematically, and in fact paradoxically, the innovations that were used to build big and powerful empires were also used to generate and popularize nationalism and thus helped create nation-states.⁷⁰

That is, the relationship between the electric telegraph and Empire was not always one-way. It was a dynamic process, in which both Empire and electric communication continually supported and modified each other. Although no doubt its imperial promoters, while using it to consolidate imperial power, did not anticipate any conflicting application, the telegraph was also appropriated by nationalists to organize and publicize national movements, a process that led to the creation of nation states. The electric telegraph was thus also detrimental to Empire.

The Ottoman example

The case of the Ottoman Empire illustrates how the electric telegraph served not only empire, but ironically also its enemies – nationalists and independence advocates. When introduced there after the Crimean War (1853–1856), the sultan sanctioned it as an ideal apparatus of unification for the still huge Ottoman Empire, which spanned three continents. By the late 1870s, the empire boasted one of the world's largest telegraphic networks.⁷¹ As the telegraph brought the distant provinces within quick reach of the central government, it helped centralize political power. It allowed the government to exercise its will at a time of frequent revolts and nationalist movements. As early as 1874, the American missionary Henry H. Jessup, an acute observer based in Beirut, then part of the empire, reported that the postal telegraph service was enabling “the central power in Constantinople to move the whole empire like a machine.”⁷² He gave as an example the case of “a Persian named Bakir” who “proposed to have discovered a new compromise religion on which Moslems, Christians, and Jews could unite. Bakir was reported by telegraph to Constantinople and both he and *kadi* [the judge]’s son, Jemaledin [his disciple], were banished, Bakir in September and the other youth at a later date.”⁷³

European imperialism in the nineteenth century. But he did not consider the meaning of European expansion and technological innovations from the perspective of local populations at the receiving end. See D. Headrick, *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century*, Oxford/New York 1981, 3–12.

70 In the case of the railroad, for example, the historian Ronald E. Robinson argued that it was not only the generator of “informal empire,” but also helped generate nationalism. See R. E. Robinson, Introduction: Railway Imperialism, in: R. E. Robinson/C. B. Davis/K. E. Wilburn (eds), *Railway Imperialism*, New York, 1991, 2. See also C. Divall, *Railway imperialisms, railway nationalisms*, in: M. Burri/K. T. Elsasser/D. Gugerli (eds), *Die Internationalität der Eisenbahn 1850–1970*, Zürich, 2003, 195–209.

71 *Telegraphic Journal and Electric Review* 5 (15 October 1877), 246–47.

72 H. H. Jessup, *Fifty-three Years in Syria*, New York 1900, 432.

73 *Ibid.*

During the *long* (“long” in the Ottoman context of the 19th century) reign of Abdülhamid II (r. 1876–1909) the system expanded to the remote corners of his empire. He had an elaborate telegraph office established in his palace. His spies and secret agents relied on the device, sending their reports directly to this office. The system enabled the sultan to have governors and generals dismissed, replaced or arrested almost instantly. It is very likely that the telegraph was at least partially responsible for this long reign of Abdülhamid II.

But somewhat paradoxically, although the telegraph proved vital in extending the authority of the sultan and his government, and helped to consolidate his empire’s territorial and political union, it also proved to be an effective tool for his opponents in undermining his rule.⁷⁴ The Young Turk movement, which brought the reign of Abdülhamid II to an end in 1909, for example, owed much to the same telegraphic system.

It is perhaps not by chance that the key members of this movement were affiliated with the telegraphic service or had a good knowledge of its working. For example, its leading figure, Talat Pasha (1874–1921), who served as minister of the interior, minister of posts, and grand vizier, began his career as a telegraph clerk and served long terms at the post offices in Edirne and Salonica. The telegraph helped the Young Turks (who formed the Union and Progress Party) to organize and expand the movement in spite of the sultan’s spies. The effective use of telegraphic communication was a major key to their success. This is clear in the communications of Mustafa Kemal, later known as Atatürk, the founding father and the first president of the Republic of Turkey.⁷⁵ The telegraph was also a key instrument in organizing the Armenian massacres of 1915. The Ottoman officials are believed to have sent their secret orders of deportation and killing of Armenians through telegrams in cipher.⁷⁶

Furthermore, the Republic of Turkey that emerged after World War I as a nation-state relied heavily on the network of telegraphic communication. This again is well acknowledged in Atatürk’s speeches and memoirs.⁷⁷ He often referred to telegraphs (and railroads), in widely accepted clichés of the time, as “the blood vessels” or “life nerves of a nation.”

This Ottoman-Turkish Republic example serves to illustrate an overall shift too. As the political trend became increasingly nationalistic at the end of the century, the internationalism or globalism or techno-evangelism of previous decades weakened. The very technologies that inspired Morse’s “universal union,” Thomson’s “Empire,” Salisbury’s internationalism, Gladstone’s “human federation” began to feed nationalism and the nationalistic ideologies of the nation-state.

74 Y. Bektas, Telegraph, in: G. Agoston / B. Masters (eds), *Encyclopedia of the Ottoman Empire* (Facts on File, 2009), 557-558

75 Atatürk Araştırma Merkezi (Center for Atatürk Studies), *Atatürk’un Tamim, Telgraf ve Beyannameleri* (Atatürk’s Collected Letters, Telegrams, and Statements), IV, Ankara 1991.

76 This is an issue still needing examination. For a study, see F. Dundar, *Modern Türkiye’nin Sifresi* (The Cipher of Modern Turkey: The Ethnic Engineering of the CUP 1913–1918), Istanbul 2008.

77 Atatürk’un Tamim, Telgraf ve Beyannameleri, *ibid.*

One may argue that the nation-states and independence movements of the late 19th century and afterwards owe much to their appropriations of technologies such as the electric telegraph, railways, and steamships, which could be used to support nationalism as well imperialism and globalism. Headrick himself has now recognized that the electric telegraph, which bolstered the British imperial rule in India, later came to serve also Indian nationalism, chiefly by spreading news.⁷⁸ The particular news that Headrick believes was crucial in stimulating Indian nationalist movement led by Gandhi was that of the Japanese victory over Russia in the war of 1904-5. Indians saw this as "the victory of an Asian nation over a European one, the first such a victory since the Mongols conquered Russia seven centuries before."⁷⁹ Headrick seems to give this single piece of news far too much weight. But its reception nevertheless shows the power vested in telegraphic news for Indian independence advocates, and thus makes us see how it could be appropriated to promote nationalism and self government.

For all the claims for electric communication's potential to remove misunderstandings and bring about moral improvement, and thus serve peace and unity, it did not prevent struggles for self government, nor did it obviate the huge conflicts and wars of the late nineteenth century and the two world wars. Whether it helped to accelerate or delay them is not easy to tell, and each conflict should be evaluated individually in this respect. What can be said is that electric communication, in spite of its vulnerabilities, surely made propaganda and manipulation of information easier. The same can be said for the organization and mobilization of war efforts. Even in peace time, the telegraph and other communication systems became, in the hands of governments, effective systems of manipulation and propaganda; and in the hands of authoritarian rulers, of oppression. Thus, communication technologies served all too well to maintain the oppressive totalitarian regimes that arose in the early 20th century, as aptly represented by George Orwell in *Nineteen-Eighty-Four* (1949).⁸⁰

Thoreau's Critique: "Electric Agency" versus Human Agency

When it was still developing, many saw the electric telegraph as a powerful agency not only of social, economic and political change but also, as we have seen, of spiritual, moral, and intellectual improvement. They praised its potential for promoting social equality, democracy, and human liberty. Its advocates conjectured a future world much improved by electric communication, not only materially but also morally.

But there were always those who were not so convinced, who questioned whether technology or material improvement could bring about moral and intellectual improve-

78 D. R. Headrick, *A Double-Edged Sword: Communications and Imperial Control in British India*, in: *Historical Social Research* 35 (No. 1, 2010), 51-65.

79 Headrick, *ibid.*, 59.

80 For a discussion of this aspect of communication technologies, see D. Edgerton, *The Contradictions of Techno-Nationalism and Techno-Globalism: A Historical Perspective*, in: *New Global Studies* 1 (Issue 1, 2007), 1-32, especially 10-16.

ment. One early but perceptive critic of the electric telegraph was Henry David Thoreau (1817–1862).⁸¹ He was in fact more than a sophisticated critic – he was a genuine philosopher, a profound and free thinker, with a big message.

In *Walden*, 1854, Thoreau insightfully argued that our moral and intellectual development was far behind our technological improvements. Given this condition, technological innovations – from telegraphy to railroads and steamships – “were but improved means to an unimproved end.”⁸² By allowing us to get to our goal too easily, they in fact may prevent us from growing, pursuing true learning, and improving our intellectual capacity. Thus Thoreau complained that “our inventions are wont to be pretty toys, which distract our attention from serious things.”⁸³ He was an avid reader and a great observer of nature and technological changes around him and watched a railroad and a telegraph line appear in the landscape near his home. Thoreau was deeply doubtful if these “material improvements” could “improve us”: “We are in great haste to construct a magnetic telegraph from Maine to Texas; but Maine and Texas, it may be, have nothing important to communicate.”⁸⁴

Thoreau seldom spoke literally, but mostly metaphorically and always profoundly.⁸⁵ His conviction was that the electric telegraph accelerated communication, but it did not

81 Thoreau recorded in his journals his first encounter with the electric telegraph. The line being extended to his village, Concord, in August 1851, at first seemed to him “not so wonderful an invention as a common cart or plough.” But as he went under the wire a week or so later, he heard “it vibrating like a harp high overhead. It was as the sound of a far-off glorious life, a supernatural life, which came down to us, and vibrated the lattice work of this life of ours.” Thoreau soon became fascinated by the “music” the telegraph wires produced in the wind, likening this “telegraph harp” to “the Aeolian harp of the ancient Greeks.” Weeks later he offered a more detailed analysis of this techno-natural phenomenon: “Yesterday and to-day the strong winds of autumn have begun to blow, and the telegraph harp has sounded loudly. I heard it especially in the Deep Cut this afternoon, the tone varying with the tension of different parts of the wire. The sound proceeds from near the posts, where the vibration is apparently more rapid. I put my ear to one of the posts and it seemed to me as if every pore of the wood was filled with music, labored with the strain, – as if every fibre was affected and being seasoned or timed, arranged according to a new and harmonious law. Every swell and change or inflection of tone pervaded and seemed to proceed from the wood, as if its very substance was transmuted. What a recipe for preserving wood, perchance – to keep it from rotting, – to fill its very pores with music! How this wild tree from the forest, stripped of its bark and set up here, rejoices to transmit this music! When no music proceeds from the wire, on applying my ear I hear the hum within the entrails of the wood, – the oracular tree acquiring, accumulating, the prophetic fury. The resounding wood! How much the ancients would have made of it! To have a harp on so great scale, girdling the very earth, and played on by the winds of the wood. No better vermifuge were needed. No danger that worms will attack this wood; such vibrating music would thrill them to death.” Quotes are from a little pamphlet written by George Russell Rudy, “Thoreau and the Telegraph,” (illustrated by Thoreau Macdonald, (1901–1989), a Canadian painter and designer; no date, perhaps written on the one hundredth anniversary of Thoreau’s death (1862). Although it is not a serious piece, it provides several quotes from Thoreau’s diaries relating to the telegraph. I thank Roger Sherman for procuring this pamphlet for me. See also J. Bock, *There is Music in Every Sound: Thoreau’s Modernist Understanding of Music*, in: COPAS 7 (2006), no pagination (read online). Th. L. Hankins/R. J. Silverman, *Instruments and the Imagination*, Princeton 1995, 89 identify the inventor of the Aeolian harp as Athanasius Kircher in the 17th century, not the ancient Greeks as Thoreau believed. See pp. 108–110 for more on Thoreau and the singing telegraph wires. I thank Roger Sherman for bringing to my attention this reference too.

82 Philip Van Doren Stern, *The Annotated Walden*, 1970, 188.

83 Ibid.

84 Ibid., 188.

85 Referring to this statement by Thoreau, David E. Nye, *Technology Matters: Questions to Live With* (2006), 101–

necessarily improve its quality or its intellectual and moral worth. What he writes next makes this point:

We are eager to tunnel under the Atlantic and bring the old world some weeks nearer to the new; but perchance the first news that will leak through into the broad, flapping American ear will be that the Princess Adelaide⁸⁶ has the whooping cough.⁸⁷

This statement reveals Thoreau's central point regarding electric communication. He was all too aware of all the "gossip" and "unworthy" news that the newspapers and magazines of the day were disseminating. The electric telegraph, the new medium of communication, Thoreau anticipated rightly, was going to do pretty much the same, especially without improvement in its users' intellectual and moral condition. Thoreau would have desired the telegraph to be used for "higher" purposes; to transmit *news* not gossip, to be a means of real communication among people and nations, and to facilitate real improvement in the human condition, especially in intellectual and spiritual awakening.⁸⁸ Instead, he feared this new technology would make people all the more lazy, and keep them ignorant, thus making them "tools of their tools."⁸⁹ This is a view that is the very opposite of Henry Ford's vision of "machinery, the new messiah."

Conclusion

Since its inception, the advocates of the electric telegraph imagined and described it as if it were an autonomous agent of change, which would work wonders almost on its own, bringing about a universal union, a world-state, where peace and liberty would reign. To be sure, electric communications matured, these promises came to be tested against the actual situations, and they became more refined, but they did not come to an end. But electric communications could not in themselves dictate or bring about perpetual peace or a universal union or moral and intellectual improvement, as we can see more clearly now. It was the intention, knowledge, and values of its users and possessors that shaped the meaning and value of electric communication. Hence, the old values and ways, animosities, wars, conflicts, and misunderstandings did not disappear before the electric

102, states that when the device was first introduced "Americans did not know what they might use of the telegraph for," and tells about promoters staging chess games over the telegraph to raise public interest. Of course this was true. But this gives the impression that Thoreau was speaking literally. But something like chess games would only prove Thoreau's very point – ironically, now a chess game is considered highly intellectual.

86 P. Van Doren Stern, *The Annotated Walden* (1970), p. 189 believes that "the only likely Princess Adelaide was the one who had married the Duke of Clarence in 1818. Later (1830) he became William IV. Since this Adelaide had died at the age of 57 in 1849, her whooping-cough days were a long way off." But she could be Mary Adelaide (1833–1897), a granddaughter of George III, the mother of Queen Mary, and great-grandmother of Elizabeth II.

87 For Thoreau's critique of newspapers of his day for disseminating not real "news" but "gossip," see Stern, *The Annotated Walden*, 224–226.

88 Thoreau believed there was hardly any "news" going around, since "to a philosopher, all news, as it is called, is gossip." So he "never read any memorable news in a newspaper." Stern, *The Annotated Walden*, 225.

89 Ibid.

telegraph. Certainly, all the new means of communication – railways, steamships, electric telegraphy, telephony, radio, automobile, airplane, television, and the internet – did cross frontiers, nations, seas, and continents, but they did not so easily cross cultural barriers, racial, national or ideological frontiers. In fact, in many ways, they were used to maintain and consolidate the prevailing biases and the old order, as we have seen. Of course, this does not mean that the electric telegraph did not help improve the human condition or aid the quest for a peaceful world. Surely it helped when used wisely. This is why Thoreau insisted on education, learning, and intellectual improvement. Without intelligent and moral users, this new medium would just transmit the same “gossip” that he believed that the newspapers and other mediums of his day were constantly generating. Then, electric communication would just make gossip travel faster and more widely.

The social influence of technology, such as in drawing the world together, has been mostly indirect. As technological systems like the electric telegraph crossed frontiers and spanned the globe, they required cooperation, agreements among nations; they required new laws, standards, and the study of languages. In this way, they have stimulated the exchange of knowledge and cultural interaction. One great example is the institutions involving the electric telegraph itself. The International Telegraph Union, established in 1865, has been considered the first modern intergovernmental institution.⁹⁰ The “General Postal Union” (later Universal Postal Union) followed in 1875. Writing in *Popular Science Monthly* as early as 1881, a writer remarked that “a few years ago the wildest visionary would not have dreamed of the cordiality which today exists between the different peoples” all due to the postal and telegraphic services represented by the international telegraph and postal unions.⁹¹ “Man,” he asserted, was “not an incorporeal hereditament, attached to the soil on which he was born, but a *citizen of the world*.”⁹² Of course, the telegraph office -like the railroad station and car- provided a public space for interaction among strangers. All these novelties had an influence on cultural values, helping to bring about a common understanding of things. In this respect, like trade, technological systems have constituted an effective medium for exchange of ideas, culture, and ways of doing things. This is perhaps what Gladstone had in mind when he spoke of “the human federation.” But still, advocates like him saw in these technological systems not just a mere mechanical improvement or convenience, but also moral and social ends.

Lastly, saying that human agency is central to the way technology is used does not mean that inventors, users, and possessors have total control of it. There is always a good degree of uncertainty and ambivalence (generated by its users, and also by a technology’s own inherent characteristics, such as, for example, not being altogether controllable, like nuclear energy). Technological innovations thus offer opportunities but they also raise technical challenges and practical uncertainties that often make them highly contingent.

90 For a statement on this institution, see the introduction to this volume.

91 J. M. Dunbar, “Influence of the Post and Telegraph on International Relations,” *Popular Science Monthly* 19 (May 1881), 101-110.

92 *Ibid.*, 104 (my italics).

Their adverse effects may easily get beyond the control of inventors and users. That is, they are not always easy to manipulate with complete assurance. As the 19th century wore on and electric communication matured, its equivocal character became more apparent. By itself, it proved insufficient to prevent wars, conflicts, and misunderstandings. Likewise it failed to diminish cultural barriers and biases. Just as the electric telegraph served empire, globalism, and internationalism, so also did it help generate nationalism, while it aided altruistic nation-builders and repressive totalitarian regimes alike.