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Beyond the Means of 99 Percent of the Population: Business Interests, State Intervention, and Submarine Telegraphy

In 1912, the Australian journalist and postal reformer Henniker Heaton was made a baronet of the British imperial crown. He was also the self-proclaimed spokesperson of "99 per cent of the population" who were disconnected from global communication.[1] Introducing the new peer to the imperial world, the London *Times* singled out Heaton as "Unofficial Postmaster General of the World." "More than any other man," the tribute proclaimed, this British Member of Parliament was responsible for the imperial penny post, introducing telegraphic money orders in the UK, improving the parcel post, and "not a few other services to humanity which rank him high among those who have served their fellow-men of many countries."[2] But amid these splendid successes in global *postal* communication, the article omitted Henniker Heaton's utter failure with a global *telegraph* communications reform. For more than two decades by that time, the "Postmaster General of the World" had rallied for a tariff reform of the international communications system to allow universal access. Those disconnected from global communication due to exorbitant cable tariffs had found their most fervent advocate in the Australian Heaton. Heaton revived a heated debate simmering between users, potential users, and providers on access to the telegraphic network since the mid-nineteenth century. In the end, reforms failed because privately-run submarine telegraph

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companies, entrenched in the logic of economic liberalism and profit maximization, would not subject themselves to ideas of international governance and global communication as a public good. Up to World War II, the world's governments in turn lacked incentives and willingness to enforce changes favoring cheap telegraphic communication for all. In a global communications system based on private-public partnership between primarily state-run telegraph landlines and privately-run submarine lines, advocates for universal access found themselves confronted by a marriage of seemingly irreconcilable interests of political and economic actors. In the nineteenth century, from the reformers' perspective, this marriage was a failure.

Since 1865, the International Telegraph Union (ITU) had provided the official framework for international governance through standards on technology, usage, and tariffs. Apart from the United States, the ITU assembled almost all the world's Ministries of Posts, Telegraphs, and Telephones, which generally ran telegraphic landline systems. As Léonard Laborie has shown, the ITU was an important tool to foster intergovernmental cooperation—even during imperial fragmentation.[3] While scholarship has focused on the ITU as one of the oldest institutions of international governance on the one hand, or regulatory challenges after 1932 and the founding of the International *Telecommunications* Union on the other hand, little attention has been paid to the interrelation of private businesses and national infrastructure within the ITU before 1932.[4]

As this article shows, the primarily privately-owned submarine cables represented the incongruous element within this framework of international governance. In the 1870s and 1880s, an interdependent regulatory duopoly developed between public and private communication enterprises loosely connected under the umbrella of ITU conferences. Both systems were run according to the logic of natural monopoly theory, as contemporaries deemed communications to be most efficient if concentrated in a single firm.[5] Domestic telegraphic communications was usually supervised by the respective Ministries of Posts, Telegraphs, and Telephones; international cables communication was neatly distributed among essentially four big submarine cable companies that had divided the globe into spheres of influence. From 1871 onward, the private submarine cable companies participated as advisory members at ITU conferences. Although its statutes prevented the ITU from regulating private companies, its regulations of communications norms and technical standards still influenced the private cable business. Private cable tariffs were exempt from any ITU regulation. These very ocean cable tariffs, however, stood at the

center of media reform debates between users, administrators, and ocean cable entrepreneurs.

The tentacles of global communications in the nineteenth and early twentieth centuries, the dense network of submarine and terrestrial telegraphs, were never a means of social or mass communication. From their introduction in the mid-nineteenth century to their relative decline in the early twentieth century with the advent of wireless, extra-European cable tariffs in particular were so exorbitantly high that only about three percent of the world's population, primarily rich merchants, politicians, and newsagents, could afford to send a telegram around the globe.[6] Because they presumed a lack of demand in long-distance communication beyond political and commercial purposes, cable entrepreneurs constructed global cable communication as a privilege for the wealthy few. Most scholars reject Tom Standage's notion of the submarine cables as the *Victorian Internet*.[7] However, although (submarine) telegraphs primarily fostered global markets, news, and politics, contemporaries like journalists, administrators, and the "common man" still imagined them as a means for social and mass communication. Users found loopholes to circumvent the exorbitant tariffs through code and cipher, and time and again contemporaries rallied for a global media reform. Building on the work of Frank Schipper and Dwayne Winseck and Robert Pike, this article examines two phases of attempted global media reform prior to World War I.[8] In the 1870s and 1880s, reformers' attempts to achieve cheaper international telegraphic communication focused on codes and ciphers. Battling over the standards of use, both groups—users who compressed messages into as little telegraphic space as possible and private providers opposing such techniques as infringements on their profits—turned to the ITU to define a word telegraphically and settle their dispute. Around 1900, proponents of "penny-a-word-cables," in the words of reformer Heaton, urged for state intervention and even state ownership of ocean cables. In their crusades, they not only moved beyond the ITU as regulatory institution but also rallied against the dominant cable business model of economic liberalism. Yet even state ownership was no panacea for "universal access."

This article explores the myriad dynamics of international standard-setting and regulation within global telegraphic communications. Unlike William Drake, who sees the private entrepreneurs as dependent on governmental decisions, this article reinserts the logic of economic liberalism. I argue that free markets and open trade in conjunction with natural monopoly theory drove both agents within this private-public partnership in regulating international communications.[9] Finally, moving beyond arguments of political economy,

this article also highlights social and cultural considerations. In the end, disagreement on the importance of "access for all" emerged from contrasting visions of the role and value of communications in global society. While reformers saw telegraphy as a social medium to nurture mutual understanding, state officials and communications companies believed that ocean telegraphy should remain a privilege for the wealthy political and economic elite. In the end, the debate between coordination and regulation revolved around morals and the value of communication in society as much as business and state interests.

THE EMERGENCE OF A REGULATORY DUALITY BETWEEN LAND AND SUBMARINE TELEGRAPHS

The time between 1850 and 1914 was "the golden age of the telegraph."[10] No other rival technology could match its capabilities of speedy global communication. After the emergence of the electric telegraph in 1837, the first commercial landline networks were installed in Europe and America in the 1840s and 1850s. The Electric Telegraph Company of Great Britain connecting Manchester, Liverpool, and Birmingham was among the first commercial telegraphic enterprises in the world. In 1846, the American-based Magnetic Telegraph Company completed a first commercial telegraph line between Washington, D.C., and New York City. In other states, former state networks, initially primarily used for military and diplomatic purposes, were opened for public traffic in 1849 in Austria, 1850 in Prussia, and 1851 in France.[11] Electrical *global* communications took off in the mid-nineteenth century with the first successful cable connection across the Atlantic in 1866. A small group of entrepreneurs proved the technical feasibility of ocean cabling and triggered a rapid network expansion that by the end of the 1870s comprised the entire globe.[12] In addition to roughly 100,000 miles of undersea cables, some 650,000 miles of telegraph wires had been laid over land by then.[13] By the late 1870s, a huge network of land and submarine telegraphs enabled global communication around the world.

The International Telegraph Union (ITU) was the regulatory platform for this global communications network. It did so, essentially, by defining three types of norms of global communications: operating rules, technical standards, and commercial rates.[14] At the beginning of electrical telegraphy, due to incompatibilities between different national systems, lines had to terminate at international borders and cumbersome hand-over messages at frontier stations were required. This caused massive delays. In 1865, the ITU

grew out of various continental European initiatives, such as the Austro-German Telegraph Union and the Telegraphic Union of Western Europe, to guarantee smooth and rapid communication across national borders. In addition to creating the ITU, in 1865 its founding members also designated the international Morse code as the preferred code for telegrams, fixed the hours for telegraph offices, and chose the French franc as the monetary unit for settling international accounts. A uniform tariff system was proposed but not finalized at the time.[15] Established by twenty European countries, the organization soon comprised all major Ministries of Posts, Telegraphs, and Telephone throughout the world, except the privately organized system of the United States. Berne, Switzerland was selected as the organization's headquarters, and international telegraph conferences were held roughly every five years at the different capitals of the various member countries. Its decisions in the form of international telegraph conventions were globally binding, setting the standards for international communications.[16]

Simultaneous to this network expansion and the formation of the ITU, two defining elements for the coordination of global communications emerged. On the one hand, a regulatory duality arose between state-run landlines and privately-run submarine cables lines. On the other hand, the idea of a natural monopoly came to dominate perceptions of ocean telegraphy. Both set the framing for international governance and had enormous effects on the successes and failures in regulating international communications prior to World War I.

From the 1870s onward, a duality between state-run landlines and privately-run submarine lines emerged. Global telegraphy separated into two different forms of monopolistic business structures along the lines of a European and extra-European regulatory cable system. Submarine telegraphy (essentially the extra-European system) was a primarily private business enterprise located in London, while the landlines (essentially the European system) were, with the exception of the United States, typically government-owned and managed by Ministries of Posts, Telegraphs, and Telephones. This division between state and private telecommunications sectors based on land and submarine lines was connected to the early history of submarine telegraphy and a fateful decision by the British Government: the British Telegraph Purchase Bill of 1868. With this bill, the British government bought all terrestrial telegraph lines, winding up the Magnetic, Electric, United Kingdom, Reuter, and other private telegraph companies that had until then shared control over the landlines in Great Britain. This acquisition freed about £8 million for reinvestment in electric submarine telegraphy, boosting the emerging market of

primarily private ocean cable companies then mainly located in London. Simultaneously, it allowed Britain to join the international governing body of the ITU, of which it had not been a founding member in 1865 because of its private landline system. As a multinational institution, the ITU set nationalization or total control over landlines as a prerequisite for membership.[17] Most countries, like Great Britain, consequently abolished their private carriers upon joining or did not join at all, like the United States, which only joined in 1932.[18] In the end, this policy framework allowed national carriers to evolve a global network of national networks while protecting them from competing market forces.[19]

For the ocean cable business, the British government's decision to shift its investments from the submarine lines to the terrestrial lines was foundational. This move was seconded by political considerations of the reach of state jurisdiction on foreign territory or cable usage during war. Governments were generally opposed to having a different country land its ocean cables on their national territory. This raised not only questions of extraterritoriality for the cable stations, but also problems of cable ownership in case of war.[20] Both of these considerations motivated governments' preference to have private ocean cable companies as neutral intermediaries of communication between them. Of the total mileage of submarine cables of more than 165,000 nautical miles in 1898, private enterprise provided almost 90 percent of the long-distance lines.[21]

Within the private sector of submarine telegraph business, by the 1880s a small group of essentially four companies ran the telegraph market. Each held a monopoly or near-monopoly over certain connections: the London-based Eastern and Associated Telegraph Companies, the Danish Great Northern, and the American-based companies of Western Union and the Commercial Cable Company. Spearheaded by the powerful business conglomerate of the Eastern and Associated Companies, which by World War I had become "one of the world's most powerful multi-national conglomerates," these enterprises had wired the entire world while neatly dividing it into spheres of influence.[22] Around 1900, the Eastern and Associated Companies alone owned more than 50,000 miles of submarine cable, or about one-third of the total cable mileage of the world. It represented a joint nominal capita of more than £10 million and carried about two million messages per annum.[23] Additionally, it held a near monopoly of lines between Britain and North, Central, and South America, and total control of the Britain–India–Australasia route.[24] While the Eastern system stretched eastward to India and Southeast Asia, the Great Northern Telegraph Company, an 1869 amalgamation of

Danish, Norwegian, Russian, and English interests, established telegraphic communication via the Baltic Sea and the Russian landlines with Shanghai, where it met the telegraph lines of the Eastern. Both companies shared the lucrative Chinese and Japanese domestic telegraph markets between them. In South America, two telegraph companies, the Brazilian Submarine Telegraph Company (1873) and the Western and Brazilian Telegraph Company (1873), connected Brazil with other South American countries. Both companies agreed to "work in unison" and their cables linked with the system of the West India and Panama Telegraph Company and North America.[25] The North Atlantic, the most important telegraph market of the time, was soon divided up among several companies that were combined in the Atlantic pool, a financial and working agreement of telegraph companies associated with the Eastern's system. Within the pool, the business situation on the North Atlantic moved from a monopoly to a duopoly in the 1880s, when Western Union and the Commercial Cable Company pushed into the market; by 1900 it had become an oligopoly.[26]

This conglomerate of essentially four companies not only neatly divided up the globe into spheres of influence and formed working agreements to coordinate global communication. It also successfully eliminated competitors so that their business model became one of, in today's terms, a natural monopoly. To establish a system where international communications was essentially run by one company instead of competing companies was the most cost-efficient due to the high initial costs of submarine telegraphy, according to the established entrepreneurs. Costs for a cable would approximately run to £2 million. They consisted of manufacturing and laying costs, in addition to those for setting up the cable stations with housing, staff, and equipment. Cable-laying costs further depended on charges for landing rights and whether ocean soundings had already been undertaken. The greatest part of the costs came from the two raw materials needed to manufacture the cables: copper and gutta percha. During the first two decades of submarine telegraphy, several companies competed for customers, landing rights, and cable routes, pushing for ever-faster and cheaper communications. This changed in the late 1870s. By then, the four main companies had successfully eliminated any "ruinous competition" from the private ocean cable market. From the late 1880s on, their system of "natural monopoly" was firmly in place.[27]

For users, meaning at the time primarily rich merchants, politicians, administrators, and news agencies, a system of natural monopoly on the submarine cable market had grave consequences for tariffs. Given the spread

of the global submarine cable networks, by the 1880s the world had, *in theory*, become telegraphically interconnected. *In practice*, however, submarine telegraphy remained exclusive, bestowing the benefits of relative instantaneous communication only to premier customers.[28] Cable companies made the decisions on tariffs and their executives enforced their understanding of global communication upon its users. Tariffs between Great Britain and New York started out in the summer of 1866 at £20 for a minimum of twenty words and were reduced to £10 for a minimum of ten words at the end of that year. Prices fell further in 1867 to £5 for ten words plus the costs for each additional word according to destination, and from 1869 onward to £2 for a minimum of ten words. For the cable entrepreneurs, this extreme price reduction in the first three years of the cables' service was a balancing act between recouping the initial investment by paying high enough dividends to the shareholders, preventing newcomers from entering the market, and attracting enough users willing to pay a certain price. In 1872, the Anglo-American Telegraph Company instituted a regular word-rate system of four shillings per word for the transatlantic connection. In 1888, it reduced further to one shilling a word. This remained standard until briefly after World War I.[29] These rates only covered the connection between Great Britain and New York or Boston; messages beyond these two points were additionally charged for the local landline connection as well as the various national taxes. A message from London to Austin, Texas, for example, cost £6.67 in 1867 at an ordinary ten-word rate of £5.[30] Global communication via ocean telegraphs remained throughout the nineteenth and early twentieth century, in the words of Henniker Heaton, "beyond the means of 99 percent of the population."[31] Due to the cable entrepreneurs' tariff policy, the ocean telegraphs neither became a medium of mass communication nor did they supplant ordinary mail as a means for social interaction, which would have comprised information beyond stocks, sales numbers, or latest political news. Moreover, as the cable companies had managed to install a market structure of natural monopolies based on spheres of influence, they successfully thwarted any new business entry and "ruinous competition," in contemporaries' terms, which might have brought tariffs down.[32] For the vast majority of the world's population, social interaction across large distances still worked via letter.[33]

REFORM CONSENSUS: GLOBAL COMMUNICATIONS AS *SOCIAL* COMMUNICATION?

From the users' and potential users' perspective, reform consensus on telegraphy and global communications rested on the question of tariffs and the

business model of supply and demand. The subtext of this model as the basis for regulating tariffs, however, was not necessarily explicit user studies, but rather how cable companies on the one hand and reformers on the other *imagined* the usage of global communications. The companies were convinced that due to relatively low demand for messages beyond brief commercial and political exchanges, only high tariffs would pay off the system's costs. Reformers argued that lower prices would stimulate high demand and greater revenue.

Throughout the nineteenth and early twentieth centuries, ocean telegraph tariff policy was based upon the cable companies' conviction that there would be a lack of demand for social messaging. A social tariff, according to James Anderson, spokesmen for the Eastern and Associated Companies, would be utterly unprofitable on the transatlantic connection, as there was no market for social messages in Europe or the United States. He claimed that neither continent possessed "a sufficient number of persons ready to spend 1s. per word upon messages which [were] not commercial, or of serious importance." Like many other cable company executives, Anderson believed that "people separated by a great distance [did] not either write or telegraph frequently to each other, and, as a rule, the greater the distance, and the longer the period of separation, the less frequent would the interchange of communication become." From this, Anderson concluded that "one shilling per word would not be a social tariff low enough to encourage travelers to bother their friends with anything but the most important affairs, and if they had important affairs to communicate they would not be deterred by 4s per word."[34] Representatives of private American landline telegraph providers made similar statements. They were convinced, according to Richard John, a historian, "that the telegraph would always remain a specialty service."[35] Consequently, as early as 1873, James Anderson proclaimed that tariffs could only be lowered under three conditions: the government purchase of lines, the granting of monopolies, or the amalgamation of competing companies.[36] On the private cable market, a system of supply and demand and thus cable entrepreneurs' interpretation of the "hard necessities of finance" regulated prices and tariffs.[37]

Although the private cable providers primarily intended the ocean cables to foster global markets, news, and politics and cater to a wealthy elite of consumers, this does not mean that submarine telegraphs were never *imagined* as a means to create a global community through social or mass communication.[38] From the benefits they could bestow upon markets and politics through speedy and timely messaging to the possibility of universal peace, the cables stirred contemporaries' imagination. From the very

beginning of the buildup of a global telegraph network, merchants, journalists, and the "common man" alike imagined how the "golddigger [*sic*] at California [could] communicate within an hour or two with a Parsee merchant in Bombay."[39] Contrary to the business model of the ocean cable companies, the social aspect to communication was omnipresent in all these early visions. Aside from the price of gold and cotton, news reports "by Atlantic cable" soon covered details of the Fenian insurrection in Canada, detailed reports on President James Garfield's struggle with death, and George Washington De Long's voyage to the North Pole.[40] In the end, people even ascribed to the new technology the ability to make couples fall in love, simply by "the lady's magnetic influence defying space."[41]

Such conceptions of global communication as a means of communication between friends and family on noncommercial matters illustrate how far people "felt" socially connected across large distances. This "feeling" found practical expression, for instance, in the form of transatlantic "brotherly" compassion, as in October 1871, when a horrendous fire destroyed most of Chicago, leaving between 50,000 and 100,000 people homeless. News was transmitted not only by news agencies, but to a large degree by private telegrams.[42] Subsequently, relief funds were organized via Atlantic telegraph evoking the "common parentage" of Britons and Americans.[43] According to the *Birmingham Daily Post*, "a noble contribution should go out, at once, . . . for the comfort of these sufferers, who belong, as it were, to our own [i.e., the British] household, for they are knit close to us by the ties of race and language." The newspaper further expected that Americans' "hearts [would] throb with responsive emotions when they know that the claims of brotherhood are recognized on this side of the Atlantic as promptly as upon their own."[44] This flow of information and its "prompt" response would hardly have been possible without the Atlantic cable. Recognizing this special bond, the Anglo-American Telegraph Company not only paid £2,000 to the Chicago relief fund, which was speedily established in Birmingham, but also sent all messages relating to the fund free of charge.[45]

The phenomenon of mass migration further challenged cable companies' conviction that there was no market for social communication on a global scale. At a time of extensive migration, the cable entrepreneurs were deliberately closing themselves off from an enormous market: the migrants. Between 1815 and 1914, at least 82 million people voluntarily (not counting the slave trades) migrated from one place to another. One of the most important migration movements was from Europe to North America, which peaked in the 1850s, 1880s, and 1900s. Annually between 260,000 people in 1850

and one million people at migration's height in 1911 immigrated to the United States.[46] German politicians justified their calls for a national transatlantic German cable in the 1890s in part with the large number of German emigrants.[47] Interestingly, in particular in the early years, traffic revenues rose every time tariffs were reduced, which indicates the existence of customers excluded by price up to that point. When in the early 1880s, during the tariff war between the Anglo-American Telegraph Company and the French company PQ, charges were reduced from 3s. to 2s., receipts increased considerably, even when compared with the best year of revenues.[48] Still, the cable entrepreneurs based their tariff policy upon the conviction, in the words of James Anderson, "that a high tariff and a few messages pa[id] better than a low tariff and many messages."[49] From the 1880s onward, telegraph charges stagnated at 1s. a word on international (i.e., extra-European) traffic. Interested in profit maximization and a guaranteed revenue, for the entrepreneurs a social tariff remained an experiment not worth pursuing.

In the end, however, a sense of global connectivity, a *global perspective*, was much more widespread than the actual use of submarine telegraphy would imply.[50] Middle- and lower-class people also wanted to communicate and use the telegraphs in international communication. According to one user, it was only "pure assumption on the part of [the cable companies] that people separated by a great distance do not care either to write or telegraph to each other frequently."[51] It was the great expense of transcontinental telegrams that hindered traffic.

ATTEMPTS AT REFORMING GLOBAL COMMUNICATIONS STANDARDS

Debates on access for all to ocean telegraphy and calls for an international communications reform emerged immediately after the opening of the first Atlantic cable in 1866. Users and private companies alike initially looked to the ITU for guidance on questions concerning standards of usage (codes and cipher) and tariffs. While early tariff-reform proposals by Patey and Heinrich von Stefan looked more like internal power struggles between administrators and private entrepreneurs within the ITU, Heaton's crusade for cheap communication for all moved beyond the ITU and reintroduced ideas of national ownership over submarine cables.

At the beginning, the platform for reform attempts was the International Telegraph Union (ITU). One of the oldest of the many international organizations that emerged after 1850, the ITU was established by the leading telegraph

authorities of various European governments and soon joined by many extra-European nations. Based on the overarching principles of national sovereignty, network interconnection, and joint service provisioning, the organization's main objective was promoting a uniform system of traffic exchange and universal tariffs. It did so through internationally binding telegraph conventions and, after 1875, less formal codes of conduct, which emerged from regular telegraph conferences.[52] The member nation-states were represented by one or more delegates, some of the British colonies such as Australia and Canada had their own representative, and from the Rome conference in 1871 on, the ITU also invited representatives from the private submarine telegraph companies as consulting advisers. As such, they only had the right to speak, but not to vote.[53] The ITU statutes focused solely on government institutions, which may have given the impression that the cable industry's representatives were onlookers unable to influence fundamental decisions. Yet the companies' representatives could still express their opinions and participate in discussions.[54] In fact, behind closed doors, submarine telegraph employees exerted influence over state officials, often solely by their sheer numbers, and influenced reform attempts that might have infringed upon the submarine cable business. At the London conference of 1879, for instance, of the sixty-eight delegates, thirty-five were government officials, three came directly from the ITU, and thirty came from the cable companies.[55] Although they had no voting rights, the presence of the cable representatives was a statement in and of itself.

One recurring topic surrounding standards of international communication was the use of codes and cipher. From the cost-averse users' perspective, these were the most efficient way to circumvent the exorbitantly high tariffs. In order to fit as much content into as little telegraphic space as possible, the "packers," senders who abbreviated their messages, adopted highly creative methods. Aside from using shortened spelling such as "immidiatly" instead of "immediately" at the time when telegraph clerks counted letters and not just words, the usage of foreign languages was common. Once the simple word-count instead of the letter-count system was introduced in the late 1860s, often two or three words were run together in a foreign language for brevity.[56] As a result, telegraph codebooks targeting international communications swamped the market. Reuter introduced one of the first codebooks in the mid-1860s, soon followed by Sir Francis Bolton's widely used codebook.[57] As there was no common international standard at the time, the telegraph companies could only accept code on the same terms as ordinary messages.[58] Naturally, given their business interest of profit maximization, the cable

companies were extremely biased against any code and cipher usage and led a vendetta against these "packers" whose practice of aggregating messages seemed to defraud cable companies of their lawful dues.[59] Laying an ocean cable was one thing—making it pay was another.

In order to universalize regulation on usage, users as well as the private companies turned to the ITU to obtain "a definition of what a word, telegraphically speaking, is."[60] According to W. Andrews, manager of the Indo-European Telegraph Company, by the mid-1870s code words had reached "extravagant limits." Not only "had several words been worked into one by the prearranged use of different languages," wrote Andrews, but twenty letters and more had been combined, "forming really no complete word in any known language."[61] As a result of these complaints, seemingly endless ITU debates revolved around code. A first breakthrough for regulating telegraphic user standards of codes and cipher came with the ITU conference in St. Petersburg in 1875.[62] Entering into force on January 1, 1876, ITU members had consented to rules on "foreign telegrams" that in effect established a division between a European (public-owned landline) system and an extra-European (privately-owned submarine lines) system. This made it cheaper to send telegrams internationally within Europe than beyond it. Within Europe, a word could contain as many as fifteen Morse characters, for extra-European traffic only ten. This made "responsibility" one word in European traffic, but two beyond it.[63] Throughout the nineteenth century, the ITU continued to standardize telegraphic vocabulary. By 1901, the official ITU telegraph codebook contained as many as two million terms in multiple languages. This is, according to Bob Reinalda, one of the ITU's most substantial achievements.[64]

It would be easy to assume that within a regulatory system of international communications under the stewardship of the ITU, private-public partnership of landline and submarine telegraphs translated into a neat division between the public and private sector. Yet, in 1879 at the ITU's London conference and to a lesser degree in 1885 at the Berlin conference, the postmaster generals of Great Britain and Germany, Patey and von Stephan, joined forces in an attempt to break the ocean cable companies' natural monopoly and to exert influence on private businesses beyond ITU statutes.[65] Unsuccessfully, however, the heavyweights of state infrastructure combated the powerful private conglomerates of economic liberalism. Both conferences were a contest of power between two institutions—the respective General Post Offices and the submarine cable business—which had both grown immensely in the previous decade. Within the ITU framework, both entities were trying to expand influence beyond official ITU statutes.

Reform debates on private ocean cable tariffs commenced as early as 1877. Two years prior to the London conference, undersecretary of the British Post Office, Patey, who was the designated president of the ITU conference, communicated to the submarine companies that he intended to suggest a radical tariff reform. At that time, international tariffs were calculated by the telegrams' place of origin and destination and not by the length of the route. There were, for example, five different connections between Great Britain and Greece, each costing the same despite their varying lengths and routes. Patey's idea was to change this and charge by distance, introduce the word rate for the inter-European traffic, and, most important of all for this article, generally reduce tariffs—including for extra-European cables. He was quite stern that he could not have "the dividends of submarine companies . . . stand in the way of a reduction of tariff."[66] What unfolded from Patey's initial proposal in 1877 was a two-year struggle between public administrator Patey and the private submarine cable machinery.

In particular, the powerful Eastern and Associated Companies, led by John Pender and James Anderson, rallied against these proposed extra-European tariff reforms. James Anderson responded to Patey's "startling proposition" with an open threat and a clear demonstration of the power of the young submarine machinery. The reduction of tariffs would in the end only harm the national economies because, claimed Anderson, the adhering states would "lose an aggregate of £579,382 yearly" in tax revenue. Furthermore, the cable business belonged to the leading sector of the British economy, representing "twenty two millions of British capital in submarine cables, subscribed by thirty thousand Shareholders."[67] Anderson implicitly argued that he was not merely protecting his company's capitalist interest in dividends and making profit, but the investments of many Britons. These investments not only made up an essential part of the British gross income, but the shareholders were an important sector of the voting public.[68] Although a private capitalist enterprise, Anderson argued that the ocean cables still served a public purpose and thus were eligible for the protection of the British government.

Politicizing submarine telegraphy as, in today's terms, a "public service corporation" worked. Making peace with the cable companies in 1879, Patey refrained from his initial proposition, which was not even voted on. Instead, he informed the companies that he would now even support an *increase* in tariffs—if only on extra-European routes (which were the important routes to the ocean cable companies).[69] In the end, the London conference delegates made no decisions about reducing tariffs, but they compromised on the form of telegrams. They confirmed, for example, the word rate for extra- and now

also inner-European traffic and the abandonment of a twenty-word minimum for inner-European lines. This was a policy the submarine enterprises had already introduced for their lines in 1872. These measures minimally impacted the ocean companies and actually confirmed a regulatory system favoring private enterprise. Stating the obvious, the *Daily News* concluded that the London conference had resulted in "the destruction of any hope of cheap and popular international telegraphy."[70]

In the end, the ITU's system of distinguishing between European and extra-European communicational spaces clearly advantaged the private cable companies over those users (and non-users) rallying for cheaper tariffs and universal access. Throughout the nineteenth and early twentieth centuries, the ITU upheld the principles of free markets, open trade, and comparative advantage, which laid the groundwork for policies privileging private companies.[71] Similarly, when the new technologies of telephone and radio came up around 1900, the ITU was slow to recognize these technologies as part of its mandate for regulating global communication. Rather, it followed private businesses' interpretation that saw these technologies as threats to their established markets and as expansive, reliable, or less useful. In 1906, the International Radio Telegraph Union (IRU) was created as a separate entity. Only in 1932 did the IRU and ITU merge to form the International Telecommunications Union.[72] It remains unclear whether the world's governments willfully established a system of international communications regulation that benefited private businesses or whether private lobbyists pressured them into it—as Patey's story suggests. The cable companies refused any responsibility for ITU regulations. After all, as businessman W. Andrews was quick to point out, they had had no vote in ITU decisions. Users' blame for those regulations and subsequently high tariffs was to be directed toward the ITU, not private businesses.[73] Nevertheless, those early debates on codes and ciphers already hinted at what became blatantly obvious during Henniker Heaton's crusade for cheap ocean cable communication at the end of the nineteenth century: regulating international communications was an entirely different game when it involved private business interests. Governments were willing to settle for little revenue; the private companies were not.

THE "APOSTLE OF CHEAP COMMUNICATION" AND THE NATIONALIZATION OF OCEAN TELEGRAPHS

Around 1900, a number of different figures revived reform debates centered around "access for all" in the context of national monopoly theory. To reformers,

the key to changing the international standards of tariffs seemed to be changing the structures of the communications system by eradicating the regulatory duopoly of government-owned terrestrial and privately-owned submarine telegraphs. Instead, submarine telegraphs were to move into government ownership. Among these reformers were the Canadian railroad and telegraph engineer Sandford Fleming, the Australian newspaper proprietor Henniker Heaton, George Squier of the American Signal Corps, and the British politician Edward Sassoon. Their crusades emerged during a period of political and economic change of new imperialism and Western countries' territorial expansion in the 1880s and 1890s.[74] Moreover, London was no longer center of the world economy or world communication. Cable firms registered in Britain had had the field all to themselves in the formative years. Now Germany and France had become "fully competitive."[75] Given such changes, governments again had a political interest in *owning* ocean cables and challenged the private business of submarine telegraphy. After almost three decades of private financing, governments returned to a policy of subsidizing cables that the companies considered commercially unattractive. In this context, media reformers' main argument generally aimed for various degrees of nationalizing ocean cables and, more broadly, breaking the regulatory duopoly of state-owned and privately-owned telegraph networks. Some of them argued for a nationalization of all existing ocean cables, others for national entrepreneurship in laying new cables. Generally in the age of new imperialism, they no longer saw the ITU as the key to success but, instead, turned back to the individual nation-states.

The most important of these new media reformers was the Australian Henniker Heaton. He also symbolized the transition from working through the ITU to turning to the nation-state for support in changing submarine cable structures. The newspaper publisher and Member of the British Parliament first entered ocean cable policy in 1885 when he represented Tasmania at the Berlin ITU conference. Heaton opened his battle against the world's global monopolies with an initial success: at the conference, he managed to secure lower cable rates between Great Britain and Australia.[76] From then on, he was set on the topic of a global cable penny post. In his writings, "the apostle of cheap communication" reflected upon the interrelation of public and private enterprises in the communications sector as well as social concerns and a broader demand from people of middle- and lower-class background for global social messaging.[77] In Heaton, the disconnected 99 percent had found their most fervent spokesman.

In his crusade for universal penny press and cables, Heaton battled against both monopolistic systems of international communications: the national

landline systems and the private submarine lines. His two favorite enemies were the spokesmen of the Eastern and Associated Companies, which had in his view "like a huge octopus fastened its tentacles upon almost every part of the . . . world," and the Postmaster Generals of Great Britain, to whom he ascribed "despotic power."[78] One he badgered during ITU conferences, the other in the British Parliament with his constant inquiries. In 1898, Heaton enjoyed his first breakthrough against the Ministries of Posts, Telegraphs, and Telephones, with the introduction of an imperial penny post, followed by an Anglo-American penny post in 1908 for mail sent between the United States and Great Britain. In the decade before World War I, Heaton increasingly concentrated upon the natural monopolies of the ocean cables, arousing great controversy with his daring essays on "How to smash the Cable Ring."[79] In contrast to his achievements with imperial penny postage, however, Heaton failed in his crusade against the cable monopolists. He only managed to facilitate a conference held by the British Royal Colonial Institute in 1908 and an "influentially attended" meeting of London merchants and politicians presided over by the Lord Mayor in December 1908 to consider the feasibility of a global ocean penny press.[80]

Although another failure in the long history of media reform attempts, Heaton's battle against the "tyranny of capital" displays the growing demand for a social communication space via ocean telegraphy.[81] In his letters and pamphlets, Heaton painted the picture of a two-class society across the globe falling sick from a technology that had an increasingly disunifying character. While the telegraph had, according to Heaton, "annihilated time and space," it had also increased the gap between those communicating with it and those who could not.[82] As he pointed out in his speech at the Royal Colonial Institute in 1908, the gap was so large that those unconnected "might be living in another planet for all the use they can make of the great invention."[83] As Heaton proclaimed, the disunifying character of the modern age not only expressed itself in space, as it mattered greatly whether you were born in Africa or in Europe, but also in time. The speed and inherent "instantaneity" of the ocean cables produced a two-speed world in which people with money could move and govern the others.

As a solution to create a universal cable penny press, the politically conservative Heaton reached the following conclusion: state ownership was the only solution to counter "the exclusive possession of a right by an individual" and the "deprivation of essential or valuable privileges to the entire community."[84] "Arbitrary charges still set bounds to international telegraphic intercourse," according to Heaton. But this could change "by means

of a policy tending to the termination of monopolies, and to governmental control of the cables of the world."[85] As a solution, the British government (if possible with cooperation of the chief colonial governments) should acquire the rights and property of the cable companies "at a valuation (on their present market value) and work the cables at the lowest remunerative rates."[86] This, Heaton was convinced, would reduce rates by half, while cables would still remain a paying concern.[87] Heaton was convinced that standards could only be reformed within a state-owned system of all telegraphs as the private sector's paradigm of profit maximization stood contrary to lowering tariffs.

Pushing for reform, Heaton made strategic use of a heightened awareness for imperial confederation and communications as a means for imperial control. For Heaton, "freedom of communication [was] one of the most vital interests of the Empire."[88] If enacted, it was "sure to yield a rich harvest of commerce, of good fellowship, and of patriotism throughout the greatest Empire the world has ever seen."[89] Such imperial federation through communication should "not be dependent on the policy of private companies."[90] Heaton's proposal for nationalizing ocean cable communications found particular resonance in the policy of the French and German governments, who were advocating at the time for national cables. In particular, after the Boer War and the Spanish American War, access to cables and the ability to cut them "became a military imperative." Preventing another nation from cutting your cables "became a strategic necessity."[91] While the British governing elite considered the London-centric system of submarine cables a means of imperial defense, other national governments considered it a monopolistic tool that allowed Great Britain "control of information, of propaganda and censorship."[92]

The "epitome" of such strategic cables was the 1902 British Pacific connection, a state-financed endeavor, which Heaton shrewdly embedded in his one-shilling-round-the-empire scheme.[93] Never, Heaton argued, would there be an "Imperial federation until telegraphic communication between London and Vancouver and London and New Zealand [is as] cheap as between London and Ireland."[94] While the Pacific connection lowered tariffs on these routes, it did not do so to the degree Heaton had envisioned. As late as 1909, he publically complained that while the relief to the "princely merchant" would be very great, social or family messages would still be "beyond the means of 99 per cent of the population."[95] Countering Heaton's advocacy for lower tariffs were hard economic facts as the Pacific cable was economically an utter failure, compounded by the emergence of wireless as an alternative to

cables. According to the Pacific Cable Board's 1911 report, the Canadian cable received less than two-fifths of the total traffic anticipated in 1896. As a result, and as projected by Easter and Associated Telegraph Company entrepreneur John Pender in 1894, the cable ran annual deficits between $235,000 and $435,000 until 1914.[96] Even a government motivated by geopolitical considerations to apply national monopoly theory, that is, government ownership, on submarine communication, such as the British government in the case of the Pacific cable, could and would not ignore these hard financial facts. Moreover, the British government would not invest in ocean telegraphy beyond the Pacific cable connection. Already in 1902, the Balfour committee chaired by the First Lord of the Treasury, Arthur Balfour, reemphasized British commitment to economic liberalism in ocean telegraphy. The reports denounced ideas of purchase or subsidy of private ocean cable lines and enforced support for a private submarine cable industry.[97] Heaton's theory for communications reform had seen state ownership as panacea to universalize access to international communication. In the end, he had but misread political incentives for imperial control over communication as an interest in the public good of, in today's terms, communicative democracy.

CONCLUSION

Governing international telegraphic communications in the nineteenth and early twentieth century beyond coordinating technological standards was cumbersome. Global communication was based upon a system of private-public partnership with a primarily privately-owned submarine cable and a public landline telegraph system. Here, political interests of controlling means of national communication, providing public service or even catering to the "public good," had to be reconciled with economic aspirations of capitalist profit maximization. Those in favor of cheaper tariffs targeted government institutions, first within the ITU and, later on, particular governments as agents to implement change. Reformers, however, generally misunderstood political willingness to interfere with what politicians saw as the logic of economic liberalism. Reforming international communications to facilitate access for all failed in the nineteenth and early twentieth century, as neither businesses nor politics had reason to alter tariffs to seemingly unremunerative rates.

Despite continuous reform attempts, the privately-run submarine telegraphs, the tentacles of global communication in the nineteenth and early

twentieth centuries, were never a means for social and mass communication. Cable entrepreneurs and their stockholders were not philanthropists, but investors and capitalists. They doubted the technical feasibility of a universal penny cable and based their tariff system upon a communicational model, which postulated that "the social element which justifies the penny postage and one shilling or six penny telegrams within the limits of a State does not exist outside these limits and cannot be created," as James Anderson put it.[98] Despite the ever-increasing number of transatlantic letters, cable executives argued that "the two [English-speaking] peoples, numbering more than 100,000,000 of the same blood and speech, ha[d] nothing to say to each other and no desire for more frequent, rapid, and intimate communication"—at least nothing that could be translated into cable messages.[99]

From the beginning of ocean cabling in the mid-nineteenth century onward, debates circled around questions of universal access to international communications. Within those debates, different types of reformers with different aims pursued strategies to achieve either lower rates or an increase in the pool of users. During the first reform phase in the 1870s and 1880s, users rallied for cheaper transmission rates and used codes and cipher to circumvent exorbitant submarine telegraph tariffs. In this dispute between users and private providers over codes and ciphers, both turned to the ITU to standardize usage. Contrary to reformers' aspirations, in 1875 the ITU implemented and confirmed a dual regulatory system for "foreign telegrams" that benefited private entrepreneurs. Given the difference in standards for the European (government-owned landline) and the extra-European (the privately-owned ocean cable) market, it became cheaper to send a telegram within Europe than beyond. Reform attempts from within the political administration, such as Patey's proposal for lowering extra-European cable tariffs, stood little chance as submarine companies claimed importance as public service providers.

During the second reform phase at the turn of the century, nationalizing ocean cables and breaking the regulatory duopoly of landline and submarine telegraphs appeared for all reformers as the ideal (though utopian) means to create international communication standards that would enable social and mass communication. Yet, despite imperial interests in controlling international communications, this did not translate into government initiatives to own submarine telegraphy. The Pacific cables remained the only major state communication enterprises in Britain. In 1908, telegraph expert Charles Bright confirmed how little interest the British government

had to "strike a blow at British private enterprise" by either regulating extra-European tariff policies or by nationalizing the cable companies and thus reducing tariffs.[100] In the end, Henniker Heaton's penny-cable proposal remained, in the words of Sir Wolfe Barry, chairman of the Royal commission on imperial telegraph rates, "visionary."[101]

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