AFD Ep 434 Links and Notes - Western Union [Bill/Rachel] - Recording July 10, 2022
(Special outro: “Western Union” by Five Americans)

- [Bill] Intro: This week we’re talking about another of the key corporate monopolies of the Second Industrial Revolution in the United States, one which arguably undergirded the operations of every single other monopoly in all the other industries of that era, by linking together people and businesses over long distances in the second half of the 19th century. We’re looking at “Western Union,” the telegraph and telegram company. From their start in 1851, over 15 years they managed to acquire every other competing company until they were effectively the only company left in the game by 1866. Although some other companies would be established to try to compete with their monopoly, Western Union would continually end up absorbing these rivals as well. Despite basically missing the boat on the advent of the telephone, there were many technologies where Western Union was a leader even in the 20th century, and the company still exists today, once again independent after various periods of parent ownership in different conglomerates. While they ended telegram operations in the mid-2000s, Western Union remains a giant in the field of money transfers around the world, which we will also talk more about. This episode is a really great one to think about the role of communications technologies in economic activity, as well as the physical material limitations and costs for installation and usage of physical infrastructure and how those affect the uses of those technologies. And let’s also keep in mind throughout this episode all the specialist laborers involved, even if they’re not mentioned that much in the narrative, who operated the equipment every day and maintained or installed it in often difficult conditions.
- [Rachel] Early Formation/Consolidation (1851-1866)
    - https://www.britannica.com/topic/Western-Union-Corporation
    - https://eh.net/encyclopedia/history-of-the-u-s-telegraph-industry/ (This is an article from the Economic History Association website, which includes a detailed bibliography.)
        - In 1838, Samuel Morse obtained the patent for a single-wire electric telegraph, but split the patent right to attract wealthy partners. Leonard Gale and Alfred Vail helped develop the electric telegraph technology, and provided labor and material support, and each held a quarter of the patent right. In 1843, Morse obtained a government grant to build an experimental telegraph line between Baltimore and Washington, D.C. Two men - F.O.J. Smith, a former Maine representative, and Hiram Sibley, a businessman - helped Morse get that government grant. The line was completed in 1844, and Morse transmitted the first public telegraph message “What hath God wrought”.
        - Morse brought in Amos Kendall, a former Postmaster General, to manage the three-quarters of the patent shared by Morse, Gale, and Vale. Smith managed the other quarter of the patent. Eventually the partnership soured, and partners split the patent right geographically, with Smith controlling New England, New York and the Upper Midwest, and Morse controlling the rest of the country. Morse tried to sell the patent to the government, but was unsuccessful. Kendall also tried to create interest in developing a unified telegraph system in the US, but he too was unsuccessful. The patent right got sold piecemeal to regional interests.
        - *Royal House and Alexander Bain introduced rival patents in 1846 and 1849. Entrepreneurs constructed competing lines on the major eastern routes using the new patents. The House device needed a higher quality*

wire and more insulation as it was a more precise instrument. It had a keyboard at one end and printed out letters at the other. At its peak, it could send messages considerably faster than Morse's technique. The Bain device was similar to Morse's, except that instead of creating dots and dashes, it discolored a piece of chemically treated paper by sending an electric current through it. Neither competitor had success initially, leading Kendall to underestimate their eventual impact on the market.

- *By 1851, ten separate firms ran lines into New York City. There were three competing lines between New York and Philadelphia, three between New York and Boston, and four between New York and Buffalo. In addition, two lines operated between Philadelphia to Pittsburgh, two between Buffalo and Chicago, three between points in the Midwest and New Orleans, and entrepreneurs erected lines between many Midwestern cities. In all, in 1851 the Bureau of the Census reported 75 companies with 21,147 miles of wire.*
- *Telegraph firms competed against rivals on the same route, but sought alliances with firms with which they connected. For example, four firms (New York, Albany & Buffalo; New York State Printing; Merchants' State; and New York and Erie) competed on the route between New York City and Buffalo. Rates fell dramatically (by more than 50%) as new firms entered, so this market was quite competitive for a while. But each of these firms sought to create an alliance with connecting firms, such as those with lines from New York City to Boston or Washington. Increased business from exchanging messages meant increased profitability.*
- *Horizontal integration-integration between two competing firms-and system integration-integration between two connecting firms-occurred in the telegraph industry during different periods. System integration occurred between 1846 and 1852, as main lines acquired most of the feeder lines in the country. In 1852 the Supreme Court declared the Bain telegraph an infringement on Morse's patent, and Bain lines merged with Morse lines across the country. Between 1853 and 1857 regional monopolies formed and signed the "Treaty of Six Nations," a pooling agreement between the six largest regional firms. During this phase the industry experienced both horizontal and system integration. By the end of the period, most remaining firms were regional monopolists, controlled several large cities and owned both the House and the Morse patents.*
- *In 1851 Hiram Sibley and other Rochester citizens formed the New York and Mississippi Valley Printing Telegraph Company, which bought 11 small lines north of the Ohio River. In 1856 the company was renamed the Western Union Telegraph Company, and Sibley became its president. Under his leadership the first transcontinental telegraph line was built in 1861.*
- *The final phase of integration occurred between 1857 and 1866. In this period the pool members consolidated into a national monopoly. By 1864 only Western Union and the American Telegraph Company remained of the "Six Nations." The United States Telegraph Company entered the field by consolidating smaller, independent firms in the early 1860s, and operated in the territory of both the American Telegraph Company and Western Union. By 1866 Western Union absorbed its last two competitors and reached its position of market dominance.*

        - *The telegraph and the railroad were natural partners in commerce. The telegraph needed the right of way that the railroads provided and the railroads needed the telegraph to coordinate the arrival and departure of trains. These synergies were not immediately recognized. Only in 1851 did railways start to use telegraphy. Prior to that, telegraph wires strung along the tracks were seen as a nuisance, occasionally sagging and causing accidents and even fatalities. The greatest savings of the telegraph were from the continued use of single-tracked railroad lines. Prior to 1851, the U.S. system was single-tracked, and trains ran on a time-interval system. Two types of accidents could occur. Trains running in opposite directions could run into one another, as could trains running in the same direction. The potential for accidents required that railroad managers be very careful in dispatching trains. One way to reduce the number of accidents would have been to double-track the system. A second, better, way was to use the telegraph. Double-tracking was a good alternative, but not perfect. Double-tracked lines would eliminate head-on collisions, but not same direction ones. This would still need to be done using a timing system, i.e. requiring a time interval between departing trains. Accidents were still possible using this system. By using the telegraph, station managers knew exactly what trains were on the tracks under their supervision. Double-tracking the U.S. rail system in 1893 has been estimated to cost $957 million. Western Union's book capitalization was $123 million in 1893, making this seem like a good investment.* https://eh.net/encyclopedia/history-of-the-u-s-telegraph-industry/
- [Rachel] Money Transfers (1871-present … we might end up moving this earlier depending on what ends up being included)
    - Starting in 1871, Western Union offered customer-to-customer money transfer services, piloting the program in New York, Chicago, and Boston. By the end of the year, they offered these services to the entire country. A wire money transfer occurred when a customer paid money to one office, where an operator transmits a telegraphic message and "wires" the money to another office. This of course requires the company to float a significant amount of cash in physical form in various geographic locations in order to make the money materialize on the receiving end. (It was basically a 19th century higher-speed version of the Medici bank offering money transfers at various locations in Europe to member merchants, so that they didn't need to move cash with them, except now everyone could do it.) For security, passwords and code books were used to authorize the release of the funds to the recipient. *By 1877 the service was used to transfer almost $2.5 million each year.*
    - Later years:
        - Today Western Union is a global money transfer service and one of the biggest in the world, but they actually did not begin worldwide operations until after the Record Carrier Competition Act of 1981 in the United States significantly deregulated them … and there was generally an ongoing process of international financial services deregulation in the 80s. https://www.congress.gov/bill/97th-congress/house-bill/4927 https://www.u-s-history.com/pages/h1801.html
        - They are currently second only to PayPal in volume of worldwide money transfers. https://www.insidermonkey.com/blog/5-biggest-money-transfer-companies-in-the-world-915839/4/ Much of their business is considered to be "remittance" payments from individuals working in one country to relatives living in another country. Hundreds of billions of dollars in remittance

payments flow through money transfer companies each year, vastly more than the amount of foreign aid or development aid from rich countries to poorer countries. Western Union, which is considered the leader in remittance payments specifically (as opposed to the broader world of money transfers) makes its money from a flat fee on the transaction and then a profit margin from currency exchange rate plays when converting the money between the sender's location and the recipient's location. The recipients can either arrange to pick up cash from an agent or the money can go directly into a bank account if those are available, accessible, and reliable in that part of the world. Another company with a well-known global brand in the sector of remittance transfers is "MoneyGram," which emerged out of the 1940s "Travelers Express" company, also based in the US. It is probably the closest competitor to Western Union today. https://www.businessinsider.com/these-are-the-five-best-remittance-companies-in-the-world-2016-7

- [Bill] Monopoly Era (1866-end of the 19th century)
    - After the mergers of the 1850s and 1860s that left it for a while as the only national firm in telegraphy, *Western Union's first rival was the Atlantic and Pacific Telegraph Company, a conglomeration of new and merged lines created by Jay Gould in 1874. Gould sought to wrest control of Western Union from the Vanderbilts, and he succeeded in 1881 when the two firms merged. A more permanent rival appeared in the 1880s in the form of the Postal Telegraph Company. John Mackay, who had already made a fortune at the Comstock Lode, headed this firm. Mackay did what many of his telegraph predecessors did in the 1850s: create a network by buying out existing bankrupt firms and merging them into a network with large enough economies of scale to compete with Western Union. Postal never challenged Western Union's market dominance, but did control over 10-20% of the market at various times.* https://eh.net/encyclopedia/history-of-the-u-s-telegraph-industry/ (Western Union bought them too in the 1940s.)
    - *Gradually, Western Union absorbed more than 500 telegraph companies throughout the nation, growing so much by 1884 that it was included in the original 11 stocks tracked in the first Dow-Jones Average.* https://www.u-s-history.com/pages/h1801.html
    - Economic impact: *industries that had a high inventory turnover also benefited from the telegraph. Of particular importance were industries in which the product was perishable. These industries included meatpacking and the distribution of fruits and vegetables. The growth of both of these industries was facilitated by the introduction of the refrigerated car in 1874. The telegraph was required for the exact control of shipments. For instance, refrigeration and the telegraph allowed for the slaughter and disassembly of livestock in the giant stockyards of Chicago, Kansas City, St. Louis and Omaha. Beef would then be shipped east at a cost of 50% that of shipping the live cattle. The centralization of the stockyards also created tremendous amounts of by-products that could be processed into glue, tallow, dye, fertilizer, feed, brushes, false teeth, gelatin, oleomargarine, and many other useful products. The telegraph undoubtedly had a major impact on the structure of financial markets in the United States. New York became the financial center of the country, setting prices for a variety of commodities and financial instruments. Among these were beef, corn, wheat, stocks and bonds. As the telegraph spread, so too did the centralization of prices. For instance, in 1846, wheat and corn prices in Buffalo lagged four days behind those in New*

York City. In 1848, the two markets were linked telegraphically and prices were set simultaneously. [...] The centralization of stock prices helped make New York the financial capital of the United States. Over the course of the nineteenth century, hundreds of exchanges appeared and then disappeared across the country. Few of them remained, with only those in New York, Philadelphia, Boston, Chicago and San Francisco achieving any permanence. By 1910, 90 percent of all bond and two-thirds of all stock trades occurred on the New York Stock Exchange. Centralization of the market created much more liquidity for stockholders. As the number of potential traders increased, so too did the ability to find a buyer or seller of a financial instrument. This increase in liquidity may have led to an increase in the total amount invested in the market, therefore leading to higher levels of investment and economic growth. Centralization may also have led to the development of certain financial institutions that could not have been developed otherwise. Although difficult to quantify, these aspects of centralization certainly had a positive effect on economic growth. In some respects, we may tend to overestimate the telegraph's influence on the economy. The rapid distribution of information may have had a collective action problem associated with it. If no one else in Buffalo has a piece of information, such as the change in the price of wheat in New York City, then there is a large private incentive to discover that piece of information quickly. But once everyone has the information, no one made better off. A great deal of effort may have been spent on an endeavor that, from society's perspective, did not increase overall efficiency. The centralization in New York also increased the gains from other wealth-neutral or wealth-reducing activities, such as speculation and market manipulation. Higher volumes of trading increased the payoff from the successful manipulation of a market, yet did not increase society's wealth.
https://eh.net/encyclopedia/history-of-the-u-s-telegraph-industry/

- Political Power by the Turn of the Century: *The period from 1866 through the turn of the century was the apex of Western Union's power. Yearly messages sent over its lines increased from 5.8 million in 1867 to 63.2 million in 1900. Over the same period, transmission rates fell from an average of $1.09 to 30 cents per message. Even with these lower prices, roughly 30 to 40 cents of every dollar of revenue were net profit for the company. Western Union faced three threats during this period: increased government regulation, new entrants into the field of telegraphy, and new competition from the telephone. The last two were the most important to the company's future profitability.* [...] *Western Union was the first nationwide industrial monopoly, with over 90% of the market share and dominance in every state. The states and the federal government responded to this market power. State regulation was largely futile given the interstate character of the industry. On the federal level, bills were introduced in almost every session of Congress calling for either regulation of or government entry into the industry. Western Union's lobby was able to block almost any legislation. The few regulations that were passed either helped Western Union maintain its control over the market or were never enforced.*
https://eh.net/encyclopedia/history-of-the-u-s-telegraph-industry/
- *By 1900, Western Union operated a million miles of telegraph lines and two international undersea cables. In cities large and small its uniformed messenger boys could be seen bicycling around town to deliver telegraphs to recipients. The company continued to grow. In 1914, it offered the first charge card for consumers, and singing telegrams followed in 1933.*

https://www.herald-dispatch.com/special/lost_huntington/lost-huntington-western-union/article_d4b89edf-6ad2-501e-b30c-f9c94fab189a.html

    - 1900, however, was the heyday of rapid growth in the telegraphy business in the United States, and by 1930 the actual volume of messages peaked at around 212 million per year and then began to decline. The Great Depression arrived at the same time as new alternative messaging technologies, even setting aside the continued rise of long-distance telephone service for instant verbal communication, and that all made the cost of sending a telegram harder to justify. https://eh.net/encyclopedia/history-of-the-u-s-telegraph-industry/
- [Bill] The Telephone
    - Fumbling the ball: *Western Union's greatest threat came from a new technology, the telephone. Alexander Graham Bell patented the telephone in 1876, initially referring to it as a "talking telegraph." Bell offered Western Union the patent for the telephone for $100,000, but the company declined to purchase it. Western Union could have easily gained control of AT&T in the 1890s, but management decided that higher dividends were more important than expansion. The telephone was used in the 1880s only for local calling, but with the development in the 1890s of "long lines," the telephone offered increased competition to the telegraph. In 1900, local calls accounted for 97% of the telephone's business, and it was not until the twentieth century that the telephone fully displaced the telegraph.* https://eh.net/encyclopedia/history-of-the-u-s-telegraph-industry/
    - It is important to underscore that last point, which helps explain why Western Union didn't jump at the chance to acquire the telephone: Most of their business was in longer-distance written communications and very few people were making long-distance voice calls at great expense for the first several decades. Short-distance written communications that were most threatened by early telephone service would have been sent more often via the local mail pickups and dropoffs, as we covered in our August 2020 episode on the postal service.
    - Meanwhile, just a couple years earlier, Western Union had purchased Thomas Edison's new "quadruplex telegraph" invention that allowed for four telegraph messages to be sent simultaneously over a single wire, two each way at once, and then correctly processed out by machines at both ends, thereby vastly increasing the daily or hourly message capacity over the same physical infrastructure. To Western Union, that would have seemed like a massive important breakthrough in terms of their business, especially in contrast with the poor sound quality of early telephone service and the capital problems associated with any increased need for physical infrastructure to be installed over long distances. https://en.wikipedia.org/wiki/Quadruplex_telegraph
    - Ultimately however, AT&T ended up acquiring Western Union, instead of the other way around, which eventually finally led to anti-monopoly action by the US government related to Western Union at long last in the AT&T Sherman Antitrust suit (1913)
        - *In 1909, AT&T gained control of Western Union by purchasing 30% of its stock. In many ways, the companies were heading in opposite directions. AT&T was expanding rapidly, while Western Union was content to reap handsome profits and issue large dividends but not reinvest in itself. Under AT&T's ownership, Western Union was revitalized, but the two companies separated in 1913, succumbing to pressure from the Department of Justice. In 1911, the Department of Justice successfully used the Sherman Antitrust Act to force a breakup of Standard Oil. This success made the threat of antitrust action against AT&T very credible.*

Both Postal Telegraph and the independent telephone companies wishing to interconnect with AT&T lobbied for government regulation. In order to forestall any such government action, AT&T issued the "Kingsbury Commitment," a unilateral commitment to divest itself of Western Union and allow independent telephone firms to interconnect. https://eh.net/encyclopedia/history-of-the-u-s-telegraph-industry/

    - For much of the early to mid 20th century, and even some of the third quarter of the century, as communications technologies advanced, it was an open question whether the telephone or the telegraph would become the basis of more complex communications networks. For example, would telephones carry faxes and the future internet, or would telegraphs? In the end, other far more advanced cables and light-based fiber-optics and so on would displace both, but for a long time, they were seriously in competition for supporting the coming Third Industrial Revolution around computers.
- [Rachel] Early/Proto Fax ("telefax")
    - According to their blog, Western Union started offering telefax services in 1935, though the service was most popular in the 1940s-60s. People could transmit images over the telegraph lines using a "Desk-fax" machine, which would print the images on carbon paper that was coated. A stylus would conduct an electric current to the paper and burn the coating, exposing the carbon. This innovation was to obviate the need for telegraph messengers, which were quite expensive, and provide direct desk-to-desk service. As telephone-line facsimile technology improved, and long-distance rates went down, the popularity of the telefax decreased. https://www.westernunion.com/blog/en/6-fascinating-things-about-western-unions-history/ (dubious on some accuracy issues here)
- [Bill] Microwave communications
    - In the 1940s, during and just after WWII, Western Union began developing and then offering city-to-city microwave communications transmissions, beating AT&T to the market. This was a new technology and the FCC during the later stages of the war had decided to let the private sector figure out something civilian to do with it. Companies like Western Union rushed to build microwave relays across the countryside, often on mountaintops, between certain major cities. For example, in 1945, Western Union microwave relays linked New York to DC via Philadelphia and DC to Pittsburgh and Pittsburgh back to New York. Between each of these major terminals would be more than half a dozen relay sites, spaced about 25-35 miles apart. The relay towers Western Union installed were initially basically just copies of the existing US Forest Service fire lookout tower designs, which the Forest Service provided information and experience on. These wireless microwave relays could replace, with much higher volume capacity, the vast network of physical wires and cables providing long-distance communications across the United States at the time. The Christian Science Monitor in 1945 called the system a "pole-less telegraph." The New York to DC microwave relay could transmit over 2,000 written messages simultaneously. https://historycooperative.org/journal/towers-for-telegrams-the-western-union-telegraph-company-and-the-emergence-of-microwave-telecommunications-infrastructure/ https://blog.historian4hire.net/2010/12/21/jennerstown/
        - The History Cooperative article from the mid-2000s on the development of the Western Union microwave network is especially fascinating and makes this observation: *Western Union was an industry leader in telecommunications: first in wireline telegraphy in the 19th century, next*

with commercial facsimile services in the first half of the 20th century, and, ultimately, with microwave telecommunications in the postwar years. Despite its path-breaking innovations, the company repeatedly found itself losing its market share to the Bell system. Telephony made it possible to bring telecommunications into the office and home. Western Union's attempts to reinvent itself through technological innovation repeatedly failed. Its microwave network, which was part of a $62 million, seven-year capital-improvement program, was hailed by Wall Street as a potential cure to the company's financial and labor woes in the 1940s.[60] The promising outlook signaled by the adoption of the new technology, however, was short-lived.

- [Rachel] Telex in the US (1958): https://en.wikipedia.org/wiki/Telex#Western_Union
    - Telex is a text-based, two-way messaging system that uses telegraph lines for transmission, and prints messages using teleprinters. It is the predecessor to modern fax, email, and text messaging. Western Union built their network in 1958.
    - *The telex numbering plan, usually a six-digit number in the United States, was based on the major exchange where the customer's telex machine terminated. For example, all telex customers that terminated in the New York City exchange were assigned a telex number that started with a first digit "1". Further, all Chicago-based customers had telex numbers that started with a first digit of "2". This numbering plan was maintained by Western Union as the telex exchanges proliferated to smaller cities in the United States. The Western Union Telex network was built on three levels of exchanges. The highest level was made up of the nine exchange cities previously mentioned. Each of these cities had the dual capability of terminating telex customer lines and setting up trunk connections to multiple distant telex exchanges. The second level of exchanges, located in large cities such as Buffalo, Cleveland, Miami, Newark, Pittsburgh and Seattle, were similar to the highest level of exchanges in capability of terminating telex customer lines and setting up trunk connections. However, these second level exchanges had a smaller customer line capacity and only had trunk circuits connected to regional cities. The third level of exchanges, located in small to medium-sized cities, could terminate telex customer lines and had a single trunk group running to its parent exchange.*
    - *Western Union offered connections from Telex to the AT&T Teletypewriter eXchange (TWX) system in May 1966 via its New York Information Services Computer Center.*
    - *USA-based Telex users could send the same message to several places around the world at the same time, like email today, using the Western Union InfoMaster Computer. This involved transmitting the message via paper tape to the InfoMaster Computer (dial code 6111) and specifying the destination addresses for the single text. In this way, a single message could be sent to multiple distant Telex and TWX machines as well as delivering the same message to non-Telex and non-TWX subscribers via Western Union Mailgram.*
    - (We'll probably have to talk more about telex at some other point because we already discussed it in relation to Chile and Project Cybersyn, but the big obstacle for us is that it was much more of a European technology, both in origin and usage, and this Western Union deployment was kind of an outlier, which is what makes it noteworthy for today's episode.)
- [Bill] Commercial Satellites

- In April 1974, Western Union had the first commercially launched US communications satellite in geosynchronous orbit, called “Westar.” It was launched a dozen years after the first experimental “Telstar” communications satellite jointly owned by AT&T, Bell Labs, NASA, GPO (UK), and National PTT (France). The Westar satellites were relaying telegram and telex message traffic, but also “video, voice, data, and fax” transmissions by 3rd party companies leasing partial use of the satellites. Western Union eventually launched 5 of these satellites out of a planned 7, which operated until 1984, a decade later, and they provided microwave communications for the company. Unfortunately by this point the company was really struggling financially and about to enter restructuring, and the satellite program was not helping, and so they decided to bow out of the commercial space race, selling off the program and its remainders to the Hughes Aircraft Company, which had built the satellites originally. And in fact, this satellite sell-off only preceded the company’s sell-off of physical telegraphy infrastructure by a few years. However, it is worth noting that the primary uplink station for the Western Union satellite fleet, located in Glenwood NJ, is now where SiriusXM satellite radio is uplinked from. https://en.wikipedia.org/wiki/Westar https://en.wikipedia.org/wiki/Western_Union#Consolidation_(1963%E2%80%931984)

Further reading:
https://ir.westernunion.com/news/archived-press-releases/press-release-details/2011/Western-Union-Celebrates-160-Years-of-Innovation/default.aspx. (bit dated on more recent facts)
https://www.westernunion.com/blog/en/6-fascinating-things-about-western-unions-history/
(dubious on some accuracy issues here)
https://en.wikipedia.org/wiki/Western_Union

https://www.forbes.com/sites/danielwebber/2021/08/25/from-western-union-to-moneygram-remittances-defied-the-pandemic--and-came-back-stronger/

https://www.forbes.com/sites/danielwebber/2022/04/06/converas-next-steps-western-union-business-solutions-reinvention-as-a-standalone-global-payments-company/?sh=272935e96fff
Interestingly Western Union’s recent spinoff of a business-to-business payments transfer and currency exchange enterprise is not friendly to crypto, regarding it as an obviously problematic thing: *“As someone who has dealt a lot with retail payments, I am a cryptocurrency skeptic as far as it's used for payments,” he says. “At present the way it is presented is very difficult for the average person who's not a technologist to really understand. It is also highly volatile, which is not exactly very helpful when it comes to commerce.” However, he regards crypto as a class of assets rather than a currency, and here sees some potential for the business. “Today it's largely a speculative asset class, and speculation means volatility,” he says.*

Western Union's Failed Reinvention: “The Role of Momentum in Resisting Strategic Change, 1965-1993” by Christopher McDonald in The Business History Review Vol. 86, No. 3 (AUTUMN 2012), pp. 527-549 (23 pages) Published By: The President and Fellows of Harvard College
https://www.jstor.org/stable/41720630

Also as a reminder if you missed our episode on the transatlantic telegraph cable and undersea communications cables from last year, we unlocked it.