

"A Gilt-Edged Class of Trained Men": Telegraph Schools in Canada and the United States, 1870s–1920s

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ABSTRACT

Throughout the late nineteenth century and early twentieth century hundreds of young men and women sought to learn telegraphy in schools and colleges. These schools aimed to uplift students into promising careers by equipping them with a rare skill set at an affordable price and a small time commitment. Telegraph schools aimed to provide students with a uniform set of skills, knowledge, and experiences to get right into the workforce as telegraphers. The development of telegraph schools is also tied to the history of technical schools more broadly. Ultimately, telegraph schools over promised what they could deliver to their students.

RÉSUMÉ

À la fin du XIX^e siècle et au début du XX^e siècle, des centaines de jeunes hommes et femmes cherchaient à apprendre la télégraphie dans des écoles et des collèges. Ces établissements visaient à préparer les étudiantes et les étudiants à des carrières prometteuses en leur fournissant des compétences rares pour un coût abordable et un faible investissement de temps. Les écoles de télégraphie ambitionnaient de leur offrir un ensemble uniforme de compétences, de connaissances et d'expériences pour une insertion professionnelle rapide en tant que télégraphistes. Le développement de ces écoles est également lié à l'histoire plus générale des écoles techniques. En fin de compte, les écoles de télégraphie ont fait des promesses excessives par rapport à ce qu'elles ont pu offrir à leurs étudiantes et étudiants.

Introduction

The telegraph was big business in the United States and Canada. The telegraph industry helped pave the way for large transnational corporations. From the 1870s to the 1920s, the telegraph industry shifted from one based on companies servicing a regional area to one dominated by national monopolies. The industry employed thousands of people and facilitated rapid commercial and industrial exchanges. But

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while many histories of the telegraph focus on the technology or the business, few privilege the experiences of those who made this network possible. Who were the people who made this system work? How did they learn the skills to enter this industry? What follows is an examination of how men and women in the late nineteenth and early twentieth centuries learned and practised telegraphy. Telegraph schools aimed to provide students with a uniform set of skills, knowledge, and experiences to get right into the workforce as telegraphers. The rise of telegraph schools in the late nineteenth century promised to uplift prospective students to the white-collar middle class.¹

This article will trace how young men and women came to learn telegraphy from the 1870s to the 1920s. It begins by briefly identifying who became telegraphers and why. It then explores what students expected from telegraph schools, how students acquired their knowledge and skills, how long it took to learn them, how this process changed over time, and what career prospects were like for new telegraphers.

First, some necessary context: telegraphy was divided into multiple sub-industries. The primary industry was commercial telegraphy operated by corporations like Western Union in the United States and the Great North Western Telegraph Company in Canada. Commercial offices handled personal correspondence but were primarily used by businesses, merchants, and stock traders for commercial transactions. Railway telegraphy was primarily used to transmit train orders. Railway telegraphers, often called train dispatchers, coordinated train movements to keep to a schedule and avoid crashes. Train station telegraph operators often served the dual role of being a commercial operator and a train dispatcher. Other sub-industries like brokerage and press operators served to transmit messages for stockbrokers and newspapers. Both brokerage and press operators were often considered the most skilled operators due to the long and often complex nature of their messages. Telegraph schools primarily served as places to teach commercial or railway telegraphy.

The rise of telegraph schools put more telegraphers into the job market, but it also decreased the stability of their work and narrowed their range of expertise. The shift from apprenticeships to schooling meant that student telegraphers could no longer earn an income while learning and practising telegraphy. It also meant that graduates from telegraph schools had roughly identical skill sets and experience in telegraphy. These changes made it difficult for them to get hired for positions that had been filled by more experienced telegraphers who learned while on the job. The shift to schooling also created new expectations for young men and women about the nature of their work and what lifestyle they could obtain from it. Most telegraph schools advertised their program as a ladder to greater success. Telegraph schools sold their prospective students a vision of middle-class comfort, security, identity, and work. In reality, opportunities for upward mobility within telegraphy were increasingly rare.

The development of telegraph schools was tied to the history of business schools more broadly. Bookkeeping was traditionally taught through apprenticeships but, by the turn of the century, learning accounting became more institutionalized in

commercial schools and later universities.² Telegraph schools, and indeed all private vocational and business schools, were not wholly altruistic ventures. They were for-profit businesses whose rise coincided with increasing demands from corporations that employees already possess the rudimentary skills needed to maintain the high performance and efficiency of an office workplace. The shift in the telegraph industry to national monopolies in the late nineteenth century coincided with the rise of telegraph schools. This was not accidental, as the reorganization of telegraph offices around large corporate monopolies reduced the need and ability of telegraphers to train apprentices. The monopolization of the telegraph industry and the proliferation of telegraph schools reduced the viability of smaller telegraph companies and reduced the need for apprentices to fill labour demands or to reproduce skills. It also narrowed the range of skills that telegraphers developed. In the mid-nineteenth century, telegraphers possessed a broader knowledge of electrical science and engineering gained through apprenticeships and worksite experience. Telegraphers were just as much inventors and electrical engineers as they were machine operators.³ By the turn of the century, electrical sciences and engineering had increasingly become the domain of university departments. Telegraph schools, in contrast, now focused on teaching the vocational skills needed to efficiently send and receive Morse code.

Telegraph operators shifted from being early craft-based electrical engineers to office-bound machine operators. In this regard, telegraph schools were like other business schools of the late nineteenth century. As historian Steven Conn said, late nineteenth-century business schools failed to provide “a definition of professional business education” or to produce a “vibrant body of knowledge.” Business schools, as well as telegraph schools, often served as “the handmaids of industrial capitalism,” according to Conn.⁴ The history of telegraph schools and their impact on the telegraph industry provides historians of education an example of the pedagogical and economic tensions at the core of all education systems and how those systems shape occupations.

Learning Telegraphy and the First Day on the Job

Jasper Ewing Brady was a young man about to begin his first job as a telegraph operator. “I learned telegraphy ... at a school away out in western Kansas,” he recalled in 1899. “After I had been there three or four months, I was the star of the class, and imagined that the spirit of Professor Morse had been reincarnated in me.... Visions of a superintendency of telegraph flitted before my eyes.”⁵ Along with his formal education, Brady also apprenticed under a night operator named Harry Burgess at a local railway depot. In exchange for being taught telegraphy by Burgess, Brady would do the more mundane work of a railway night operator such as refilling oil in lamps, sweeping, and handling baggage.

Brady’s first job in telegraphy was as the night operator for the rail depot he had “apprenticed” at. Brady was required to fill the dual roles of night operator and porter. He worked from seven o’clock in the evening to seven in the morning for \$40 per month. Brady’s first night of work passed without issue. His second night went

well until about 11:00 p.m., when the dispatcher gave the signal “9.” Nine was code for a train order, which took precedence over everything else on the wire. This was the first time Brady had ever taken a train order. On his first day, he handled only commercial messages; as all the trains were on schedule, no train orders were needed. Brady was nervous about handling a train order for the first time and avoided responding right away, hoping the message would go to someone else. The dispatcher persisted in trying to contact Brady, and even went so far as to get another operator to call on the commercial telegraph line while he messaged on the railway line. Eventually, Brady did respond to the frustrated dispatcher and was told to “Copy 3.” Copy 3 meant to take three copies of the following order. The dispatcher then proceeded to fire off Morse code so fast that before Brady was even ready to take the message down, the dispatcher was already halfway through. According to Brady, there was a rule on this railway, as was the case with many other railways and commercial offices, that “Despatchers, in sending train orders to operators, will accommodate their speed to the abilities of the operators. In all cases they will send plainly and distinctively.”⁶ Brady could barely write down the order number and date before having to “break,” signalling the dispatcher to stop and repeat the message. Brady continued to break ten more times, increasing the anger of the dispatcher each time until the noise coming from Brady’s sounder seemed “like the roll of a drum.” After finally getting the whole message down, the dispatcher said to Brady, “For heaven’s sake go wake up the day man. You’re nothing but a ham.”⁷ When the train arrived at Brady’s station, its conductor could scarcely read the order he had copied, but it was eventually deciphered and the train left. Almost as soon as the train left, the same dispatcher contacted Brady, telling him to stop the train. Brady had to inform the man the train had already gone, to which the dispatcher replied, “there’s a good chance for a fine smash-up this night.”⁸ Brady sat for many minutes in anxious fear before a brakeman came into the station and gave him the news: two trains had run up against each other on a curve, resulting in a pileup of engines, boxcars, livestock, and freight.

Brady’s story highlights the consequences of hiring inexperienced or under-skilled telegraphers. From the mid-nineteenth to the early twentieth century, the training and education given to prospective telegraphers changed significantly. In general, this change was defined by the decline of apprenticeships or on-the-job learning and the growth of telegraph schools. The rise of telegraph schools put more telegraphers into the job market, but it also decreased the stability of their work and narrowed their range of expertise. Brady was unusual in this regard in that he had obtained two forms of telegraph education, both formal schooling and apprenticing under the night operator Harry Burgess. The shift from apprenticeships to schooling meant that student telegraphers could no longer earn an income while learning and practising telegraphy. It also meant that graduates from telegraph schools had roughly identical skill sets and experience in telegraphy. This made it difficult for them to get hired for positions that had been filled by more experienced telegraphers who learned while on the job. Brady’s first job, and its disastrous outcome, highlights the importance of adequate training and education in this line of work.

Who Became Telegraph Operators?

Most telegraphers in Canada and the United States were young, single, white men.⁹ Women comprised about 10–20 per cent of the telegrapher workforce.¹⁰ The proportion of women employed as telegraphers, or at least employed more regularly, increased over time. The combination of the typewriter and printing telegraphs for commercial telegraphy around 1910 allowed teleprinting to be more accessible to a larger workforce of female clerks, typists, and stenographers. Like other forms of office work during this period, telegraphy became increasingly accessible and socially permissible for women.¹¹

While telegraphers were most likely to be white, this does not mean that all telegraphers or everyone who knew telegraphy was white. Vera Jamieson, a Cayuga girl, was admitted to the Mohawk Institute residential school in 1914. Her mother was dead, and in 1921, she was listed by the institute as taking a course in telegraphy.¹² Take E. Suda was a Japanese telegraph operator who learned English and telegraphy in Wichita, Kansas.¹³ W. E. B. Du Bois wrote about employers' colour prejudice in his 1899 book *The Philadelphia Negro*. In the book, Du Bois highlighted a black telegraph operator who "has hunted in vain for an opening."¹⁴ In 1911, the Canadian railways in western Ontario employed "four coloured men." Their employment was not well received by other telegraphers. One woman operator said: "Telegraphers never had this sort of trouble before."¹⁵ While there were some non-white telegraphers, these were regarded as exceptional cases. In this way, white operators and employers worked to create a culture of white supremacy in the telegraph office. It is important to recognize that the whiteness of telegraphy, and indeed all white-collar work, was built on excluding non-white bodies from telegraphy.

Telegraph operator historian Edwin Gabler published a social history of telegraphers in 1988 and argued that the typical telegrapher from 1880–1900 was male, aged between their early to mid-twenties, unmarried, native-born, white, and usually lived with their parents or they boarded/lodged.¹⁶ While much of this remains consistent with my research, the belief that telegraphers were farmers' children who traded in their threshers for telegraph keys is overstated.¹⁷ A closer examination of census data in Canada and the United States reveals that the class backgrounds of telegraphers were more diverse than previously thought. Only 11 per cent of telegraphers were from agricultural families.¹⁸ Telegraphers were more urban and spread out among families of various class backgrounds in the United States and Canada. Those telegraphers were not all from farming families but were also from artisan families of harness makers, blacksmiths, and shoemakers. Those telegraphers working in more urban areas had backgrounds fairly evenly split between white-collar backgrounds and the trades.¹⁹ The telegraphers of the United States and Canada emerged from this liminal and ambiguous space where the cultures of blue-collar tradespeople and white-collar workers mixed. They were entering into a new and paradoxical form of labour that has become more ubiquitous in the modern era. They were becoming part of the white-collared proletariat.²⁰

By the 1880s the options available to learn telegraphy were self-study, on-the-job

learning as an operator or clerk, or the emerging telegraph schools and colleges. It is on the latter option that this article will primarily focus. Most historians have overlooked the role of telegraph schools in the development of telegraphy as a line of work. Telegraph historian Paul Israel leaves the topic of telegraph schools to a footnote, stating that some operators received training in them and that by the 1870s they had obtained a “bad reputation.”²¹ From their beginnings, telegraph schools advertised themselves and a career in telegraphy as a stepping stone to something better. A career in telegraphy today could perhaps lead to the president’s chair or at least a seat on the board in the future. In many ways, the advertising of telegraph schools echoed a lost past of entrepreneurial inventor telegraphers who earned their success through electromechanical invention, rising through the ranks of their company to management positions or transitioning to telegraph manufacturing. By the late nineteenth century, and certainly the early twentieth century, these opportunities had closed off to almost all telegraphers. No messenger was rising through the ranks to become company president anymore. Rather than provide a more generalized education in the science of electricity or electrical engineering, these schools focussed solely on daily telegraph (and sometimes railroad) operation and maintenance. These schools narrowed the field of study for telegraphers and made their graduates more dependent on working as operators.

The Sales Pitch from Telegraph Schools

Although telegraph schools became more prevalent in the twentieth century, the first telegraph schools opened in the late nineteenth century. One of the early examples of telegraph schools in Canada was the Dominion Telegraph Institute in Toronto. The institute’s success was due in large part to its connection with the Dominion Telegraph Company, one of Canada’s largest telegraph companies in the 1860s and 1870s. Martin Ryan, the superintendent of the Dominion Telegraph Company, explained the establishment and success of the institute to potential students.

This Institution, although established a short time ago, has already become one of the Permanent Institutions of Canada. Its rapid growth and prosperity are due to the demands of the Telegraph community; and the necessity of establishing a thorough and practical Institute at the present time.... The Dominion Telegraph Company have already built Lines from Toronto to Buffalo; all along the Lines Offices have been opened, and have been supplied with Operators exclusively from this Institute.²²

Ryan also gave students an impression of what their salaries could look like after graduation: “Graduates of the Institute can procure at least \$30 per month until experienced. The salaries of experienced Operators are from \$45 to \$60 per month, and in the States \$100 per month.”

The advertisement for the Dominion Telegraph Institute listed the advantages of a telegraphic education. The first among these was that “the business itself is fascinating

in the extreme. The idea of communicating instantly a distance of thousands of miles, NEVER LOSES ITS CHARM" (emphasis in original).²³ Although the technology and novelty of instant communications may have been attractive, telegraphing was incredibly monotonous and repetitive work. Operators had to perform repetitive wrist and arm motions to send Morse code, and if they were working on a railway, they likely sent the same telegrams regularly based on the trains' schedules.

The course took about three months to complete, though completing it in less time was possible, and all necessary materials were provided with the \$30 tuition for men and \$20 for women. While no explanation was provided by the Dominion Institute for the reduced cost for female students, it is likely that the tuition gap resulted from different curricula offered to men and women and the smaller wages that women telegraphers earned. The actual facilities to learn telegraphy included "all the features of the regular Telegraph Office, on a large scale; and having the advantage of a Regular Working Main Line, three miles in length, extending to the village of Yorkville, its students become familiar with all the duties of the business. Messages of every description, train reports, markets and news reports, are daily practiced on the lines. Individual instructions, lectures, and blackboard exercises are given." In addition to more traditional lectures and instructions, the institute offered students a real telegraph line to practise sending different messages on as a kind of classroom practicum.

This institute was an important link in the shift from apprenticeship training to the more commercially focused telegraph schools of the twentieth century. The Dominion Telegraph Company occupied the role of a master in the master-apprenticeship model by training the students and guaranteeing them employment on their telegraph line: "The Institute is not a Commercial School, but a thorough and practical Telegraphic Institute, directly connected with the interests of Telegraphy, and should you learn the business, we can render you assistance to an office on the Lines."²⁴ The Dominion Telegraph Institute promised that telegraphy was easy work with a greater degree of freedom and independence compared to other lines of work.

There is no Trade or Profession which requires so little amount of labor, and at the same time none where the employee has the same amount of freedom and independence. Nearly all Operators have an Office entirely to themselves ... unmolested or "watched" by "masters," "foremen," &c., as is the case in most other lines of business.²⁵

After completing the course, and being assisted in finding an office, the school assured students that "with their trade they are in an independent position, and can procure employment at any time and anywhere."²⁶ This school made guarantees to their students of securing them employment on their company lines in an attempt to facilitate a similar role as a master helping an apprentice secure employment in their shop or establishing their apprentice somewhere else. By the twentieth century, most telegraph schools did not make this guarantee because they were all commercial schools with no direct connection to any one company that could guarantee employment. This switch to commercial education made the job prospects of graduated

telegraphers more uncertain than if they had entered the industry through an apprenticeship or on-the-job training.

In addition to the promise of freedom, independence, and easy work, the school also promoted other perks of telegraphy. Telegraphers' freedom allowed them to pursue other businesses in connection with their office such as "bookselling, Express Office, Sewing Machine Business, &c." Similarly, if telegraphers worked in the railway industry, they often acted as station agents and would receive another salary in addition to their wage from telegraphing. There was never any discussion about whether this would require twice the amount of work.

It is easy for modern readers to look at these advertisements and see them for the obvious overselling they were. They overpromised on their education and the career path of the telegraph operator. We may believe that most men and women of the late nineteenth and early twentieth centuries thought the same. However, we are not more immune to confidence schemes than the people of the past. The young men and women who enrolled in these schools believed in the sales pitch, they believed in the testimonials, and they believed that they too could become the next Edison or Carnegie despite the fact that none of these famously rich men learned telegraphy in a school. Brady believed after attending a telegraph school that he would secure a superintendency in the telegraph industry.²⁷ Bob Ellis, a Western Union employee who began as a telegraph messenger boy, believed that through hard work he "had every opportunity to become head of any of these respective departments if I had concentrated on the effort to assume such a responsibility. Perhaps I might have ascended to the presidency, for several of our presidents launched their careers as messenger boys." Ellis internalized this belief when he was young, specifically stating in his biography that he came to this conclusion after reading Horatio Alger's novel about a successful telegraph messenger boy.²⁸ Much as modern people dream of being their own boss through the gig economy or making it big with the next killer app, people believed this of telegraphy. They believed this, and we do too, because the myth of the self-starter was the dominant cultural belief. Whether they arrived at this belief from schools, companies, or novels, students and employees shared in the belief that telegraphy could be a vehicle for social and economic mobility.

The Experience of Learning in a Telegraph School

The experience of learning at telegraph schools varied greatly depending on the school one enrolled in and the gender of the student. Many schools were derisively named "plug factories" for their tendency to churn out "plugs," telegrapher slang for unskilled operators. These were smaller telegraph schools that were far less equipped than the largest and most popular schools in Canada and the United States. One such example was the Toronto-based McIlwain & Co's. Short Hand and Telegraph School. It taught telegraphy and shorthand, likely including lessons directed at teaching women stenography and secretarial work. The school was small, containing only one teacher for nine students. The teacher, Mr. H., was called incompetent by a telegrapher writing an article on the school for *The Electric Age*. Mr. H. admitted that

he was only teaching telegraphy to "fill in the time till something else 'turns up.'" Mr. H. confessed that he was hoping just to make some money out of his pupils without giving them much in return.²⁹

The larger telegraph colleges in the United States and Canada had more students, teachers, and facilities to teach different forms of telegraphy. Dodge's telegraph institute claimed to be "the oldest in existence" and could teach students Morse telegraphy, railway accounting, and radio telegraphy by experienced and efficient instructors.³⁰ In addition to these, the subjects of penmanship, spelling, and typewriting were all taught in the Morse program. The dean of the Morse department was C. A. Harmon, a man with many years of experience telegraphing for various railways and Western Union. The Morse telegraph course offered complete instruction in the branches of railway and commercial telegraphy. Subjects of instruction included electric currents, use and adjustment of instruments, battery maintenance, switchboard training, transmission, receiving, circuit regulations, wire signals, common abbreviations, definitions of technical terms, railway employee duties, railway rules, train orders, railway telegrams, commercial telegraph rules, and commercial telegrams.³¹

Students were divided into three general departments to learn Morse telegraphy based on their knowledge and experience: primary, intermediate, and graduating. The primary department was for students with no knowledge of telegraphy and consisted of lessons about the "correct position and movement of the arm at the telegraphic key" as well as learning Morse code. The school promised that students could learn these basics in about two to four days. Then they would begin to practise by "telegraphing and receiving straight newspaper matter at a speed of about fifteen words per minute." After students demonstrated their competency in this field they would be moved to the intermediate department. In the intermediate department, students learned how to send and receive messages faster and also studied train orders, train rules, railway signals, technical terms in railway and commercial work, the duties of railway and commercial operators, and commercial telegraph bookkeeping.³² Figure 1 demonstrates how crowded the primary department could be, suggesting that many of the incoming students knew nothing about Morse code or telegraphy.

The graduating department contained four equipped offices with proper instruments for railway and commercial telegraphy. These offices were made to create "an exact reproduction of an actual telegraph system affording the student an unequalled opportunity to study . . . exactly the same as on regular telegraph lines."³³ This department also required students to prove their ability to make wire connections as they would do in regular work, something that Dodge's school claimed was unique to their institute.³⁴ All students in this department received instruction for three hours daily, not including instruction in typing or penmanship. Two of the three hours were devoted to wire operating and the remaining one hour was devoted to special instructions and lectures. Graduate level students alternated each day which class had the office available for practice. Students not operating in the office were instructed to observe and offer critiques of the operating students. Practice and instruction in railway telegraphy represented trains with labelled cards rather than the "toy train service" offered at other schools.³⁵

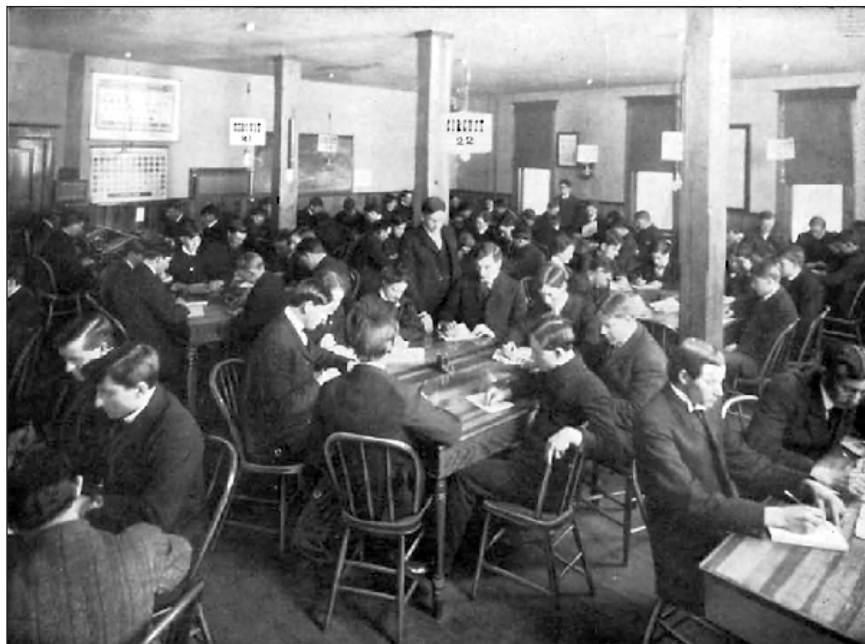


Figure 1. *Sectional View of Beginning Primary Department, found in Announcement of Dodge's Telegraph, Railway Accounting and Radio (Wireless) Institute (Valparaiso, Indiana, ca. 1923), 21. Retrieved and cropped from Porter County, Indiana, <https://www.inportercounty.org/Data/Misc/DodgesInstituteAnnouncement-1926.pdf>.*

Due to the dissemination of typewriters in offices, “telegraph operators must be able to use them before they can secure a real good position” according to Dodge’s telegraph institute. Dodge’s institute taught students to type on the students’ choice of the latest Underwood or L. C. Smith typewriters. Dodge believed it was the only institution providing free use of typewriters with its courses, and it provided them at no extra charge. The typewriting course took students five months to complete and was included free of extra charge with the standard telegraph courses.³⁶

Despite the ubiquity of typewriters by the 1920s and the offer of typing lessons, Dodge’s institute still continued to emphasize the importance of good penmanship. Clean and beautiful penmanship was considered important to getting “the attention and good will of someone higher up” while poor penmanship gave the impression that the operator was a “slovenly, careless, shiftless individual.”³⁷ Dodge’s institute claimed that “legible handwriting is absolutely essential for a successful telegrapher.” This was why it provided a course drilling students on penmanship thirty minutes daily using the Palmer Method of Business Writing and why it devoted thirty minutes a day to proper spelling. No additional charges were made to students’ tuition for these lessons.³⁸

This emphasis from Dodge’s institute may seem strange, but penmanship and spelling were important skills and hobbies for telegraphers, often demonstrated through penmanship competitions. These were different from telegraph contests or

speed tournaments that aimed to determine the fastest sender. The goal of penmanship contests was different. Penmanship was not evaluated by speed but by its beauty and aesthetic. One was a measure of raw speed and efficiency or of how good a worker you were. The other was a measure of beauty and artistry or how cultured and dignified you were. Penmanship was therefore an indicator of class. Bad penmanship was indicative of a "slovenly, careless and shiftless individual," someone who was of a lower class. Beautiful penmanship indicated that the operator was educated, sophisticated, and a good candidate for management. Classes on penmanship were therefore an attempt by the school and the students to transcend this cultural class divide. Its goal was to refine a student's lower-class and messy handwriting into something eye-catching.

The introduction and proliferation of typewriters for operator receiving could be seen as a way of equalizing the class division between operators through unified type. However, the introduction of the typewriter reduced the skill of receiving and copying messages to one of speed and efficiency similar to telegraph transmission. Telegraphers continued to hold good penmanship in high esteem after the introduction of typewriters because of the skill and artistry involved in the practice. This can be seen in the preservation of telegraph operators' penmanship carried out by telegrapher Donald McNicol.

Prior to the advent of the typewriter, legible and graceful penmanship was viewed as a personal accomplishment forming an important element of advanced education.... Telegraphers, although they were among the first to adopt the typewriter to meet daily needs, have always attached importance to the ability to write well with pen and pencil. Two operators may be equally expert as senders and receivers, but if one of them can write a good telegraph hand and the other cannot, then the former is regarded as the better operator.³⁹

Through performing good penmanship, a telegrapher was embodying a more sophisticated and educated class. They were appearing to have middle- or upper-class skills while performing the working-class task of copying multiple messages by the hour. In 1917, McNicol said "telegraphic penmanship is not taught in schools or colleges."⁴⁰ Therefore, mastering telegraphic script required rigorous self-study. Near the end of his book on telegrapher penmanship, McNicol offered a standardized practice script created by Boston telegrapher F. T. Viles. "Constant practice at duplicating these perfectly plain letters should make it possible for any young telegrapher to improve their penmanship," McNicol said. Yet simply practising these "plain letters," no matter how diligently, would not produce the high class, beautiful, telegrapher script that would impress the reader.

McNicol served as a judge for a telegrapher penmanship contest, which received hundreds of submissions, of which twenty-four winners were selected to receive prizes. Comparing the writing of the first showcased winner to the proposed practice script in Figures 2 and 3 reveals a preference for the more artistic script. McNicol believed that none of the attempts at standardizing and teaching telegraph script,

including Viles's, was successful. "The lack of success may be accounted for by the fact that rarely do two operators write exactly alike," McNicol said. "Each man's copy contains individual characteristics which distinguish it from other copy which at first inspection may appear to be identical."⁴¹ Benjamin H. Tidrick's writing was praised for its more easily calculable traits such as speed, pen control, alignment, and distinct letter formation, but it was also praised for its "graceful lines."⁴² True quality telegrapher script could not simply be acquired through rote learning. It needed an individual's artistic style. It needed flair. A telegrapher's longhand needed to embody a sense of grace and refinement while also remaining fast and legible. Telegraphers were not dilettantes writing letters after all, they were working men and women. "The penmanship of the professional letter writer, while beautiful, was not necessarily rapid. The telegrapher was always under the necessity of writing rapidly" observed McNicol.⁴³ A first-class operator was one who applied upper-class skill and artistry to their working-class tasks.

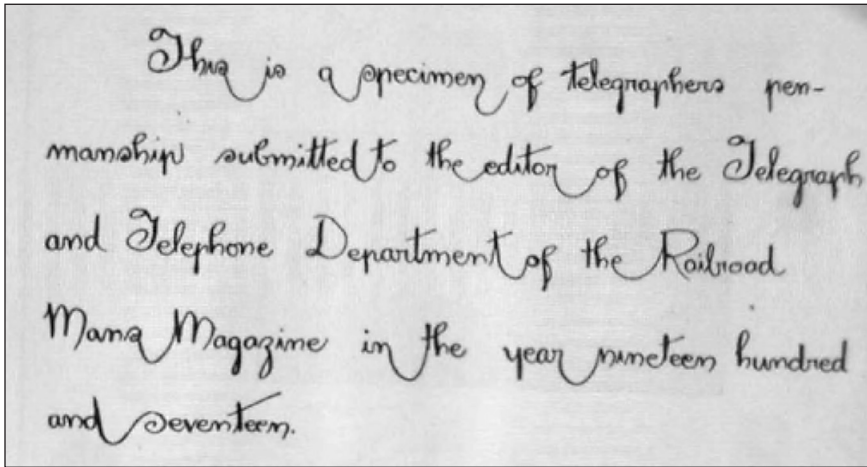
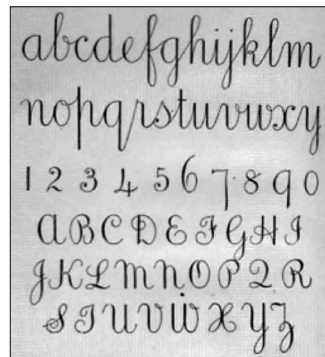


Figure 2 and 3. *Winning penmanship sample of telegrapher Benjamin H. Tidrick (top) and telegraph script designed for practice by F. T. Viles (bottom).* Donald McNicol, *Telegraph Operators' Penmanship* (Donald McNicol, 1917). McNicol Collection, W. D. Jordan Rare Books and Special Collections, Queen's University, Kingston, Ontario.

Dodge's Institute claimed that their course was enough to qualify any man to be a successful telegrapher. An elaborate and sophisticated education was not seen as a requirement to begin telegraphing. In fact, Dodge's Institute insisted that "the men that we yearly turn out and place in good positions are by no means brilliant in the sense of being intellectual prodigies.... The great mass of them have no more schooling than you. There are some who would perhaps be considered



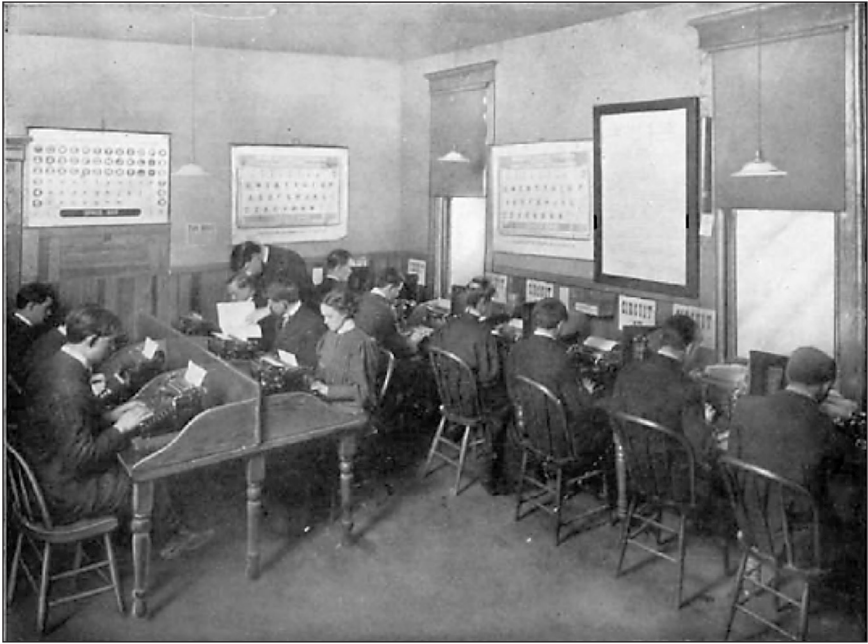


Figure 4. View of the Typewriting Department in the Main School Room, Announcement of Dodge's Telegraph, Railway Accounting and Radio (Wireless) Institute (Valparaiso, Indiana, ca. 1923), 24. Retrieved and cropped from Porter County, Indiana, <https://www.inportercounty.org/Data/Misc/DodgesInstituteAnnouncement-1926.pdf>.

dull in certain studies." The school did not consider the intellectual capabilities of their students important. What was important was that prospective telegraph operators maintained a practical mind and continued to pay to study and practise telegraphy for five to seven months at their school. If they could do this, according to Dodge's Institute, they would have "placed themselves in that gilt-edged class of trained men, forever beyond the rough competition of unskilled men, with a position always waiting for them in a most fascinating field of labor."⁴⁴ In short, they were marketing their education to dull students who would be given a gilded education for a gilded job. By referring to telegraphers as a "gilt-edged class of trained men," the pamphlet was arguing that this was a secure, wealthy, and stable line of employment.

In reality, telegraphing was regular Gilded Age employment. Telegraphing only appeared middle class, like gilding. If anyone inspected telegraphy closer or bought into the sales pitch, they would realize that all the promises and marketing around telegraphy as a comfortable, easy, and highly sought-after career were false. Telegraphers performed repetitive motions for multiple hours a day or night, resulting in repetitive stress injuries or "glass arm."⁴⁵ Many telegraphers similarly believed their work was not compensated properly when compared to other intellectually difficult occupations or even construction trades.⁴⁶ From our modern perspective, and from the perspective of those who worked in telegraphy, telegraphing was office drudgery.

Similar large telegraph institutes also existed in Canada, such as the Canadian Railway Telegraph Institute (CRTI). The CRTI discredited traditional methods of learning telegraphy as a messenger boy or on the job, claiming that a telegraph apprentice was nothing more than an "errand boy." The operator training this errand boy would give very little instruction on telegraphy. The CRTI claimed that it would take three to four years for an apprentice to learn telegraphy this way.⁴⁷ Similar to Dodge's institute, the CRTI also offered tiered progression through their curriculum. Students would begin by first learning proper movements to operate a Morse key and then they would be taught the Morse alphabet. This practice was done for three to four days. After all this knowledge was obtained, the student would then be assigned to a table where they would practise with other students receiving messages for six hours a day and transmitting for one hour a day. After the students achieved a sending speed of fifteen words per minute, they would be promoted to the intermediate department and begin learning railway work.⁴⁸ The school's promise was clear: one could learn telegraphy faster and more effectively at their school than working at an actual telegraph office.

Prior to the proliferation of telegraph schools, women struggled to enter the telegraph industry in great numbers. Generally, women did not become operators through apprenticeships.⁴⁹ Boys often got a head start learning Morse code and practising operating as messengers but female messengers were rare. Messenger girls were so rare that it was big news when labour shortages during the First World War prompted companies to take on girls as messengers.⁵⁰ This is not to say that there were never any messenger girls. The New York City Western Union office employed thirty-three messenger girls as early as 1886. Generally, most messenger girls were employed in rural areas where lesser traffic allowed for the employment of fewer messengers in an apprentice style relationship to lone operators.⁵¹ In urban areas, employment of telegraph messenger girls was related to extreme events such as strikes and war and only really occurred in the twentieth century.⁵² One of the major reasons why girls were barred from working as messengers was the public perception that messenger boys were already dangerously exposed to dubious moral influences in their work. The idea of having young women run errands to bars, gentleman's clubs, and brothels was unacceptable.⁵³ Women usually began work as telegraphers by taking a class at a school for telegraphy, like the CRTI, or by working in an office in a clerical position and learning telegraphy on the side. Women who learned telegraphy in these ways were often segregated and left at a disadvantage when compared to their male colleagues. Women operators started learning telegraphy later than men, either beginning in a telegraph school or learning as an office clerk as teenagers or in their early twenties. This late start gave them less time to develop their skills. This resulted in women being paid less and given less challenging work than their male colleagues. Women learning telegraphy were often funnelled into commercial work and not encouraged to enter the more lucrative and skill-demanding fields of railway and brokerage telegraphy.

The CRTI advertised the greater availability of commercial work for women, claiming "no more practical course is offered to young women than Commercial Telegraphy."⁵⁴ The difference between the male and female curriculums was explained plainly.

The same code is used in Commercial Telegraphy as in Railway work. The difference in the two courses, however, is that young men going on the Railway must study Railway rules, Train orders, Railway and Commercial Telegraphy, whereas young women just study Commercial Telegraphy.⁵⁵

While schools offered an opportunity for women to enter the industry, it was often in a limited and segregated fashion. Men were able to choose between railway and commercial telegraphy, whereas women were just expected to study commercial telegraphy. The Boston School of Telegraphy even stated to would-be students that employers "prefer women as telegraphers than men."⁵⁶ The school did not mention that employers paid women operators less than men for the same work.

The proliferation of schools and women telegraphers were seen as connected phenomena. This led to senior male telegraphers believing that this increase in women operators would devalue their skills and decrease their wages due to telegraph schools flooding the labour market with less skilled and less compensated women operators.⁵⁷ They were not wrong. Changes in typing, clerking, and bookkeeping challenged the inherent middle-class masculinity of work in offices and courts.⁵⁸ By the twentieth century, telegraph companies like Western Union began redefining telegraphy from a skilled white-collar male occupation to a low-skilled machine-automated feminine occupation.⁵⁹

Despite the perceived association of telegraph schools with women, telegraph schools almost certainly educated more men than women. The photographs of Dodge's and DSTR's classrooms (Figures 1, 4, and 5) indicate that women made up a small minority of students. While men and women appear to have shared classroom space and lessons in these photos, the advertisements for DSTR indicate that women were excluded from learning about the railway business of telegraphy. The DSTR brochure provided letters from graduates and they were almost all from men. Only one letter was from a woman who claimed that after passing the course she was able to "take a position as a commercial telegrapher."⁶⁰ While some telegraph schools, like Dodge's and the Canadian Railway Telegraph Institute, seemed genuinely invested in providing all their students with good education and training, their marketing rhetoric was misleading and dangerous. Telegraphy was not easy to learn, exciting, higher-class work. It was often difficult, overwhelmingly stressful, monotonous, and physically debilitating. By examining the experiences of beginner telegraphers, we can see how poorly prepared they were for the pressures of the workplace.

First Jobs after Graduating

What were the career prospects of newly graduated telegraphers like? Did telegraphers who obtained their training through apprenticeships or on-the-job training have a different experience entering the industry than those who were trained at schools? The experiences of American and Canadian telegraphers finding employment after their education reveals that they were often poorly equipped to handle many office positions and were overworked in the jobs they did manage to get.



Figure 5. *The Dominion School of Telegraphy and Railroading, "Another View of Senior Department, showing Stations on the Miniature Railroad," in Dominion School of Telegraphy and Railroading (Toronto, ca. 1917), 22. Provided by W. D. Jordan Special Collections and Music Library, Queen's University, Kingston, Ontario. The photo shows students in the Senior Department of the school alongside the miniature railroad and telegraph stations. There are three women telegraphers with their backs to the camera sitting at the closest row of desks. Image retrieved from Wikimedia, accessed Feb. 26, 2026. <https://commons.wikimedia.org/w/index.php?search=Dominion+school+of+telegraphy+and+railroading&title=Special%3AMediaSearch&type=image>.*

On Brady's first day as a railroad telegrapher, he had caused two trains to crash into each other, causing a pile up of engines, boxcars, livestock, and freight. To Brady's good fortune, no one was killed in the accident, but an engineer and fireman were badly scalded and another man broke his leg. Brady had to be relieved that night by the more experienced day operator. The day operator spent the night working and regaling an anxious Brady with tales of similar incidents of criminally negligent operators being shot by train engineers or imprisoned for ten years. At seven o'clock in the morning, the day operator informed Brady that the accident was not his fault. The dispatcher Brady had worked with had accidentally given a "lap order," giving authorization for more than one train to use the same track at the same time. The responsibility for the collision was placed on the dispatcher. Regardless, the superintendent told Brady that he was too young to hold this position and he was fired. Brady was told by the superintendent to come back after he had "acquired more experience."⁶¹

Brady's story of his first railway job suggests that some recent telegraph school graduates were not fully equipped or experienced enough to handle the responsibilities, trust, and stress of their job. Even someone like Brady, who had the double advantage of a formal school education and an apprenticeship under a railway telegrapher, could not keep up with the demands of the railway. The telegraph industry was not as easy to enter as schools made it seem. Clearly the six months of training that schools said was enough to be considered proficient was not enough. This problem was not unique with railway telegraphy but also applied to commercial telegraphy. Even after years of experience in railway telegraphy, Brady found transferring his skills into a commercial office just as difficult an experience as his first job on the railway.

Brady compared the railway and commercial telegraph industries by stating that they were “the same, and yet ... entirely different.”⁶² He realized that being both a competent train dispatcher and a first-class commercial telegraph operator was rare and required an immense amount of skill and experience. What separated the commercial operator from the railway operator was that commercial operators needed to not only be experts in Morse telegraphy but they also needed an intimate understanding of the line, battery, and switch board, in addition to what Brady called “an executive ability ... of the highest order.”⁶³ Brady had assumed that the skills between railway and commercial telegraphy would be easily transferable. After all, small town railway operators often did small amounts of commercial work in addition to their other railway duties. When Brady applied to work as a first-class commercial operator in Galveston, Texas, he was tested on a quadruplex. A quadruplex, or a quad, was a wire and telegraph instrument where four telegrams could be sent and received over the same wire at the same time without interference. Working on a quad was often divided between four first-class operators who would coordinate receiving and transmitting the high volume of messages between major urban centres. When Brady was tested on the quad and began to receive a telegram from the operator in Houston, he was immediately overwhelmed by the fast sending and called the sending operator to break. Brady continued to call for a break multiple times until he had successfully taken down the message. Another message was sent by the Houston operator that contained “a jargon of figures and words that I had never heard of before,” said Brady. After continuing to call for breaks and repetitions of the message, Brady was told by the Houston operator to stop and bring over the chief operator of the Galveston office. The Houston operator told the chief that “we are piled up with business and can’t be delayed by teaching the ropes to a railroad ham.”⁶⁴ The chief operator told Brady to “learn something about commercial work before tackling a job like this again. Come back in six months and I’ll give you another trial.”⁶⁵ Brady took the advice and spent eight months working at the Houston office before retaking the test. Brady admitted to not actually improving much, but he was thankfully given a test on a way wire and not on the quad. A way wire was one that ran along a railway with the wire cutting through multiple offices in small towns. Each town hardly sent more than ten or fifteen messages a day, but the aggregate of all the towns’ messages made more significant work.⁶⁶ Brady was hired and after some time he was able to operate the quad.

What the story of Brady’s first commercial office experience suggests is that telegraph students who were taught commercial or railway telegraphy could not easily transfer their skills from one to the other. Brady’s experiences starting with railway telegraphy and then transitioning to commercial telegraphy highlights the inadequacies of telegraph education in preparing operators to be able to enter and perform at an acceptable level in either industry. The three to seven months of training and education offered by the schools described in this article was simply not enough time to become proficient. Experienced telegraphers knew this, and for this reason they often considered telegraph schools to be scams. In 1883, union telegraph operator John S. McClelland said that “These ‘colleges’ are fraudulent, and are gotten up by

parties that the company would not give employment to because of their incapacity as operators.⁶⁷ Union operators argued that telegraph schools were not a legitimate form of training. They were operated by individuals who could not hold office as an operator and merely pretended to teach people the business in order to earn a living.⁶⁸ Seasoned operators believed that it took on average fifteen years for someone to become a first-class operator, with five years being the absolute minimum.⁶⁹ Therefore, the operators that schools turned out, like Brady, did not have the experience and skills suitable for the work that was asked of them. "The operators they turn out never arrive, however, at the same degree of proficiency that is attained by a man who has been brought up to it in the office," McClelland said. "They never attain to first-class positions, and of those who make the venture in that way probably nine-tenths absolutely fail and go back to their old occupations, whatever they may have been."⁷⁰ Decades later, in the 1920s, Dodge's telegraph school offered a similar counter-argument directed at office learning: "It is authoritatively stated that only one out of eight who enter a telegraph office to learn telegraphy becomes an operator."⁷¹ Both schools and union operators cited their familiarity and experience in the industry to discredit certain ideas of education and training.

Some operators wrote letters to their schools detailing their experience working which these schools then used in advertising. We should recognize that these letters from graduates were almost certainly cherry-picked to present the school in the most flattering light. Even then, some of these letters present obvious problems experienced by students after graduating and entering the workforce. The DSTR published some of these letters in their advertising booklet in 1917. W. J. Allen, a twenty-two-year-old operator from Toronto, declared that the Dominion School had given him a "larger earning power than I ever had before."⁷² Many of the graduates quoted in the booklet provided their monthly salaries and positions, like S. C. Boyles, an operator for the Canadian Pacific Railway (CPR). "I was night operator and receiving a salary of \$65.00 a month, which with overtime, would amount to \$83.00 per month," Boyles said. "I think this is a very good start, considering that I never knew the first thing about railroading before coming to your school, also coming off a farm."⁷³ D. S. Cooper, another graduate working for the CPR, stated "I just pulled \$125.00 last month. Our new schedule pays me \$73.00 per month, \$3.10 for each Sunday, and 30 cents per day extra for the hour. So my average salary is \$93.20 every month. That isn't so bad for a young man just starting out."⁷⁴

What these testimonials often left out were the number of hours worked by these young men. Both the testimonies of Boyles and Cooper make mention of overtime work to achieve their stated monthly salaries. Cooper was normally paid \$73 per month but averaged \$93.20 per month due to overtime. Even assuming he worked four Sundays at \$3.10 that would only be \$85.40 per month. If Cooper was being paid thirty cents for each extra hour of overtime, he would have to work an additional twenty-six hours to make \$93.20 per month. Assuming a ten-hour workday, the average time for most operators, across seven days a week for thirty days, with twenty-six hours of overtime, Cooper worked around 326 hours per month. Such a phenomenon was called the "overtime evil" by the Commercial Telegrapher's Union

of America (CTUA). "The majority make up for the smallness of their regular wages by working overtime at any and all opportunities and when pay day comes around boasts to his fellow workers ... giving but little thought to the long hours he had put in to earn this amount," said the CTUA.⁷⁵ Cooper's \$73 per month salary without overtime was about \$2.43 per day. The CTUA claimed in 1910 that even a daily wage of \$2.88 was not enough to live comfortably on. "If it were not for his working overtime the average telegrapher could not exist."⁷⁶ Working long hours was not a feature that telegraph schools advertised.

Conclusion

Telegraph schools operated for only a few decades in the late nineteenth and early twentieth centuries. They over-promised what they could deliver to their students and some students and senior telegraphers did not feel telegraph schools adequately prepared students for the workforce. Telegraph schools contributed to the eventual disappointment and deskilling of telegraphers. They planted unrealistic expectations in their graduates that their newly acquired skills would be valuable, and that telegraphy would be just another rung on the ladder to a better, more prestigious career.

Most of the criticism around schooling and office training focused on the issue of time invested in learning the trade. Schools claimed to be able to get students proficient in only a few months, whereas experienced telegraphers claimed that it took people years to achieve full working proficiency. One operator commented on the telegraph lessons offered by Sprott & Shaw's Business College in Vancouver: "The poor innocents are fleeced to the extent of \$5 per month by deluding them into the belief that they will become competent telegraphers in six to nine months."⁷⁷ The operator went on to add that, "two percent of students will become proficient enough to take a position after eighteen months or two years. Then they will begin to learn something."⁷⁸ While many specific complaints were directed at smaller business and typing schools, telegraphers felt antipathy toward all telegraph schools. This could partly be explained by self-interest. Telegraphers did not want their jobs deskilled or to lose the right to educate their peers. Telegraphers wanted to maintain the more traditional master-apprentice relationship of learning a trade that gave them and their craft unions more power. Despite the obvious bias that telegraphers had in wanting to stop schools, their criticisms were still valid. Stories like Brady's suggest that schools did not offer students what they advertised. Schools claimed to make students proficient telegraphers in a few months but Brady's case shows that it took many additional months of training and experience to get them ready for their first jobs.

The most damning aspect of telegraph schools was that they sold their students a false expectation for their education. Telegraph colleges advertised their courses and the work of telegraphing as a way to propel oneself into a more prosperous career. Learning telegraphy in school was a way for young people to ascend into the middle class. Schools went so far as to sell the work of telegraph operating as exciting, novel, and attractive work in its own right, often dismissing claims that the

work was tiresome and monotonous. Students speculated on the promised future that these schools presented, that telegraphing would be a middle-class occupation. Telegraphing was on the one hand a unionized craft where apprentices learned from masters and, on the other, a technical office-based business whose practices could be condensed and taught into a few months of classroom instruction. One was supported by telegrapher unions and the other was supported by companies who wanted to deskill, automate, and devalue the labour of telegraphers. Under these fragmented conditions, telegraphers, like clerks, began to form a new workforce of deskilled and stagnant office workers. They had become a white-collared proletariat.

Notes

- 1 For more on the history of telegraphers' class identity and the changing class of clerical workers during this period, see Michael Feagan, "'The Gilt-Edged Class': American and Canadian Telegraphers' Bodies and Work" (PhD diss., University of Western Ontario, 2025), <https://ir.lib.uwo.ca/etd/10760/>; Jerome P. Bjelopera, *City of Clerks: Office and Sales Workers in Philadelphia, 1870–1920* (University of Illinois Press, 2005); Brian P. Luskey, *On the Make: Clerks and the Quest for Capital in Nineteenth-Century America* (NYU Press, 2011).
- 2 Luskey, *On the Make*, 21–53. For more on the transition of accounting from commercial schools to universities, see Glenn Van Wyhe, *The Struggle for Status: A History of Accounting Education*, *New Works in Accounting History* (Garland, 1994), 5–35.
- 3 Paul Israel, *From Machine Shop to Industrial Laboratory: Telegraphy and the Changing Context of American Invention, 1830–1920* (Johns Hopkins University Press, 1992), 59–73.
- 4 Steven Conn, *Nothing Succeeds like Failure: The Sad History of American Business Schools* (Cornell University Press, 2019), 10–11.
- 5 Jasper Ewing Brady, *Tales of the Telegraph: The Stories of a Telegrapher's Life and Adventures in Railroad, Commercial, and Military Work* (Doubleday & McClure, 1899), 3.
- 6 Brady, *Tales of the Telegraph*, 6.
- 7 Brady, *Tales of the Telegraph*, 6.
- 8 Brady, *Tales of the Telegraph*, 7.
- 9 For more detail on the demographics of telegraph operators, see Feagan, "'The Gilt-Edged Class,'" 97–108.
- 10 Out of a total of 2,421 telegraphers from the Canadian national censuses of 1881 and 1901 and the American national censuses from 1880 and 1900, 87 per cent of all telegraphers were male. The 1912 Canadian *Telegraph Statistics* recorded that there were 2,579 commercial telegraph operators with only 6 per cent of them being women operators. See A. W. Campbell, *Telegraph Statistics of the Dominion of Canada for the Year Ended June 30, 1912* (C. H. Parmelee, 1913), 23.
- 11 For more on this transition, see Graham S. Lowe, *Women in the Administrative Revolution* (University of Toronto Press, 1987).
- 12 Six Nations Agency Mohawk Institute, "Mohawk Institute. Brantford Ont.," School Files Series, 1879–1853, RG 10, vol. 6200, file 466-1, part 1, 657, Library and Archives Canada.
- 13 "Jap Weds American," *Arkansas City Daily Traveler*, November 22, 1910, 5; Jeff W. Hayes, *Autographs and Memoirs of the Telegraph* (S. F. Finch Printing Company, 1916), 61.

- 14 W. E. B. Du Bois, *The Philadelphia Negro* (Schocken Books, 1967, originally published 1899), 328.
- 15 "Will Move to Draw the Color Line," *The Globe*, May 17, 1911, 8.
- 16 Edwin Gabler, *The American Telegrapher: A Social History, 1860–1900* (Rutgers University Press, 1988), 58.
- 17 Gabler, *The American Telegrapher*, 58–59.
- 18 All Canadian demographic statistics were retrieved from the 1901 Canadian national censuses accessed through the Library and Archives Canada website. American demographics were based on the 1880 and 1900 American national census accessed through Ancestry.com. The Canadian and American samples were retrieved by searching "telegraph operator" in the websites' search engines, which resulted in a fairly random list of telegraph operators in Canada and the United States. The class background of telegraphers was determined by examining the occupations of the heads of households for those telegraphers living with their parents or other family. The sample size was comprised of 51 Americans from the 1880 census (36 male telegraphers and 15 female telegraphers), 96 Canadians from the 1901 census (50 male telegraphers and 46 female telegraphers), and 144 Americans from the 1900 census (121 male telegraphers and 23 female telegraphers) for a total of 292 operators.
- 19 Based on the earlier described census survey of telegraph operators, 11 per cent of telegraphers were from families with an agricultural background. The railway industry employed 8 per cent of telegraphers' parents. Various white-collar occupations (physicians, lawyers, telegraphers, clerks, etc.) made up the most common familial occupational backgrounds at 34.5 per cent. Tradesmen and artisans (machinists, shoemakers, harness makers, blacksmiths, etc.) comprised 25 per cent of occupational backgrounds for American and Canadian telegraphers' parents. Only 12 per cent of telegraphers' families worked at jobs that could be considered general working-class labour such as factory work, labourer, porter, teamster, etc. For more detail, see Feagan, "The Gilt-Edged Class," 104–05.
- 20 The association of white-collar work and proletarian status was made earlier by Upton Sinclair, *Brass Check: A Study of American Journalism*, 9th rev. ed. (Long Beach, 1928), 78. See also Feagan, "The Gilt-Edged Class," 9–10.
- 21 Paul Israel, *From Machine Shop to Industrial Laboratory: Telegraphy and the Changing Context of American Invention, 1830–1920* (Johns Hopkins University Press, 1992), 203.
- 22 *Dominion Telegraph Institute, 34 King Street East, Toronto, Ontario: Established for the Special Purpose of Qualifying Operators for the New Telegraph Lines now Building through Canada* (Toronto, ca. 1869). <https://www.canadiana.ca/view/oocihm.47448>.
- 23 *Dominion Telegraph Institute*.
- 24 *Dominion Telegraph Institute*.
- 25 *Dominion Telegraph Institute*.
- 26 *Dominion Telegraph Institute*.
- 27 Brady, *Tales of the Telegraph*, 3.
- 28 Bob Ellis, *Roaming in the Western Union* (1932), 5 and 17, box 564, folder 5, Western Union Employee History, 1910–1932, Western Union Telegraph Company Records, National Museum of American History, Washington, DC.
- 29 Kanuck, "Letters to the Editor," *The Electric Age* (1886), 212.
- 30 *Announcement of Dodge's Telegraph, Railway Accounting and Radio (Wireless) Institute* (Valparaiso, Indiana, ca. 1923), 17. Accessed through Porter County, Indiana, December 16, 2024. <https://www.inportercounty.org/misc.html>.
- 31 *Dodge's Telegraph*, 20.
- 32 *Dodge's Telegraph*, 20.
- 33 *Dodge's Telegraph*, 21.

- 34 *Dodge's Telegraph*, 21.
- 35 *Dodge's Telegraph*, 22.
- 36 *Dodge's Telegraph*, 24–25.
- 37 *Dodge's Telegraph*, 23.
- 38 *Dodge's Telegraph*, 23–24.
- 39 Donald McNicol, *Telegraph Operators' Penmanship* (Donald McNicol, 1917), 4, Telegraphers' Penmanship, TK5269.M16A2, McNicol Collection, W. D. Jordan Rare Books and Special Collections, Queen's University Library, Kingston, Ontario.
- 40 McNicol, *Telegraph Operators' Penmanship*, 5.
- 41 McNicol, *Telegraph Operators' Penmanship*, 69.
- 42 McNicol, *Telegraph Operators' Penmanship*, 17.
- 43 McNicol, *Telegraph Operators' Penmanship*, 5.
- 44 *Dodge's Telegraph*, 25.
- 45 Thomas C. Jepsen, *My Sisters Telegraphic: Women in the Telegraph Office, 1846–1950* (Ohio University Press, 2000), 36; Feagan, “The Gilt-Edged Class,” 146–47.
- 46 United States Congress, Senate Committee on Education and Labor, *Report of the Committee of the Senate upon the Relations Between Labor and Capital and Testimony Taken by the Committee*, 1883, 48th Congress, 2nd sess., Rept. 1262, vol. 1. *Testimony* (GPO, 1885); “The Telegrapher's Labor Value,” and “Official Wage Scales of the Building Trades Unions for 1910,” *Commercial Telegraphers' Journal* 8 (1910): 334–35.
- 47 *Canadian Railway Telegraph Institute, Ottawa, Canada* (Ottawa, ca. 1920), 9. <https://www.canadiana.ca/view/oocihm.73712/6>.
- 48 *Canadian Railway Telegraph Institute*, 9.
- 49 Gabler, *The American Telegrapher*, 99.
- 50 Shirley Tillotson, “We May All Soon Be “First-Class Men”: Gender and Skill in Canada's Early Twentieth Century Urban Telegraph Industry,” *Labour/Le Travail* 21 (1991): 110.
- 51 Gregory John Downey, *Telegraph Messenger Boys: Labor, Technology, and Geography, 1850–1950* (Routledge, 2002), 106.
- 52 Downey, *Telegraph Messenger Boys*, 106–07.
- 53 Tillotson, “We May All Soon Be “First-Class Men,”” 110.
- 54 *Canadian Railway Telegraph Institute*, 16.
- 55 *Canadian Railway Telegraph Institute*, 16.
- 56 *Information Concerning Boston School of Telegraphy*, 10, box 564, folder 3A, Western Union Employee History, 1910–1932, Western Union Telegraph Company Records, National Museum of American History, Washington, DC.
- 57 Gabler, *The American Telegrapher*, 132.
- 58 Carole Srole, *Transcribing Class and Gender: Masculinity and Femininity in Nineteenth-Century Courts and Offices*, *Class : Culture* (University of Michigan Press, 2009), 6.
- 59 Bjelopera, *City of Clerks*, 48–49; Feagan, “The Gilt-Edged Class,” 325–26.
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- 61 Brady, *Tales of the Telegraph*, 10.
- 62 Brady, *Tales of the Telegraph*, 52.
- 63 Brady, *Tales of the Telegraph*, 53.
- 64 Brady, *Tales of the Telegraph*, 55.
- 65 Brady, *Tales of the Telegraph*, 56.
- 66 Brady, *Tales of the Telegraph*, 57.
- 67 United States Congress, Senate Committee on Education and Labor, *Report of the Committee of the Senate upon the Relations Between Labor and Capital and Testimony Taken by the Committee*, 1883, 48th Congress, 2nd sess., Rept. 126, vol. 1. *Testimony* (GPO, 1885), 193. <https://catalog.hathitrust.org/Record/008599854>.

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- 69 *Relations Between Labor and Capital*, 125.
- 70 *Relations Between Labor and Capital*, 126.
- 71 *Dodge's Telegraph*, 43.
- 72 W. J. Allen to Dominion School of Telegraphy and Railroading, in *Dominion School of Telegraphy and Railroading*, 8.
- 73 S. C. Boyles to Dominion School of Telegraphy and Railroading, in *Dominion School of Telegraphy and Railroading*, 10.
- 74 D. S. Cooper to Dominion School of Telegraphy and Railroading, in *Dominion School of Telegraphy and Railroading*, 6.
- 75 "The Overtime Evil," *The Commercial Telegraphers' Journal* 8 (September 1910): 271.
- 76 "\$2.88 a Day," *The Commercial Telegraphers' Journal* 8 (December 1910): 374.
- 77 "Vancouver Ham School," *The Commercial Telegraphers' Journal* 8 (February 1910): 56.
- 78 "Vancouver Ham School," 56.