



Official Publication of the
West Allis Radio Amateur Club

Hamtrix

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Volume 68, Issue 5 May, 2020

MAY CLUB HAPPENINGS



NUT NET

3.985mhz
Monday-Saturday
8:15am CT

NUT NET

Breakfast
8:30am fourth
Tuesday
of the month

Milwaukee-Florida Net

Every Day on 14.290 Mhz
7:00AM - 9:15AM ET
6:00AM - 8:00AM CT

Sunshine Committee

If you know of a member who could use a bit of cheer or support,
Barb Garnier (KD9HPS) is now the Sunshine Committee Chair.
Contact her: 414-529-3536 or barbsewsblue@gmail.com.

MAY VIRTUAL MEETING

presentation by Feroz Ghouse WU9N

Time: May 12, 2020 07:00 PM Central Time (US and Canada)

Join Zoom Meeting

[click here to go to web site](#)

<https://zoom.us/j/98699152660?pwd=cmtMZzQ3RIJ2dWZEdEZ3OGhq0dndz09>

Meeting ID: 986 9915 2660

Password: 9pe2Vm

Alternate Field Day
See Page 6 for our idea for an alternate Field day

WARAC 2-meter net

Every Wednesday at 8pm
SEWFARS W9TJK Repeater 146.820
standard (-) offset 127.3 Hz CTCSS
if repeater down try 146.55 simplex

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From the president Shack

We, as a club, and the world seem to be going down a road without a map, GPS or even any idea why we are going down this road.

Last month we had our quarterly Board meeting. As expected there was lots of discussion of what this year will bring for upcoming club events.

One decision was that we can't plan to have field day as it was in years past. This year you will be on your own but send your contact list to ChuckW9WLX we will make a little club contest of it.

I see it as a time to see if you can get up and operate if you loose an antenna and/or power. As we have found doing park activations, it doesn't take much to shut you down. If the weather is nice you will get to sit outside with a 807 and watch the world go by as you talk around the world.

More field day info on Page 6

We hams have a hobby that allows us to talk to many others, even with "stay at home orders". A lot of non-hams can easily be cut off from the world and contact with others.

Hope to see many of you at the meeting. This month we will use the Zoom platform to do it. I see this as a continual experiment to see what works and what doesn't. Let me know any thoughts on the meetings or other club things.

Everyone stay safe. My last isolation experiment was being on a submarine. Of course there were only a hundred of us on the boat, give or take a few. That was our world for up to a month or more. One thing that seemed to help was humor.

Most of it was you had to be there for it to be funny, still it made you laugh.

One thing that was a reoccurring joke was when our corpsman was woken from his sound sleep for something that needed his attention. His first comment was "Tell him to take two aspirins and don't walk on it." then he rolled over and went back to sleep. (He was a very good corpsman) That became our new response to anyone complaining!

73

Frank KA9FZR



From the Editor

No editorial due to being occupied by the President's Shack

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WARAC Board Meeting Minuets & Reports

April 28, 2019

Due to the nature on the Covid-19 crisis and Governor Tony Evers “Emergency Order #12 Safer At Home Order”, Mike WO9B conducted the WARAC club WebEx virtual meeting for Frank KA9FZR.

The board meeting was called to order 6:32 pm by Frank KA9FZR. Board members present were Frank Humpal, Mike Johnson, Tom Macon, Howard Smith, Bill Reed, David Garnier, Phil Tollefson and Evwin von de Ehe. Steve Dryja was never able to login successfully.

Visitors present. Chuck W9WLX and Paul W9PCS.

1) Field Day 2020. Chuck W9WLX asked the board what Field Day 2020 would look like. FD as it was is in great jeopardy. Based upon Gov Evers “Badger Bounce Back plan” which incidentally based off White House CDC plans, <https://www.wpr.org/evers-badger-bounce-back-plan-offers-roadmap-reopening-state-economy> Wisconsin Phase 1 public opening may not be realistic by FD June 27-28th timeline. “So, as a group what do we do?” a) Cancel club’s FD outing. b) Operate Chuck’s Flex/Icom remotely as W9FK, where everyone could operate. The downsides of this is the Flex remote learning curve. Working remote with an Icom radio requires RS-BA1 software license. c) Operate FD at home under your own call Class-D. d) Operate the club call W9FK FD at each home QTH for say 1 hour slots. Number of problems with this idea, it will violate ARRL 1000 foot rule, W9FK operator(s) can’t Q each other, the problem of sharing one log, and then there’s the problem of dups. “What does ARRL think of this idea?” “Maybe it’s a don’t care because FD isn’t a contest.” Note, This is only a set of what to do ideas we will have more meetings before June 27-28th.

2) Mike WO9B Swap-Fest 2021 report was optimistic until Covid-19 crisis occurred. a) The current swapfest table arrangement count is approximately 100 plus tables wrapping into the hallway and beyond. This is a max tight spacing configuration. b) The dark scenario is “Taking one for the Gipper,” a break-even table & gate sales configuration would be 50 and 300 respectively. As a club we may have to do this for 2021!

3) Dave WB9OWN on approach on Awards Dinner was reticent. “Some club members have compromised immunity myself included. Barb has 3 risk factors.” Frank, “Maybe the Awards dinner should be canceled for 2020.” If the golf course isn’t open the New Berlin Hill’s won’t be. Frank and others have suggested Plan B, skip and pick a small restaurant. Who knows if UW Badger Talks would be willing to travel to Milwaukee area during the Covid thing? Badger talks requires a minimum of 30 people. New Berlin Hills break even cost was 26 to 27 people @ 21 to 23 dollars, Wendy is our contact person... According to the Awards Dinner manual last year(s) Members of the Year recipients, Barb & Dave Garnier, Tom Macon, Phil Gural and Howard Smith have to form this committee.

4) Bill’s N9KPH budget report. Money markets have tanked, one CD has come up for renewal. No other choice but renew at 0.1% rates. I don’t want to go through the trouble of looking for another Savings Loan or Bank due to huge documentation requirement for us, it’s not worth it. Mike interjected “Your ladder investment strategy is fine, just continue.”

7) Howard Smith had no report on WARAC Scholarships.

8) Future presentations, Fenoz WU9N and Chuck Icom RS-BA1 Remote Software.

9) Lifetime memberships & Club Database issues. Discussion was brought up about granting lifetime memberships to Roger Heindle and Robert Zach. Particulars were discussed, they had merit, a motion was made and lifetime memberships were granted... The secretary asked the question “Since there isn’t a “notes field” in the club database how would this be documented?” No action was taken. Another database problem was discussed. The DB query appears to be broken for individuals whose membership lapses for years, the total years with the club doesn’t calculate correctly. No action was taken.

(Question, Which members were wearing WARAC club hats?)

The online WebEx meeting continues to be a learning experience by all, some members dialed in as voice, some never did fully appeared, be it any number of technical factors. User hints for going forward, use headphones and mute your microphone when not speaking. Don’t drink water with ice-cubes with an open microphone.

Board meeting was adjourned at 8:10pm.

Respectfully submitted,
David Garnier WB9OWN
Secretary WARAC.
April 28, 2019 . _ . _ . .

Odds & Ends. Only Phil WA9AQL was wearing a club hat.

WARAC Club Meeting Minuets

April 14, 2019

Due to the nature on the Covid-19 crisis and Governor Tony Evers “Emergency Order #12 Safer At Home Order”, Chuck W9WLX offered his work experience to conducted a WARAC club WebEx virtual meeting.

The club meeting was called to order 7:04 pm by Frank KA9FZR.

This online WebEx meeting was a learning experience for all, People were appearing and then dropping out, be it any number of technical factors... Most users were unfamiliar with this WebEx meeting process. (I gave up using a laptop and then checked in with iPhone using WebEx App.) User hints for going forward, use headphones and mute your microphone when not speaking. Don’t drink water with ice-cubes with an open microphone.

Approximately 16 club members were identified by the Secretary Dave WB9OWN as being present. There were 1 visitors, Feroz WU9N. Even Don KA9Q checked in! (Question, Which members were wearing WARAC club hats?)

The Club Presentation was round robin discussion, Frank KA9FZR asked, “How has life been for you since Convid-19 self isolation?”

It was the Secretary’s observation that the “round robin participants” need to keep their comments short to

the point to maximize the online time.

General meeting was adjourned at 8:00pm.

Respectfully submitted,
David Garnier WB9OWN
Secretary WARAC.
April 14, 2019

Following the general meeting a Field Day (FD) 2020 meeting was conducted Chuck W9WLX. Chuck presented a FD survey of “desired FD participation.” Survey results are to follow. • —• —••

Odds & Ends. The secretary observed only Steve N09B and Phil WA9AQL wearing club hats.

DX / CONTEST UPDATE

<http://www.iz5cml.it/dxschedule>

DX: DXpeditions? Not right now. Most significant ops have been canceled due to travel restrictions. Aaaaarrrrggggg!! But there is a ton of “STAYHOME” stations on the air. Go collect some. <https://www.dx-world.net/special-calls-during-covid-19/>

Antarctica has two active stations: RI1ANM and 8J1RL, a Russian and a Japanese operating on HF. The 8J1RL station is primarily FT8, so that puts it in range of just about everyone.

Band conditions have been seasonally “good”. Once again the greyline propagation is very solid. As the sun sets later in the day, the evening variant is getting convenient. Surprising results can be found on 30 and 40 meters during the evening hours. Europe is open most days. Asia and the Pacific remain a stretch for us in the Midwest hole, but early mornings remain the best time of day.

Solar conditions remain stagnant with hope as the year progresses.

Contests: There are some really nice HF contests coming up in May. Let’s take a look...

- CQ-M DX Contest: Russian sponsored DX Contest May 9th & 10th
- Arkansas QSO Party: May 9, May 10
- Hamvention QSO Party: In place of Hamvention, May 16
- CQ WW WPX-CW: May 30, May 31
- Kentucky QSO Party: Jun 6, Jun 7

The State QSO Party events have taken on a degree of excitement this year. Activity level is up on all of them. As we have so well experienced these past few years, the 20 and 40 meter bands continue with longer skip and remain very predictable. This has really helped in planning how to get your signal to the QSO Party state. These contests require an hour or two of attention to participate in. The operators are typically layed back and looking to work you. The 2020 versions have all seen a bump in SSB activity. Any one can work away!! • —• —••

WARAC Field Day 2020

Chuck Dellis W9WLX

There remains much uncertainty about the possibility of holding a Field Day gathering by June 27-28 due to the COVID-19 pandemic. No set dates for the phased plan to reopen the state have been announced and many individuals are not willing to attend a major gathering event even if state orders allow. A successful event requires detail planning and a team of participants; it is not possible this year to move forward with the type of Field Day event WARAC has hosted in the past. WARAC will not be hosting a Field Day event at a remote location.

The alternate Field Day plan this year will be a friendly club competition. Each club member wishing to operate in Field Day can do so using their own call sign in a class and QTH of their choosing. If you are curious how well you could operate from a battery portable, mobile, or emergency power from your home station, this would be the perfect opportunity. Each individual would submit their log to the ARRL, if desired. Send a copy of your Cabrillo log to Chuck, W9WLX, at w9wlx@wi.rr.com by July 17, 2020, to participate in the club event. You do not have to submit your log to the ARRL to enter the club competition.

Here is a breakdown of the operating classes:

- (Class A) Club / non-club portable: Club or a non-club group of three or more persons set up specifically for Field Day. All equipment (including antennas) must lie within a circle whose diameter does not exceed 300 meters (1000 feet).
- (Class B) One or two person portable: A Field Day station set up and operated by no more than two persons
- (Class B - Battery) One or two person portable: A Field Day station set up and operated by no more than two persons. All contacts must be made using an output power of 5 Watts or less.
 - Class A or B stations may not operate from a backyard even if home antenna structures are not used. If the location is a “good hike” from home conveniences, class A or B operation is allowed.
- (Class C) Mobile: Stations in vehicles capable of operating while in motion and normally operated in this manner.
- (Class D) Home stations: Stations operating from permanent or licensed station locations using commercial power. Class D stations may only count contacts made with Class A, B, C, E and F Field Day stations.
- (Class E) Home stations - Emergency power: Same as Class D, but using emergency power for transmitters and receivers
- (Class F) Emergency Operations Centers (EOC)

The complete Field Day packet is available on the ARRL website at: <http://www.arrl.org/files/file/Field-Day/2019/2019-Field-Day-Packet-Complete.pdf>.

Take this opportunity to try something different at Field Day this year! I'll be looking for everyone on the bands!

-73, Chuck • —• —••

Thanks to Dave Garnier WB9OWN for this update on WSJT-X

Hi all,

This message is to let you know of some important WSJT-X development plans. We plan to make a first candidate release of WSJT-X 2.2.0 next Monday, May 10.

WSJT-X 2.2.0-rc1 will be a beta-quality release candidate providing a number of new features and capabilities. These include:

- Improvements to the decoders for five modes:

FT4: Corrected bugs that prevented AP decoding and/or multi-pass decoding in some circumstances. The algorithm for AP decoding has been improved and extended.

FT8: Decoding is now spread over three intervals. The first starts at $t = 11.8$ s into an Rx sequence and typically yields around 85% of the possible decodes for the sequence. You therefore see most decodes much earlier than before. A second processing step starts at 13.5 s, and the final one at 14.7 s.

Overall decoding yield on crowded bands is improved by 10% or more. (Systems with receive latency greater than 0.2 s will see smaller improvements, but will still see many decodes earlier than before.)

JT4: Formatting and display of Averaged and Deep Search decodes has been cleaned up and made consistent with other modes. JT4 remains the digital mode of choice for EME and other extreme weak-signal work on microwave bands.

JT65: Many improvements for Averaged and Deep Search decodes and their display to the user. These improvements are particularly important for EME on VHF and UHF bands.

WSPR: Significant improvements have been made to the WSPR decoder's sensitivity, its ability

to cope with many signals in a crowded sub-band, and its rate of undetected false decodes. We now use up to three decoding passes. Passes 1 and 2 use noncoherent demodulation of single symbols and allow for frequency drifts up to ± 4 Hz in a transmission. Pass 3 assumes no drift and does coherent block detection of up to three symbols. It also applies bit-by-bit normalization of the single-symbol bit metrics, a technique that has proven helpful for signals corrupted by artifacts of the subtraction of stronger signals and also for LF/MF signals heavily contaminated by lightning transients. With these improvements the number of decodes in a crowded WSPR sub-band typically increases by 10 to 15%.

- New format for "EU VHF Contest" Tx2 and Tx3 messages

When "EU VHF Contest" is selected, the Tx2 and Tx3 messages (those conveying signal report, serial number, and 6-character locator) now use hashcodes for both callsigns. This change is NOT backward compatible with earlier versions of `_WSJT-X_`, so all users of EU VHF Contest messages should be sure to upgrade to version 2.2.0.

- Accessibility

Keyboard shortcuts have been added as an aid to accessibility: Alt+R sets Tx4 message to RR73, Ctrl+R sets it to RRR.

As an aid for partial color-blindness, the "inverted goal posts" marking Rx frequency on the Wide Graph's frequency scale are now rendered in a darker shade of green.

- Minor enhancements and bug fixes

"Save None" now writes no .wav files to disk, even temporarily.

An explicit entry for "WW Digi Contest" has been added to

"Special operating activities" on the "Settings | Advanced" tab.

Contest mode FT4 now always uses RR73 for the Tx4 message.

The Status bar now displays the number of decodes found in the most recent Rx sequence.

Release candidate WSJT-X 2.2.0-rc1 will be available for beta-testing for one month starting on May 10, 2020. We currently plan a General Availability (GA) release of WSJT-X 2.2.0 on June 1, 2020.

For those looking even farther ahead: We are well along in the development of two new modes designed for the LF and MF bands. One mode is for WSPR-like activity and one for making 2-way QSOs. Both use Low-density Parity Check (LDPC) codes, 4-GFSK modulation, and two-minute T/R sequences. The QSO mode reaches threshold SNR sensitivity around -31 dB on the AWGN channel, and the WSPR-like mode better than -32 dB.

With best wishes,

-- Joe, K1JT, Steve, K9AN, and Bill, G4WJS

wsjt-devel mailing list
wsjt-devel@lists.sourceforge.net
<https://lists.sourceforge.net/lists/listinfo/wsjt-devel>

Women in the Telegraph Industry

PICTURES of women working as telegraphers in nineteenth-century popular literature always seem to lack context. These women do not fit neatly into either of the predominant stereotypes of nineteenth-century women: the devoted wife and mother, secure in her domestic sphere, or the exploited factory operative, forced to work long hours to earn a subsistence living. Part of the difficulty in creating context is the absence of a cultural memory; we have largely forgotten that women ever did this sort of work. A hundred years ago, however, women telegraph operators were commonplace. Frances Willard, writing in 1897, noted that the sight of “a young woman presiding over the telegraph in offices and railway stations” was so ordinary “that one has ceased to have even a feeling of surprise at seeing them there.”

When the presence of women in the telegraph office did elicit comment, it was generally to note their exceptionalism. A writer for *Electrical World* observed in 1886 that a rail traveler stopping at a remote station in the deserts of the West was likely to see “a bright, neatly dressed, white-aproned young woman come to the door and stand gazing out at the train and watching the passengers with a half-pleased, half-sorry air.” She is presumably pleased at the safe arrival of the train and its passengers, owing partly to her technical skills, and sorry that she will soon be left again to her

solitude; for the writer notes, “This is the local telegraph operator, who has taken up her lonely life out here on the alkali desert amid the sage brush, and whose only glimpse of the world she has left behind her is the brief acquaintance with the trains which pass and re-pass two or three times during the day.”

In the mid-nineteenth century, women telegraph operators entered a challenging, competitive technological field in which they competed directly with men, demanding, and occasionally getting, equal pay and sometimes moving into management and senior technical positions. Women telegraphers



Figure 2.
Elizabeth Cogley,
railroad
telegrapher,
Lewistown,
Pennsylvania,
1855. From
Telegraph Age,
September 16,
1897, 382.

constituted a subculture of technically educated workers whose skills, mobility, and independence set them apart from their contemporaries. The story of these women has remained untold, partly because the telegraph itself has been forgotten—and partly because these women were so far ahead of their time.

The role of the telegrapher in the mid-nineteenth century was similar to that of the contemporary software programmer/analyst. A rapidly growing industry had a sudden need for persons with technical skills, creating opportunities for ambitious women as well as men. To be a telegrapher, one had to be extremely literate and a good speller, be capable of learning Morse code, and have some knowledge of electricity and telegraphy.

Women played an important role in the telegraph industry from the

1840s onward, yet almost no written documentation on their activities exists. Numerous stories of male telegraphers who went from “rags to riches,” like Thomas Edison and Andrew Carnegie, have entered the popular literature, but there are few corresponding stories about women.

This book describes daily life in the telegraph office and discusses the impact that women telegraphers had on culture and society, both in the United States

and in other parts of the world. It discusses women's part in the telegraphers' labor movement and details the lives of some women telegraphers. Finally, it offers some thoughts on how women's presence in technical fields today has been influenced by the work of these pioneers. The first chapter describes the chronological evolution of the telegraph industry in the United States and elsewhere and shows how the role of women telegraph operators changed over time. The next three chapters discuss daily life in the telegraph office, the relationship of female telegraphers to society, and women's issues in the telegraph office. The fifth chapter analyzes the literature that describes the work of the women telegraphers and their treatment in the cinema. The sixth chapter provides a chronological overview of women's involvement in the telegraphers' labor movement, and the final one offers some conclusions about the relationship of women telegraphers to women in technical professions today.

The Entry of Women into the Telegraph Industry in the United States

The introduction of the telegraph in the United States and Europe in the 1840s and the simultaneous development of the railroad system marked the beginning of the industrial age and a revolution in the speed of transportation and communication. Among the social consequences of this revolution were the development of a new middle class of clerks, managers, and office workers and a new category of workers who defined themselves in terms of the technological field in which they worked.

One of these new technical occupations telegraphy began as a relatively gender-neutral profession. Unlike many of the occupations women entered for the first time in the mid-nineteenth century, telegraphy admitted women to its ranks before its gender roles had solidified. During much of the nineteenth century, men and women performed the same tasks using the same equipment, working cooperatively and often

anonymously at either end of the wire. Therefore, as the Canadian historian Shirley Tillotson points out in her essay, "We may all soon be 'first-class men,'" telegraphy provides a unique opportunity to study the relationship between gender and skill.

The entry of women into the profession in the first ten years or so after the invention of the telegraph attracted little public notice. The appointment of Sarah G. Bagley as superintendent of the Lowell, Massachusetts, office of the New York and Boston Magnetic Telegraph Company on February 21, 1846, less than two years after Samuel Morse and Alfred Vail first publicly demonstrated their new invention, is generally regarded as a footnote to her earlier work as women's rights advocate and founder of the Lowell Female Labor Reform Association. To Bagley's contemporaries, her appointment was significant more for her class origins than her gender; the Lowell reform newspaper, the *Voice of Industry*, commended Paul R. George, manager of the telegraph company, on his "democracy" in choosing a member of the working class for the position: "This is what we call 'the people's' democracy, Miss Bagley having served ten years in the factories."

As the telegraph lines began to spread across the United States in the late 1840s, the demand for telegraph operators quickly exceeded the supply, especially in rural areas. The entrepreneurs who organized the early telegraph companies quickly seized on the idea of employing women as operators, including members of their own families who often already had some hands-on experience with the new invention. John J. Speed, builder of the Erie and Michigan Telegraph line, wrote to Ezra Cornell, one of Morse's early associates, from Detroit, Michigan, in July 1849 to propose that women be hired as operators. Acknowledging that Cornell had warned him in the past to "avoid experiments," Speed gave notice that he was "making one more." He had hired a Mrs. Sheldon to run the telegraph office in Jackson, Michigan, and suggested that Cornell's sister Phoebe Wood could be hired to operate the Albion, Michigan, office. He cited both the scarcity of trained operators and

shortage of funds as his reasons and expressed confidence in the ability of the women to perform the work: “Both are abundantly qualified to do the business better than any boy, or man, that we can afford to pay in those places.”

Phoebe Wood accepted the position as operator in Albion and shortly thereafter wrote to her brother Ezra in Ithaca, New York, to comment on the quality of her telegraph instruments and request further instruction on electricity:

M. B. [her husband] told me to write to you to send me a Relay as good a one as could be got up. I cannot depend upon mine. He says it is a miserable thing. I am of course no judge. I think that I shall like tellegraphing if I have good instruments. I wish you would come and see us. I could now appreciate some instructions in regard to electricity.

I hope to make a good Operator soon[;] have no idea of trying to do the business unless I can learn to do it right. I have seen enough to know that a poor operator is a great source of annoyance.

Phoebe Wood’s comments on the quality of her telegraphic relay and the qualifications of her fellow operators are typical of an age when telegraphic instruments were largely experimental and handmade and all operators were more or less enthusiastic amateurs. Despite the embryonic state of the technology, however, Wood soon came to regard telegraphy as preferable to more traditional occupations for women in both pay and opportunity for self-improvement. Writing to her brother in November 1849 regarding another woman’s occupational options, she expressed the view that telegraphy would enable women to improve not only their income but also their minds:

Jane intends going to learn the tailor’s work but I think she would do better to learn to telegraph. I hear they employ ladies in ofs. east. I cannot bear the thought of having her go from house to house to sew as Mary and destroy her health. It would not take nine hours in a day to earn in a telegraph office what she would have to work 10 hours with her

needle, and in the former employment she would have time to improve her mind and keep her wardrobe in order.

In the 1850s, women who understood the promise of the new invention and had acquired the necessary technical skills began to enter the field in increasing numbers. Helen Plummer became the telegraph operator in Greenville, Pennsylvania, around 1850; her brother P. S. Plummer delivered messages for her and repaired lines. Emma Hunter of West Chester, Pennsylvania, became a telegrapher for the Atlantic and Ohio Telegraph Company in 1851; Western Union would later designate her as the “first female operator,” though it is clear that other women had worked as telegraphers before she did. Ellen Laughton became the operator in Dover, New Hampshire, in 1852 at the age of fourteen; she showed such proficiency at the work that she was promoted to manager of the Portsmouth, New Hampshire, office four years later.

Surprisingly, the potential synergy between the railroad and the telegraph, the first two mass-scale technologies of the nineteenth century, was not remarked on for several years. Although early telegraph lines often followed the rail right-of-way, no attempt was made to use the telegraph as a signaling system for the railroad until 1851, when Charles Minot, superintendent of the Erie Railroad, first used the telegraph to monitor and control the movement of trains.

After the introduction of the telegraph for railroad dispatching, women began to work as railroad operators as well. Elizabeth Cogley of Lewistown, Pennsylvania, began to work for the Pennsylvania Railroad in 1855. She had been an operator for the Atlantic and Ohio Telegraph Company in Lewistown, Pennsylvania, and when the telegraph office at Lewistown was consolidated with the office of the Pennsylvania Railroad in the winter of 1855–56, she became the first known female telegrapher to work for a railroad. She had been employed as a messenger before she became an operator, a career path that was common for males

in the nineteenth century but unusual for a female.

Although the lack of census data on female workers makes it difficult to determine the numbers or percentages of women who worked as telegraphers in the 1850s, the names and life stories of a few women operators can be found in anecdotal accounts in the telegraph journals and newspapers. P. S. Plummer, reminiscing about the telegraphic career of his sister Helen in the pages of *Telegraph Age* in 1910, recalled that the operator in Conneaut, Ohio, in 1853 had also been a woman. *Telegraph Age* also mentioned that Sarah Carver became an operator in Fishkill Landing, New York, around 1857; the *Boston Herald* told how Nellie Reckards had begun work as a telegrapher in her uncle's store in Lynn, Massachusetts, in 1859, and served as operator there during the shoe workers' strike of 1860.

Although the earliest women telegraphers entered the profession for a variety of reasons, they shared a common understanding of the significance of the new invention and access to the skills required to operate it. Sarah Bagley's background in writing and journalism made her aware of the possibilities of the telegraph, and her work with the *Voice of Industry* put her in contact with the promoters of the telegraph in Lowell, Massachusetts. Phoebe Wood entered the telegraph office in Albion, Michigan, both because of her brother Ezra Cornell's connection with the telegraph business and the shortage of trained operators in that frontier region. Emma Hunter also owed her position in part to kinship ties; the telegraph line to West Chester, Pennsylvania, was built by a relative of hers, Uriah Hunter Painter, who taught her the necessary operating skills. Elizabeth Cogley learned telegraphy from the previous Lewistown operator, Charles C. Spottswood, who boarded with the Cogley family. Thus the earliest women operators went largely unnoticed at a time when it was a novelty to see persons of either sex operate the new and mysterious instruments.



Figure 3. "Ma Kiley" (Mattie Collins Brite), railroad telegrapher, Mexico, 1903. From Railroad Magazine, May 1950, 69.

The presence of women in the telegraph office was noted by Virginia Penny, who included women telegraphers in her encyclopedic book *How Women Can Make Money*. Although first published in 1870, much of the material was collected earlier, in the 1860s. Penny noted that there were approximately fifty women working in the northeastern United States for the New York and Boston Magnetic Telegraph Company in the early 1860s, some of whom were advancing beyond entry-level positions. As an example of the possibilities of telegraphy as an employment for women, Penny reported: "In New Lisbon, Ohio, a young woman was employed a few years ago, as principal operator in a telegraph office, with the same salary received by the man who preceded her in that office." Penny noted that female operators entering the profession were beginning to encounter the "antagonism naturally felt by male operators, who see in it a loss of employment to themselves." She also suggested that qualified women would have no trouble outperforming their male counterparts: "Any female proficient in orthography, with an inclination to useful employment, would make a good telegraphist, and might readily command . . . a salary of from \$300 to \$500, and be profitable to her employers beyond the ordinary male telegraphists employed under the present arrangement of office."

It was not until the end of the Civil War, when men began to return from military service, that questions regarding the "proper place" and gender roles of male and female operators began to be discussed. While men feared the loss of their livelihoods because women might be employed at a lower rate, this



Figure 4. Terminal station, 1873. From Harper's New Monthly Magazine, August 1873, 332.

prospect never materialized. Likewise, women were not “driven from the trade,” as some men recommended, or completely marginalized. Women continued to work in the telegraph industry after the Civil War in part because of the support of the industry itself, and Western Union in particular, but also because of the active efforts of women operators to defend and justify their role. Although women were predominantly employed in lower-paying positions and in rural offices, women who persisted and made a career of the profession could work up to managerial or senior technical positions that, except for wage discrimination, were identical to those of their male counterparts. Telegraphy as an occupation became gendered, in the sense that we understand today, only after the introduction of the teletype and the creation of a separate role for women teletype operators.

Officers and Board

President

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