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Number, please: New Hampshire telephone operators in the predial era, 1877--1973

Judith N. Moyer

University of New Hampshire, Durham

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**NUMBER, PLEASE:
NEW HAMPSHIRE TELEPHONE OPERATORS IN THE PREDIAL ERA
1877-1973**

BY

**JUDITH N. MOYER
B.A. University of New Hampshire 1968
M.A.T. University of New Hampshire 1970
M.A. University of New Hampshire 1994**

DISSERTATION

**Submitted to the University of New Hampshire
in Partial Fulfillment of
the Requirements for the Degree of**

**Doctor of Philosophy
in
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Dissertation Director, Dr. J.W. Harris, Professor of History



Dr. Charles Clark, Professor Emeritus of History



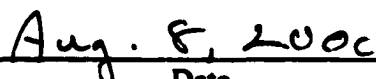
Dr. Lucy E. Salyer, Associate Professor of History



Dr. Laurel Ulrich, Professor of History
Harvard University



Dr. David H. Watters, Professor of English



Date

**To my mother
Avis Belle Abbott Nichols,
whose continuous support and encouragement
made this work possible**

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ABSTRACT

NUMBER, PLEASE:

NEW HAMPSHIRE TELEPHONE OPERATORS IN THE PREDIAL ERA

1877-1973

by

Judith Moyer

University of New Hampshire, September, 2000

The predial telephone era in New Hampshire stretched from about 1877 to 1973. This dissertation examines predial telephone operating in the state as a category of women's work. While growing out of and responding to technical invention and development, telephone operating had deep roots in women's social roles: gender defined occupational options, the work environment, the rules of employment, wages, and expectations. As the telephone system developed, differences between telephone operating in large and small exchanges developed; the urban operator eventually worked under conditions of traffic volume, supervision, and control that the rural operator often did not. To uncover the differences, this dissertation traces and compares the early development of the telephone in two New Hampshire locations: the city of Manchester, which in 1878 or 1879 was the site of the first exchange in New Hampshire, and the village of Meriden in Plainfield, which in 1973 was the site of the last New Hampshire magneto system to convert to dial. To help maintain an approach told from telephone operators' perspectives, the research draws on oral history interviews of New Hampshire

operators taken and transcribed in the decade from 1990-2000. Other documentation such as diaries, letters, newspapers, and census records support and build context. Following a roughly chronological order, chapter one. What Else Could A Woman Do? sets the context by outlining the occupational and social options for women in New Hampshire as the telephone system began. In The Telephone Comes to Manchester, and The Telephone Comes to Meriden, new research documents and compares development of the telephone business in a large and a small exchange in the state, including the introduction of women as telephone operators. Other chapters look at the effects of technical developments on the job, the heyday of telephone operating when independent and New England Telephone and Telegraph exchanges linked with AT&T's long lines to become part of a nationwide and then worldwide system, the conversion to automatic switching, and a comparison of images of operators with the actual experience of telephone operating. Appendix A is a discussion with examples of transcribing and using oral history excerpts for public presentations. Appendix B includes photographs of New Hampshire switchboards and operators.

INTRODUCTION

In 1988, an elderly woman, with the help of a cane, walked slowly up front after a performance of *"It Had to be Done, So I Did It,"* an oral recounting of rural New Hampshire women's work, and said to me, "Your next project ought to be telephone operators." She was right. I soon began work on an oral history of New Hampshire's telephone operators, and one result is this dissertation.

That is the short version of how this dissertation came into being. The longer version requires attention to the ways in which a personal history and a historiographical question converged. The personal history dates back to my work as one of a group of women intent on recording a small piece of life in the small town of Warner, New Hampshire two decades ago, in 1980. As a lifelong resident of the town of about 2000, I felt an urgent need to capture at least some of the memories of the town's oldest women before they all left us. The two published histories of the town mentioned more buildings, businesses, and trains than they did women. Women were also nearly invisible in the official town records and in vignettes written by local antiquarians. Warner women of the twentieth century were passing on and their stories were going with them, lost. Several other women in town agreed, and we formed the Warner Women's Oral History Project.

Though it is now hard to believe, as recently as 1981, to devote an entire project to interviewing older women in a small town was considered by some to be daft or, even worse, of no historical significance -- a waste of time and talent. An older man, one of the respected Warner town fathers, even said, "What would you want to do a thing like

that for? Women never did anything, did they?" Concurrently, when asked for an interview, nearly every woman said, "Why interview me? I never did anything."

These people were raised and schooled on what came to be described derogatorily as the history of famous, dead, white men. Dead white man history glorified chronicles of politicians, pioneers, and warriors. Few townspeople could find a significant place for women in that mental construct. As historians of women's and ethnic history pointed out at the time, this was not just a backwater opinion held in small towns like Warner. On the national scene, women's historians were still having to argue for the academic worth and significance of women's studies and women's history.

The New Hampshire Humanities Council, the New Hampshire Charitable Fund, local Warner organizations, and a number of corporations and individuals were willing to place bets on both older women and oral history. In four years, between 1981 and 1985, thirty women volunteers interviewed sixty of the oldest women in Warner and transcribed one hundred hours of interviews. I put together a compressed version of our women's words and created a readers' theater piece that the Warner women first produced in June, 1985.

What we gathered was to be found nowhere else. The script for "*It Had To Be Done*" posed the question, "What did women do?" and then answered with an hour of stories and memories.

Reader A: **What did women do?**
 There is no record. It's too late to ask.
 That generation has passed.
 And what of the next, when it passes?
 How will we answer, "What did they do?"

Reader B: I don't know how it would be answered,
 the question, "What did you do?"
 I've been trying to think how
 you might approach the background of a
 woman who was a farm woman, might be
 a smart woman. She might make beautiful
 crochet work, knitting. She might
 make all the clothes for the family.
 She might spin cloth and make everything
 like that, but...how...what can you say?
 "I sat and crocheted the whole day long?"
 What's going to be in the record?

The Warner Women's Oral History project turned out to be a people's history, an example of social history on center stage. This is what oral history can do very well. One reluctant interviewee told of building her house with the help of a blind man.

I helped build on here.
 We was going to put two rooms
 off the back of the house when
 Sid took sick. We had green lumber,
 but we wanted to get it up because it
 was getting fall. So
 this blind fellow--Sid's own brother-in-law--
 said, "I can help you. We can put it up."
 So I says, "OK, let's get to it." So we did.
 We had it in about three months
 so we could live in it.

When we were finished recording she said, "Well, you got me. I guess I did do something, didn't I?!"

It seems a small thing for people in a small town -- men, women, and children -- to emerge from a community history project with an appreciation for the work women did in the past. Yet, until the women's oral history project, Warner's recorded history either sentimentalized or neglected what women's lives were like lived from the inside. In the

oral history project, women's voices were heard, and those voices transformed one town's interpretation of the past. With no intent beyond filling in some gaps, we made a difference. Other people heard about the project, and we have performed in dozens of places for thousands of people since 1985 -- academics, townspeople, schools, universities, professional groups, civic groups, politicians. In 1992, the American Association for State and Local History recognized the Warner project with a Merit Award. Now "*It Had To Be Done*" has inspired other projects, and it is an artifact itself.¹

Since that first project in Warner, I have tried a variety of oral history projects in a multitude of New Hampshire settings: museums, towns, cities, elementary schools, high schools, post-secondary schools, clubs, retirement communities. To accommodate such varied settings and to guide practitioners, oral historians have developed methods that guard against the pitfalls inherent in oral interviews. The New Hampshire Humanities Council has been the primary force behind the knowledgeable spread of oral history in the state by encouraging and funding projects and workshops. The workshops that I have either given or attended have demonstrated that interviewers intending to record oral history can very quickly comprehend and use accepted oral history methodology.

Of primary relevance for this dissertation among these projects is Project *Number*,

¹ It is the privilege of the public historian with a popular program to get out of the classroom and in touch with nonacademics, somewhat like a musician playing one-night stands. With repetition, a dangerous stale quality threatens, but when a new audience responds with freshness, the old material revives. Invigorating audiences and sensitive actors have kept "*It Had To Be Done*" alive. Gray heads of women and men in attendance bob up and down in agreement through the entire hour of performance. Elbows reach over and prod companions when a line brings back personal experiences. Seeing their own history performed and their own stories told, people feel that they occupy a personal spot in the sequence of human events. Mothers bring their children and grandchildren, and young people who do not remember their female ancestors feel connected to them. At such moments in the small halls, churches, schools, and libraries of the state, we see how vital history is to a people's image of itself, and thus how vital it is that we rebalance skewed historical interpretations, such as those that formerly misrepresented or silenced women.

Please, with funding from the New Hampshire Humanities Council, NYNEX (formerly known as the New England Telephone Company), and the independent Merrimack County Telephone Company. Project *Number, Please* taught oral history methods to community members who then gathered interviews of former predial telephone operators in New Hampshire. Interviewers from Peterborough, Nashua, Manchester, and the Durham area interviewed about fifty operators. All of the interviews were transcribed. Many predial operators survive; regrettably we could not interview them all, but the interviews we did gather added up to a collective history that, as a whole, visited a number of recurring themes: the expectations of employers and customers, the sense of service, the physical experience of working with different kinds of equipment, the personal connections brought about by the telephone, the results of conversion to automatic switching, and the differences between rural and urban telephone operating. Using related sources and interviews that look at predial telephone operating through operators' eyes, this study delves into some of those themes.

If a personal involvement in an early oral history project brought me to this stage before the woman who prompted this project, gaps in the historical and scholarly literature have shaped the project as a dissertation. The gaps in telephone operator history sit inside larger gaps in women's history, like hollow, carved dolls seated inside one another. The history of New Hampshire women has had little scholarly study and even less dissemination to other venues. Oral history has begun to fill some of the gaps and, in doing so, change the telling of New Hampshire history. In the years since the Warner project began, oral history has taken a place in the ranks of acceptable historical methods. This process was not always a straightforward one. Respectable historians were

accustomed to depending on written documents or material artifacts. The shifting memories of an informant seemed to be of a vastly different and inferior class when compared to stolid evidence such as the Congressional Record or county probate files. Subject to too many uncontrollable variables, oral history could not be trusted, argued opponents. Part of the objection was due, I suspect, to the subjects that professionals and amateurs decided to record: social history, ethnic history, and women's history. In the 1960s and 1970s the cassette tape recorder democratized oral history and in turn stimulated the field of history itself. Inexpensive, portable, easy to use, and readily available, the cassette tape recorder put the magic of good quality sound reproduction within the hands of nearly anyone who could press two buttons simultaneously.

Readable, helpful oral history how-to texts have proliferated in the twenty years since the Warener women's project. Several have become classics. The American Association for State and Local History has long distributed two popular, no-nonsense handbooks for local historians, Willa K. Baum's *Oral History for the Local Historical Society* and *Transcribing and Editing Oral History*.² Beginning as a musicologist and folklorist in Maine, Edward D. Ives earned early experience and respect in the oral history field. His book, *The Tape-Recorded Interview: A Manual for Field Workers in Folklore and Oral History* was followed by an instructional video, *An Oral Historian's Work*, that is widely used in oral history workshops.³ Many more have followed since and can be found

² Willa K. Baum, *Oral History for the Local Historical Society* (Nashville: American Association for State and Local History, 1987) and *Transcribing and Editing Oral History* (Nashville: American Association for State and Local History, 1991).

³ Edward D. Ives, *The Tape-Recorded Interview: A Manual for Field Workers in Folklore and Oral History* (Knoxville: University of Tennessee Press, 1980), and *An Oral Historian's Work* (Northeast Archives of Folklore and Oral History, 1987). VHS, 33 minutes, color.

listed in bibliographies and at oral history Web sites. After the cassette tape recorder made its impact, the ubiquitous home video recorder inspired many local historians to try videotaping oral history interviews. Videotape multiplied recording and storage problems, however, and these were addressed in another book from the American Association for State and Local History, Brad Jolly's *Videotaping Local History*, and in a volume from the Smithsonian Institution, Terri A. Schorzman's *A Practical Introduction to Videohistory: The Smithsonian Institution and Alfred P. Sloan Experiment*.⁴ Feminist historians brought thinking that amended the field when they analyzed the model of one-on-one interviews controlled by the interviewer. A collection of feminist analysis of oral history methodology, *Women's Words: The Feminist Practice of Oral History*, was edited by Sherna Berger Gluck and Daphne Patai.⁵ Their insights caused oral historians to fine-tune their methods, more consciously aware of gendered assumptions embedded in accepted practices.

Sherna Gluck produced one of the best examples of how oral history can contribute to historical understanding of women's work. She depended on oral interviews to "uncover the hidden history" of women's lives during World War II.⁶ Working on the west coast, she identified 200 former southern California women who had been aircraft workers. Gluck's method of sampling, quota sampling, determined the important characteristics of the target population and then tried to maintain those characteristics in the sample in the same ratio as in the entire sampled population. Gluck used several categories as determinants of her

⁴ Brad Jolly, *Videotaping Local History*. (Nashville: American Association for State and Local History, 1982) and Terri A. Schorzman, ed., *A Practical Introduction to Videohistory: The Smithsonian Institution and Alfred P. Sloan Experiment*. (Melbourne, Fla.: Krieger Publishing Co., 1993).

⁵ Sherna Berger Gluck and Daphne Patai, eds. *Women's Words: The Feminist Practice of Oral History* (New York: Routledge, 1991).

⁶ Sherna Gluck, *Rosie the Riveter Revisited* (Boston: Twayne Publishers, 1987), xi.

population: prewar work, status, age, marital status, postwar plans.⁷ An initial half-hour telephone interview helped the project choose the final subjects to be interviewed. Forty-five were interviewed and Gluck included ten in *Rosie The Riveter Revisited*. The major thesis of the book is that a different picture of major historical events emerges when we add women's experiences to the usual public chronicle of male-dominated historical myths. For instance, while the mainstream propaganda machine of the thirties and forties wanted women first to stay out of the job market and then to enter by working for the war effort, Gluck's evidence suggests that the war did not create the radical shift in employment numbers that was supposed; many of the women already worked for pay, and for personal reasons not entirely related to the perceived public good. Gluck's was among the first to consider the differences between oral history for men and oral history for women, and her scholarship has been a model for others in feminist oral history. In *Rosie*, Gluck edited sensitively, leaving individual voices intact. More analysis of the stories, however, would have made them more meaningful.

As Gluck and others have shown, the linking of oral history interviews with other documentation can increase specificity, deepen the possibilities, build context, and correct the failures of memory. For example, when I began studying New Hampshire predial operators, I had the impression that virtually all operators had been female. Interviews with surviving operators reinforced that view, but I did find some evidence of male operators in magazine articles, memories about male colleagues, and photographs of men at

⁷ Project *Number, Please* would have liked to have used a sampling method similar to Gluck's for the New Hampshire telephone operators, but we did not know enough about the estimated population of several hundred former operators who still lived in the state. Instead, the project used a sample of convenience. No master list of operators existed, so former operators were identified by local inquiry and word of mouth.

switchboards. The U.S. Census offered statistics that included counts of those employed in categories of occupations by sex. With those statistics it was possible to calculate the ratios of male to female operators in New Hampshire and compare those with operators in the entire United States. The numbers verified the presence of male operators throughout the entire predial era and proved the numerical severity of gendered division within the occupation.

Conversely, oral history interviews can be used as validity tests and correctives for other sources. For example, according to telephone industry literature, operators were efficient, pleasant voices existing only to assist. According to customers, however, operators were always listening in. Which was true? Did operators listen in? Either on or off the record, practically all the operators interviewed confessed to listening in when possible, but not when the board was busy or when a supervisor was present. This is one of the many examples in which oral history interviews have uncovered, corrected, or suggested a new angle of vision when analyzing one of the most important twentieth-century occupations open to women.

Until now, the history of the telephone and telephone operators has appeared primarily in print and some in film. The corporate and technical history of the telephone has been well told by many authors, and this study does not try to replicate them. Even though it is a somewhat technical history of telephone hardware, the multivolume *A History of Engineering and Science in the Bell System* has two volumes partially useful to those interested in telephone operating: *The Early Years (1875-1925)* and *Switching*

Technology (1925-1975).⁸ Although these volumes and others like them do not address the history of telephone operators extensively, they do provide information about corporate and technical developments, such as switchboard design, that had direct bearing on the experiences of operators. Another type in the genre, corporate histories, have often been consciously laudatory of telephone management, which was male, and perhaps included a page or two of charming nostalgia about operators. An early example of this type is Herbert Casson's *History of the Telephone*.⁹ Casson focused on the Bell organization and paid little attention to women: even when he did, he was more romantically descriptive than informative, with passages such as, "She has done more than any other person to introduce courtesy into the business world. She has done most to abolish the old-time roughness and vulgarity. She has made big business to run more smoothly than little business did, a half century ago."¹⁰

More analytical has been the work of Kenneth Lipartito. In *The Bell System and Regional Business: The Telephone in the South, 1877-1920*, Lipartito raised and answered the question of how the telephone business differed in the South from that in other regions, especially the Northeast?¹¹ In an informative essay, "When Women Were Switches: Technology, Work, and Gender in the Telephone Industry, 1890-1920," Lipartito has also asked why the Bell telephone system did not convert to dial sooner than

⁸ M.D. Fagen, ed., *A History of Engineering and Science in the Bell System: The Early Years* (Murray Hill, New Jersey: Bell Laboratories, 1975); G.E. Schindler, Jr., Ed., *A History of Engineering and Science in the Bell System: Switching Technology* (Murray Hill, New Jersey: Bell Laboratories, 1975).

⁹ Herbert Casson, *The History of the Telephone* (Chicago: A.C. McClurg, 1910).

¹⁰ Casson, *Telephone*, 159.

¹¹ Lipartito, Kenneth. *The Bell System and Regional Business: The Telephone Business in the South, 1877-1920* (Baltimore: The Johns Hopkins University Press, 1989).

it did, when the equipment was available.¹² He found that business decisions, not the availability of technology, determined when machines replaced operators. Lipartito, like other business historians, paid little attention to the operators themselves, but his questions and some of his answers are relevant to their history.

Another issue of relevance to telephone operators is technology and its effects. Women's historians and historians of work have long used telephone operators to study the effects of technology, especially automation. Technology has affected both men and women's work, and telephony is used as a prime example. An often quoted source from the wave of historians redefining women's history in the 1960s, Elizabeth Faulkner Baker used telephone operators in *Technology and Women's Work*.¹³ Attempting to trace the effects of technology on women's work, starting at the turn of the eighteenth century, she called women's path "a zigzag road in man's domain, beset with obstacles--social, economic, physical, and psychological. For women have been contending not only with the difficulties of the new work itself, but also with the problems of establishing their right to have it." Baker focused on gender, and telephone operating was tangential to her central purpose, which was the overall examination of technology in relation to women's work. Writing in the 1960s, she subscribed to the idea that home responsibilities made women "less intent upon improving their status."¹⁴ In her treatment of telephone operators, Baker depended on U.S. Census and Women's Bureau findings without adding research of her own, noting the trends of employment numbers as they fluctuated with technological

¹² Kenneth Lipartito, "When Women Were Switches: Technology, Work, and Gender in the Telephone Industry, 1890-1920," *The American Historical Review* (October 1994): 1074-1111.

¹³ Elizabeth Faulkner Baker, *Technology and Women's Work* (New York: Columbia University Press, 1964).

¹⁴ Baker, *Women's Work*, vii.

change: dial conversion, war, increased varieties of service.

Two scholars have produced substantial work about telephone labor unionism. John N. Schacht, in *The Making of Telephone Unionism, 1920-1947*, revealed little about women in telephone unions, even though women's experience of labor unions and labor organization differed from men's.¹⁵ Stephen Norwood's *Labor's Flaming Youth* examined early women's labor action in depth.¹⁶ In particular, he interviewed women who took part in a 1923 telephone operator strike in Boston. He found that in the cities female union members had problems that male union members did not: (1) The assumption that women's primary orientation, identity, and concerns were in the domestic sphere rather than the paid workplace outside the home. (2) The youth and unmarried status of most women working for pay outside the home, which made them a low-paid and liable-to-change workforce. Therefore the women had energy but little experience, independence, or money to offer their union. In addition, the union ran up against the prevailing idea that woman's place is in the home, not the factory and not the union hall. Women were considered short-term workers, not life-long career builders, so their prospects for upward mobility were secondary to more "feminine" qualities considered more appropriate for marriage and dependence. No scholars have studied telephone unions in New Hampshire. Unionism was present in Manchester and some of the other cities served by Bell, but unionism never took hold among operators in independent companies in this traditionally anti-union state.

Because Boston is close to New Hampshire and was the site of New England

¹⁵ John N. Schacht, *The Making of Telephone Unionism, 1920-1947* (New Brunswick, New Jersey: Rutgers University Press, 1985).

¹⁶ Stephen Norwood, *Labor's Flaming Youth: Telephone Operators and Worker Militancy, 1878-1923* (Chicago: University of Illinois Press, 1990).

Telephone's headquarters, Norwood's findings have some information applicable to New Hampshire. Like the operators in Manchester, the Boston operators he studied were mostly working class; they had an elementary school education and many had a high school education, so they were better educated as a group than much of the working class from which they came; and they were usually in their late teens or early twenties and unmarried. Their level of education and their high school peer ties were significant for the telephone operators' sense of identity and willingness to organize against the establishment, according to Norwood. The work itself, Norwood said, also lent the young women the personal strength to do so: "Despite the low wages and harsh discipline, telephone operators derived a greater sense of self-esteem from their work than did most other women. The operator exercised considerable responsibility in emergency situations, summoning physicians, police, and firemen to assist people threatened with serious injury or death."¹⁷ This suggests that the similarities between operators in Manchester and cities outside the state might have had more in common than operators in urban and rural areas within the state; size of exchange may have been the most important variable.

An occasional source has spoken with operator voices. William O'Neill compared two accounts of New York working women, "The Long Day" by Dorothy Richardson and "Inside the New York Telephone Company" by Elinor Langer. The first was an account by a woman working as an operator around 1905 and the second an account by a woman who worked three months as a customer service representative in the New York Bell telephone system in 1969.¹⁸ Though written more than sixty years apart, they point out similarities

¹⁷ Stephen Norwood, *Flaming Youth*, 14-19.

¹⁸ William O'Neill, *Women at Work* (Chicago: Quadrangle Books, 1972).

in urban operator experiences during the rise and fall of manual switching; there was the personal screening and life-history examination, the physical examination, and the specific training designed to turn every exchange with a customer into a prescribed pattern. The 1905 operator mentioned the same problems and frustrations that urban operators in the second half of the twentieth century still mentioned: the constant stress of hurry, the constant requirement to be polite, the monotony, the low wages, the compliancy of the workers, and the condescending paternalism. Falling far from comfortable nostalgia or romanticized versions of femininity at the switchboard, O'Neill had few kind words for the phone company: "The phone company is the future in miniature--bureaucratic, authoritarian, paternalistic. It puts the workers strengths and weaknesses alike to its own uses."¹⁹ O'Neill negated any positive benefits that operators received from the work, and it ignored the differences between rural and urban operating, taking urban operating as the standard for all. He said, "Women have always done society's dirty work, at first mainly in the home, now increasingly outside of it."²⁰ O'Neill tagged the gendered divisions in occupations as part of the country's "vicious, irrational, and self-defeating policies toward working women."²¹ Telephone operating was just one more example of the place assigned to women in industrialized society. According to O'Neill, women "have always been shut out of highly paid skilled jobs in industry....they are concentrated in marginal areas devoted to consumption and distribution rather than to production."²²

Social historians have occasionally included telephone operators within their field

¹⁹ O'Neill, *Women*, xv.

²⁰ O'Neill, *Women*, xvi.

²¹ O'Neill, *Women*, xviii.

²² O'Neill, *Women*, xvii.

of vision. In *New Burlington: The Life and Death of an American Village*, John Baskin created a verbal mosaic of a small town with a combination of oral history transcription and story telling in the third person, almost in short story form.²³ The town was about to be flooded by a new dam, and Baskin set out to record the small town before the deluge. One of the characters was the town telephone operator. She memorized all the numbers on the switchboard, all one hundred and seventy-five. She talked to callers and relayed messages as well as advice. She had once learned how to sew over the telephone, and her cat slept on top of the switchboard. The switchboard was in her house, and she was on duty twenty-four hours a day, though sometimes other family members covered for her. She was tied to her board, but she was innovative and “had the company put a long cord on the board so I could walk in the kitchen and stir my beans.”²⁴ Sometimes Baskin’s quotations from the oral history interviews bordered on the poetic: “When we made the changeover to the dial system, we had a little ceremony at two a.m. The cutover was made after everyone was asleep. So we cut the wire and it looked like it was gasping for air.”²⁵ While charming and descriptive, Baskin’s account attempted no analysis.

The work of popular oral historian Studs Terkel is subject to some of the same objections. While at Chicago radio station WFMT, Terkel spent three years interviewing people about their work.²⁶ He considered his interviewing technique one of simply “talking” with people. Terkel put portions of 143 interviews into a massive book of almost

²³ John Baskin, *New Burlington: The Life and Death of an American Village*. (New York: New American Library, 1977).

²⁴ Baskin, *New Burlington*, 175.

²⁵ Baskin, *New Burlington*, 177.

²⁶ Studs Terkel, *Working: People Talk About What They Do All Day and How They Feel About What They Do* (New York: Pantheon Books, 1974).

six hundred pages and recorded what he called “more than a slight ache. In all instances, there dangles the impertinent question: Ought not there be an increment, earned though not yet received, from one's daily work--an acknowledgment of man's being?”²⁷ Two voices in Terkel's interviews belonged to telephone operators. They spoke of their positive moments: feeling more powerful than the impatient businessman in the pay phone who must pay before he can talk, talking to people, being grateful when a customer asked what kind of day the operator had. Their bad moments came from aches because the chair was too high, handling heavy cords all day, breaking fingernails because the plugs were so close, hectic times handling several calls at once, being forced to abide by the rules and handle calls quickly without chatting to anyone, having to wear a headset just after having ones hair done, and lack of gratitude from customers, no respect from either company or customer. Terkel's question, "Where is the meaning?" was more a sigh than an analysis, and his concern was work in the present, the 1970s, not the past.

More analytical than Baskin and Terkel have been four recent scholarly works on the social history of the telephone and the telegraph. In *America Calling*, the best social history of the telephone in print, Claude S. Fischer pointed out that technologies encompass more than scientific apparatus put to human use.²⁸ Once applied, technologies can sprout whole economic, social, and political systems to support them and keep them in place. Alternatively, technologies can grow out of already existing economic, social, and political structures. In the case of the telephone, did this model of the operator perpetuate and serve already existing images of women in American society, or did the telephone

²⁷ Terkel, *Working*, xiii.

²⁸ Claude S. Fischer, *America Calling: A Social History of the Telephone to 1940* (Berkeley: University of California Press, 1992).

create a new image of woman that was useful to the telephone business? Certainly the instrument by itself had no meaning. Put to use within American society, it gained meaning and gave extreme power to those who controlled it. Regrettably, Fisher stayed focused on users, not operators, of the telephone, and his study stopped at 1940, when telephone exchanges in New Hampshire were just converting to dial. A gender-based study of telephones focusing on women as users is *Gender on the Line: Women, the Telephone, and Community Life* by Lana F. Rakow.²⁹ Rakow looked at one rural, midwestern community and used oral history to follow how women's use of the telephone differed from men's. It is unfortunate but understandable that the study did not include operators. An admirable Canadian study has focused more directly on telephone operators and could be useful for comparisons. Michele Martin's "*Hello, Central?*" is well-documented and concentrates on women as both users and operators in the Canadian telephone system between 1878 and 1920.³⁰ Martin showed how women affected the course and success of early telephone development in Canada. She did note briefly some differences between rural and urban operators, but her approach lacked operators' voices and perspectives. Her findings, as far as they went, could apply to New Hampshire, a near neighbor of the sections of Canada appearing in Martin's documentation. Another useful study, Edwin Gabler's social history of the telegraph, *The American Telegrapher*, overlaps the start-up period of the telephone.³¹ His insights about woman telegraphers lead into and mesh with telephone

²⁹ Lana F. Rakow, *Gender on the Line: Women, the Telephone, and Community Life* (Chicago: University of Illinois Press, 1992).

³⁰ Michele Martin, "*Hello, Central?*": *Gender, Technology, and Culture in the Formation of Telephone Systems* (Montreal: McGill-Queen's University Press, 1991).

³¹ Gabler, Edwin. *The American Telegrapher: A Social History, 1860-1900* (New Brunswick: Rutgers University Press, 1988).

operating, a very similar yet different occupation for women that, in some ways, grew out of telegraphy.

Thus the operators themselves, especially in rural small-town America, have fallen into the gaps in the substantial works that have dealt with the telephone as technology, as business, as workplace, or as spur to social changes. This dissertation is a contribution to filling some of those gaps by presenting the telephone's history from the viewpoint of the operators. My goal is to understand women's work and the ways in which gender roles and gender expectations have shaped that work. Perhaps the best model for a study of the gendered world of telephone operating is Angel Kwolek-Folland's *Engendering Business*, which uses the banking and insurance industries to study the feminization of office work.³² The similarities of office work and telephone operating as gendered occupations and the concurrence of the feminization of both suggest productive parallels.

The purpose of this study is to look at the predial telephone in New Hampshire from the operator's point of view. Out of necessity, it leans heavily on oral accounts of personal experiences by operators themselves. It attempts to discover whether there was one story or many, and whether predictable change took place. It attempts to discover whether the work changed so little that an operator returning from 1900 could have taken a seat in front of New Hampshire's 1960s or 1970s switchboards and go to work. It attempts to define the work as the telephone operator knew it.

This dissertation is based in significant part on the interviews collected by Project

³² Kwolek-Folland, Angel. *Engendering Business: Men and Women in the Corporate Office, 1870-1930*. (Baltimore: Johns-Hopkins University Press, 1994).

Number, Please. The interviews do much to show how predial telephone operating fit into expectations for women and women's employment options, how telephone operators fit into the early development of the telephone in New Hampshire, how rural and urban operators' experiences diverged during the peak of manual telephone operating, how the job changed with changes in the equipment, and how images of the telephone operator measured up to the actual work of predial telephone operators. In using the interviews, I have sought a middle ground between the extremes of raw, uninterpreted oral renditions and piecemeal quotes strung together amongst hard "facts." In an attempt to find and keep that middle ground, giving satisfaction to those who want to hear authentic voices as well as to those wanting a history based on the solid footing of written documentation, this study quotes many operators and interprets their words within supporting contexts. Editing has proceeded from the written transcripts. It has maintained basic syntax but rearranged sequences when necessary for clarity and eliminated words when necessary for brevity. Appendix A explains the approach to transcription and editing in more depth.

At the same time, however, oral histories by themselves are inadequate to understand the world of the operator. It is necessary to interpret them in the light of the multiple contexts relevant to operators' work – the development of urban and rural New Hampshire, the creation of new businesses and the spread of constantly changing technology, the history of the cultural expectations for women. Early New Hampshire telephone history exists in pieces of handed-down memory or short passages in general town histories. Little has been verified with documentation and some is erroneous. Eleanor Haskin edited a compilation of short, individually prepared business histories of as many

independent telephone companies in the New England States as could be chronicled.³³ A valuable reference work, it is extensive but not exhaustive. The largest and most thorough treatment of a New Hampshire telephone company's history is *Merrimack County Telephone Company: The First 100 Years* by longtime telephone man Alderic O. Violette.³⁴ An officer and part owner of the independent Merrimack Telephone Company, Violette had access to financial records and his own substantial collection of telephone artifacts. Telephone operators have a place but are not a central focus in the book. The record even for the background needed to understand operators is, thus far, incomplete. To fill in this background required research in company archives, which contain both published and unpublished documents; diaries and letters; newspapers and periodicals; advertisements; and census records, among others.

The dominant surviving popular image of the predial telephone operator makes her an integral part of the "old telephone system," almost synonymous with it. Assumed to be a girl or woman, her job was service and she was expected to be cheerful. According to the image, she knew everybody's number, everybody's voice, and a good deal about everybody's business. Her assumed omniscience about town activities was both part of the service and part of the annoyance, but it was an integral part nevertheless. The operator provided a central link in the town's female communication system, and thus contributed to the community's system of social coherence and social control. She was a call-forwarding

³³ Eleanor Haskin, ed., *Independent Telephony in New England*. (Waitsfield, Vt: New England Chapter, Independent Telephone Pioneer Association, 1976).

³⁴ Violette, Alderic O., *Merrimack County Telephone Company: The First 100 Years*. (Contoocook, N.H.: MCT, Inc., 1997.)

service at no extra charge. She would tell callers the time of day, the local news, how long to let the bread rise, and if their children misbehaved downtown. She provided the central link in the town's mutual care system as well. She would spread the word when others were sick or needed help. When there was a fire, the operator would ring the alarm, find the fire chief, and call the volunteer firemen, wherever they happened to be. She acted as the medical answering service and the ambulance dispatcher. More than one story tells about operators who listened in and, after some agony of conscience, alerted the police to crimes that had happened or were about to happen. In fire, flood, illness, crime, or misdemeanor, the operator was expected to serve intelligently and quickly, taking the heroine's part matter-of-factly, using every bit of her knowledge about the community to save time and lives.

This dissertation puts these images to the test; how true to life is this near archetype? Did she ever exist or is she the product of wishful thinking and good PR? Did the image of her ever vary from setting to setting or from decade to decade?

The two communities that form the central comparison of this study stand as historical bookends to the New Hampshire predial era. The first telephones came north to New Hampshire from Boston and Cambridge, where Alexander Graham Bell and Thomas Watson carried out their experiments in 1876 and 1877. The first telephones leased in New Hampshire went to customers in industrial Manchester in 1877. The state's first operators are gone, but we do have an old interview with one of the first and with operators who were working when Manchester converted to local dial in 1950. At the most recent end of the story, the independent Meriden Telephone Company was the last New Hampshire telephone system to convert to dial, in 1973. The two-panel switchboard in Meriden still sits in its small alcove off the dining room in the Chellis

farmhouse. Even though it has been silent for twenty-seven years, one can interview some of the operators who worked from its chair and reconstruct its story.

Between 1878 and 1973, several thousand women, girls, boys, and men worked as telephone operators in New Hampshire. Only a few of them left written accounts of their experiences. Public records and corporation publications carry traces of operator history, but the best sources of information are the operators themselves. Hundreds of former predial telephone operators still survive today, their memories of lived experiences waiting to be recorded. A small miracle of foresight and serendipity saved the voice of one of Manchester's first telephone operators. In 1949, the director of the Manchester Historic Association, Frank Spinney, recorded an interview with May Merrill Sumner, who went to work as a telephone operator in 1881 at the age of 16. That wire recording, looking like a spool of picture wire that one might buy at a hardware store, was stored, untranscribed, for nearly fifty years. In 1995 the recording was discovered and sent off to the Smithsonian to be transferred onto cassette tape. We now have the voice and a transcription. May Merrill Sumner was the fifth or sixth telephone operator in Manchester, and her transcribed interview takes us back to within four years of the telephone's introduction to New Hampshire. Hers is the earliest recording of an operator in New Hampshire that we have.³⁵

Purportedly verbatim accounts can be found in forms other than oral history interviews taken for specific historical ends. Court and legislative records sometimes contain personal testimony. Newspaper articles were another major source of quotes of informant's words used in this study. Periodically, at historically significant turning

³⁵ See Chapter Two.

points and anniversaries of telephone history, newspapers published feature articles about the telephone. Interviews with local telephone personalities, such as managers and operators, were quoted as authorities. These quotes suffer as much or more from inaccuracies as taped-recorded interview transcripts. When used with caution, however, and checked against other sources, they can bring forward people's words to us. They may be the only surviving accounts we can find.

Chapters follow a roughly chronological sequence from the 1870s to the 1970s. Chapter One looks at women's work options just as the telephone era began. Chapter Two uses Manchester in southern New Hampshire as the scene to show how the telephone erupted into an early telephone system that needed women and girls as operators; Manchester had the first telephone exchange in the state, in 1878 or 1879. Chapter Three follows the sequence into the rural countryside of central New Hampshire at the turn of the century to see how a farmer's wife in the village of Meriden in the town of Plainfield accommodated the telephone switchboard that took up residence in her dining room in 1904; Meriden was the last exchange in New Hampshire to convert to dial, and the village offered few occupational options for women and girls living there. Chapter Four stops to examine how telephone hardware and the jobs of telephone operators interacted, influencing each other. Chapter Five moves into the heyday of telephone operating, from roughly 1920 to 1950, when the numbers of telephone operators peaked in the state and from which most living people's memories of telephone operators derive. The final chapter, six, uses images of telephone operators drawn from corporate as well as popular sources to see if they accurately reflect telephone operators and their experiences.

When the history of the telephone is viewed from operators' perspectives, much more data comes to light than has emerged in past studies with different concerns. In the course of developing this study, the self-assigned project of keeping the operators paramount kept fading. The corporate history kept pushing forward in the narrative, and the written sources kept assuming greater weight. The corrective was in the interviews. Telephone operators were not a monolithic group of women wage-earners, alike in all respects, and oral history interviews provided individualized answers to questions that other sources did not. The images of operators held by the public and perpetrated by the industry and media were oversimplified versions of the job that did not reflect girls' women's daily experiences, either in depth or variety. Some generalizations are possible within this more complex view, however. For example, through the 100 years covered here, telephone operating responded to technical invention but stayed within a social mesh of roles and expectations. In addition, more than any other variable, size of exchange determined the other aspects of the job, so that the greatest differences between operators was found between those working in large urban exchanges and small, rural exchanges. *Project Number, Please* and this dissertation made no attempt to go beyond New Hampshire, but anecdotal evidence suggests similarities in telephone operating across the country, with greater differences between rural and urban areas than between geographical regions.

CHAPTER ONE

WHAT ELSE COULD A WOMAN DO?

In 1881, the year that May Merrill turned sixteen in Manchester, New Hampshire, and learned to be a telephone operator, the first Bell telephone patent was just five years old. The first woman telephone operator in the industry, Emma Nutt, had held her job in Boston a mere three years.¹ The telephone exchange in Manchester had been in operation for three, or maybe four, years. In 1881 it was all very new, and young May Merrill was a pioneer in a growing group of women in electronic communication.

In 1949 the director of the Manchester Historic Association interviewed May Merrill Sumner about her former work as a Manchester telephone operator. The interviewer, Frank Spinny, captured May Sumner's voice in a wire recording, which was archived at the Manchester Historic Association. In 1996, the untranscribed recording was rediscovered and sent off to the Smithsonian Institute in Washington, D.C., to be transferred onto magnetic cassette tape that would play on 1990s equipment. This rare recording is the earliest sound record that we have of one of Manchester's first telephone operators. The following excerpts are taken from that recording.

¹ John Brooks, *Telephone* (New York: Harper and Row, 1975), 66.

May Sumner, Manchester, New Hampshire, 1949²

May: I had gone two years on a four-years' course, and I left school -- high school in Manchester -- to take this job...in 1881. I was taking calls and answering them and connecting them. It was the Granite State Telephone Company. I was an operator. There were two...three operators -- a Mrs. Twiss, Mrs. Chase, and Miss Emma Thurston. She afterwards became Leslie Fulsom's wife, and I took her place. That's how I happened to get the job.

To make a call, why, you'd simply ring your telephone. Telephones were fastened on the wall and you had to ring .

Interviewer: I would not take off the receiver, but I'd turn a little crank, and what would happen in the office?

May: Something dropped on the number they were calling from.

Interviewer: You would be watching the board all the time?

May: Yes. I would tend the switchboard.

Interviewer: So then, when you saw the drop come down you would take a cord and plug it in there?

May: Yes. I'd place the telephone to my mouth -- say hello (laughter) -- and then to my ear.

Interviewer: You mean you took what looked like the earphone and you spoke into that?

May: Yes. Then put it to my ear.

Interviewer: So the phone was a two-in-one proposition, both an earphone and a transmitter. I see.

May: Then you would tell me what you wanted and who you were.

² Interview. May Merrill Sumner by Frank Spinney. Manchester, NH, October 8, 1949. In this interview, the interviewer finished May Sumner's sentences and added his own words so much that it was impossible to edit him out. Pronouns and sequence became quite mixed at times and had to be clarified through editing. The sequence for answering a call at the switchboard also required changes of sequence to become clear. For more of the interview, see Chapter Two.

Interviewer: I'd ring, you'd listen, and I would say what? I saw one of these early telephone directories, and there weren't any numbers at all in the book.

May: You'd say what your name was and who you wanted to talk with. I remember that Mrs. Glancy called her husband at the bottling works. She always called like this: Glancy with Glancy. That was the way they did. I don't know if you were obliged to. These calls came in on the switchboard, and then I would put the call down onto one of the tables where the other operators sat, and the operator at that table would ring. They did the ringing. Then we had a cord and plugs to connect the two up on the switchboard.

Interviewer: Now, what would happen after I was through calling? I'd just hang up?

May: We had to watch your calls, because when you were done there was no more talking, that's all.

Interviewer: You just kept listening every once in a while? You must have heard a lot of interesting conversation!

May: I did. (laughter) Well, I've almost forgotten about them. We heard many things that weren't intended for our ears. But we weren't allowed to tell of them.
We worked days and evenings both. We didn't have time off the way we do now.

Interviewer: What time would you go to the work in the morning?

May: Seven o'clock or something like that. We'd go home to dinner, and then if we had to work in the evening we'd go home to supper, but we didn't have to work every evening. The largest amount paid to any operator was six dollars and forty-six cents a week. Heh! That was the highest paid.

I left there in September 1890, was married in January 1891, went to Goffstown to live, and my husband had the telephone switchboard in the back part of his store, so I still operated.
(laughter)

Women had worked as telegraph operators so telephone operating did not introduce an entirely alien occupational field for women and girls. In May Merrill's world, however,

occupational opportunities and societal expectations for behavior encircled proper womanly work with limiting but changing boundaries. Telephone operating offered a new occupational category that took several decades to become a noticeably large proportion of working women. Equipment changes and a mushrooming industry pulled hundreds and then thousands of women into exchange offices to work at switchboards with as few as three lines to as many as 10,000. By the 1930s telephone operating provided work for significant numbers of women and girls. Throughout the predial era, the job of telephone operator was reserved almost exclusively for women and girls in an industry that relied on gender division as one of its major organizing principles

When women looking for paid work had to answer. “What can a woman do?” telephone operating quickly acquired a place in the gendered line-up of occupations. Being female was a not-often-questioned qualification for the job through 1973. Federal legislation and hearings in the 1960s and 1970s challenged the legality of the barriers that women encountered in the telephone industry. In 1973, Federal Communications Commission hearings on the labor practices of the Bell system resulted in an agreement to end discriminatory practices. In that same year, the last manual telephone exchange in New Hampshire cut over to automatic switching and the job of telephone operator was changed forever. The rise and fall of telephone operating as a job in a context of paid work for women contains many nuances revealed in individual stories like May Merrill’s and the women who came after her.

Nineteenth-Century Telegraph and Telephone Operating as Work

The telephone was so similar to the telegraph, and so seemingly insignificant in its first years, that the U.S. Census Bureau reported their counts of telegraph and telephone

operators together until 1910. In the first census after the invention of the telephone, males dominated overwhelmingly in the count because they dominated telegraphy. Males also entered telephony as operators during its first years. In the three decades between 1880 and 1910, however, the proportion in favor of females increased, until in 1910 the total of females exceeded the total of males as telegraph and telephone operators. The flip in the ratio was due to the large proportion of female telephone operators.

**Table 1: U.S. Operators by Sex -- Telephone & Telegraph
1880 -1910**

| SEX | 1880 | 1890 | 1900 | 1910 |
|---------------|-------------|-------------|-------------|-------------|
| Male | 21,891 | 43,740 | 52,426 | 71,365 |
| Female | 1,275 | 8,474 | 22,556 | 96,481 |

Source: U.S. Bureau of the Census, *1940 Population: Comparative Occupational Statistics for the U.S., 1870-1940*, Table 9, 118; Table 10, 127 (Washington: U.S. Printing Office, 1943).

Beginning in 1910, the U.S. Census Bureau counted the two kinds of operators separately. By then the predominance of females was overwhelming, continuing to the present time, even after the advent of automatic switching. New Hampshire exhibited the same trend. The intriguing constancy of the number of male operators before a significant number of New Hampshire exchanges cut over to automatic switching, in the 1950s, is possibly accounted for by two circumstances: the continuance of males as night operators in certain exchanges and the use of males in small, family-run exchanges.

Table 2: U.S. and N.H. Telephone Operators by Sex

| | U.S. MALE | U.S. FEMALE | % FEMALE | N.H. MALE | N.H. FEMALE | % FEMALE |
|-------------|----------------------|------------------------|---------------------|----------------------|------------------------|---------------------|
| 1910 | 9,631 | 88,262 | 90.2 | 47 | 348 | 88.1 |
| 1920 | 11,781 | 178,379 | 93.8 | 49 | 604 | 92.5 |
| 1930 | 13,625 | 235,259 | 94.5 | 44 | 799 | 94.8 |
| 1940 | 10,697 | 189,202 | 94.6 | 47 | 846 | 94.7 |
| 1950 | 16,233 | 342,516 | 95.5 | 37 | 1,571 | 97.7 |
| 1960 | 15,119 | 341,797 | 95.8 | 74 | 1,268 | 94.5 |
| 1970 | 22,458 | 384,543 | 94.5 | 46 | 1,098 | 96.0 |
| 1980 | 26,227 | 265,938 | 91.0 | 126 | 1,015 | 89.0 |
| 1990 | 29,670 | 203,587 | 87.3 | 114 | 958 | 89.4 |

Sources: U.S. Bureau of the Census, 1930 *Population*, vol. 5, Table 3, 45; 1940 *Population: Comparative Occupational Statistics for the U.S., 1870-1940*, Table 2, 51; Table 4, 68; Table 9, 118; Table 10, 127. 1950 *Detailed Characteristics of the Population*, Table 125, 1-267; Table 74, 29-77. 1960 *Characteristics of the Population*, Table 203, 1-535; Table 120, 31-157. 1970 *Characteristics of the Population*, vol. 1, Table 170, 31-326. 1980 *Characteristics of the Population*, Table 1, 2; Table 219, 31-96. 1990 *EEO Supplementary Report, U.S. Summary*, Table 1, 5. EEO CD file 990, N.H. 40, Telephone Operators 348; U.S. 10, Telephone Operators 348.

Telephone exchanges with switchboards became necessary because connecting more than three or four telephones with direct lines was highly impractical. A formula familiar to mathematicians, $x = n(n-1)/2$, makes it possible to calculate how many lines would be required to connect any number of telephones to each other directly, without a switchboard. For three telephones, the number on the first switchboard in Meriden, New Hampshire, in 1904, $3(3-1)/2 = 3$; three lines would be needed. For 50 telephones, $50(50-1)/2 = 1225$; 1225 lines would be needed. For 212 telephones, the number of subscribers in Manchester in 1880, $212(212-1)/2 = 22,366$; 22,366 lines would be needed. For 300 subscribers, the number when May Merrill began working, $300(300-1)/2 = 44,850$; 44,850 lines would be needed. The impracticality of single direct lines mounted quickly. Switchboards became necessary.

Table 3: Number of Lines Needed to Connect Telephones Without a Switchboard

| # of Telephones = n | # of Lines = $n(n-1)/2$ |
|---------------------|-------------------------|
| 2 | 2 |
| 3 | 3 |
| 5 | 10 |
| 7 | 21 |
| 10 | 45 |
| 100 | 4,950 |
| 1000 | 499,500 |
| 5,000 | 12,497,500 |

Source: John Bellamy, *Digital Telephony* (New York: John Wiley & Sons, Inc., 1991), 7.

The telephone switchboard described by May Merrill in her interview required two separate stations to complete a call. One operator sat or stood at the switchboard, which was wired to send and receive messages by voice. A caller initiated a request for a connection by turning a crank on a magneto box at home. An electrical charge traveled through the wire and released a small piece of metal called a drop over the terminus of that line on the switchboard. Hearing or seeing the drop fall, the operator plugged her telephone into that line and asked what or whom the caller wanted. On a slip of paper, the operator communicated the name of the party to be called to a neighboring table where another operator sat. This table was equipped with a circuit that could signal subscribers with a bell or buzzer but not speak with them. The second operator rang the party being called. The first operator listened and, when the called party answered, connected the two parties with a double-ended cord with a plug at both ends; one plug connected to the caller's line and the other to the party being called. By listening in periodically, the operator could determine when the conversation had ended. Both plugs would then be removed from the board. Although the arrangement using a separate

signaling circuit seems clumsy today, it simplified the wiring on primitive switchboards. On that basis of simplified wiring, the designers of the exchange judged the inconvenience to the operators worthwhile. Later, when ringing and transmission technology were more fully developed and understood, signaling and talking took place over the same wire with one operator, not two.

The fact that the switchboard existed and that a teenaged girl earned a wage as a telephone operator seemed like a modern miracle to the generation that was experiencing a speed-up of invention and scientific application in everyday life. The city was no controlled laboratory, however. At work, May and other operators experienced an uncertain and unpredictable convergence of mechanical invention, electrical discovery, industrial expansion, social expectations, and gendered customs. The experience was repeated, with variations, many times in many places until a pattern emerged and the variables settled into a system. In hindsight, years later, the original quaint telephone exchanges would seem like so many beginnings of a “natural” development instead of the result of technical, economic, and socially-driven choices and decisions.

A New Economic Order

Custom, economic need, new kinds of jobs, and gendered expectations governed May Merrill’s job options. How else could May have earned money if she had not become a telephone operator? Unmarried and the daughter of a millworker, she had to find employment. Then, whether she worked for pay after marriage would depend in large part on her husband’s occupation and income. She might marry well and step solidly into the middle class, or she might marry a mill worker and stay in the ranks of the working class. Would her future husband’s income support a wife who stayed at home?

Support children who stayed in school until they completed high school or college?

Would his social aspirations require the impression that he was capable of supporting a household with his own earnings? Even if May did marry a working man who earned enough to support a family initially, if her husband became incapacitated or was absent, then she would have to find paying work.

Economic need, social custom, power relationships, and availability opened some occupations to women and closed others. In the eighteenth century, before heavy industrialization, much of the production of goods in northern New England took place in and around where families lived. Females had a place in production that either paralleled or complemented the production of goods and services by males. In the first half of the nineteenth century, industrialization, science, and capitalism pulled much paid work out of the household and into factories. Where did male and female belong in this new order? Young, unmarried women and then immigrant families worked for the textile mills in New Hampshire, either in the mills or doing piecework at home. Before the Civil War, mechanization reconfigured the way society made and used textiles. Household production gave way to mill production. At first separate mills were built for different steps, such as fulling, carding, and spinning; some of the steps remained at home. Eventually mills consolidated the steps for a particular fabric under one roof. Cotton mills that produced common fabrics such as ginghams and prints made material available to women to make clothes that were inexpensive yet considered superior to home spun and home-woven fabrics. Freed from home fabric production or other tasks that were traded for fabric, young women could earn cash in the mills. They could help their families, buy machine-made goods, build up their savings, or collect the trousseaus

necessary to start new households upon marriage. Especially in the 1830s and early 1840s, young women traveled from the farms of New Hampshire to work seasonally and temporarily in the textile mills along the powerful rivers of New Hampshire and her neighbors, in places like Lowell, Manchester, Peterborough, Dover, and Harrisville.

In New Hampshire, immigrant families from Ireland followed, and, especially after the Civil War, large numbers of French-Canadians came from farms over the border in the countryside of Quebec. Now whole families, including children of both sexes and women, worked in the mills in Manchester. A backlash to the social changes brought by immigration occurred when some of the white, Protestants of British descent felt their ways and their values threatened by immigrants. Although not entirely clear-cut, the backlash had some grounding in social stratification. The newer immigrants often arrived in the city speaking a highly accented English or no English at all. They often brought little or no monetary wealth with them and had to start at the bottom, economically. They brought unfamiliar customs, and they also brought the Catholic religion, which Protestants feared as popery.

In Manchester, immigrants tended to cluster together with people of similar background and resources. The Protestants divided into congregations by denomination, and the Catholics divided into congregations based on national heritage: Irish Catholics with Irish Catholics, French-Canadian Catholics with French-Canadian Catholics, and so on. Catholics also had a large system of well-attended parochial schools in Manchester. Group life centered on churches and fraternal clubs. Civic leaders, especially politicians, tended to be Protestant and middle or upper class.

In this atmosphere, church teachings and economic issues affected arguments about the roles and proper places of males and females in this new order. Some argued for keeping women at home to create a welcoming, civilizing nest of domesticity for the men and children who had to venture into the so-called harsh and bruising world outside the home. Others argued for releasing women into the world to make their ways as free agents on equal footing with men. Middle-ground advocates argued for education for women so that they could teach and nurture and civilize, whether within home boundaries or in expanded domestic spheres that encompassed public tasks amenable to female nurturing and housekeeping skills.

Of course, whether a working class woman could afford to stay home and not earn an income usually overrode theoretical concepts of womanliness. Even so, custom and notions of respectability did circumscribe the jobs open to women. Freed from urgent need to make money for mere survival, and perhaps anxious about their social standing in the changeable social order, middle class aspirants were more susceptible to arguments connecting femininity to occupational respectability. What respectable middle class women could do to earn money was the subject of books and articles aimed at women and girls who, at least part of their lives, were likely to marry and live under the income and protection of a man. The idea that women should operate in the private sphere of domesticity while men operated in the public sphere of business and politics permeated idealized prescriptive literature for middle class women in the second half of the nineteenth century. It was expected that, no matter how far they strayed into the public sphere, these women would still bring to household management the civilizing influence

of “feminine” values that bore strong resemblance to Protestant notions of virtue and propriety.

Working women, then, did not simply get a job. Rather they found positions for which they could earn money or their keep in a society that held strong, if at times conflicting and contested, views on the nature of womanhood. In the job market, the forces arising from cash, power, widening education, and new working relationships pushed at traditional thought and customs, including those concerning women.

Sarah Josepha Hale on Gender and Occupation

Prescriptions found their way into print in women’s periodicals and manuals describing proper behavior and etiquette. A New Hampshire woman, Sarah Josepha Buell Hale, born in 1788 in Newport, edited one of the most popular of the new women’s magazines of the day, *Godey’s Lady’s Book*, from 1837 -1877.³ Her heritage as a female growing up in a Protestant, patriotic family in a rural New Hampshire village set the conservative underpinnings of her values. Her subsequent experiences as a young widow with five children to support added a revolutionary drive to her values. As a single mother, she learned first-hand about the lack of money-making opportunities available to middle class, rural women. She wrote and advocated for her positions in the fashion-setting *Godey’s Lady’s Book* and other publications until her death just after the telephone was invented. She expressed and to some extent modified the milieu in which U.S. women of the nineteenth-century found themselves. An examination of her views on women’s education, work, and proper place in society can serve as a reference point

³ Ruth E. Finley, *The Lady of Godey’s* (Philadelphia: J.B. Lippincott Co., 1931), 63 & 312.

for the dominant, middle class values that confronted women trying to answer the question, what can a woman do?

A review in the *Times* of St. Cloud, Minnesota, and quoted in *Godey's*, described the magazine for potential readers:

Godey's *Lady's Book*, one of the first ladies' magazines published in this country, has never faltered in its march of improvement and interest. Wherever it is taken, it is valued as highly as a woman does a new silk dress. It gives all the latest fashion plates, embroidery patterns, domestic receipts, and a large quantity of general reading, especially entertaining to the ladies.⁴

As *Godey's* editor, Sarah Hale was a national voice for the ideas that had been formed by her life and times. Her experiences translated into literary articles by U.S. authors espousing similar views in essays and stories, the first use of the phrase "domestic science,"⁵ crusades for a Bunker Hill Monument and for preservation of George Washington's Mount Vernon plantation, and unrelenting lobbying of Abraham Lincoln for a presidential Thanksgiving Day declaration. Sarah Hale's crusades for women extended to child care for the children of working women, equal education for women, improvements in health and sanitation, temperance through legislation, and acceptance of women in the medical profession. She did not crusade in favor of woman suffrage. As far as she was concerned, women still belonged in the domestic sphere.

The writings of Sarah Hale exemplified a conservative feminism that argued for the advancement of women within the domestic sphere. Except for her child care advocacy, Hale's overriding middle class bias produced a blind spot regarding the pressures on women of the working classes. Sarah Josepha Hale's words were for

⁴ *Godey's Lady's Book and Magazine* 83, no. 493 (July 1871): 92.

⁵ Ruth Finley, *Lady*, 17.

women who hired or aspired to hire domestic servants, not for the women who worked as domestic servants themselves.

In 1866 Hale wrote a year-long weekly series of newspaper articles putting forth her domestic philosophy. In the series she bound the good of society to separate spheres for the work of the sexes. She believed that “moulding humanity rightly *must be done by women*. Never will the best capacities of human nature be developed in a healthy state, and directed heavenward, as the ‘living soul’ should tend, until the feminine sex are fitted for their duties, and honored when performing them faithfully, -- duties the first, the highest, the holiest, which the Creator has entrusted to human beings.” Thinking that each of the sexes had their respective, divinely assigned characteristics, Hale felt that women must be educated for their nurturing role and honored by all for fulfilling that role well. What women lost by not engaging in the worldly hierarchy of the public workplace, they gained in moral superiority. “I place woman’s office above man’s, because moral influence is superior to mechanical invention...woman’s mission is to mould mind, and form character; while man’s work deals with material things: both equally need the cultivation of their intellectual powers.” Hale spoke relentlessly against the practice and rationale of barring women from higher education. Higher education would not, she said, interfere with their femininity. To the contrary, she declared the unique feminine role as the very reason for educating girls and women, “to fit them for their duties.”⁶

Sarah Hale’s own experience in widowhood formed her unbreakable, life-long advocacy for education for women. If they were fortunate, educated women would create superior, refined, virtuous homes, husbands, and children. If misfortune should appear,

⁶ Sarah Josepha Hale, *Manners* (Boston: Lee and Shepard, 1889), 353-356.

educated women would have the means of earning money. Images of women working for pay in competitive, corrupting, industrialized venues outside the domestic sphere conjured up the downfall of society itself, however. "I do not agree with those who would place women in competition with men in their industrial pursuits. Such a course would not only deteriorate the feminine nature, but fatally injure society, because [of] giving material things a still greater preponderance over moral goodness than is now to be found in Christendom." The answer was right education for women. "Radical changes are not required in American life. What we need is to increase the power of good influences now active, and to restrain and banish those which are evil. For the first, we need better means of education for women."⁷

The form of education for women and girls would not mimic that for men and boys. It would have its own content and purpose. The results would still bring change to certain occupations controlled by and reserved for men. Some professions, such as medicine, might be suitable for women because "Woman is the preserver: the study of the laws of health and of the healing art would harmonize with her feelings and her intuitive faculties.... The profession of "Doctress of Medicine" should be considered, like the duties of mother and nurse, which it closely resembles, a proper sphere for educated women, if they choose to enter it."⁸

Still, she said, let there be no mistake. Borders between the proper place of male and female must not melt. Separate spheres must be maintained because of the inherent biological traits of the sexes. To do otherwise would invite social disaster and the

⁷ Hale, *Manners*, 356.

⁸ Hale, *Manners*, 358.

ruination of a social structure based on the foundation of Christian precepts that gave separate duties to women and men.

So, in finding work for pay, women were expected to observe proprieties that placed limits on them that men did not suffer. *Godey's* noted that a woman who wished to make a career as a painter could not travel to the landscapes she wished to paint, because "It is obviously impossible for a woman to lead such a life... Women are practically limited to what is called genre – pictures where the costume of the characters and the furniture which surrounds them are of the first importance."⁹

This was an argument in itself for women avoiding certain occupations. The dangers to self and health were not questioned nor examined as unjust. They were accepted or rationalized as "natural," existing according to natural scientific and moral law that governed the order of the universe. There was a complementarity of the sexes around which school, work, and the family should be designed. Utopia lay in the perfect union of the male and female opposites, and the most perfect site for this union was interdependent heterosexual marriage, which *Godey's* extolled.

In Hale's mind, the complementarity of the sexes could work to advantage in the workplace, too. Before telephony, *Godey's* came out in favor of woman telegraph operators and the advantages of the sexes working together. Noting that, in London, women outnumbered men among telegraph operators, she quoted the *London Times*:

The heads of the department speak very highly of the good conduct and intelligence of the young women; and they find, as might be expected, that the work is best done when the sexes are associated at its performance. Each serve to steady and restrain the other; and there springs

⁹ "Painting as a Profession for Women," *Godey's* 83, no. 493 (July 1871): 87.

up a desire to oblige, and to render mutual service, that very materially facilitates the general business of the room.¹⁰

Women were not to be barred from using the new technologies simply because of innate femininity. Of course learning about technology required training. Predictably, the editorial connected with the theme of education for women.

It appears that “a telegraph clerk requires, as a rule, three months training before being trusted to send a message, and a year’s work before becoming fully efficient.” .. Why should not the art or science (whichever it may be deemed) of telegraphing be taught in our young ladies’ seminaries, as well, for example, as drawing, or “the use of the globes?” If this were done, many of the pupils would doubtless find an opportunity of turning their knowledge to good use, as the telegraph companies would quickly become aware of their proficiency.¹¹

Commercial schools did offer courses in telegraphy for women in the 1870s, and women took advantage of them. Among these were Cooper-Union in New York and the Bryant and Stratton School in Manchester.

Marion Harland, a popular southern novelist with New England roots, published frequently in *Godey’s Lady’s Book*. She, too, offered her vision of domestication in an advice book, *House and Home: A Complete Housewife’s Guide*, published in 1889. Such advice books thrived in the atmosphere permeated with Victorian concern for skillful, virtuous home-making as the best occupation for woman’s abilities. These books imparted practical, emotional, and philosophical remedies for homemakers in need of domestic nostrums. The voices of authority speaking their wisdom old and new from between the covers of such books and from the pages of periodicals like *Godey’s* formed a conceptual world that emphasized and elevated non-paid domestic work for women.

¹⁰ “Woman Telegraphers in England,” *Godey’s* 82, no. 492 (June 1871): 591.

¹¹ *Godey’s* 82, no. 492 (June, 1871): 571-2.

Women who did work for pay and still tried to maintain some of the standards of womanhood put forth in the domestic advice literature faced an impossible ideal. While economic and personal need might push a woman into work for pay, counter pressures on women working for pay pulled insistently toward “domestic science.” Budding female consumerism both pushed and pulled, requiring money and time to spend.

Marion Harland’s answer to the vexed and impoverished housewife who had no money of her own was to apply a business turn of mind to the occupation of housekeeping. “Establish in your own mind that house-keeping is a distinct and important line of business, and that you are the firm which has the conducting of your ‘establishment.’ If you choose to let your husband audit accounts, do so.” This would make housekeeping more interesting and in tune with the advanced thought of the day in the new industrial world in which corporations were the repositories of power and prestige. Power was to be held by the chief woman in the household, too. “Should you, as age advances or cares thicken, admit a daughter as a junior partner, need may justify the step. On no account alter the standing of a paid, uneducated subordinate with regard to your authority and right.” Women could apply the new truths from science and business to their own realms. “There is no necessary hireling, or should be none in a house where the mistress has health and intelligence. The only indispensable member of the corporation is the head.”¹²

Of course, according to the prescriptive literature, the power of the workplace should be neither confused nor overshadowed by the awesome social and personal power of the homemaker, the true creator of society. Repeating the arguments for Republican

¹² Marion Harland, *House and Home* (New York: Union Publishing House, 1889), 98.

Motherhood from three generations earlier, Harland linked the health of the Republic to the skills of the Republic's homemakers. "Our girls are, in another score of years, to make the homes which are to model and control men who are to make laws, heal souls and bodies, formulate science, and control the commerce of their generation."¹³ Such homes would give birth to and nurture the lawmakers and industrial leaders of the nation.

The middle class woman who yearned for a place, a job even, in the public realm need only remember the true seat and source of virtue to bolster her domestic interest and her determination. Harland lectured, "yours is the nobler and far more important work. He makes money that perishes with his using (and other people's). You make men and women, who will live forever, and, through all that forever, bear the imprint you stamp upon them." That she argued this point suggests that more than one middle class woman questioned, impatiently, her assigned place at home when she compared her lot to that of her spouse's in business. It would help, perhaps, to transcend impatience by remembering that the husband "seeks fame that will be his during his lifetime. You are carving tablets for the never-ending years."¹⁴

While some writers tried to persuade women to accept and elevate their place as homemakers, other woman's literature turned to analysis of paid work. A great need existed. The Civil War took men from their households and jobs, and women filled the vacancies. The war left thousands of widows and wives of incapacitated veterans. In 1863, Virginia Penny acknowledged the need for paying work for women in *Employment*

¹³ Harland, *House and Home*, 202.

¹⁴ Harland, *House and Home*, 213.

*of Women: A Cyclopaedia of Women's Work.*¹⁵ She compiled her information in New York City between 1859 and 1861, and showed some impatience herself with the minds who would keep women at home. "It is very easy to obtain book after book on 'The Sphere of Woman,' 'The Mission of Woman,' and 'The Influence of Woman.' But to a practical mind it must be evident that good advice is not sufficient." What of the women who had to work for their livelihoods, not to mention comforts? The realm of work for women was not large enough to fill the need. Too many occupations were closed to women who wished or needed to work for pay, so "pursuits require to be opened, by which women can earn a respectable livelihood."¹⁶

The upheavals of the Civil War had so disrupted family and economic life that many women could not survive by staying within old confines. More women than ever were working for pay and even more needed and wanted to find work. Need led to new uneasiness and questioning. Why shouldn't women in need have access to work? Because of "selfish motives," Penny said, "many men would banish women from the editor's and author's table, from the store, the manufactory, the workshop, the telegraph office, the printing case, and every other place, except the school room, sewing table, and kitchen." Was there a reason why women could not expand to the maximum? she asked. Penny replaced popular notions with her own ideal: "I would love to see thrown open to women the door of every trade and profession in which they are capable of working."¹⁷

¹⁵ Republished in 1870 as *How Women Can Make Money, Married or Single, in all branches of the arts and sciences, professions, trades, agricultural and mechanical pursuits* (Springfield, Mass.: D.E. Fisk and Co., 1870).

¹⁶ Penny, *Make Money*, v.

¹⁷ Penny, *Make Money*, vi + vii.

The revolutionary notion of a trade open to every woman who wanted to enter it was not easily acceptable. Not just their adversaries but even women who would benefit from paying work were bound by limited education and small horizons. Like Hale, Penny thought education would free women. “As women become more generally educated, their energies will be increased – their limits of thought expanded..., regardless of the shafts of ridicule sent by selfish men and heartless women.” A complete revolution would be wrought in the social and political standing of women “by elevating the standard and augmenting the compensation of women’s labor.”¹⁸

To stimulate creative thinking by women wanting work, Penny organized her list of existing jobs for women in New York City under major headings.¹⁹ In the list could be found Artists, including architects, painters, engravers, musicians, piano tuners, photographers, and telegraph operators. There were Employments Pertaining to Grain, Birds, Flowers, Fruits, and Vegetables. The ubiquitous Mistresses and Domestic workers were there, as were Textile Manufactures, Metal Manufactures, Glass Manufacture, China Decorators and Burnishers, Whalebone Workers, Ivory Cutters and Workers, Fur Workers, Straw Workers, and Professional Women, including lawyers and physicians. There were also Communicating Mediums between Employers and Others, including housekeepers, lighthouse keepers, postmistresses, shepherdesses, and toll collectors; Contributors to the Comfort and Amusement of Others, including bathhouse attendants, chiropodists, fortune tellers, and nurses; and Miscellaneous Occupations and Workers

¹⁸ Penny, *Make Money*, vii.

¹⁹ Penny, *Make Money*, xvii-xxiii.

Therein, including balloon makers, canvas bag makers, carriage painters, clock makers, and knitters. These and others are illustrative of their times, in the materials and services produced and in the limits of the opportunities.

In 1884, when May Merrill had been telephone operating for three years, Mrs. M.L. Rayne published *What Can A Woman Do; or Her Position in the Business and Literary World*. It, too, was a compilation of what work women were performing in the United States. The title was a tip-off, however, that this work had a distinct middle class slant and did not include working class occupations such as textile mill work. Identifying 248 occupations open to women, the chapters proceeded through literature, journalism, law, medicine, music, government clerks, government officials, dentists, commercial travelers (traveling saleswomen), typesetting, proofreading, inventors, photography, wood engraving, art, telegraphy, book canvassers, preserves and pickles, mending and darning, elocution, nursing, gardening, raising poultry, bee-keeping, dressmaking, housekeeping, cookery, keeping boarders, and poetry.

Like her predecessors, Rayne argued against prevailing attitudes to show the need of paying work for women, even for middle class women who, by some people's standards, ought to stay at home. The changes in technology such as the telegraph and the telephone demanded adjustments in attitudes about women and work. The economic changes arising out of capitalistic business enterprise, the ideal and goal of so many upwardly-aspiring middle class boys and men, ought to be open to women who would benefit as well, she said. "Would not a great deal of the small pinching and distressing privations be done away with, if every woman had her own private purse, with which to supplement the money supplied to her for household expenses, and which is often so

inadequate?" Rayne also acknowledged the devastation to women who had few of their own resources when left suddenly without a husband or father to support them. Such women could live with relatives, or, if "she has the faculty of doing one thing well, shall she hesitate between the honest labor of her own hands, and the doled-out bread of charitable relatives?" With technology, Rayne observed, came change in women's working status. "If our great grandfathers could revisit the earth, what would astonish them quite as much as the telegraph, railroads, telephone, and the electric lights, is the position that woman has taken and is so notably sustaining" even under the handicap of poor business education.²⁰

As Sarah Hale predicted, the introduction of women into business workplaces would change the relationship between the sexes, for the better in Rayne's opinion. This would require a rethinking of the acceptable standards for both sexes. "The young men who are her associates may at first feel bored over this new assumption of knowledge, and miss the more frivolous part of her nature." The relationships between men and women would change because "she will be less dependent but more companionable."²¹

Rayne did not let go of the insistence on woman's place as secondary to man's. Perhaps to soften her argument and mollify the fear of radical change, she affirmed the natural, exalted place of womanhood. "It is the glory of woman that she was sent into the world to live for others rather than herself, to live, yes, and to die for them." Women lived for men, to better society. "Let her never forget that she was sent here to make man

²⁰ Mrs. M.L. Rayne, *What Can A Woman Do?* (Chicago: F.B. Dickerson and Co., 1884), 12-13.

²¹ Rayne, *What Can A Woman*, 16.

better, to temper his greed, control his avarice, soften his temper, refine his grosser nature, and teach him that there is something better than success.”²²

Finally, Rayne answered the critics who said that women would lose their femininity if they entered into the workplace as competitive workers. A woman could work successfully and still not become masculinized. “She need not abate a particle of her dignity or character, or grow hard and commonplace through the service of life, any more than she need ape the manners or don the garb of her male co-worker.” The right to work and the freedom of a wage would strengthen her as a person and therefore as a woman. “It is not necessary that she lose that essential charm of womanhood, which is her natural heritage, because she turns the pages of a ledger. The whole tendency of her being is to grow in womanly strength, not to develop into some kind of a masculine nondescript.”²³

Though Rayne did not mention telephone operators as a work category – it was too new to notice -- she did devote an entire chapter to telegraphy. For example, “for the women themselves,” Rayne asserted, “the practice of telegraphy has certain simple and definite attractions.” It would not “soil their dresses nor keep them standing. Nor would it “compromise them socially,” the ever present anxiety of women who would be seen as virtuous. A telegraph operator had “a social position not inferior to that of a teacher or governess.”²⁴

The advantages of the telegrapher’s job, at least at the Western Union headquarters in New York City, extended to other realms as well. “When a message has been dispatched or received, the operator may, and often does, take up her knitting,

²² Rayne, *What Can A Woman*, 443.

²³ Rayne, *What Can A Woman*, 23-24.

²⁴ Rayne, *What Can A Woman*, 139.

crocheting, or sewing, passing pleasantly the interval until the arrival of the next message.”²⁵ The disadvantages included telegraph cramp, which was a temporary paralysis due to repetitive movement; four to five years of training and practice to achieve proficiency; “surly” operators (presumably men) with whom one had to communicate; and constant practice to maintain proficiency. Unlike the case of telephone operating, once a telegraph operator stopped working, she quickly lost her touch unless she practiced regularly. That meant that re-entrance into the job market after, say, marriage and childbearing, was unlikely.

At Western Union, the supply of woman telegraph operators exceeded the openings. “Of the fifty pupils who last year graduated from the Cooper Union Free School of Telegraphy for women, only about twelve have thus far obtained situations,” Rayne reported to her readers.²⁶ The average wages of the women in telegraphy were less than the men’s because of beliefs about women’s inferior stamina and physical strength. For example, while the best male telegraphers could receive and transcribe fifteen hundred words an hour, managers did “not call upon women to perform it, and do not expect such a service of them.” The women were “oftener absent from their duties.” The telegraphy business did hold one belief about women that would be used to explain the eventual predominance of women in telephone operating: their superior propriety and adherence to the rules, as compared to that of their male colleagues’. “They are more punctual, less frequently late in the morning, for the reason, it is said, that their method of spending their evenings is usually more wholesome than that of their brothers.”²⁷

²⁵ Ryane, *What Can A Woman*, 140.

²⁶ Rayne, *What Can A Woman*, 136.

²⁷ Rayne, *What Can A Woman*, 137 +138.

In New York City, Cooper Union offered education for women wishing to learn the trade of telegraphy. Men more frequently learned as apprentices in the telegraphic offices. A woman was barred from apprenticeship unless an experienced telegrapher was willing to teach her, and it was unlikely that she would find a way into the occupation unless she learned from a relative like a brother or father. In Manchester, New Hampshire, the Bryant and Stratton Business College for young men and women offered telegraphy, and women served as telegraphers in the city before any women became telephone operators. Annie Dodge managed the Northern Telegraph Company office from 1867-1870.²⁸ Annie M. Garvin was a telegraph operator in the Western Union office of the Concord Railway's passenger train station at least as early as 1877; she stayed until 1884, after her marriage.²⁹ In the 1880 U.S. Census for Manchester she was listed as 37 years old and boarding at 2 Water Street, near telephone operator Irwin Powers. The 1880 U.S. Census also listed Alice Huntington, aged 23, as a telegraph operator. Her sister Nellie was listed as a designer in 1880 but later was mentioned in the City Directory as a telegraph operator.³⁰

May Merrill's Options

What else did women do to earn money in Manchester at the time when May Merrill became a telephone operator? The Manchester city directories listed women as clairvoyants, boarding-house keepers, school teachers, music teachers, bookkeepers, dressmakers, saleswomen, milliners, proprietors of millinery and fancy goods stores, cashiers, grocers, cloakmakers, sewing machine operators, and tailoresses. There was a

²⁸ "The Telegraph in Manchester," *Manchester Mirror and American*, 12 December 1877.

²⁹ *Manchester City Directories, 1877-1884*.

³⁰ *Manchester City Directories, 1884, 1886, 1887, 1889, 1893*.

teacher of phonography, a teacher of waxwork, and a feather cleaner.³¹ By far, the greatest number of women in paying jobs in Manchester worked in the cotton mills along the Amoskeag Falls. By 1880 the Amoskeag Manufacturing Company ran ten cotton mills in Manchester. It had also sold or leased land to several other large mills: Stark Mills, Manchester Mills, and Langdon Manufacturing Co.. There were other minor companies as well. Studying the 1880 handwritten U.S. Census schedules for Manchester, one notices that column after column of women lived in boarding houses and worked in the cotton mills. Amoskeag employed 2500 females and 1500 males. The next three largest mills employed 3040 females and 1560 males total.³² Textile mill workers almost equaled the total of all the other paying occupations engaged in by females in the state.

Table 4: Top Occupations of Females in New Hampshire - 1880

| Occupation | Female | Male |
|---|---------------|----------------|
| Cotton-, wool-, and silk-mill operatives | 11,269 | 10,137 |
| Domestic servants (including nurses) | 7,127 | 411 |
| Tailors, dressmakers, and milliners | 4,109 | 337 |
| Teachers | 3,571 | 309 |
| Boot and shoe makers | 934 | 5,437 |
| Hotel and restaurant keepers and employees | 452 | 750 |
| Clerks, salesmen, and accountants in stores | 400 | 2,200 |
| Launderers and laundresses | 227 | 41 |
| Musicians and teachers of music | 168 | 86 |
| Paper mill operatives | 167 | 659 |
| Farmers and planters ³³ | 130 | 30,241 |
| Mill and factory operatives (not specified) | 122 | 244 |
| Boarding and lodging-house keepers | 121 | 112 |
| All other | 1,331 | 61,376 |
| Total | 30,128 | 112,340 |

Source: U.S. Bureau of the Census, 1880 *Population 1*, Part 1, Table 34, 836.

³¹ Manchester City Directories, 1877-1884.

³² U.S. Bureau of the Census, 1880 *Social Statistics of Cities*, Part 1, 55-56.

³³ Wives of farmers were not counted as engaging in farm work.

Women were just beginning to work in greater numbers in retail stores as sales clerks. Most women in clothes-making were referred to specifically as dressmakers, milliners, cloakmakers, and so on, depending on the specific type of clothing they made. Few were referred to as tailoresses. Boarding house and lodge keeping had been an acceptable occupation for women since colonial times. In Manchester, boarding houses might shelter up to thirty unrelated people who worked in the mills. In the mills, jobs were segregated by gender, too, the poorest paying held by women and children and the supervisory positions held by men. In shoemaking, women did not make the entire shoes but performed “female” tasks such as sewing the uppers while men attached the soles.

Except for the special case of teaching, the occupations where women predominated over men did not include professions. At the time, teaching was not considered a profession needing special training, although Plymouth Normal School had just been opened in 1871 in New Hampshire for that purpose, and school committees were beginning to call for better prepared teachers. The other occupations where women predominated could be construed as women’s work because of associations with tasks in the home: domestic tasks, taking care of others, teaching the young, washing laundry, making textiles, and keeping house for others.

**Table 5: Occupations With a Majority of Women Workers
Aged 16 and Older in N.H. - 1880**

| Occupation | Female | Male |
|---|---------------|-------------|
| Cotton-, wool-, and silk-mill operatives | 11,269 | 10,137 |
| Domestic servants (including nurses) | 7,127 | 411 |
| Tailors, dressmakers, and milliners | 4,109 | 337 |
| Teachers | 3,571 | 309 |
| Launderers and launderesses | 227 | 41 |
| Musicians and teachers of music | 168 | 86 |
| Boarding and lodging-house keepers | 121 | 112 |

Source: U.S. Bureau of the Census, 1880 *Population 1*, Part 1, Table 34, 836.

Women's best opportunities were in the new white collar occupations that did not require specific professional training or existing occupations that did not require physical muscle. Men were the gatekeepers of some of these, such as the practice of law and medicine, and women gained entrance with difficulty. Teaching was the most feminized of these, and, as will be shown below, that did not happen easily. On the whole, women did not hold or control positions of public power, prestige, or wealth. Under New Hampshire law, however, they could inherit property and wealth, and they could control their own earnings.

Table 6: A Selection of Non-Manual Occupations in N.H. - 1880

| Occupation | Female | Male |
|--|---------------|-------------|
| Clerks, salesmen, and accountants in stores | 400 | 2,200 |
| Manufacturers and officials of manufacturing co.'s | ---- | 849 |
| Clergymen | 1 | 645 |
| Officials and employees of government | 97 | 627 |
| Physicians and surgeons | 21 | 589 |
| Printers | 97 | 416 |
| Lawyers | 3 | 379 |
| Teachers | 3571 | 309 |
| In banking and brokerage of money and stocks | 8 | 190 |
| Clerks and copyists | 29 | 160 |
| Dentists | ---- | 139 |
| Officials and employees of telegraph companies | 13 | 118 |
| In insurance | 1 | 100 |
| Clerks and bookkeepers in manufacturing | 14 | 99 |
| Musicians and teachers of music | 168 | 86 |
| Journalists | 2 | 69 |

Source: U.S. Bureau of the Census, 1880 *Population 1*, Part 1, Table 34, 836.

In absolute numbers and by percentage, more men than women worked for pay. New Hampshire was still rural, and family farming was a large occupational category. The wives of farmers were not counted as gainfully employed in the 1880 U.S. Census.

No matter what amount of labor they contributed to the farm, they were labeled as “keeping house” in the census schedules if they did not actually go out and earn money in a paying job. Only with difficulty could a farmer succeed without a wife, and few farmers went unmarried for long. When a wife died, the widower frequently remarried as soon as he could, as much for economic and household as emotional reasons. With the exception of domestic or personal care jobs, work considered physically dirty or needing strength or skill went to men. Even if they dared, women who wanted to enter a trade such as masonry or printing were unlikely to gain access. The skills were learned through apprenticeships to experienced men, and that path was closed to women unless men in their own household taught them, as was sometimes the case in telegraphy.

Table 7: Top Occupations of Males in N.H. - 1880

| Occupation | Male | Female |
|--|-------------|---------------|
| Farmers and planters | 30,241 | 130 |
| Agricultural laborers | 13,839 | 54 |
| Laborers | 10,611 | 40 |
| Cotton-, woolen-, and silk-mill operatives | 10,137 | 11,269 |
| Boot and shoe makers | 5,437 | 934 |
| Carpenters and joiners | 3,968 | ---- |
| Traders and dealers | 3,104 | 75 |
| Officials and employees of railroad companies | 2,388 | 1 |
| Clerks, salesmen, and accountants in stores | 2,200 | 400 |
| Brick and stone masons, marble and stone cutters | 1,680 | ---- |
| Machinists | 1,676 | ---- |
| Blacksmiths | 1,552 | ---- |
| Painters and varnishers | 1,519 | ---- |
| Draymen, hackmen, teamsters, etc. | 1,427 | ---- |
| Sawmill operatives | 1,156 | ---- |

Source: U.S. Bureau of the Census, 1880 *Population 1*, Part 1, Table 34, 836.

Between 1870 and 1880, more women entered the paid workforce. New Hampshire agriculture diminished; people left the countryside for work in the cities or

for easier farming in the West. Industrialization continued to need the labor of both more men and women as employees, as did the sale and dispersal of manufactured goods. Trade and transportation included telegraphy and telephony, both of which increased women's employment.

Table 8: Persons Engaged in Each Class of Occupation in N.H., 1870

| Category | Total | Female | Male |
|---|-----------------|------------------|------------------|
| Population 10 Years and Over | 260,426 100% | 134,073 51.5% | 126,353 48.5% |
| All Classes of Occupations | 120,168 100% | 24,135 20.1% | 96,033 79.9% |
| Agriculture | 46,573 100% | 11 .02% | 46,562 99.98% |
| Professional and Personal Services | 18,528 100% | 9,707 52.4% | 8,821 47.6% |
| Trade and Transportation | 8,514 100% | 388 4.6% | 8,126 95.4% |
| Manufactures and Mechanical and Mining Industries | 46,553 100% | 14,029 30.1% | 32,524 69.9% |

Source: U.S. Bureau of the Census, 1870 *Compendium*, Table 58, 594-595.

Table 9: Persons Engaged in Each Class of Occupation in N.H., 1880

| Category | Total | Female | Male |
|---|-----------------|------------------|------------------|
| Population 10 Years and Over | 286,188 100% | 146,381 51.1% | 139,807 48.9% |
| All Classes of Occupations | 142,468 100% | 30,128 21.1% | 112,340 78.9% |
| Agriculture | 44,490 100% | 191 .4% | 44,299 99.6% |
| Professional and Personal Services | 28,206 100% | 12,048 42.7% | 16,158 57.3% |
| Trade and Transportation | 11,735 100% | 527 4.5% | 11,208 95.5% |
| Manufactures and Mechanical and Mining Industries | 58,037 100% | 17,362 29.9% | 40,675 70.1% |

Source: U.S. Bureau of the Census, 1880 *Compendium*, vol. 1, Part 1, Table 34, 836; Part 2, Table 101, 1356-1357.

Teaching and Education

Key to employment for women in all fields, in addition to changes in attitudes and philosophies, was increased access to education and training. Women could not work for pay if they did not have the skills. Sarah Josepha Hale and others argued for wider educational and occupational training opportunities for women. It was no accident that more work for women and more education for women coincided. For example, Hale's legendary support in *Godey's Lady's Book* for Vassar College for women, founded in 1861, encouraged Matthew Vassar to insist on a strong academic program that included math and sciences. The more privileged women attended such places. The first New Hampshire woman to graduate from Vassar, in 1870, was Mary Parker from Lisbon. Dartmouth professor James W. Patterson helped her prepare for college, and six of the nine boys in her class of ten at St. Johnsbury Academy went on to study at Dartmouth College. By coincidence, that same Professor Patterson was the first to bring the telephone to Dartmouth, in 1877.

As an example of the life path an educated woman of privilege might follow after college and before marriage, Mary Parker returned to teach at St. Johnsbury Academy and in Bellows Falls, Vermont, at St. Agnes Hall. After marriage, Mary Parker Woodworth moved with her husband to Concord, New Hampshire. Like many Manchester women, Mary became a mother and society woman, no longer working for pay. A laudatory biographical sketch published in 1895 praised her early scholarly achievements in the company of males. Attuned to the prevailing middle class attitudes about the place of women, the author of the biography, an advocate of woman suffrage, was careful to reassure readers that Mrs. Woodworth's subsequent activities in the public sphere were

not at the expense of her domestic duties. Although unable to vote in state or federal elections, women in New Hampshire achieved the right to serve on school committees in 1872 and vote in school district elections in 1878. Mary Parker Woodworth's election to the Concord school board in 1890 was made acceptable within the philosophy of separate spheres because positions in the school system could be interpreted as extensions of woman's natural proclivities to care for the young. Woodworth was praised because, as the first female on the school board, she "demonstrated the peculiar fitness of women for participation in educational affairs."³⁴

The same rationale had made it acceptable for Mary Parker, a young woman of genteel breeding with a first-rate education, to teach school before marriage. This was a significant change. At the beginning of the nineteenth century, men had dominated the field of teaching. At that time, women could teach young children in dame schools and girls in finishing schools, but, for the most part, school masters taught in public schools, and men taught boys who were preparing for serious study in higher subjects.

By necessity, during the Civil War, women worked to support families or assumed many of the jobs left behind by soldiers. The massive losses of New Hampshire men – 5000 dead by the end of the war – made the domestic sphere much more permeable. By the time May Merrill entered school in Manchester, woman teachers were transforming the field in New Hampshire and the U.S. In February of 1876, the same month and year that Alexander Graham Bell applied for his first telephone patent, the New Hampshire Superintendent of Public Instruction issued ten questions to local

³⁴ Henry Metcalf, *New Hampshire Women* (Concord, N.H.: The New Hampshire Publishing Co., 1895), 175.

school districts “For the purpose of ‘investigating the condition and efficiency of popular education in the state.’” Question number six asked, “For the past school year 503 male teachers and 3,166 female teachers have been employed in the public schools. State the effect this general employment of female teachers is producing upon your schools.”³⁵

Returns were mixed.³⁶ Excerpts reveal the school districts’ concerns as well as prevailing opinions about males and females. The school districts decided whether to hire females or males according to the outcomes that they considered most important -- those were economic, scholarly, or disciplinary. The decision to embrace the “ruinous experiment,” as in Epsom, and employ female teachers could rest quite simply on economics. Women worked for lower pay, so, as Chesterfield observed, “the tendency is for towns to raise less money, and get very cheap teachers.” In Bradford, they had female teachers, but “if we had the requisite amount of school money, it would be advisable to employ more male teachers.” Winchester also hired female teachers reluctantly because “female teachers are our only alternative: we have not the money to hire male teachers.” Discipline was tagged as either difficult for the women because they lacked the muscle to overcome large, unruly male scholars, or it was easier for the women because, as in Winchester, their “influence tends to refinement.” Canterbury agreed with Winchester, finding that “the roughness and profanity, so common formerly, is now almost entirely done away with. There has been an advance in scholarship: I account for this improvement in the general employment of females.” In Antrim it was felt that “the employment of so many female teachers, mostly young and without force, is greatly

³⁵ State of New Hampshire, *Report of the Superintendent of Instruction* (Concord: Edward A. Jenks, 1876), 327-328.

³⁶ State of New Hampshire, *Report of the Superintendent of Instruction* (1876), 346-55.

lowering the standard of order in our schools.” To the contrary, in Bennington “the general employment of female teachers in the town has been attended with good results, especially in the smaller schools.” In Dublin, “the indiscriminate employment of females serves to encourage more than one kind of very pernicious lawlessness on the part of scholars who are inclined to be disorderly.”

A good deal of the trouble arose when teenaged girls with no post-secondary school training were hired to teach boys perhaps only a year younger than they. In such cases, Northwood decided that “boys are more reluctant to expose their backwardness or ignorance to a young girl than they are to a young man, hence it is reasonable to suppose that they leave the school earlier.” Difficulties were more likely to arise because of disrespect for teacher authority rather than shyness, however. It was expected that male teachers could and would establish their authority with sufficient muscle to impose corporeal punishment. Women who were strong enough could do the same with most scholars in Newton, where “good smart female teachers, when they have sufficient physical power, are with us preferable to male teachers, except with large ill-bred boys.” When physical punishment was not an option, women used skill to keep classroom control and earn the students’ respect. This was the case in Keene where “the lawlessness that was occasionally seen, is much more rare than when muscle oftentimes took the place of brain.” The teacher stood as a representative of the school’s authority in administrators’ eyes. Discipline or its lack had great impact because “The effect, in many cases, has been to beget in the minds of older scholars – boys especially – the idea that the authority of the school is weak, and the government poor. Hearty obedience to the teacher’s authority is frequently refused.” Perhaps it was experience more than sex

that determined the outcome, thought the administrator in Campton who wrote, “an experienced, well qualified female teacher attains to better success than an inexperienced, poorly qualified male teacher,” although, “Other things being equal, male teachers succeed better than females in our winter schools.”

By intellectual standards, the successes of teachers, male or female, depended on the qualifications of the individuals. One school district, Hollis, summarized the situation by drawing a cause and effect relationship, not to women’s innate character, but between women’s own access to education and experience and the ability to teach effectively:

Women, by their finer sensibilities and patience, are peculiarly well fitted for teachers. On the other hand, lacking experience in business, and a knowledge of public affairs, in consequence of their want of civil and political rights, and being without the facilities for obtaining a higher and more comprehensive education, they fail in some things where they would succeed were these disabilities removed.

In Wilmot, the hiring of female teachers was blamed for the exodus of older and more able scholars to “private schools and academies” keeping in town “the very young and backward scholars, whom the female is better adapted to teach on account of her patience and perseverance.” The argument tilted back and forth between those who put their faith in the innate qualities of the sexes, such as the respondent in Auburn who unequivocally believed that “the average female mind is superior to male in training the child” and those who thought training and experience counted most. In Wakefield, they decided on hiring females because “We think the effect is good. We have found lady teachers well qualified, quite as successful in government, and as thorough in teaching, as the male teachers employed in our schools.” In some special instances they hired a male when “nothing but force can control.” The returns made clear but did not settle the issue.

The ratios of male to female teachers and their average pay by sex in New Hampshire towns presents further evidence of the trends. In 1876, Manchester Public High School had 5 female and 2 male teachers. There were 144 female and 96 male students. Kimball Union Academy, the boarding school in Meriden/Plainfield, had 3 female and 3 male teachers for 66 female and 99 male students.³⁷ In 1876, in New Hampshire public schools as a whole, there were 3,107 female and 553 male teachers, with average monthly wages of \$25.72 and \$41.93 respectively, instructing 31,951 female and 34,748 male students.³⁸

While education opened opportunities for women both as teachers and students, compared to previous generations, differences of quality and quantity still existed, bolstered by rationales with deep roots in the past. Comparable to teaching in cleanliness, respectability, relative status, and ages of applicants, telephone operating was one occupation opening up opportunity to women within a larger trend brought about by war, industrialization, education, and urbanization. The rationales used to confine women and girls to certain occupations were applied to telephone operating after the first two years. Women and girls did not have to struggle to overcome gender barriers to take positions as telephone operators. The dominant rationale instead quickly built arguments for why females and not males made good operators.

First Manchester Telephone Operators

In Manchester, the occasional male worked as a telephone operator, especially at night, but most of the operators were women. The U.S. Census schedules for Manchester

³⁷ State of New Hampshire, *Report of the Superintendent of Instruction* (1876), 552-553.

³⁸ State of New Hampshire, *Report of the Superintendent of Instruction* (1876), 562-563.

identified only two telephone operators by name in June 1880, Evangeline Varney and Irwin Powers, Silas Bollison, identified only as working for the telephone company, might have been an installer and linesman. The exchange manager, Luther Harris, was identified as a clerk in a store. It appears that the census taker recorded the telephone office as a store. Emma Thurston, identified by May Merrill as the telephone operator that May replaced, was apparently not yet a telephone operator in June 1880. She apparently worked only a short time, a few months at most, between June 1880 and the spring of 1881, when May replaced her.

Table 10: Telephone Workers, Manchester, N.H. -- 1880

| Name | Occupation | Sex | Age | Nativity | Marital Status | Address |
|------------------|-----------------------------|------------|------------|-----------------|-----------------------|---------------------|
| Angeline Varney | telephone operator | F | 42 | Maine | widowed or divorced | 49 Water Street |
| Irwin Powers | telephone operator | M | 18 | N.H. | single | 25 Mechanics Street |
| Silas Bollison | works for telephone company | M | 36 | British Canada | married | 75 Prospect Street |
| Luther B. Harris | clerk in store | M | 33 | Vermont | married | 124 Pearl Street |
| Emma Thurston | [blank] | F | 18 | N.H. | single | 490 Chestnut Street |
| Frankie Twiss | clerk in store | F | 30 | N.H. | divorced | 116 Pearl Street |

Source: U.S. Bureau of the Census, 1880 *Schedules*, Manchester, N.H.

The Mrs. Twiss identified as an operator by May Merrill was probably Mrs. Frankie Twiss, a neighbor to Luther Harris and his family.³⁹ She was not, however, identified as a telephone operator by the census taker in June 1880. Instead, like

³⁹ The only other Twiss in the 1880 city directory was her former husband Hiram V. Twiss. The census listed him as divorced and boarding at 131 Hanover Street. No other Twiss was listed in the city directory during the time that May Merrill worked as a Manchester operator.

telephone exchange manager Luther Harris, she was identified as a clerk in a store. The census does tell us that Mrs. Frankie Twiss was a divorcee, so she was probably in need of work.⁴⁰ In 1880, Frankie and her daughter lived next door to the Luther Harris's apartment in an extended-family household of women, including Frankie's sister, mother, and niece. Hiram V. Twiss lived across town and sold fruit, nuts, and candy from his confectionery store in the bottom of Towne's block on Elm Street, around the corner from the Bell Telephone Company.

Why was Frankie Twiss classified as a clerk? Perhaps she had double duties, as many operators in exchanges often did, spending some of her time at the switchboard and some of her time attending to paperwork and customers. Perhaps she was not working as an operator in June of 1880. The wording of May Merrill's interview, speaking of "a Mrs. Twiss," suggests that the two did not have a personal acquaintance, so Frankie probably worked at a time when May Merrill did not.⁴¹ How did Frankie Twiss get her job as an operator? The job was probably not advertised. Throughout the history of predial telephone operating in New Hampshire, such a job was often offered to candidates already known to the other operators, the manager, or the chief operator. The proximity of the Twiss candy store and the telephone office as well as the Harris and Twiss residences suggests multiple ways that acquaintance might have been made. Another

⁴⁰ Frankie Twiss and her husband Hiram V. divorced in November of 1878. At the divorce Mrs. Twiss was granted custody of their daughter Jennie. *Manchester Mirror and American*, 14 November 1878, 4 o'clock edition.

⁴¹ Frankie Twiss left town for Nashua before May Merrill joined the telephone office crew, then apparently returned and worked as a dressmaker. *Manchester City Directory*, 1880, 1881.

operator, Mrs. George Chase, who worked in 1884 and was identified by May Merrill, also lived close to Luther Harris in 1880.⁴²

All of the telephone company workers lived in multiple family houses, and all lived within a half-mile of the telephone office, useful for arriving at work on foot. (See Map 1, page 74.) Irwin Powers and Angeline Varney lived only a couple of blocks away from the office, on streets sloping down to the mills, in and near the rooming houses and tenements frequented by a large population of temporary boarders, most of them mill workers, and many of them unmarried. In the tenements of the city, thousands of new French Canadian and Irish immigrants found places to live while they worked in the mills a short walk away along the banks of the river. If the immigrant families had young children, the new mothers or perhaps elderly grandmothers might stay at home and “keep house.” In households with school-aged children, however, the women tended to find paying work, often in the mills. It also was not unusual to find immigrant children, boys and girls, above the age of ten working in the mills. None of the telephone workers, however, were from recent French Canadian or Irish immigrant families. They were native-born or, in the case of Silas Bollison, of British Canadian descent. Silas Bollison, Luther Harris, and Frankie Twiss had families and lived farthest from the center of town, about ½ mile, away from the tenements but still in multiple family dwellings.

Silas Bollison, not identified specifically as a telephone operator, was probably a linesman who installed telephones, repaired equipment, and ran wires. Linesmen were always male, and it was not unusual for linesmen to be married. Luther Harris probably also had some electrical skills. The job of a manager at this stage of telephone

⁴² A block away at 119 Orange Street. Manchester City Directory, 1880.

development required a man willing to string lines and install equipment as well as to organize and sell. Managers were always male, either married or single. This early in the telephone business, managers often moved from place to place, selling and setting up new systems. Glidden, Bryant, and Harris all came to Manchester and left after a short stint. Glidden and Bryant returned. Luther Harris did not.

Emma Thurston lived a block away from the telephone office. Eighteen years old in 1880, she was fortunate to live in a family with enough income to support her while she finished high school. Such women often found paying work to help support themselves after high school and before marriage. Other young women, as a visible sign of their families' actual or desired socio-economic standing, did not enter paying work at this stage in their lives. Whether a woman worked for pay was determined by a balance of economic need, class mores, and moral suasion. The middle class Victorian ideal recommended that virtuous women stay out of public venues and away from the presumed corrupting influences of wage-earning work. If virtuous women did venture from domestic safety, they were to perform public housekeeping and nurturing tasks in fields such as education or health care, often as club members and volunteers. A new trend, however, found even some middle class, more conservative advice givers recommending that young women of all classes learn money-making skills to use in case of hard times. Without recourse to her own income, a woman could unexpectedly and suddenly find herself in financial want if the husband, father, or brother on whom she depended abandoned her, died, or became incapacitated. Trained to dependence and public helplessness rather than to business and independence, middle and upper class women without men found themselves handicapped by lack of skills, the stiff rules of

propriety, legal limits on their rights, and gendered ideas about how much women should earn if they did work for pay.

Emma Thurston's father was a bobbin maker. She had to find work at least until she married a wage-earning man. The work she found sometime after her graduation at the end of June 1880 was in the new occupation of telephone operating. As a near relative of telegraph operating, telephone operating was a field acceptable for women. Telegraphy had set the precedent, and Manchester had a tradition of woman telegraphers. The first Manchester telegrapher for the Northern Telegraph had been a woman, Annie Dodge. The Western Union telegrapher at the Manchester passenger railroad station was a woman, Annie Garvin. By comparing the living conditions and occupations of telegraph and telephone operators, we can see that they were of similar socio-economic standing, for the most part from wage-earning families on the verge of stepping into the middle class.

Table 11: Occupations of Persons in Buildings Where Six Telegraph Company Workers Lived, Manchester, N.H. - 1880

| Males | # | Females | # |
|-------------------|----------|---------------------------|----------|
| children under 18 | 6 | children under 18 | 5 |
| at school | 2 | at school | 4 |
| blacksmith | 1 | bookkeeper | 1 |
| bookkeeper | 1 | designer | 1 |
| clerk in store | 1 | disabled | 1 |
| councilor | 1 | dressmaker | 1 |
| dentist | 1 | keeping house | 8 |
| draughtsman | 1 | milliner | 1 |
| hair cutter | 1 | servant in boarding house | 1 |
| machinist | 1 | tailoress | 1 |
| mason | 4 | teacher | 2 |
| physician | 1 | works in printworks | 1 |
| roll coverer | 1 | unemployed | 1 |
| tailor | 1 | | |
| typesetter | 1 | | |
| undertaker | 1 | | |
| unemployed | 1 | | |

Source: U.S. Bureau of the Census, 1880 *Schedules*, Manchester, N.H. Telegraph workers were Charles Abbott, Dana Eastman, Annie Garvin, Charles Hurd, Alice (Nellie?) Huntington, and John Heaney.

One significant difference separated telegraph and telephone operating: length of training. Telegraph operating required lengthy training, an apprenticeship, and constant practice to maintain the touch required to send and receive Morse Code quickly and accurately. Telephone operating, while requiring an acceptable quality of speech and a knowledge of how to work a switchboard, required no such lengthy training because it depended on voice transmission. The dominant sex in telegraph operating, boys and men were the first to work as telephone operators. As a group, teenaged boys were not successful as telephone operators. Telephone managers concluded that their rough manners and impatient ways were not good for business. The first woman telephone operator, Emma Nutt, was hired in Boston in September 1878, and more quickly

followed.⁴³ Men and boys were still hired as night operators for many years after, because it was thought that night operating was either improper or unsafe for women and girls.

Table 12: Occupations of Persons in Buildings Where Six Telephone Company Workers Lived, Manchester, N.H. - 1880

| Males | # | Females | # |
|-------------------|----------|----------------------|----------|
| children under 18 | 6 | children under 18 | 7 |
| at school | 1 | at school | 6 |
| bobbin maker | 1 | cloak maker | 1 |
| civil engineer | 1 | dress maker | 2 |
| clerk in mill | 1 | keeping house | 6 |
| clerk in store | 3 | milliner | 2 |
| clothing dealer | 1 | runs boarding house | 1 |
| disabled | 1 | servant in household | 2 |
| jeweler | 1 | works in cotton mill | 4 |
| harness maker | 1 | unemployed | 6 |
| machinist | 2 | | |
| mason | 1 | | |
| mill overseer | 1 | | |
| shoe dealer | 1 | | |
| tailor | 1 | | |
| unemployed | 2 | | |

Source: U.S. Bureau of the Census, 1880 *Schedules*, Manchester, N.H.
Telephone workers were Angeline Varney, Irwin Powers, Silas Bolison, Luther Harris, Emma Thurston, and Frankie Twiss.

In Manchester, teenager Irwin Powers worked temporarily as an operator, following the custom of hiring boys. Angeline Varney was a single older woman from Maine who needed work. She, too, worked temporarily as a telephone operator until she moved into an apartment of her own and finished out her working years in one of the textile mills.

Both of the alleged sites of the first telephone switchboard were in the downtown area of the city, within the mile-long Elm Street cluster of businesses. Boarders lived in

⁴³ John Brooks, *Telephone: The First Hundred Years* (New York: Harper and Row, 1975), 66.

and around the businesses, creating mixed neighborhoods of diverse purposes and nationalities. Amherst Street, originating beside the new Dunlap's Block where the telephone company had its switchboard in 1880, was especially diverse. A mixture of native born, Irish, French Canadian, and Chinese boarders and families lived in tenement buildings. A Chinese laundry, fruit market, and barber worked just steps away.

**Table 13: Occupations of Persons in Three Buildings
Near The First Manchester Telephone Office
Manchester, N.H. - 1880**

| Males | # | Females | # |
|-------------------|----------|-------------------|----------|
| children under 18 | 6 | children under 18 | 7 |
| at school | 1 | at school | 6 |
| bobbin maker | 1 | cloak maker | 1 |
| civil engineer | 1 | dress maker | 2 |
| clerk in mill | 1 | keeping house | 6 |
| clerk in store | 3 | milliner | 2 |
| clothing dealer | 1 | runs boarding | |
| disabled | 1 | house | 1 |
| jeweler | 1 | servant in | |
| harness maker | 1 | household | 2 |
| machinist | 2 | works in cotton | 4 |
| mason | 1 | mill | |
| mill overseer | 1 | unemployed | 6 |
| shoe dealer | 1 | | |
| tailor | 1 | | |
| unemployed | 2 | | |

Source: U.S. Census 1880, Schedules, Manchester, N.H.

May Merrill Becomes a Telephone Operator

This was the world May Merrill entered when she quit school and went to work as a telephone operator at age 16 in the spring of 1881. She was native born and from a wage-earning family that was well enough off to allow May's mother to stay at home and keep house. May was unusual in the length of her employment, working from 1881 until 1890. The job of telephone operator was not always secure. The telephone was still a novelty for most people and most customers were businesses. Businesses did not yet

consider the telephone an essential tool of commerce, so, as May told it, when prices of the telephone went up, customers had theirs removed. With fewer customers, fewer operators were needed to run the switchboard. May did fit the common pattern when she left to marry. An exception, married operator Mrs. George C. Chase, was listed as a telephone operator in 1881 and 1884 in the Manchester City Directory. She was the spouse of George C. Chase, the bookkeeper and former telegrapher at S.C. Forsaith Machine Co.

May Merrill outlasted her colleagues. Company managers came and went. Charles Glidden returned in 1881 when he and fellow investors of Boston & Northern Telephone Company took over the Manchester exchange and reorganized it as the Granite State Telephone Company, serving Manchester for a circumference of 10 miles. In 1883, Glidden left for Lowell again when the Bell organization acquired and consolidated several companies it had licensed, including Boston & Northern and Granite State, into New England Telephone and Telegraph Company. As May Merrill told it, the control center shifted once again to Boston. NET&T sent a succession of managers including E.M. Bryant, who returned to become manager in 1885. This is when the office and switchboard were moved north one block to the Cilley building, still on Elm Street and still within the city's business center. In 1890, the year May Merrill left, the company moved again, this time just across the street to the second floor of the Smyth building, the same building where the first Manchester telephone demonstration had been held in May of 1877.

In the course of her employment with the telephone company, May had matured from a school girl to a young woman who was sure enough of herself to testify in court

without letting a hostile lawyer rattle her. She was proud of her performance and her position in the telephone company. Her experiences varied with the volume of business. As women would at the switchboards of small exchanges for decades to come, May battled boredom by keeping her hands busy. When the company's five operators dwindled down to one because of a price increase that inspired subscribers to order their telephones removed, May fell back on needlework. "During this period," she reported, "I found time to do a lot of fancy work."⁴⁴

May, 25 years old, resigned in 1890 to marry 39-year-old Otis Sumner, a widower who ran the drugstore ten miles away in Goffstown. The new Mr. and Mrs. Sumner lived upstairs over the drugstore and post office, perched on the steep banking of the churning Piscataquog River. The bridge on the road to Manchester hung across the river a few steps away. The post office occupied one side of the building and the Sumner drugstore the other. In a room behind the drugstore, a lone telephone operator sat at a small switchboard. She could see out to the river and into the store, if the door were left open. Shortly after May married Otis, NET&T took over the Goffstown telephone, a descendant of the N.H. Telegraph Company line that had run to Goffstown from Manchester. Living upstairs, May could simply walk downstairs to work as the operator. The switchboard did not take much attention at first, with just eight subscribers as late as 1900. The switchboard board was part of a larger family enterprise, sharing space in the back room with the liquor and drugstore inventory and Otis Sumner's office. For nighttime

⁴⁴ L. Ashton Thorp, *Manchester of Yesterday* (Manchester, N.H.: Granite State Press, 1939), 514.

coverage, a family member, usually Otis, slept there in the storeroom in a bed by the switchboard.⁴⁵

May worked some at first, and Otis took night duty, but as the family grew, outside operators were hired. May and Otis had three children. Two survived, a son born in 1895 and a daughter born in 1901. They lived with their two children and May's paternal maiden Aunt Julia, who had also lived with the Merrill family in Manchester.⁴⁶

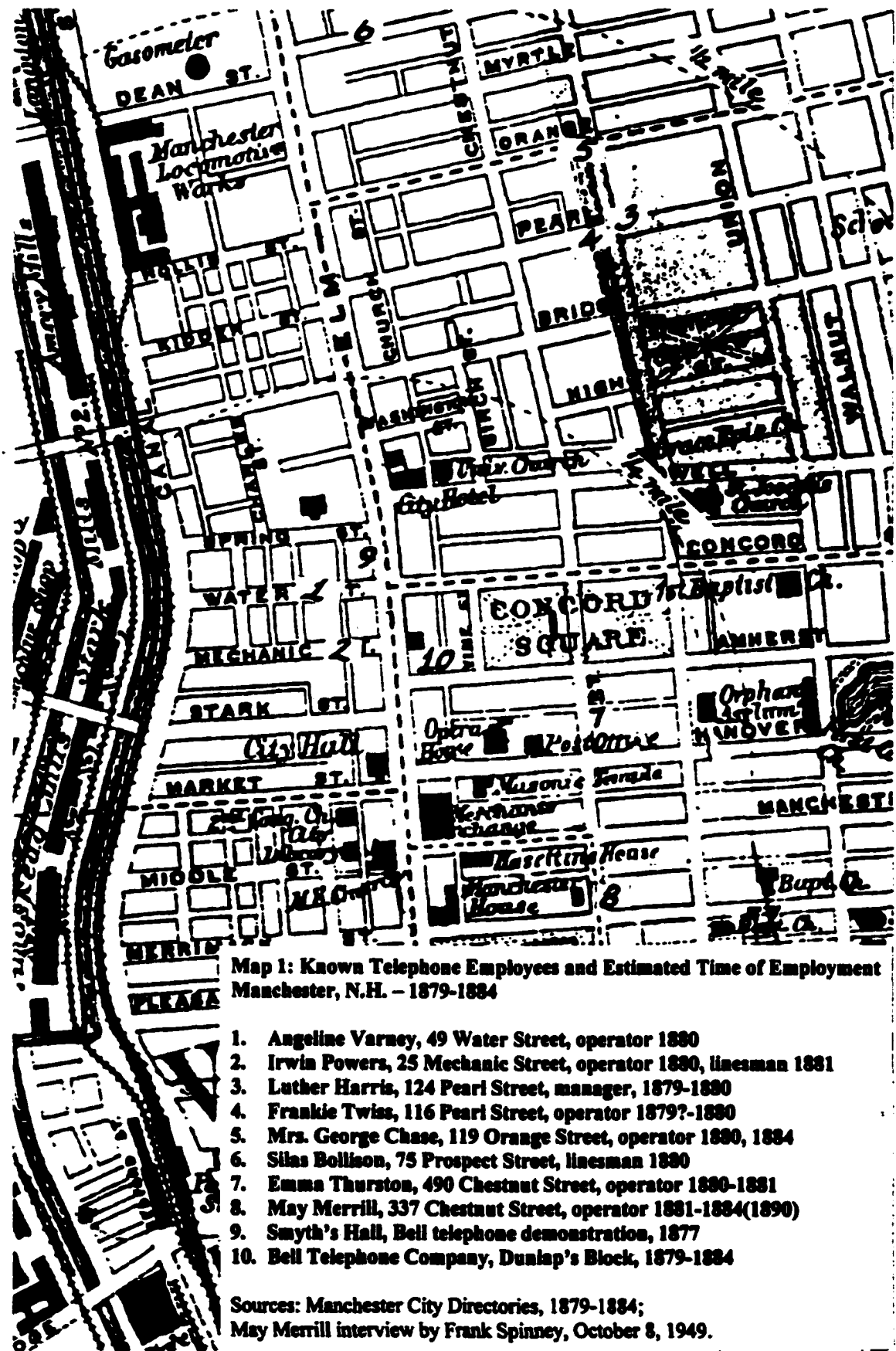
The board stayed in the Sumner store until it moved to bigger quarters of its own in the 1920s. May and Otis lived out the rest of their lives in Goffstown, taking active part in the community's life. In 1898, May and a group of women founded the Goffstown Woman's Unity Club. She also was organist at the Congregational Church. Otis served periodically in town offices, postmaster and town treasurer.⁴⁷

Telephone operating began when other occupations for women were changing. The occupational connections for women between telegraph operating and telephone operating for women are not usually remarked upon, but in the nineteenth century, the two means of electronic communication over wires shared much in practice and in people's minds. The opportunities, wages paid, expectations for behavior, and tasks placed upon telephone operators when May Merrill went to work can only be understood in this larger context that extended backward and forward in time.

⁴⁵ "Goffstown Telephone Service From Crank to Dial," *The Goffstown News*, 9 June 1977; "Traces Unity Club History," *Manchester Union Leader*, 26 March 1953; "Goffstown Telephone Office Busy Place Until 1949," *The Goffstown News*, 28 July 1977.

⁴⁶ U.S. Bureau of the Census, 1900 *Schedules*, Goffstown, N.H.

⁴⁷ George Plummer Hadley, *History of the Town of Goffstown, 1733-1920*, vol. 1 (Goffstown, N.H.: 1922), 271, 303-304, 421, 448, 457, 473, 474, 498; vol. 2, 510-511.



**Map 1: Known Telephone Employees and Estimated Time of Employment
Manchester, N.H. - 1879-1884**

1. Angeline Varney, 49 Water Street, operator 1880
2. Irwin Powers, 25 Mechanic Street, operator 1880, linesman 1881
3. Luther Harris, 124 Pearl Street, manager, 1879-1880
4. Frankie Twiss, 116 Pearl Street, operator 1879?-1880
5. Mrs. George Chase, 119 Orange Street, operator 1880, 1884
6. Silas Bollison, 75 Prospect Street, linesman 1880
7. Emma Thurston, 490 Chestnut Street, operator 1880-1881
8. May Merrill, 337 Chestnut Street, operator 1881-1884(1890)
9. Smyth's Hall, Bell telephone demonstration, 1877
10. Bell Telephone Company, Dunlap's Block, 1879-1884

Sources: Manchester City Directories, 1879-1884;
May Merrill interview by Frank Spinney, October 8, 1949.

CHAPTER TWO

THE TELEPHONE COMES TO MANCHESTER

When the telephone came to Manchester, New Hampshire, twelve-year-old May Merrill had never imagined working as a telephone operator. There was no such job yet, and she was still in school. The new-fangled telephone had its first official New Hampshire demonstration in Manchester, in May of 1877. In the spring of 1881, May was one of the first telephone operators in the state. The exchange had been at Amherst Street less than two years. Her memories in 1949 provide an incomplete account of the early Manchester telephone exchange, but the bits of information, when pursued, confirm and fill in other partial records.

May: The exchange was on Amherst street. The northwest corner of Amherst and the back street on the ground floor. Number 16.

Interviewer: Who were some of the officers of the Granite State?

May: The Granite State telephone Company. Charles A. Glidden, president. Charles F. Morrow, treasurer -- he was in the First National Bank. And Clark J. Glidden, Manager. I can't tell you very much about Charles Glidden, only he made several flights over the city in a balloon. This Clark Glidden, who was manager, was his brother, his younger brother. Oh, there were maintenance men and operators.

Interviewer: How much did people pay for this service?

May: A residence telephone was two dollars and a half. For a month. Subscribers could make any number of calls they wanted to. But after they moved up in the Cilley Block, which is now the Chase Building, they raised the rates to three dollars and thirty-three cents a month, and the telephones were taken out right and left. They

didn't want them and wouldn't pay it, and I was the only operator left, of the five operators at that board.

Interviewer: You weren't very busy I take it.

May: No. (laughter) I had time to do all kinds of things.

Interviewer: You worked there nine years, but during that time the Granite State Telephone Company was sold to the New England Telephone Company. So you went right on working for the New England Telephone Company.

May: Right on working for them. We moved up onto the third floor in what was then Cilley Block, in the back corner of the block. We had a small waiting room, and then there was a room in back where the men did their work, the linemen. We had several managers: Breckenridge, and we had a Mister Whittington, we had a Mister Baldwin, and, oh, we had ever so many. They came from the Boston office. While Mister Bryant was manager, I was put in as bookkeeper. There was a lawyer by the name of Gallagher who claimed he had paid his bill, and Mister Bryant said he hadn't, so they drew me into court. I didn't have any record of his having paid his bill on the books, and Mister Bryant won his case. After the trial was over, the judge told me I made a fine witness, that they couldn't, anybody, mix me up. (Laughter) Then we went over to the Smyth Building at the northwest corner, up one flight of stairs, and it was there when I left.¹

Developments in the early telephone industry in Manchester paralleled and reflected the development of the telephone elsewhere. Being nearby to the Massachusetts home of telephone invention, Manchester shared the ideas and some of the personnel involved with early Bell company development. Lowell, for instance, was the home of telegraph man Charles Glidden, who was instrumental in bringing the telephone to both Lowell and Manchester. In following the history of the telephone in Manchester, one can see the path of telephone exchange development in northern New England cities.

¹ May Merrill Sumner, interview by Frank Spinney, Manchester, N.H., October 8, 1949.

The social and economic base provided by the city was crucial to the early telephone exchange in Manchester. Manchester was the largest city in the state, built on an industrial base of water-powered mills. Manchester's demographic and economic ties to a Massachusetts city, Lowell, set the lines of fate that brought the telephone. Both cities were built on the Merrimack River for power for their massive mills, and some of the same men invested in both cities.

In Manchester, mill workers made up the bulk of the population. One way or another, all of the city, including the Merrill household, depended on the nearby Merrimack River down the hill west of Elm Street. For centuries the river had given life and livelihood to the humans who clustered on its banks. The abundant fishing at the Amoskeag Falls and the long reach of the river's waterways drew the Penacook Indians for thousands of years. With the coming of the Europeans, white colonists built water-powered mills along the river and its tributaries. Then nineteenth-century industrialists realized the power of the river. Water-power companies and textile mill corporations used their money and influence to grasp control of the river's power.

Manchester was a company town, and the company was the Amoskeag Manufacturing Company. Since before the Civil War, it was from the Amoskeag Company that other corporations had bought or rented real estate along the falls. It was the Amoskeag Company that planned and laid out the streets at the heart of the city, incorporated in 1846. It was the Amoskeag Company that gave land for civic use: a cemetery, parks, churches, schools. The investors in the Amoskeag understood that without the river, there would be no industrial Manchester. The logic was simple. Cities

like Manchester and Lowell depended on their vast textile mills, and the mills depended on massive water power. The large textile mills and water power companies controlled the Merrimack River by controlling and managing a system of dams stretching all the way to New Hampshire's four largest lakes, deep in the state: Lake Winnepesaukee, Squam Lake, Lake Winnisquam, and Newfound Lake.² By holding back water during floods and employing drawdowns in the dry summer months, a regulated flow was ensured for the mills and factories far downstream in southern New Hampshire and over the border into Massachusetts.

This benefited the mills, but not everyone saw the dams as unalloyed blessings. Six years before Bell patented his telephone, a New Hampshire gazetteer described the loss of spring fish runs at the Amoskeag Falls. After the Indians came the the festive atmosphere of colonial fishing parties that would "come with teams freighted with salt and barrels, fifty miles distant, and camp out, and catch and salt down Salmon, Shad, Alewives, Eels and other kinds of fish, sufficient to last them the year." The change in venue from forests and hot fields to the spray-filled falls leaping with huge runs of fish made it "rare sport, and the fishing season, at 'Skeag,' was looked forward to with pleasure by the settlers, for many weeks, before the time arrived." Dams and locks built for water-power and for river control blocked the spring migrations of fish from the ocean to their fresh-water spawning grounds upriver. It was obvious to observers who knew of the former spring spectacle that the industrial "obstructions have destroyed the whole run

² Theodore Steinberg, *Nature Incorporated* (Amherst, Mass.: University of Massachusetts Press, 1991), 99.

of fish, which swarmed the river from the ocean to its source in the White Mountain streams.”³

Whether she thought about it or not, the quality of May Merrill’s life was built on the river. Her city depended on the river for power and for waste disposal. Her father worked in the textile mills. Her aunt was a dressmaker who depended on customers with access to cash incomes earned in the mills. The schools of Manchester that May and her sister attended were supported by a population and economy rooted in the mills. The early Manchester telephone exchange depended in turn on the population and economy supported by the river. The economics of telephone exchanges depended on cities, on customers in close proximity. Businesses and their captains could afford and had a need for telephone communication. Thus the earliest telephone exchanges arose in cities, not far-flung rural communities that needed many more miles of expensive wires and poles per subscriber.

The original plan of the swelling young city of Manchester grew outward from Elm Street on the east side of the river as residents petitioned the standing Committee on Streets to build, extend, widen, drain, and pave their neighborhood streets. May Merrill, the young woman destined to become one of Manchester’s first telephone operators, lived near the epicenter. She could step out of her house onto dusty, unpaved Chestnut Street and walk past the green park at Merrimack Square to the shops and commercial activity of Elm Street. Dodging delivery wagons and fashionable carriages, she could cross on the uneven but solid granite stone paving in front of City Hall and walk five more blocks

³ Alonzo J. Fogg, *The Statistics and Gazetteer of New Hampshire* (Concord, N.H.: D.L. Guernsey, 1874), 239.

past awning-covered shops to busy Smyth Hall. There, in the evenings, she could view the city's well-heeled as well as worn-heeled citizens. As many as two thousand at a time congregated in this, the largest hall in the state. They came regularly to hear temperance speakers and world travelers, to argue with politicians and demagogues, to enjoy the music of high school dances and vaudeville revues, and to observe other curious entertainments. On May 8, 1877, the Smyth Hall audience came for a demonstration of the new device called the telephone. Most had never heard of such a thing. Many were skeptical. For a couple of days they had seen ads in both the noon and evening editions of *The Mirror and American* that promised an amazing scene:

Telephone Lecture! on Tuesday Evening, May 8. Two Lectures on the Same Evening. That in Music Hall, Boston, by Prof. Alexander Graham Bell, and that in Smyth's Hall, Manchester, by Frederick A. Gower. The first half hour will be devoted to a Lecture upon the Speaking Telephone. Music Hall, Boston, and Smyth's Hall, Manchester, will be connected by Telegraphic Wire, and vocal and instrumental music will be exchanged between New Hampshire and Massachusetts. Horace Gordon, Leader of the Manchester Cornet Band, will play Cornet Solos in Boston Music Hall, which will be distinctly heard by the audience in Smyth's Opera House. Tickets 50 cents. All seats Reserved.⁴

Alexander Graham Bell and his assistant Thomas Watson had been testing their telephone apparatus over telegraph wires since 1876 in and around Boston. Discouraged and without enough funds to continue, the Bell team had offered their telephone patent to the Western Union Telegraph Company in the fall of 1876 for \$100,000. Western Union had declined, a decision they came to regret. In 1876 the telephone looked like neither a threat to the telegraph business nor a potential profit-maker on its own. Feeling secure,

⁴ Manchester *Mirror and American*, 5 May 1877, noon edition.

Western Union liked the potential of its own improvements, such as the dial telegraph, better.⁵

Rebuffed by Western Union, Bell and Watson continued their telephone experiments over existing telegraph lines. In one such experiment on December 3, 1876, Watson traveled by train 143 miles to Conway, New Hampshire, and used telegraph wires to talk to Boston.⁶ Through the months, investor money dwindled. To support his nearly bankrupt efforts, Bell began a series of telephone demonstrations in the spring and summer of 1877, the first on February 12 at the Essex Institute's scientific society in Salem, Massachusetts. This was just two days short of a year from the time Bell had first applied for a telephone patent. That lecture was so successful that Bell repeated it several times over, there and elsewhere. May 8 in Manchester was another in that series of demonstrations, and the thirty miles between Manchester and Lowell would showcase the potential for long-distance communication.

Lecturer Fred Gower, "a gentleman of affable manners and pleasing address," a newspaper man from Providence, R.I., had decided to toss his fate in with the nascent telephone business. He joined Bell and Watson, suggesting a dual lecture between two halls connected by telephone; Watson would be at a third location to sing and talk over the wires to both groups.⁷ During the day of May 8, an enthusiastic Fred Gower and a skeptical Charles J. Glidden, who was local manager of the Atlantic and Pacific Telegraph Company, set up telephones in Smyth's Hall and connected them to the A&P

⁵ H.M. Boetinger, *The Telephone Book* (Croton-on-Hudson, N.Y.: Riverwood Publishers Ltd., 1977), 93. Herbert Casson, *The History of the Telephone* (Chicago: A.C. McClurg & Co., 1910) 58-59.

⁶ Boetinger, *Telephone Book*, 90. NET&T, *New England Telephone History*, 3.

⁷ "The Telephone," *Manchester Mirror and American*, 9 May 1877, noon edition. Thomas A. Watson, *The Birth and Babyhood of the Telephone* (AT&T, 1937), 26-28.

telegraph wires. Bell and Watson were similarly employed in Boston and Lowell. That evening the lecture delivered all that had been promised. A mahogany box telephone, “looking very much like a photographer’s camera,” sat on the stage lectern.⁸ At an opening in the side of the box, the speaker both talked and listened. Two other box telephones sat on the railings of the right and left balconies at the back of the hall.

Standing on the same stage where Abraham Lincoln had once spoken, Fred Gower gave his introductory explanation of the telephone while Bell did the same in Boston. Watson was then asked to transmit music from Lowell. Years later Watson remembered with some humor how it was to sing through the phone during these demonstrations. He was not much of a singer, but “two years of strenuous shouting into mouthpieces of various sizes and shapes had developed a voice with the carrying capacity of a steam calliope.” Watson was the invisible voice some distance away that was heard by dubious audiences who wanted proof. “My special function in these lectures was to show the audience that the telephone could really talk... I would shout such sentences as, ‘How do you do?’ ‘Good evening,’ ‘What do you think of the telephone?’ which they all could hear...” Alexander Bell had found a way to transmit and catch the voice, but he and Watson had not built an instrument that gave a crystal clear tone. Watson later admitted that with no electrical amplification and no carbon transmitter, the wondrous invention had shortcomings so that “the words issued from the mouthpieces rather badly marred by the defective talking powers of the telephones of that date.” Songs worked better for an audience than mere speech because pitch was more easily recognizable than blurred, static-ridden enunciation. On hearing a familiar tune, an audience could fill in

⁸ “The Telephone,” *Manchester Mirror and American*, 9 May 1877, noon edition.

the words and convince itself that the words came clearly. No singer, Watson nevertheless “would sing ‘Hold the Fort,’ ‘Pull for the Shore,’ ‘Yankee Doodle,’ and as a delicate allusion to the Professor’s [Scottish] nationality, ‘Auld Lang Syne.’ My sole sentimental song was ‘Do Not Trust Him, Gentle Lady.’ This repertoire always brought down the house.”⁹ A cornet player at The Boston Music Hall played “America” into the mouthpiece for the audience in Manchester, and a cornet player in Manchester reciprocated with “Sweet Home.” According to the newspaper account, “Mr. Watson then sang the scale, with a trifling inaccuracy, which, Mr. Gower explained, was not due to the telephone, but to a defect in Mr. Watson’s musical education.” During the demonstration, vibrations passed from the wooden box telephones to the structures on which they sat. Up front, the vibrations could be felt in the lectern and even the stage floor.¹⁰

While the telephone men labored to convince their audiences, telegrapher Charles J. Glidden tried a reckless, premeditated test that could have sabotaged the entire event. Unknown to Gower, Watson, or Bell, Glidden secretly disconnected the transmission wire in Smyth’s Hall. His experiment broke off the vibrations that were coming through the telephone. As Glidden later explained, after he had become wealthy from his telephone investments, “We had very little confidence, that is, we telegraphers, in the successful operation of the invention.” Understanding telegraphic wiring, Glidden knew exactly how to expose a fraud, if there were one. He decided to break the wire connection “in order to satisfy myself and several sceptics in the audience that the whole

⁹ Watson, *Birth and Babyhood*, 26-28.

¹⁰ “The Telephone,” *Manchester Mirror and American*, 9 May 1877, noon edition.

thing was not a piece of ventriloquism. Of course, the communication ceased instantly.” When Gower checked the apparatus for the source of the problem, Glidden re-connected the circuit and the demonstration continued. Glidden was convinced. “All doubts were quickly removed as regards the working of the invention.”¹¹

Toward the end of the evening, two prominent Manchester citizens, New Hampshire Governor P.C. Cheney and ex-Governor Frederick Smyth, spoke over the line to Watson in Lowell. At the conclusion of the evening the Manchester audience sang “America” together and left for home. Evidence suggests that both Smyth and Cheney were sufficiently impressed. In late July, Smyth became the first in Manchester to lease a telephone, and, much later, in 1880, Cheney put telephones at either end of the telegraph line that he owned between Manchester and Goffstown. Many others in the audience also went home impressed. The next day’s newspaper account probably spoke for many of those who read it.

Had we been told a few years, or even months, ago, that three persons, one in Manchester, another in Lowell and the third in Boston, would hold an audible conversation together as three men would who might chance to meet on the street, the announcement would have been received as the vagaries of some visionary enthusiast. Yet such a fact has been realized in the presence of Manchester’s best and most reliable citizens; and we shall be obliged to say, with Mr. Beecher, “we are prepared to believe most anything if the story is only big enough.”¹²

It was no accident that the telephone demonstrators and experimenters were men. Victorian mores still applauded women, especially middle class women, for behaving self-effacingly and modestly in public; they sat discreetly in the audience. Women also,

¹¹ “First Telephone,” *The Lowell Citizen*, 7 June 1895. “Had Its Birth In Lowell,” unnamed Lowell newspaper clipping, excerpts of interview with Charles Glidden, undated, probably sometime 11-16 October 1898, Folder “Telephone,” Lowell Historical Society.

¹² “The Telephone,” *Manchester Mirror and American*, 9 May 1877, noon edition.

as a rule, did not have access to technical education, technical jobs, public office, or investment capital. Thus all those in communications, industry, and politics who took public part in the evening were men.

The May 8, 1877 demonstration transformed the cocky telegrapher Charles Glidden. In his life story, as in many other telephone men's, the telegraph's and telephone's stories collided. Glidden's parents and grandparents had come from farms around Laconia and Gilford, New Hampshire, but Charles had been born in the industrial city of Lowell, Massachusetts. At age fifteen he had left public school to become a telegraph messenger boy. At age sixteen he had been sent to Springfield, Massachusetts, to become night manager of the Franklin Telegraph Company office. In one month he had been transferred again, to become manager of the Franklin company's Manchester telegraph office.

The corporate tangles involved in start-ups, failures, and consolidations of telegraph companies in Manchester at this time can get confusing, but are important to follow because they reflect the shifting plays by the principals to gain and hold business in a competitive field. In Manchester, ex-Governor Frederick Smyth had started the Northern Telegraph Company in 1867, managed by telegrapher Miss Annie Dodge, to compete with Western Union. When Franklin Telegraph came to Manchester, it leased the Northern Telegraph lines. In 1873 The Atlantic and Pacific Telegraph Company, together with its affiliates, was organized to oppose the Western Union Telegraph Company nationally. It absorbed the Franklin Telephone Company in Manchester, and Charles Glidden became A&P's Manchester manager. Under Glidden, A&P's telegraph

business increased so rapidly that Edward M. Bryant was hired as a full time Manchester lineman. The lines increased from two to seventeen, all built by Bryant.

It was common practice in cities for telegraph companies to build local circuits to connect businesses that had frequent need to communicate. These circuits were managed at a central location by a telegraph switchboard that allowed a telegrapher to connect and send directly to any customer who had a terminal in his place of business. The operator could also connect customers directly to each other. This arrangement required the customer to have a skilled telegraph operator on the premises to receive and send messages or to use a printing telegraph machine that was slow and unsatisfactory.

In Manchester, in late 1875, A&P lineman Bryant built circuits from the telegraph office to several businesses: A.H. Lowell iron foundry, S.C. Forsaith & Co., Manchester Mills, Stark Mfg. Co., P.C. Cheney & Co. paper mill, Langdon Mfg. Co. textile mill, J. Hoyt & Co. paper mill, Amoskeag Mfg. Co. offices and head gate, J.B. McCrillis & Co., and Daniels and Merrill's. Only one of the on-site operators was a woman, Miss Nellie Lovejoy at Daniels and Merrill's. The others were men like George C. Chase, who served as both the telegraph operator and bookkeeper at S.C. Forsaith & Co. The central A&P telegraph switchboard was at the A&P office that it shared with Hill's Express Co. In addition, in 1875 a telegraph line was installed that ran from A&P's offices to Goffstown, a promising town abutting Manchester. This was the one and only line owned by the New Hampshire Telegraph Company.

A telegraph war in 1877 began when Western Union and A&P opened branch offices in the city in order to bring in more local business. One of A&P's new operators was a woman, Mrs. Bow French. There was already a woman, Miss Annie Garvin,

managing the Western Union line at the Concord Railroad Station. The telegraph war included the building of lines by both companies to the baseball field, so that inning-by-inning scores could be reported. The two sides in the competition also worked to scoop each other in delivering election results. One of the A&P company's strategies was to undercut Western Union prices.¹³

Thus it was that Alexander Bell made arrangements through Charles J. Glidden for the use of the Atlantic & Pacific telegraph lines for the Manchester-Boston-Lowell telephone demonstration on May 8, 1877. A seasoned nineteen-year-old by then, Charles Glidden was well on his way to a lifetime of championing Gilded Age technologies that would make him a rich man. He already knew telegraphy well. Now the telephone called to him. Convinced by his experience May 8th in Manchester, he became a local agent for Stearns & George of Boston, who had the rights to distribute Bell's telephone. Stearns & George dealt in several related businesses. They advertised as telegraph constructors, engineers and electricians, and they sold telegraph supplies, electric bells and annunciators. "Electric watch clocks a specialty," their business card read.¹⁴

The first telephones in Manchester replicated the pattern emerging in Massachusetts. The Bell Company had envisioned that the telephone would be an instrument for businessmen. Women would be users only as they were connected to businesses and businessmen. Nevertheless, on July 27, 1877, about fifty ladies, not gentlemen, made up the majority of the audience for a private demonstration of the new hand-held version of the telephone by Glidden, Stearns, and George, the latter of whom

¹³ "The Telegraph in Manchester," *Manchester Mirror and American*, 12 December 1877.

¹⁴ Stearns & George business card, AT&T Box 1185, Stearns & George – Agents – Massachusetts and New Hampshire, 1877-1880, microfiche.

played the cornet to the Smyth's Hall audience from the telegraph office. The *Mirror and American* termed the test of the "wonderful invention" a success, "communication being readily held between persons at the ends of the wire, which extended from the hall to the main office of the Atlantic and Pacific Telegraph Company...." ¹⁵

The Bell associates had just recently determined that telephones would be leased in pairs at \$10 a year, not sold. The day after the private demonstration, telephones were attached to the telegraph line going to Goffstown. This too was successful. "E.M. Bryant conversed with the operator in Hill and Co.'s express office, every word being distinctly understood."

Both Glidden and Edward M. Bryant continued experimenting with the telephone on their telegraph lines and installed the first Manchester telephones. Beginning in the summer of 1877, Glidden leased Bell telephones in pairs to customers in Manchester, one of them to ex-Governor Smyth. Glidden recalled that "This line was equipped with two hand telephones made of cherry wood."¹⁶ The event was worth noting in the daily newspaper, and telephone gained celebrity by association: "Ex-Governor Smyth is the first to adopt the telephone in this city. He is having a wire put up from his house to the First National Bank. The work of construction is under the supervision of E.M. Bryant." Further experimentation showed how useful the telephone could be for the nearby textile mills down over the hill by the river. "Saturday conversation was carried on quite successfully between the operators at the Atlantic and Pacific Telegraph office and the

¹⁵ "Telephone Exhibition," *Manchester Mirror and American*, 28 July 1877.

¹⁶ "Had Its Birth In Lowell," unnamed Lowell newspaper clipping, excerpts of interview with Charles Glidden, undated, probably sometime 11-16 October 1898, Folder "Telephone," Lowell Historical Society. Smyth was treasurer of the First National Bank in Manchester.

Manchester, Amoskeag, and Stark Mills.” With single lines that were grounded, dampness could frustrate attempts to talk, but this time they were lucky. Even a hard rain “did not interfere.”¹⁷

The next month, the glow of celebrity sparked again between the wondrous new machine and the political world in an encounter in the Smyths’ new Victorian mansion, The Willows. On August 23, 1877, during a tour of the state, President Rutherford B. Hayes stopped in Manchester. Mrs. Smyth, assisted by her sister Mrs. F.B. Eaton, was hostess while Hayes and his entourage had luncheon at The Willows with a select party of dignitaries consisting of local politicians and businessmen, their wives, a few young people as company for the Hayes sons, railroad officials, and the press. They dined on the catered food and proclaimed it elegant. After the meal, the Smyths, with the help of Charles Glidden, gave the group a private telephone exhibition. They made the connection to Glidden’s Atlantic and Pacific telegraph company office, and “conversation was carried on at some length between the parties at the end of the line.” Since music played well over the telephone, “Miss Emma L. Cleworth of this city sang ‘Home Sweet Home,’ ‘Nearer My God To Thee,’ ‘Robin Adair,’ and ‘Down Upon the Suwanee River,’ which were distinctly heard by the presidential party.” Mrs. Hayes, the president’s wife apparently liked that approach and “by the request of Mrs. Hayes, Miss Cleworth repeated ‘Nearer My God to Thee.’” Music followed more introductions between the speakers and the president. “Charles E. Stearns of the Manchester Cornet band favored the party with two cornet selections, ‘Hail to the Chief,’ and ‘Marching Through Georgia,’ the notes of

¹⁷ *Manchester Mirror and American*, 30 July 1877.

which fell clearly and softly upon each listening ear.” All in the presidential party were “loud in their praise of the wonderful instrument that could incredibly annihilate space.”¹⁸

The invisible hand of Charles Glidden had been at work behind the scenes. Emma Cleworth, who must have possessed a better than common repertoire of graceful talk to use with the presidential party, was linked romantically to Glidden and would marry him in the next year. Glidden believed that the higher-pitched female voice carried better over telephone wires, and so he may have persuaded Emma to act as spokesperson and songster to show off the telephone at its best for this private demonstration. As one of the few knowledgeable telephone users in town, he would have coached Emma in the necessity of placing her mouth close to the transmitter’s opening and shouting. In addition to their respective roles as manager and linesman for the A&P Telegraph Company, Glidden and Bryant had set up the wiring for the telephone call.

The curious use of music during telephone demonstrations can be explained by the poor quality of the first Bell transmitters. Music sung and played over the wires was familiar entertainment but was also technically useful in masking one of the telephone’s shortcomings; the tunes could be recognized by the audience even if the words did not carry perfectly. Having recognized the music and having conversed successfully with Emma Cleworth, President and Mrs. Hayes left The Willows that day as the first U.S. presidential couple to speak over a telephone.

Though the Smyth telephone was installed July 30, the Bell lease did not commence until October 1, 1877. The commission for the Smyth phone was credited to

¹⁸ “Hail To the Chief,” *Manchester Mirror and American*, 23 August 1877, evening edition. “The Manchester Reception,” *Manchester Mirror and American*, 24 August 1877, noon edition.

Fred Gower, who was also now working for Bell, as New England promoter of the telephone. At the same time, developments in the telegraph industry affected Glidden, Bryant, and the city of Manchester. In August 1877, the A&P Telegraph Company and Western Union Telegraph Company consolidated. In December, A&P offices north of Boston, including Manchester, were closed. Manchester sentiments regarding the consolidation foreshadowed similar sentiments that would one day be voiced against the telephone company itself in Manchester. The newspaper editor complained that Western Union would have “an unquestioned monopoly of the telegraph business,” which would raise prices. In the meantime, however, Glidden and Bryant had secured jobs with the new Bell company. “The 15th of October last, Mr. Glidden knowing the office here sooner or later would be closed, secured a good position for him and Mr. Bryant with the Bell Telephone Company, and are engaged in different parts of New England putting the invention into private use.”¹⁹

The first Bell telephones in New Hampshire, leased in pairs and not dependent on any telephone exchange, went to customers in a variety of locations. As expected, a list of early telephone leases in New Hampshire by general agents Stearns & George shows that the first successful Bell agents targeted customers in the most urbanized areas.

¹⁹ “The Telegraph in Manchester,” *Manchester Mirror and American*, 12 December 1877.

**Table 14: Early Stearns & George Telephone Leases
in New Hampshire - 1877**

| Location of Installation | Start of Lease |
|--|---------------------------|
| Alex Robinson, Portsmouth | August 25, 1877 |
| C.E. Walker & Co., Portsmouth | September 1, 1877 |
| Fred Smyth, Manchester | October 1, 1877 |
| Amoskeag Manufacturing Company, Manchester | November 1, 1877 |
| Manchester Gas Company, Manchester | November 10, 1877 |
| Eagle Hotel, Concord | November or December 1877 |
| Nashua Manufacturing Company, Nashua | November or December 1877 |
| Indian Company, Nashua | November or December 1877 |
| Phineas Adams, Manchester | December 30, 1877 |

Source: memo of Telephones put in New England District but not paid for, memo of Amount Collected for Telephones to date (ND), Memo of Account with F.A. Gower (1 December 1877), Memo of Telephones Leased and Magneto Bells Sold (8 January 1878); AT&T Box 1185, Stearns & George – Agents -- Massachusetts and New Hampshire, 1877-1880, microfiche. All at AT&T Archives, Warren, N.J.

Disorganization in the Bell company, coupled with ambitious agents, led to uncertain and contested sales territories in New Hampshire for the first three years. Both the central Bell office and suppliers Stearns and George acted as ringmasters to the changing scene. In a letter dated December 1, 1877, for example, Stearns and George informed Fred Gower that “Glidden has taken Hand Telephones Nos. 510-523 off of Fred. Smyths line in Manchester N.H. and put 865-867 Box in their place; you will please make necessary corrections on your books.”²⁰

²⁰ Stearns & George to F.A. Gower, 1 December 1877; AT&T Box 1185, Stearns & George – Agents -- Massachusetts and New Hampshire, 1877-1880, microfiche. AT&T Archives, Warren, N.J.

The confusion during the first three years was not due simply to changing Bell personnel, however. During the first years of the telephone, the Bell monopoly had patent protection to last until 1893 and 1894, yet independent entrepreneurs still tried to enter the market before then. Interlopers infringed on territories. Telephones made by non-Bell inventors and copycats were used and sold. All through July 1878, J.R. Holcomb in Mallet Creek, Ohio, advertised his telephones in the *Manchester Mirror and American*. He claimed that, "For business purposes, ours excel all others in clearness and volume of tone." No local agents sold his instrument, however. For three cents, interested parties could receive an illustrated circular and testimonials. Another electrical supplier from Boston, Seth W. Fuller, advertised "electric annunciators, bells, burglar alarms, gas lighting, and all kinds of Bell hanging and speaking tubes" in the 1879 *Manchester City Directory*.²¹

Bell warned off mavericks with pamphlets, threats of court action, and, when necessary, lawsuits. The greatest single challenge to the Bell patents was from the giant Western Union, finally awakened when its agents reported that telephones were replacing telegraph keys in some locales. Western Union, through the Gold and Stock Telegraph Company and The American Speaking Telephone Company, challenged the Bell patents with equipment based on work by Elisha Gray. The American Speaking Telephone Company's instruments used Thomas Edison's superior transmitter and thus were preferred by many because the voice carried much more clearly than with Bell's telephone. The Bell company feared the Edison transmitter and worked to develop something that worked as well. While trying to score in the technical field, the Bell

²¹ 1879 *Manchester City Directory*, 371.

associates decided to press their legal advantage and took the Western Union challenge to court in September 1878.²²

In this uncertain atmosphere, company employees and officials came and went as they pursued individual and corporate opportunity. All three of the principals in Manchester's first telephone installations soon left town. Within months telegrapher Charles Glidden went home to Lowell to establish a telephone exchange, and E.M. Bryant left Manchester to install Bell telephones in Denver and Leadville, Colorado.²³ The flighty Fred Gower became the New England agent for Bell, traded that job for the opportunity to demonstrate Bell telephones, then left the country to become rich selling his own version of the telephone in England. He eventually died in a hot air balloon accident over the English Channel.²⁴

The Western Union crisis would be solved during the administration of Luther B. Harris, who became the next Bell manager in Manchester, after Edward Bryant's stint. Luther B. Harris brought his wife, two young boys, and mother-in-law from Vermont and set up shop as the licensed Bell agent for New Hampshire's Merrimack and Hillsborough Counties and the manager of the Manchester telephone franchise in the fall of 1879.²⁵ His job was to build a new Manchester District Exchange, meet the Western Union threat, and maintain the existing customer base while expanding to new customers.

²² M.D. Fagen, ed., *A History of Engineering and Science in the Bell System: The Early Years* (Bell Telephone Laboratories, 1975), 31.

²³ "Local," *Manchester Mirror and American*, 7 July 1879, evening edition.

²⁴ Watson, *Birth and Babyhood*, 35-36.

²⁵ Bell to Luther Harris, 28 November 1879, AT&T Box 1187, Manchester Telephone Exchange, microfiche. U.S. Census, 1880 *Schedules*, Manchester, N.H.

By this time, Manchester Western Union Manager Charles Abbott had opened a telephone exchange with nineteen subscribers.²⁶ On October 23, 1879, Harris met with local representatives of Western Union and made a settlement. He reported to the manager of Bell that he “had an interview with those gentlemen in this town” associated with the Western Union Telegraph Company. The gentlemen had planned to establish a rival telephone exchange in Manchester, but Harris reported to Bell that he persuaded them to desist, successfully making “an agreement with them, (substantially that suggested by you) which seems to be perfectly satisfactory to all concerned.” Thinking ahead toward combining mutual interests, he further asked Bell, could not “some arrangements be at once made whereby the two interests can be brought under one management?”²⁷

Agent Harris’s vision of a grand telephone and telegraph monopoly did not come to pass. On November 10, 1879, the Western Union Telegraph Company and the National Bell Telephone Company agreed out of court to end competition between them. Bell would buy Western Union’s telephone interests, 50,000 telephones in the U.S., and remain in the telephone business unchallenged. Western Union would remain in the public telegraph business, unchallenged and compensated by the Bell Company.²⁸ Thereafter, Bell telephone fought furiously for control of all telephone business, both locally

²⁶ Ashton Thorp, *Manchester of Yesterday* (Manchester: Granite State Press, 1939), 513-514.

²⁷ Harris to Theodore Vail, 23 October 1879, AT&T Box 1187, Merrimack and Hillsboro Counties, Agent L.B. Harris – 1879-1880, microfiche.

²⁸ Fagen, ed., *Early Years*, 31. It did not end there. In 1913, the U.S. Government prevented Bell from acquiring Western Union.

and nationally. In the seventeen years between the first patents and their expiration in 1894, Bell initiated court action more than 600 times.²⁹

The dates, character, and extent of the early Manchester exchanges lie hidden in bits of imperfect recorded memories and a few written items. Inconsistent claims in secondary sources place the first Manchester telephone exchange at Manchester Street and Nutfield Lane in August and September 1878 or in Dunlap's Block at Elm and Amherst Streets in November 1879.³⁰ Many of the early, experimental telephone switchboards were built by electricians and linesmen familiar with telegraph switchboards. Charles Glidden did so in Lowell. A Manchester Bell telephone exchange could have grown out of the former A&P telegraph switchboard idea. It could have been located downtown, at the Nutfield Lane address. Across the country, many of the first users of the telephone, including Bell, did try using existing wires. They attached telephones to telegraph lines to transmit the voice, not Morse code dots and dashes. This had a great advantage. Skilled telegraphers or the slow printing telegraph machines would no longer be needed to send and receive information. Now someone who could shout loudly and clearly enough to be heard over the wires was all that was required. Perhaps Charles Glidden and Edward Bryant, having already built a telegraph exchange in Manchester, decided to try such an approach. When Western Union became interested later, they could have easily countered with their own instruments and wires.

²⁹ Stephen Norwood, *Labor's Flaming Youth* (Chicago: University of Illinois Press, 1990), 30.

³⁰ Thorp, *Yesterday*, 508. Grace Holbrook Blood, *Manchester on the Merrimack* (Manchester: Manchester Historic Association, 1975), 257. NET&T, *New England Telephone History*, 6. "Manchester Directory of 1880," *Telephone Topics* (January 1926). "All the Way From Lowell!!! First Telephone Call To City made in 1877," news clipping, circa 1969, "Telephone" Folder, New Hampshire Collection, Manchester City Library.

Thus it is probable that a rudimentary Manchester telephone exchange, and maybe two, predated the 1879 telephone exchange in Dunlap's Block. As with the telegraph exchange, the first telephone exchange using a switchboard was probably limited to sites within the denser business core of Manchester where wires could be strung across rooftops to business customers, as they were in the first exchange in Lowell, without setting poles in the streets. Possibly some used existing telegraph wires. Of course, the Bell and Western Union exchanges would not have been interconnected. Customers could connect only with the other customers in their own exchange, Bell with Bell and Western Union with Western Union. This necessitated having a telephone from each exchange in order to speak with everyone who had a telephone.³¹ Some other telephone subscribers still would have elected to continue their private telephone use of leased pairs, independent of either switchboard. The next stage of exchange development came in Manchester when the November 1879 agreement between Bell and Western Union ensured the sanctity of the Bell monopoly. It coincided with the Manchester Bell Company's move to new quarters in Dunlap's Block.

Agent Harris made preparations for the move. Since summer, the Bell company had been setting poles and stringing wires for a district telephone company that could encompass more telephones at greater distances from the central office. The new Dunlap's Block, at the corner of Amherst and Elm Streets, had been under construction

³¹ This turns out to be difficult to document. Many of the sources quote each other without citations. One that does cite its source is based on an interview; L. Ashton Thorp in *Manchester of Yesterday*, wrote, "Francis H. Clement...came to Manchester in 1876 and entered the employ of the express company. He recalls the subsequent installation of the switchboard of the Western Union telephone exchange...and remembers that the [Hill] express company had two instruments..., as some of its customers were subscribers to the Bell system, while others patronized the Western Union line, which was commonly referred to as the Edison system." Thorp, *Yesterday*, 513.

since April. Civic pride swelled through the local newspaper's description of the four-story brick structure that replaced its wooden predecessor, termed "The Ark." Begun in the spring and completed in late fall of 1879, it was "a more modern structure, which should at once make the valuable location...attract attention as an ornament rather than an ancient relic." Modern inside and out, it was "heated throughout by steam, furnished by a low-pressure boiler, and every room" was "supplied with city water." Three narrow stores in the new Dunlap's block faced out on Elm Street. At the side, on Amherst Street, there were "two stores, one of which is leased to W.F. Eastwood, a Massachusetts milliner, and the other to the Bell Telephone Company, which is already putting in its wires. All these stores are finely finished in hard woods, lighted by fine French-plate windows, and are to be fitted up in the most thorough manner."³²

As seen by his confrontation with Western Union's representatives, Harris tended to business unflinchingly. His attention to business alienated some of the city's powerful and possibly impressed some others. The local press took occasional note of Harris and the new telephone poles, at sometimes dispassionately, but at others with irritation. At about the same time that Harris reached the agreement with the Manchester Western Union office, the *Mirror and American* complained about the ugly telephone poles appearing on the city's streets. Perhaps, it suggested, the poles might deserve an encounter with a hatchet. The newspaper took a provocative tone, saying, "if some citizen of Manchester, beside whose house they have planted one of their ugly poles, objects to having such an eyesore and source of danger there, and takes his little hatchet

³² "Dunlap's Block," *Manchester Mirror and American*, 21 October 1879, noon edition.

and chops it down, or if the superintendent of streets goes that way and digs it up, what are you going to do about it, Mr. Telephone?"³³

Luther Harris found he needed to ask the city for formal permission to plant poles. He filed a petition with the city, was referred to the city's committee on streets, and in due time the committee's reaction was unfavorable. They passed the request to the city solicitor who ruled that "city councils had no authority to grant said petition."³⁴

That evening Manchester citizens read a journalistic tirade:

A few months ago the telephone company, an organization of speculators, pitched one of its many tents in Manchester, and without so much as saying, "by your leave," to the city or its citizens, at once proceeded to dig up the streets and plant in them the most ungainly poles which could be found in New Hampshire forests. Having thus barricaded the streets in a way to make them dangerous to every passing team, and offensive to everybody whose ideas of beauty do not consider a crooked stick with half the bark on the most attractive production of nature, the company bound us about with a net-work of wires and was then ready to levy taxes upon those who had hitherto supposed that they had some rights which a foreign corporation unauthorized and unrecognized by any law of this State or city, was bound to respect.

All this being done to the satisfaction of the invading army of pole-stickers and wire-stringers, their commander coolly goes before the city government, and with his blandest smile announces that ...the monopoly he represents will be pleased to have all his proceedings approved and ratified...

Our telephone conquerors...have the city in their clutches and are working their will upon it...³⁵

Safety and esthetics were not the only issues. Power and money were at the root of the trouble. The Bell telephone organization, suffering sharp growing pains, had not yet evolved a corporate structure that worked smoothly within and between states. It had

³³ "Information Wanted," *Manchester Mirror and American*, 20 October 1879, noon edition.

³⁴ "City Affairs," *Manchester Mirror and American*, 8 October 1879, noon edition. "Municipal Matters," *Manchester Mirror and American*, 3 December 1879, noon edition.

³⁵ "The Telephone and the City Councils," *Manchester Mirror and American*, 3 December 1879, evening edition.

incorporated in Massachusetts in May 1879, so could be termed a “foreign” corporation by a New Hampshire newspaper. The accusations against a foreign corporation of speculators could have been shocking only to those with limited memory and knowledge; the Manchester textile industry had also depended on major outside investors and speculators. The editor further complained that Mr. Telephone “taxes them \$2 a head to pay the bills,” and pointed out that “telephone stock which but a short time ago was worth but \$50 a share now sells for \$1000. It ought to be worth more than that, for the holders of the stock seem to own all the cities in which their wires are strung.³⁶ The unhappy editor of the newspaper recognized that now Manchester was captive to a telephone monopoly and a telegraph monopoly. The out-of-court settlement with Western Union had not only fired resentment of the now solid telephone monopoly, but also had stimulated undreamed of stock growth. In May, Bell stock had been worth \$50 a share. In September, shares dallied around \$300. By November 11, stock was \$1000 a share.³⁷ The editor got the figures right.

Keeping a low profile, the telephone company moved into its quarters in Dunlap’s Block in November and opened its new exchange. No grand announcements graced the newspapers. No advertisements appeared. No crowds in the streets attended a large and dignified ceremony. The opening could have been as simple as unlocking the door, greeting a Bell company representative, and sitting at the switchboard to wait for calls. At least one man who was there, Thomas Lockwood, affirmed the opening decades later. A Bell employee hired in 1879 to set up an aggressive Bell Patent Department, Lockwood

³⁶ “The Telephone and the City Councils,” Manchester *Mirror and American*, 3 December 1879, evening edition.

³⁷ Brooks, *Telephone*, 72.

and his staff successfully protected the old Bell patents and filed new ones. In 1926, Lockwood spoke in Manchester during a public celebration of the fiftieth anniversary year of the telephone. The 1926 announcements of Lockwood's up-coming speech noted, "Mr. Lockwood's reminiscences of the early days in the telephone business will be of particular interest to a Manchester audience for he opened the first Manchester exchange on Thanksgiving Day, 1879." In an unspoken reference to the Bell Patent Department's official efforts in and out of court to document that Bell got there first in the invention and development of the telephone, the newspaper reassured readers by affirming that "He has always been interested in historic accuracies in connection with telephone events, and has given much valuable data in the correction of many statements which have removed considerable doubt on many points." In a report of the anniversary event, the exchange opening date was again mentioned as notable: "A significant part of the program was an address by Thomas D. Lockwood who established the first telephone exchange in Manchester on Thanksgiving Day, 1879."³⁸

Officially opened or not, less than a week after the committee on streets rebuffed the poles and wires petition, the Bell exchange set up a telephone concert. This congenial stunt, the company hoped, would demonstrate the new exchange's capabilities, and soften harsh feelings toward the telephone monopoly. "Most of the various parties in the city who have had telephones put in, were placed in immediate communication." At 1:00

³⁸ "To Speak Here on History of 'Phone -- Thomas Lockwood Opened First Manchester Exchange," *Manchester Union Leader*, 18 November 1926; "First Days of Telephone Here Are Described," *Manchester Union Leader*, 23 November 1926.

o'clock the Unitarian church choir sang over the wires, and a music box and flute were also heard.³⁹

Though some of the city leaders may have been irritated by the Bell company's behavior during 1879, telephone exchange expansion continued, and the city government partook of the service, especially for the protection of public safety and peace. City records are brief or non-existent on the subject, but in October the press reported that "the Manchester Telephone Company's wires are being speedily erected. One has already been placed in the city marshal's office, communicating with the main office and passenger station."⁴⁰ In December the police had a connection put in between the police station and the county jail.⁴¹

The new exchange offered another new service, connection to neighboring Goffstown via the New Hampshire Telegraph Company. The new exchange necessitated raising prices. This, too, excited confusion and opposition. One powerful customer went over Luther Harris's head. In a letter to the Bell company, the Stark Mills explained that they had been a good customer for three years under Stearns and George, but "now comes a Mr. Harris to us, with a bill of increased price, of which we have heard nothing....We were about to add another telephone, connecting us with the district controlled by Mr. Harris, but until we know where we stand, and how expensive a matter it may prove, we shall do nothing. I have seen Mr. Harris and write this at his suggestion."⁴² Stearns & George replied on the same day that they were to blame in the billing. They admitted, "In

³⁹ "Trying the Telephone," *Manchester Mirror and American*, 8 December 1879, noon edition.

⁴⁰ "Local," *Manchester Mirror and American*, 9 October 1879, evening edition.

⁴¹ "Local," *Manchester Mirror and American*, 20 November 1879, evening edition.

⁴² Stark Mills to Stearns & George, 17 January 1880, AT&T Box 1185, Stearns & George – Agents -- Massachusetts and New Hampshire, 1877-1880, microfiche.

sending out bills for several leases, our book keeper has sent those of Manchester with others. We have already notified Mr. Harris of the error, and arranged to meet him Monday morning next at Manchester and make everything satisfactory to him.”⁴³

The confusion galled Luther Harris. On January 16, 1880, he wrote to the Bell office in Boston that general agents Stearns & George were installing instruments in Manchester. He pointedly requested unequivocal clarification: “I would suggest that you notify your patrons here [in Manchester] that I am your agent, or notify me that I am not.”⁴⁴ It was not easy being Mr. Telephone.

What was the Manchester switchboard like and who decided how it should be constructed? How did inventors find out about developments in the technical telephone world? Information flowed to the Manchester exchange from the telegraph world and from Lowell. Many telephone men like Charles Glidden and E.M. Bryant had telegraph experience, so it is far from surprising that early telephone switchboards and operating modes shared similarities with existing telegraph equipment. Before telephones, in some large telegraph exchanges, telegraph switchboards allowed messages to be sent directly to selected customers. Usually these telegraph switchboards were operated by spare messenger boys. Some of the first telephone switchboards imitated telegraph switchboards and used boys as operators. At least one teenaged boy, Irwin Powers, worked as a telephone operator on the early switchboard in Manchester.⁴⁵

⁴³ Stearns & George to Stark Mills, 17 January 1880, AT&T Box 1185, Stearns & George – Agents -- Massachusetts and New Hampshire, 1877-1880, microfiche.

⁴⁴ Harris to Bell, 16 January 1880, AT&T Box 1187, Merrimack and Hillsboro Counties, Agent L.B. Harris – 1879—1880, microfiche.

⁴⁵ U.S. Bureau of the Census, 1880 *Schedules*, Manchester. May Merrill Sumner, who began work in the spring of 1881, did not mention Irwin Powers as an operator in her interview, so he probably did not work long as an operator. The 1881 Census listed him as a linesman. This would fit the national pattern of change from boys to women and girls as operators as the telephone system grew.

No standard switchboard design existed. Local technicians across the country tinkered with a myriad of boards. In the beginning, most boards, including the one in Manchester, had drawbacks and were clumsy to use.⁴⁶ Some of the ideas of how to wire Manchester's system probably came from Glidden, who was knowledgeable about the Manchester telephones he had installed. The Bell telephone business still encompassed a small world, and Manchester's association with Lowell was not lost when Glidden moved back to his home town. While pioneering in setting up the Lowell telephone exchange and building long distance wires when he left Manchester, it is probable that he kept in touch with Manchester's telephone men. The similarity of Manchester's system to Lowell's was publicly acknowledged: "An effort is being made to establish a circuit telephone system here, similar to the one in Lowell and other cities," Manchester's daily newspaper said.⁴⁷

Telephone switching and notions of what a telephone system might entail were still experimental. The Bell organization was engaged with trying to organize a corporation and build better telephones that, especially, would give clearer speech. They had not progressed far from their idea that telephones were to tie together pairs of locations with private lines. Glidden later recounted that, "The idea of an exchange system, or the building of toll lines connecting cities had not at this time been considered by the Bell Company, its idea simply being to place the instruments on private lines connecting a factory with an office or a residence with a stable." Glidden recognized the advantages of longer and more extensive telephone connections. What he learned in

⁴⁶ See the description at the beginning of Chapter One of how the Manchester switchboard worked.

⁴⁷ "Minor Items," *Manchester Mirror and American*, 6 December 1879, evening edition.

Manchester he took back to Lowell. He put his energies into connecting the mills in Lowell, as he had by experimenting with telephones on his telegraph lines in the Manchester mills. The similarity of the cities made his work and its accompanying problems with the primitive telephones familiar. His “first thought was to try and interest the manufacturing companies by connecting them together. The telephones were decidedly crude and of poor mechanism.”⁴⁸

Charles Glidden and his brother J. Clark Glidden opened the Lowell Telephone Exchange in April 19, 1878, with 47 subscribers, three months after the first commercial exchange ever opened in New Haven, Connecticut, with 21 subscribers. Their experience was not yet glamorous nor financially rewarding. Both of the Glidden brothers managed, operated, and served as repairmen working fourteen-hour days to keep the exchange open during the next year.⁴⁹ Charles returned to Manchester long enough to court and marry Emma L. Cleworth in 1878. The published wedding announcement noted that Charles was formerly the operator of the Atlantic and Pacific Telegraph Company but now was constructing a district telephone system in Lowell.⁵⁰ In 1879 the New England Bell Company, trying to streamline, sold the Lowell exchange to Charles Glidden and others, known as the Lowell Syndicate.⁵¹

By 1880, as exchanges were built and the Bell Telephone Company clarified its

⁴⁸ “First Telephone,” *The Lowell Citizen*, 7 June 1895.

⁴⁹ “Had Its Birth In Lowell,” unnamed Lowell newspaper clipping, excerpts of interview with Charles Glidden, undated, probably sometime 11-16 October 1898. M.D. Fagen, ed., *Early Years*, 20.

⁵⁰ *Manchester Mirror and American*, 10 July 1878, evening edition.

⁵¹ “Had Its Birth In Lowell,” unnamed Lowell newspaper clipping, excerpts of interview with Charles Glidden, undated, probably sometime 11-16 October 1898. Glidden parlayed his successful Lowell exchange into a larger corporation and returned to buy several New Hampshire exchanges, including Manchester in 1884 under the name of the Granite State Telephone Company, mentioned by May Merrill Sumner in her interview.

corporate organization, the initial confusion and uncertainty began to recede. Though by no means a mature industry, telephony had grown with alacrity. A special report in the U.S. Census characterized the telephone industry's growth as "rapid and violent" between 1877 and 1880. An accurate report was not possible because the numbers changed by the minute. In the United States in 1880 there were approximately 148 telephone companies, 34,305 miles of wire, 54,319 receiving telephones, and 3,338 telephone employees.⁵² In New Hampshire in 1880, four companies were chartered by the state legislature, and three of them had exchanges in operation, in addition to the leased pairs of telephones unattached to exchanges.

Table 15: N.H. Telephone Exchanges, 1880

| Company | Circuits | Miles Wire | Subscriber Stations | # Receiving Telephones | # Employed |
|----------------|-----------------|-------------------|----------------------------|-------------------------------|-------------------|
| Cheshire | 30 | 40 | 65 | 70 | 5 |
| Concord | 58 | 43 | 95 | 98 | 5 |
| Manchester | 225 | 165 | 300 | 300 | 9 |
| Nashua | 44 | 15 | 67 | 69 | 3 |

Source: U.S. Bureau of the Census, 1880 *Compendium*, Part 2, Table C, 1338-1339.

In Manchester, the telephone business changed so fast that a directory was issued monthly. The May 1, 1880, Manchester Telephone Exchange directory listed 165 customers alphabetically by name, with no telephone numbers and no addresses. For example, the listing for Governor Moody Currier read, "Currier, Moody.....Residence." The listing for the grocer across from the telephone exchange on Amherst Street read, "Morrill, Jacob.....Market." Some individuals had two listings: "Varick, John B.....Hardware" and "Varick, John B.....Residence." Businesses made up 130 of the

⁵² U.S. Census, 1880 *Compendium*, Part 2, 1327.

listings; the remainder were residences. This conformed to the national pattern of telephone use, with businesses predominating.

The cover of the May 1, 1880 Manchester telephone directory, a small double-folded pamphlet, warned that subscribers should "Avoid using the telephone during a thunderstorm." The warning was serious. Frightful and destructive lightning could travel through the iron wires into telephones and switchboards, blowing out equipment and shocking or burning any human touching them. On the reverse side of the page, a note reminded customers that P.C. Cheney's New Hampshire Telegraph Company, operating out of the same office as Western Union on Elm Street, would transmit messages to Goffstown via telephone, charging fifteen cents per ten words. A final line announced that jeweler John Baker would give the caller "Cambridge time."

More than the 165 customers listed in the May 1 directory were leasing telephones in the city, but some telephones not listed were still private branches that did not tie into the exchange itself. The Amoskeag Manufacturing Company, for instance, which had begun leasing phones in 1877, was not listed in the May 1, 1880, directory but did appear on the first page of the August 1, 1880 directory. That means that by August of 1880 they had tied into the Manchester Exchange, which gave them the ability to call any of the other 212 telephones -- 174 businesses and 38 residences -- tied by then into the exchange. The July 1, 1881 directory, issued when May Merrill was working, listed nearly 300 subscribers, only about a fifth of which were residences. Each subscriber now had a number, although names, not numbers, were still standard in many other exchanges in other states.⁵³ Telephone numbers had been used in Glidden's exchange in Lowell for

⁵³ AT&T Box 1088, Manchester Telephone Exchange Directories, 1880-1881, microfiche.

the first time in 1879 during a measles epidemic, in which a doctor suggested numbers for subscribers. He feared that if all four of the operators were ill, no one would know how to connect the more than 200 subscribers.⁵⁴

More Changes in Manchester

While May Merrill Sumner was adjusting to small town life and operating in her new home in Goffstown, where she had moved after marriage in 1893, the Bell telephone organization prepared to encounter the event that they had long feared, the expiration of their original patents in 1893 and 1894. In the decade of the 1880s they had consolidated and expanded their system under tight central control. Subsidiaries of Bell controlled specific areas of the United States. New England Telephone & Telegraph (NET&T), an antecedent of but not the same corporation as the one that changed to NYNEX and then Bell Atlantic in the 1990s, incorporated on March 12, 1878. NET&T brought Bell telephones to Maine, New Hampshire, and Vermont. In 1880, Bell companies had 60,000 telephones in service in the U.S., one telephone for every 1000 persons. At patent expiration in 1894, the number of Bell telephones had grown to 260,000, or one for every 250 persons.⁵⁵ By 1900 there were nine U.S. Bell subsidiaries with 855,900 telephones, or one for every 88 persons.⁵⁶

The Bell system managers, emerging from the initial period of organization, decided that they would set up a two-tiered system: local service and long-distance. The long-distance arm of the organization, American Telephone and Telegraph Company, erected and maintained the long distance wires that connected local exchanges to each

⁵⁴ NET&T, *New England Telephone History*, 7.

⁵⁵ Fischer, *America Calling*, 42.

⁵⁶ U.S. Census, *1900 Population*, vol. 1, Table 3, 19. AT&T, *Events in Telephone History*, 16.

other. This meant that, in New Hampshire, more and more exchanges could communicate with each other and with exchanges outside of the state. The Bell subsidiaries like NET&T controlled local calling services in their respective territories.

In January 1892 NET&T issued the telephone directory for District Number 1 of their Central Division. The District encompassed exchanges in northeastern Massachusetts and the New Hampshire exchanges of Concord, Dover, Exeter, Franklin Falls, Keene, Manchester, Nashua, Newport, and Portsmouth. The directory also listed the many surrounding towns that had pay telephones tying into the NET&T system. The Newport exchange of 37 subscribers and pay phones covered Newport, Guild, Sunapee, Unity, Springfield, and Washington in New Hampshire. Manchester had 368 subscribers, 83 of which were residential. Pay stations extended the reach to Chester, Derry Depot, Derry Village, Goffsfalls, Goffstown at Sumner's store, Goffstown Center, Hooksett, and Suncook.⁵⁷

After 1893 and 1894, when the original Bell patents expired, the Bell companies no longer held a legal monopoly. Anyone who wanted to was now free to make and sell telephones. Anyone could put up a line or start a telephone exchange independent of Bell licensing. Bell had a huge head start, but others tried to start up nevertheless, even in Manchester. The first was a carpenter, Joseph Dana, and his son Alfred, who advertised a pay telephone in the city directory in 1893 and '94. Then a new Manchester Telephone Company organized in September of 1895 and became the greatest challenger to Bell in the city. Not accustomed to expending funds for advertising, NET&T nevertheless for the first time had its name printed in bold lettering in the annual Manchester City

⁵⁷ NET&T Directory, District No. 1 of Central Division, 1892.

Directory. They also decided to run a full-page ad for the first time in the city directory that informed readers of the extent and reach of the NET&T system. The ad stated,

Direct communication can be had with all the principal towns and cities of New England and States East of the Mississippi River over the wires of this company. For the accommodation of non-subscribers and the public generally, the Company has established Public Telephone Pay Stations at prominent points throughout the city.

One of their 28 pay phones in the city was in the Kennard Building, where the rival telephone company had its switchboard. NET&T operators could connect callers with any NET&T subscriber in the city plus NET&T subscribers as far away as Bangor, Maine, as close as Concord, New Hampshire, “and all principal cities and towns in New England.”⁵⁸

Of course the ads did not mention that no lines connected NET&T telephones to rival lines where telephone wars persisted between the NET&T and independent companies, such as in Portland and Lewiston, Maine. There, The Automatic Telephone Company was a serious rival to Bell for a number of years. The Automatic Company made and sold a dial telephone that was “girl-less.” The girl-less phone was self-dialed by the subscriber and thus needed no telephone operator. The Automatic Company advertised this as an advantage for privacy.⁵⁹ In New Hampshire, the Automatic Company did incorporate in New Hampshire in 1898 but did not become established as it did in Maine.⁶⁰

The American Telephone & Telegraph Company (AT&T), the long-distance subsidiary, was incorporated in New York in 1900 as the centralized parent company of the

⁵⁸ New England Telephone and Telegraph Company, Manchester City Directory, 1897, 684; 1900, 762.

⁵⁹ 1-4 July 1904, newspaper unknown, Noyes Maine scrapbook.

⁶⁰ State of New Hampshire, Secretary of State, Schedule of Corporations.

Bell system. Each subsidiary like NET&T provided local telephone service and was connected to the rest of the system through long distance lines held by AT&T. AT&T also offered engineering advice, conducted research for the system as a whole, and controlled a centralized manufacturing system in its flagship company, Western Electric. This meant more standardization of service locally.

The number of independent telephones was about 1,000,000 in the U.S., a total exceeding the Bell telephones.⁶¹ Independents were a serious source of competition, but most were small. In New Hampshire the annual reported valuation of NET&T companies in New Hampshire totaled \$300,000, while the total valuation of independent telephone companies paying New Hampshire state taxes was \$47,700. The valuation of the independent Manchester Telephone Company was only \$8,000.⁶² The year 1900 brought significant changes to Manchester telephony. NET&T absorbed the Manchester Telephone Exchange. The Bell system had prevailed over attempts to set up a local, less expensive alternative. After that, when anyone spoke of the telephone company, it was evident which company they meant; there was only one. Manchester operators would now work within a growing exchange that would remain the largest in the state.

In June 1900, when the U.S. Census data was collected, most of the identified telephone operators in Manchester worked for NET&T. The rival Manchester Telephone Company had at least two operators, one man and one woman. The census information on fourteen identified operators show that the pattern set in 1880 still held. The operators were either native born or British Canadian. They were for the most part single, young,

⁶¹ U.S. Independent Telephone Association, *The Ring of Success* (Washington, D.C.: USITA), 8.

⁶² *N.H. State Treasurer's Report* (1900), 159.

and female. While living slightly farther away from the office than the operators in 1880, they still lived within a mile.

Table 16: Identified Telephone Operators, Manchester, N.H., 1900

| Name | Sex | Age | Nativity | Marital Status | Address |
|--|------------|------------|-------------------|-----------------------|--------------------------|
| Grace Boyson NET&T | F | 23 | N.H. | single | 110 Brook Street |
| Jessie M. Byrne NET&T | F | 21 | British Canada | single | 393 Hanover Street |
| Mabel H. Byrne NET&T | F | 21 | British Canada | single | 393 Hanover Street |
| Josephine Clarke NET&T | F | 23 | N.H. | single | 23 Blodgett Street |
| Anna M. Danforth NET&T | F | 19 | N.H. | single | 549 Lake Avenue |
| Eliza A. Dewey NET&T | F | 36 | N.Y. | single | 503 Beech Street |
| Eva Ferron NET&T | F | 21 | N.H. | single | 389 Lake Avenue |
| Frank Greenwood (Francois Boisvert) NET&T (lineman, 1901) | M | 24 | ME. | married | 230 East High Street |
| Louise Heaney NET&T | F | 35 | N.H. | single | 28 Nashua Street |
| J.W. Stanley Hinton Manchester Tel. Co. | M | 19 | KY. | single | 422 Merrimack Street |
| James F. McDonald NET&T | M | 21 | British Canada | single | 117 Massabesic Street |
| Bertha Piper NET&T | F | 20 | NY | single | 480 Chestnut Street |
| Gula Roby Manchester Tel. Co. | F | 21 | N.H. | single | 403 Lake Avenue |
| Sadie E. Worthen NET&T | F | 19 | N.H. | single | 524 Lake Avenue |

Source: U.S. Bureau of the Census, 1900 *Schedules*, Manchester, N.H.

An analysis of the living arrangements and the occupations of family and neighbors shows a slightly more stable cohort than those in 1880. Virtually no mill workers lived with the telephone operators, except for one father who was a mill superintendent and one boarder who worked in the silk mill. More of the women in the households stayed at home without paid employment than in the 1880 telephone households. This occurred even without the presence of children under the age of six, an indication that income had risen sufficiently to allow the women to be nonincome-producing.

**Table 17: Occupations of Persons in Buildings
Where Six Telephone Operators Lived - Manchester, N.H. - 1900**

| Males | # | Females | # |
|---------------------|----------|--------------------|----------|
| children under 18 | 10 | children under 18 | 8 |
| at school | 8 | at school | 5 |
| at home | 4 | at home | 19 |
| bank commissioner | 1 | bookkeeper - | |
| chef | 1 | telephone co. | 1 |
| clerk | 1 | dress maker | 2 |
| conductor | 1 | saleslady | 1 |
| electrician | 1 | stenographer | 1 |
| engraver | 1 | servant in the | |
| grain dealer | 1 | household | |
| hardware store | 1 | (for widower) | 1 |
| laundryman | 1 | tailoress | 1 |
| loom fixer - cotton | | telephone operator | 4 |
| mill | 2 | | |
| lumber surveyor | 1 | | |
| mason | 1 | | |
| mill superintendent | 1 | | |
| salesman | 1 | | |
| solicitor - | | | |
| telephone co. | 1 | | |
| sorter - silk mill | 1 | | |
| tailor | 1 | | |
| teamster | 1 | | |
| telephone operator | 2 | | |

Source: U.S. Bureau of the Census, 1900 *Schedules*, Manchester, N.H.

In 1900 the operators in Manchester had to adjust to an entirely new way of operating. In that year the Manchester Bell Telephone Company moved to Concord Street, near the rear of the Dunlap's block. A big equipment change accompanied the move. A common battery system with electric lights to signal operators was installed. By now about 1200 subscribers required the services of one chief operator, two supervisors, and eighteen operators.⁶⁴

As a teenager, May Merrill Sumner had been one of the first telephone operators in Manchester, the first and largest exchange in the state. By 1900 she lived and worked in one of the smallest exchanges, Goffstown, where she moved when married. The Goffstown operator still used a magneto drop switchboard, a piece of equipment that the Manchester operators would never see again. From then on, after 1900, the experiences of operators working in large exchanges like Manchester's and those working in small exchanges like Goffstown's would diverge.

⁶⁴ *Manchester Union Leader*, 10 March 1926.

CHAPTER THREE

THE TELEPHONE COMES TO MERIDEN

May 18, 1904 [in Harold's handwriting:] Went to Leb. Will plowed + drew + spread dressing. Mother went to Mary True's. Brought home Mary's buggy. Rained a little coming home in P.M. Had shower later. Got switchboard + some wire insulators + handsets. [in Mary's handwriting:] Mrs. Deane worked 6 hours. Cleaned kitchen paint, sinkroom, and pantry floor. Washed windows in pantry etc. I got all tired out – ironing, cleaning, cooking, [----ing], and getting meals – too much for one day.¹

A telephone exchange first came to Meriden a quarter century after Manchester got its first exchange. May Sumner was one of Manchester's first telephone operators and Mary Elizabeth Westgate Chellis was Meriden's. They did not know each other, they were not the same age, and they worked in different eras, but they had much in common. After marriage, both lived with and tended to the small-town telephone switchboards that represented only one of their families' several enterprises, both had husbands who ran the small-town telephone business, and both saw rapid improvements in telephony. Unlike Mary, however, May worked in a nascent city exchange before she married and went to work in a small town exchange; and unlike May who quit school and went to work as an operator at age sixteen, Mary graduated, traveled some, and worked as a teacher before she married and became an operator.

¹ Mary Westgate Chellis and Harold Watkins Chellis, diary (1904), Chellis family papers.

Harold Chellis started the Meriden Telephone Company after the original Bell patents expired and remained an independent exchange. The Chellis company did lease equipment from Bell and maintained a status as sub-licensee of Bell. The rural setting, short subscriber list, and the late cutover to dial – Meriden was the last in the state to go to dial, in 1973 – contrast markedly with Manchester’s status as first and largest exchange in the state, controlled by Bell.

Mary Westgate was born in Plainfield on November 27, 1879, the same month and year that the Manchester telephone exchange installed its switchboard at Amherst Street. Mary grew up on the Westgate family farm, then traveled south to teach briefly at a Christian mission school in Virginia. She soon returned to care for her ill mother, taught school in Plainfield, and married Meriden farmer Harold Watkins Chellis on August 5, 1903. They honeymooned in Chicago.

Born March 13, 1876, the same month and year that Alexander Bell applied for his first telephone patent, Harold grew up on the Chellis family farm built in Meriden, a village within the town of Plainfield, in 1825. He was living there with his sisters and widowed mother when he married Mary. Harold graduated in 1894 and Mary in 1897 from Kimball Union Academy (K.U.A.), the Meriden boarding school that also served as Plainfield’s public high school. After marriage they went to live and work on the Chellis family farm, almost a mile up Chellis Hill from K.U.A.. Mary became pregnant almost immediately. They still frequented their alma mater, selling milk to the dining hall, occasionally boarding students, and attending plays and lectures. Through the years their four children graduated in succession from the same school before attending college.

The Westgate and Chellis families were diary writers, so the newly married couple extended the family habit and began a diary together in 1904, both of them writing entries that flowed together from day to day. The diary entry for May 18, 1904, mixed men's and women's tasks of house, farm, and telephone exchange. Hired help and family members worked side-by-side. Extended family was a constant presence. It was spring so the winter's accumulation of steaming manure needed to be removed from the barnyard and spread on the awakening fields. On this day, Will, the hired man, did the spreading. On another day Harold would have helped him, but Harold had other duties. Probably both men did the morning milking, feeding, watering, and pasturing of the livestock, then Harold hitched up a horse to one of the wagons, dropped off his mother Electa Chellis at neighbor True's, and then finished driving the eight miles to Lebanon, where he usually bought feed and other farm supplies. This visit, he loaded his wagon with a telephone switchboard leased from New England Telephone & Telegraph Company. All spring Harold had been setting poles, stringing wires, and installing telephones through the hills and down into the village. Now he would bring the switchboard home and, in the next three months, run the telephone lines from the poles into the house to attach to the board in the dining room.

In the meantime, Mrs. Dean, hired several days a week to help in the house, worked with Mary to do the daily cooking. They tackled the spring cleaning in the kitchen and the other rooms used for food storage and preparation. As was the habit, everyone, including the hired help, stopped work and came in at noon to eat at the big dining room table. In between the daily routine and the spring cleaning, Mary sprinkled and ironed clothes and perhaps some table and bed linens with the flatirons heated on the

kerosene stove. Six weeks away from delivering her first child, she found movement difficult and fatiguing. Her diary entry complained with a theme that she would write throughout her childbearing years: "I got all tired out...too much for one day."

Mary went back to her childhood home for her labor and delivery of her first child. The new Chellis baby boy was born at the Westgate farm on June 30, 1904. He would not be named for several weeks. Mary's beloved mother was there to help and, as was the custom, Mary stayed abed several days while food was brought to her and the child was brought to nurse. All through July Mary remained at her parents' house and recuperated. Harold continued running the Chellis farm and, when he could, proceeded with the telephone exchange installation. On July 7 he went to Boston and visited New England Telephone Company and the Navy Yard. On July 23 he wired the New England Telephone & Telegraph long distance line from Lebanon into the switchboard.²

Finally on August 5, their first wedding anniversary, Harold "Went to Plainfield for Mary + the baby in the P.M." after the day's chores were done. The telephone switchboard was installed and wired in the dining room. Mary was to be the operator, in addition to her other duties as a young mother and farmer's wife.

The switchboard would attach itself unshakably to Mary's life. At first, there were three lines and fourteen subscribers. For the next sixty years, until she retired because of a broken hip in 1964, she would work as twenty-four-hour Meriden telephone operator, sleeping near the board at night so that she could hear the alarm bell if anyone called with an emergency. Other members of the family helped, and sometimes hired women took stints answering the board, but Mary was chief operator.

² Mary Westgate Chellis and Harold Watkins Chellis, diary, (1904) Chellis family papers.

Mary's other chores were characteristic of farm women's in Meriden. Plainfield was a town of small farmers spread out around two centers, Meriden village and Plainfield village. Knobbed by limestone hills with names like Jug and Potato, the soil was sweeter than in other New Hampshire granite-footed towns to the north and east. The western part of Plainfield had the good fortune to border the wide, smooth Connecticut River. The narrow strip of bottomland supported the best farms. The other farmers, like those around Meriden, cleared the side hills and crests of mixed species of trees and lined their fields with stone walls and barbed wire. They sold milk, butter, eggs, chickens, maple syrup, timber logs, shingles, cattle, pigs, horses, and cord wood.

A few farmers like Harold Chellis tried more inventive enterprises. A store run for a while by cousin Alvah Chellis and Lewis Stickney housed the post office in Meriden village. Alvah's wife helped in the store. A few men ran a sawmill or gristmill here and there. Having an interest and aptitude in things mechanical, Harold Chellis built a creamery and launched a butter-making business that continued for years. He sold farm tools and machinery for one company, and he sold cream separators for another. He installed and managed the Meriden Electric Light and Power Company. He installed, owned, and managed the Meriden Telephone Company. Most of Meriden, however, stuck with farming or moved to places more hospitable to ambitious ideas.

Some Meridians moved the short distance to one of the mill towns nearby. Three larger towns situated on rivers swift enough to supply water power for mills corner-posted Meriden: Lebanon, eight miles to the north; Claremont, fourteen miles to the southwest; and Newport, thirteen miles to the southeast as the crow flew but considerably more by dirt road over Methodist Hill and around Croydon Mountain. Newport was the

town where, a generation before, Sarah Josepha Hale, the editor of *Godey's Lady's Book*, had grown up, married, started her young family, and contemplated her limited options as a young widowed mother.³

Horse-drawn stagecoaches carried travelers daily to and from the railroads in Lebanon and Windsor, Vermont, just over the river. From there, one could travel by rail to far away points like Boston, Chicago, and Montreal or to New Hampshire cities like Concord and Manchester. The distant city of Manchester lay more than halfway across the state, eighty miles to the southeast. History as much as distance separated Manchester and Plainfield. Each was situated on its own great river with its own character, Plainfield on the Connecticut and Manchester on the Merrimack. Colonial settlers along the Connecticut River had traveled up the river valley from Connecticut and western Massachusetts and maintained those cultural connections. Settlers along the Merrimack River had stronger familial, economic, and political connections to Boston and the seacoast. Easier cross-connections came when the railroads at mid-century made it possible to travel relatively quickly to cities from remote spots. The railroads allowed farmers to market their livestock, dairy products, maple syrup, fruits and vegetables in urban centers. The railroads also lured young people from the incessant hard work of the farms to the promise of life in the cities or the American West.⁴

Plainfield offered few occupational choices besides farming and its related support services like blacksmithing. While some of the best farming in the state could be

³ On Hale, see Chapter One.

⁴ Two interesting sources for general New Hampshire history are Hobart Pillsbury, *New Hampshire: Resources, Attractions, and Its People*, vols. 1-5 (New York: The Lewis Historical Publishing Co., Inc., 1927) and Nancy Coffey Heffeman and Ann Page Stecker, *New Hampshire: Crosscurrents in Its Development* (Hanover, New Hampshire: University Press of New England, 1996).

found in sections of Plainfield, there was little expansion room for the children of farmers. Not surprisingly, the population of Plainfield dwindled while that of Manchester burgeoned in the same years when the telephone industry got its start.

Table 18: Population of Plainfield, Manchester, and New Hampshire, 1870-1980

| Year | New Hampshire | % Urban/Rural in N.H. | Manchester | Plainfield |
|-------------|----------------------|------------------------------|-------------------|-------------------|
| 1870 | 318,300 | 26.2 / 73.8 | 23,536 | 1,589 |
| 1880 | 346,991 | 30.0 / 70.0 | 32,630 | 1,372 |
| 1890 | 376,530 | 39.3 / 60.7 | 44,126 | 1,173 |
| 1900 | 411,588 | 46.7 / 53.3 | 56,987 | 1,114 |
| 1910 | 430,572 | 51.8 / 48.2 | 70,063 | 987 |
| 1920 | 443,083 | 56.5 / 43.5 | 78,384 | 853 |
| 1930 | 465,293 | 58.7 / 41.3 | 76,834 | 858 |
| 1940 | 491,524 | 57.6 / 42.4 | 77,685 | 970 |
| 1950 | 533,242 | 57.5 / 42.5* | 82,732 | 1,011 |
| 1960 | 606,921 | 58.3 / 41.7 | 88,282 | 1,071 |
| 1970 | 737,681 | 56.5 / 43.5 | 87,754 | 1,323 |
| 1980 | 920,610 | 52.2 / 47.8 | 90,936 | 1,749 |

* Decrease due to new definition of urban/rural

Sources: U.S. Bureau of the Census, 1880 *Compendium*, Part 1, Table 26 + Table 19; 1890 *Population*, Part 1, Table 5; 1910 *Population 3*, N.H. Table 1; 1940 *Population 1*, Table 4; 1960 *Population 1*, Table 1; 1960 *Characteristics of the Population 1*, Part 31, Table 8, 31-10; 1970 *General Population Characteristics*, Table 33, 31-66+67. *County and City Data Book* (1973), Table 1; 1980 *Population 1*, Chapt. B, Part 31 N.H., Table 14 + 14a. *N.H. Register 1877*; *N.H. Register 1901*.

As a whole, the population of New Hampshire was becoming more urbanized as cities like Manchester spread outward, even though northern agricultural pockets like Meriden remained rural.

In 1870, at the beginning of the decade in which the first telephone patents were filed, the town of Plainfield, which included the village of Meriden, had ten men and no women and children working in manufacturing industries. Only four businesses qualified as manufacturing establishments, two of them sawmills. By contrast, in Manchester, 4290 men and 4966 women and children worked in manufacturing, and 150

businesses qualified as manufacturing establishments.⁵ At the same time, the horses in Plainfield outnumbered those in Manchester, 389 to 233. The same was true of most other agricultural products:

Table 19: Comparison of Agricultural Products, Manchester and Meriden, 1870

| Product | Manchester | Plainfield |
|---------------------|------------|------------|
| horses | 233 | 389 |
| cattle | 550 | 1750 |
| sheep | 90 | 8980 |
| swine | 332 | 314 |
| wheat (bu.) | 284 | 3684 |
| rye (bu.) | 742 | 212 |
| corn (bu.) | 6642 | 17,309 |
| oats & barley (bu.) | 4961 | 15,469 |
| wool (lbs.) | 223 | 44,246 |
| peas & beans (bu.) | 469 | 136 |

Source: Fogg, *New Hampshire Gazetteer* (Manchester: 1874), 466.

Similarly, while farming was the leading occupation in Plainfield, occupations related to textile mills dominated in Manchester, and, as might be expected, the professional and managerial classes in Manchester also greatly exceeded those in Meriden.

Table 20: Comparison of Selected Professional & Managerial Occupations in Manchester and Plainfield, 1870

| Occupation | Manchester | Plainfield |
|-----------------------|------------|------------|
| clergy | 16 | 2 |
| physicians & dentists | 39 | 2 |
| merchants | 437 | 2 |
| lawyers | 35 | - |
| manufacturers | 49 | - |

Source: Fogg, *New Hampshire Gazetteer* (Manchester: 1874) 459.

The large number of landless mill workers in Manchester had to pay for the basics of survival: food, clothing, and housing. When they had money left over, they could pay

⁵ Fogg, *Gazetteer*, 495-6.

for transportation, recreation, and consumer goods beyond the survival level.

Manchester's entrepreneurial, corporate, and civic structures grew to accommodate these needs and wants. In Meriden, by contrast, the farmers produced or traded amongst themselves for many of their basic needs. For other goods they traded at the small local store or they traveled to Lebanon or Windsor.

What Could Plainfield Women Do?

Thus occupational variety in Plainfield was severely limited. Occupations open specifically to women and girls in Plainfield were even more limited than those for men and boys. In 1880, just as women were beginning to work as telephone operators in Manchester, the women in Plainfield could leave town and go to work in one of the larger communities like Lebanon or Claremont nearby, they could leave and travel even farther to places like Manchester to work, or they could try to find something in town. If not keeping house as farmers' wives, a few women of Plainfield managed to find work as teachers in the public schools and in Kimball Union Academy. Married and unmarried women worked as domestic help, though a married women might work part-time and an unmarried women might live in the household of her employers.

Table 21: Occupations of Female Workers in Plainfield - 1880

| Occupation | Number |
|--|--------|
| keeping house (most as farmers' wives) | 154 |
| domestic servant | 16 |
| teacher | 9 |
| dressmaker | 2 |
| works in woolen mill | 2 |
| nurse | 1 |
| clerk in store | 1 |
| telegraph operator | 1 |

Source: U.S. Bureau of the Census, 1880 *Schedules*, Plainfield, N.H.

By the time Mary Chellis was acting as the town's operator, the employment picture for Meriden women had changed very little. Most were still keeping house as farmers' wives, though the census takers now left their occupational status blank rather than writing "keeping house." Domestic service and teaching were still the main paid occupations of women and still a minor percentage of the whole.

Table 22: Occupations of Female Workers in Plainfield, 1900

| Occupation | Number |
|--|--------|
| keeping house (most as farmers' wives) | 222 |
| domestic servant | 28 |
| teacher | 12 |
| farmer (head of household) | 5 |
| dressmaker | 2 |
| seamstress | 1 |
| saleswoman (clerk in store) | 1 |
| head of household with no occupation listed (older women, mostly widows) | 26 |

Source: U.S. Bureau of the Census, 1900 *Schedules*, Plainfield, N.H.

Keeping house as a farmer's wife was no easy job. Farming tasks followed daily and seasonal patterns for men and women. The tasks that each sex did might vary somewhat, depending on wealth, health, the sex of children available to work, beliefs, preferences, and ambition. In general, while the men and boys worked in the barn and fields, the women and girls stayed closer to the house. The women planted, tended, and harvested the kitchen garden, producing vegetables and herbs for family use. They fed the poultry, gathered eggs, and prepared the poultry for eating. They might feed the pigs kitchen scraps, especially if the pigs were for household use. They might milk the family cow. If the cows and pigs were a larger, commercial venture, the men tended to them. If there were hired men, women and girls might be expected to stay out of the barn entirely. Women prepared food for daily use, made butter for family use unless the family had a commercial butter-making operation, baked breads and pastries, preserved and put food by for the winter. The women bore the babies, took care of the children, administered first aid and minor medical treatments, attended the ill and the dead, did washing and ironing of clothes and linens, made some or all of the family's clothes, perhaps did fancy needlework, washed dishes, and cleaned the living space. Many did not have hired help in the house, although there often was an extended family living in a single household that could include two or more females old enough and healthy enough to do chores. Girls and older women might go to a neighbor's or relative's to work during labor-intensive periods. At times such as birth, more women – a nurse or midwife, relatives, or friends -- would converge on the household to assist. At critical times during the

agricultural year such as plowing, sowing, haying, harvesting, and sheering, the women and girls might go and help the men, or more men might be hired temporarily.⁶

Known for its pleasant venues and country air, Plainfield attracted about 400 tourists a year to the hotels, boarding houses, taverns, and farms that took in visitors, especially in the summer.⁷ Women worked seasonally as maids and waitresses. If they had boarders of their own, the women cooked and cleaned for the visitors as well as for their own families. In addition, farmers around Meriden took in students from Kimball Union Academy who were on holiday or needed a place to board and work during the regular term. Before Mary Chellis became a telephone operator, there had been a woman telegraph operator living in town, and there had been postmistresses, such as Mrs. Abbie Spalding from 1874-1885 and 1889-1893.⁸ Women habitually helped with family economic enterprises, such as the Chellis and Stickney store.

These gendered chores and tasks changed little in the last quarter of the nineteenth century and the first quarter of the twentieth. On the Chellis farm, telephone work was just another set of chores to weave into the agricultural and family year. To Mary, with her growing family and busy household of workers, the telephone switchboard

⁶ On rural and farm women in the nineteenth and twentieth centuries, see, e.g., Jeanne Boydston, *Home and Work: Housework, Wages, and the Ideology of Labor in the Early Republic* (New York: Oxford University Press, 1990); Claudia Dale Goldin, *Understanding the Gender Gap: An economic History of American Women* (New York: Oxford University Press, 1990); Joan M. Jensen, *Promise to the Land: Essays on Rural Women* (Albuquerque: University of New Mexico Press, 1991); Joan M. Jensen, *Loosening the Bonds: Mid-Atlantic Farm Women, 1750-1850* (New Haven: Yale University Press, 1986); Joan M. Jensen, *With These Hands: Women Working on the Land* (New York: McGraw-Hill, 1981); Katherine Jellison, *Entitled to Power: Farm Women and technology, 1913-1963* (Chapel Hill: University of North Carolina Press, 1993); Nancy Grey Osterud, *Bonds of Community: The Lives of Farm Women in Nineteenth-Century New York* (Ithaca: Cornell University Press, 1991); Rebecca Sharpless, *Fertile Ground, Narrow Choices: Women on Texas Cotton Farms, 1900-1940* (Chapel Hill: University of North Carolina Press, 1999).

⁷ Fogg, *Gazatteer*, 304.

⁸ Philip Zea and Nancy Norwalk, eds., *Choice White Pines and Good Land* (Portsmouth, N.H.: Peter E. Randall, 1991), 426.

was one more in a daily series of interruptions and demands. During her childbearing years she struggled to answer the demands of the board and the household.

The Telephone Comes To Meriden

A telephone exchange needing operators was a long time coming to Meriden. Bell telephone agent Elihu T. Quimby of Hanover was the first to consider bringing a telephone to Meriden. Quimby graduated from Dartmouth College in 1851 and then taught at Appleton Academy in New Ipswich, Massachusetts. In 1864 he joined the faculty of Dartmouth as professor of mathematics.⁹ In 1871, Quimby was put in charge of triangulating the high points of New Hampshire for the U.S. Coast and Geodetic Survey, which he did during his summers off from teaching. In 1877, with this project lacking the usual annual legislative appropriation, Quimby was not busy with his triangulating.¹⁰ The telephone would command his attention that year. Professor C.P. Patterson, another Dartmouth professor involved in the geodetic survey, made a trip to Washington and received, from the Bell Company's president Gardner Hubbard, two telephones to try. Patterson showed the telephones to Quimby and Quimby was hooked. He wired the phones to an existing telegraph line and then, for technical help, wrote to the Bell engineers in November.

⁹ L.B. Brown, comp., *Biographical Sketches of the Governor, Councilors, and Members of the Senate and House of Representatives of the N.H. Legislature, For 1881-2*, vol. 1 (Concord, N.H.: L.B. Brown, 1881) 27.

¹⁰ E.T. Quimby, "The Triangulation of New Hampshire," *The Granite Monthly*, 4 (1880-1881): 384.

Mr. Patterson brought with him on his return from Washington a couple of your telephones + we have since made successful use of them between his office and mine. We have been running a telegraph line among the [volunteers] of the faculty + some others will join us who cannot easily (as they think) learn to read the Morse Code by sound, if they can talk telephonically. I therefore write at the suggestion of Mr. Patterson to ask a few questions.¹¹

So far he had received his information about how the instrument worked from Professor Patterson and knew little about the instruments' capabilities and technical requirements. He had to ask Hubbard about wiring and how to signal a call: "What do you use for a call? Mr. P. says that you have a bell. How is it wired + what does it cost?"¹² He later explained to Geo. Bradley of the Bell Co. how he came to be a Bell agent. "The Faculty of the College have for some years had a telegraph line + when the telephones came out, most of those on the line took telephones. I sent for the telephones + so came to be the agent."¹³

Quimby became the Bell Telephone Company agent in Hanover, as Charles Glidden and then Luther Harris did in Manchester. Ambitious local agents all over New England introduced the idea of talking over wires to the people in their territories. A confidential list sent to Bell agents, dated Dec. 20, 1878, set the prices.

¹¹ Quimby to Gardner Hubbard, 26 November 1877, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche, AT&T Archives, Warren, N.J.

¹² Ibid.

¹³ Quimby to Bradley, 12 February 1879, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

| <i>Magneto Telephones</i> ¹⁴ | <i>Rental</i> | <i>Advance</i> |
|--|---------------|----------------|
| No. 1, Hard Rubber, Hand | \$10 | \$2 |
| No. 2, Box | 10 | 2 |
| No. 3, House – for speaking tube purposes, in houses or factories -- between house and stable on same block, or between buildings within same enclosure and belonging to same business, | 5 | 2 |
| No. 3, House – in quantities exceeding 15, for lease of 15 years, cash rental. Will only allow 20 per cent commission on above lease, | 15 | 2 |
| No. 4, Fire Alarm Telephone Boxes, first year, Each succeeding year. | 20 15 | 8 |

Bell left little to the agents' discretion.

For house use, a discount of fifty percent may be made...College lines may be included in this class.

Telephones should not be placed on trial unless you believe that the applicant will lease them, if they work in a satisfactory manner; and, even in such case, you should only allow a few days for trial, as their efficiency for all purposes to which they are applicable is thoroughly established.

We find, in many instances, that parties request Telephones on trail when they only desire them for amusement. Agents will be held personally responsible for rentals not collected within thirty days after the Telephones have been rented or put out for use.

Customers must be charged a uniform rental for Telephones; therefore, you should not inform any one of the amount of commission received by you. No agent of this Company has any authority to reduce rentals.¹⁵

Quimby's first successes came at the college with his colleagues who replaced their telegraph instruments with telephones and with Dartmouth students who wanted telephones during the school term. For students, Bell allowed rental rates based on the school year, not including summer. Quimby leased twenty-four

¹⁴ Bell Telephone Company, Confidential Price List, 20 December 1878, AT&T Box 1187, E.T. Quimby, microfiche.

¹⁵ Bell Telephone Company, Instructions to Agents, ND, pages 2-4, AT&T Box 1187, N.H. Agency - E.T. Quimby, and Concord Telephone Exchange - 1879-1880, microfiche.

telephones quickly, by early February 1878.

January 4, 1878... Yours received relating to telephones ordered. We would like to get them as soon as we can. Mr. Patterson + I tried them Wed. eve last between Boston + Hanover + failed because the lines of telegraph on same pole made such a noise we could hear nothing else.¹⁶

February 6, 1878... The telephones have been rented at 5\$ per year all being on the college lines + for social purposes. I began to collect 6 mos rent in advance before I got any instructions in the matter and had permission to let it go that way this year. I have had 24 telephones in all including two (E. 123 + 124) loaned.¹⁷

Although Alexander Bell had patented his telephone design, local entrepreneurs as well as telegraph giant Western Union, through the Gold & Stock Company, tried to capitalize on the new technology. At Dartmouth, even students were making telephones. Potential customers thought the Bell prices too high when they found that they could make their own for less, or buy instead of lease similar instruments from non-Bell manufacturers. Quimby consulted with the Bell managers and explained the situation he was facing in the field, hoping for a price change that would make the Bell telephones he was selling more competitive. On February 4, 1879, he wrote that “the Bell Telephone is being made + freely sold for about \$2.50 each + those who have been using them here are not feeling disposed to continue to pay 5\$ a year when they can buy for the sum.” The Western Union Telegraph Company was also selling its own telephone equipment, “the Dolbear telephone which they claim works equally well.” Quimby put on the pressure by threatening to withdraw and return the telephones he had leased when the leases expired, predicting that “There will be plenty of telephones used but they will be of home manufacture or bought of some party making them.”

¹⁶ Quimby to Gardner Hubbard, 4 January 1878, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

Bell was finding the same trouble in other territories, but Quimby knew he could do little if he was not allowed to drop prices or sell rather than lease the Bell telephones.¹⁸ On February 8, 1879, he had investigated and wrote that he thought “the telephones used here are made in town. I think that some of the students use them but I cannot find who without a search.” Hoping to get action by persuading Bell of the urgency of the situation, Quimby advised, “If you want to stop that thing in Hanover it must be attended to at once. I will notify all that I can find out of their [danger] + warn them...I think a notification from you would be more effective than from me.”¹⁹ More investigation revealed more mischief done by Western Union’s subsidiary, the Gold & Stock Company, in addition to locals who were making telephones. He found that “They think the Bell Co. are taking advantage + besides they have recd. permission from the Gold & Stock Co. (or from some one supposed to be authorized) to make telephones for their own use.”²⁰ People wanted to own, not lease, and they wanted lower rates.

The Bell associates felt that the threat from Gold & Stock Co. as well as local manufacturers was very real. They issued local warnings and fought vigorously in the courts to protect the sanctity of the Bell patents. In Hanover, Quimby put his expansion plans on hold until he heard the outcome of the suits with Western Union. A Gold & Stock agent told Quimby informally that the suit had been settled, but Quimby wanted verification. “If we are not to always to ‘believe the papers,’ what shall we do about believing the Agts of that Co.? I am waiting anxiously to hear of that settlement for there

¹⁷ Quimby to Bell Co., 6 February 1878, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

¹⁸ Quimby to Bradley, 4 February 1879, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

¹⁹ Quimby to Bell Co., 8 February 1879, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

²⁰ Quimby to Bradley, 12 February 1879, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

are some G.+S. Co. telephones on my territory.” An out-of-court settlement between Western Union and the Bell Company put all of Western Union’s Gold & Stock telephones in Bell hands. Quimby soon had official word of the agreeable settlement. He installed his line from Hanover to the train depot across the river in Vermont.

Now a telephone man, Quimby took his telephones with him on his surveying work on mountain peaks during the summers. For demonstration purposes, he installed lines from wherever he happened to be staying to the top of the peak where he happened to be working. This paid off when Brown Paper Company asked him to install a line and telephones. Technical problems related to the type of wires used, the type of transmitters used, and the way the circuits were grounded remained to be solved. The problems increased in proportion to the distance of the wires. In early descriptions of long-distance telephone conversations sounded, they said, like sizzling steak in a frying pan. On Quimby’s lines, he heard “a terrible sputtering in the telephones.” In the mountains of New Hampshire, Quimby found challenges to his equipment that led him to try different solutions. He thought perhaps “a complete circuit would not have that sound of frying,” and he was right.²¹ His troubles reflected the state of the art at the time, and the solutions had not been found. The Edison carbon transmitter, under the control of Western Union, worked better than the inferior transmitter controlled by Bell, but Bell worked to find a carbon transmitter that would suffice. Quimby hungrily asked for every improvement. To improve sales he requested the loan of “two Carbon transmitters. My line, 6 miles long on Mount Moriah does not work satisfactorily. It is difficult to hear without speaking very loud and I wish to show off the telephone to better advantage than at

²¹ Quimby to Bell Co., 3 June 1878, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

present.²² Still, for companies like Brown Paper, with huge distances to cover in the northern woods, the practical applications of the telephone outweighed the technical glitches. According to Quimby, the phone “saved the running of a train over the road + back” from Whitefield to Jefferson just fifteen minutes after the connection was made.²³ Trains had just recently opened up the New Hampshire North Country to logging, carrying crews, supplies, and logs. Now the telephone added a way for widespread crews and bosses to communicate without using trained telegraph operators.

Quimby leased phones in Lebanon, six miles from his home. He started with a furniture store and then a bank, whose teller wanted a line between his house next door and the bank so he could communicate with his family and “smell the dinner.”²⁴ He leased phones between freight agents in West Lebanon and the express station in White River Junction, Vermont, four miles away.²⁵

Hanover, Lebanon, and Plainfield all lay north to south along the Connecticut River. Vermont lay a few hundred yards away, across the river. Quimby looked in all directions, including toward Plainfield, when he lobbied Bell for more territory.²⁶ Kimball Union Academy in Meriden showed an interest. Perhaps Quimby had a special appreciation of the sparse economies of school teachers because he himself had taught at Appleton Academy in New Ipswich, Massachusetts.

October 10, 1878...There is a school in Meriden 7 miles from Lebanon, N.H. + the teachers want a telephone line to do the business of the school. There is no one to pay the expense of it but two teachers + they not rich.

²² Quimby to Bell Co., 25 August 1879, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

²³ Quimby to Bell Co., 7 November 1879, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

²⁴ Quimby to Theodore Vail., 17 December 1879, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

²⁵ Memorandum granted re commercial line application from Quimby, 19 December 1879, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

²⁶ Quimby to Bell Co., 1 March 1878, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

Now I want to ask what I can say to them about the expense. You can of course say nothing about the expense of setting poles but you can tell me at what price you can furnish wire and insulators. What size wire would you use?²⁷

There is no record of the success or failure of these negotiations, but in view of Bell's insistence on uniform pricing it probably did not succeed. Close by, Vermont still beckoned. People in Bradford, Vermont wanted phones, but they were not in Quimby's territory. He queried Bell, asking, "Shall I put them in?"²⁸ Bradford, Vermont was open to Quimby, but Meriden and Plainfield, in Sullivan County, New Hampshire, were different. Bell agent F.W. Childs, based in Brattleboro, Vermont, already had Sullivan and Cheshire Counties in New Hampshire as part of his assigned territory. Nevertheless Quimby persevered and tried again later to get territory in Sullivan County, New Hampshire, where Meriden, Newport, and Claremont were all located, telling Bell that "I think something could be done there. Wish it had been in my territory."²⁹ Agent Childs was not getting the word out to potential customers in Sullivan County. In December 13, 1879, some in Newport asked Quimby for phones, and Quimby queried Bell again unsuccessfully.³⁰ The Childs' claim on Sullivan County blocked Quimby from expanding southward into Meriden,

The number of Bell agents in the state was small. They met and traded information in the course of business. Agent Luther Harris, busy trying to set the

²⁷ Quimby to Bell Co., 10 October 1878, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

²⁸ Quimby to Bell Co., 25 November 1878. AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche. The reply said, "No agent there. Nearest is F.W. Childs + Co. Brattleboro, Vt. Controls Windsor Co."

²⁹ Quimby to Bell Co., 1 October 1879, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche. He also asked about Canadian territories; see Quimby to Bell Co., 29 November 29, 1879, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

³⁰ Quimby to Bell Co., 17 December 1879. Answer was, "Controlled by F.W. Childs + Co. Brattleboro, Vt." AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

Manchester exchange on a sound footing, made trips to see Bell men in Boston and also communicated with others like Quimby in New Hampshire. Quimby met up with Harris in December 1879 and learned that Concord was available. Bell had already talked with Quimby about Portsmouth. Quimby preferred Concord, which was closer to Hanover, and he wrote to Bell again, but the Concord exchange went to another partnership.³¹ Quimby also attempted to win Strafford and Rockingham in New Hampshire and York in Maine.³² He was given the Portsmouth exchange. He also helped start an exchange in Laconia, near the mountains where he had been working. Agents Childs & Frost in Brattleboro, Vermont, not Quimby, got both Sullivan and Cheshire Counties in New Hampshire and Windsor County in Vermont. Trying to set their boundaries and perhaps mistaken about the county boundary lines, Agent Frost wrote a cold letter to Bell regarding telephone installations that they felt infringed on their territory, including Quimby's at Dartmouth. They did not mention any telephones in Plainfield or Meriden, so it is probable that Quimby did not succeed in leasing any to the K.U.A. school teachers.³³ It is unknown how energetically or successfully Childs promoted the telephone around Plainfield and its village of Meriden.

An Integrated System

Bell depended on uneasy alliances among ambitious agents for local growth of the early telephone in New Hampshire. In developing a grand vision of an integrated system where telephones could speak to each other as easily across the continent as next door, Bell

³¹ "As I told you I should prefer Concord to Portsmouth and if Concord is free please let me know." Quimby to Bell Co., 24 December 1879, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

³² Quimby to Bell Co., 10 January 1880, AT&T Box 1187, N.H. Agency - E.T. Quimby, microfiche.

³³ Frost to National Bell Telephone Co., 15 January 1880, AT&T Box 1189, Brattleboro, Vt. Agency, 1878-1880.

decided to reserve the erection and control of long distance lines for itself. Almost from the beginning, the Bell Company had reined in maverick efforts by local agents and managers like those in Lowell who wanted to put up long distance lines connecting separate exchanges. Bell assigned that task and privilege to the Long Lines division of American Telephone and Telegraph, formed in 1885.

In order to provide telephone service and establish a presence in remote rural towns like Meriden, Bell began extending their long distance cables and installing pay telephones in local businesses. In 1884 Bell had established a long-distance line running from Concord to Newport. They also had lines running to Claremont. A Bell telephone wire crossed into Plainfield, perhaps from Windsor, Vermont, around 1884 or 1885.³⁴ Although unwilling to make the investment in the many lines needed to service only a few customers in rural areas, in the next two decades Bell did try to establish a presence by installing single pay telephones in remote towns. These pay telephones were usually in a store or other place of business.

Following the expiration of the original Bell patents in 1893 and '94, Bell increased the effort to establish a presence in outlying areas by increasing extraterritorial lines, which were lines for long distance calling between exchanges, and pay telephones in areas not served by NET&T exchanges. This was in accord with recommendations made by the highly respected and prophetic T.B. Doolittle of the Engineer's Department of American Bell Telephone Company. In a letter regarding toll service in NET&T, Doolittle said,

The result of establishing public toll stations in territory much less favored than that of the New England Tel. & Tel. Co. would seem to warrant a

³⁴ Harold Chellis letterbook, Chellis family papers.

large increase in the number of such stations and I would respectfully recommend the gradual increase up to - say one station for each two thousand of inhabitants. These stations at other points have been found to be nurseries for telephone subscribers by the education of the masses in the use of the telephone; a large user of a toll station will soon find it more profitable to himself to become a regular subscriber.³⁵

In his capacity as engineer for toll service, Doolittle traveled through NET&T's territory and examined existing capacity for long distance calling. He found that businesses had come to depend on long distance calling and that they would use it more if there were not such long delays in completing calls. As proof, he reported a series of calls from the Manchester exchange.

The following six calls were made by one firm in Manchester, N.H. They represent all the calls that were made by this firm, one call for Boston each day for six days, and the time of waiting for each call was as follows: 9 min., 11 min., 55 min., 15 min., 30 min. It is not reasonable to suppose that the delay was altogether due to busy subscribers' wires; there must be a lack of trunk facilities.

Trunks were the lines running between exchanges, of better transmitting quality than those running within exchanges. Not surprisingly, the greatest concentration of New Hampshire exchanges and lines was in the southern third of the state, in the areas of highest population density. Manchester was still the largest exchange in New Hampshire. Meriden had no Bell telephone. Telephone and extraterritorial lines did extend all along the Connecticut River to its very source in the Connecticut Lakes at the northern tip of New Hampshire. These lines followed roughly the north-south railroad lines along the Connecticut River. Railroad stations were sites identified by Doolittle as desirable points for pay stations. He also recommended a toll line from Montreal to Boston through

³⁵ Doolittle to J.N. Keller, General Manager, NET&T, 12 June 1895, AT&T Box 1279, Long Distance and Toll Service in New England Tel. & Tel., microfiche.

Laconia, Concord, and Manchester. His report concluded with a table listing toll calls through NET&T toll centers to Boston for July and August 1895. Calls from out-lying points would be relayed to toll centers near Boston and then go from there into Boston itself.

**Table 23: Number of Calls Through Toll Stations to Boston
July & August 1895**

| From These to Boston | Number of Calls | Daily Average | Number of Lines | Average per Line | Average for July |
|-----------------------------|------------------------|----------------------|------------------------|-------------------------|-------------------------|
| Concord, N.H. | 646 | 24.8 | 1 | 24.8 | 25.6 |
| Dover, N.H. | 762 | 29 | 1 | 29 | 27.2 |
| Manchester, N.H. | 1350 | 51.9 | 2 | 25.9 | 27.2 |
| Nashua, N.H. | 1151 | 44.2 | 2 | 22.1 | 22.5 |
| Portsmouth, N.H. | 959 | 36.9 | 1 | 36.9 | 36.8 |

Source: See Table 23A in appendix for Massachusetts stations. Doolittle to J.N. Keller, General Manager, NET&T, Sept. 6, 1895; AT&T Box 1279, Long Distance and Toll Service in New England Tel. & Tel., microfiche.

Doolittle reported that, "except with local points, I found the facilities unsatisfactory throughout western Mass., Vermont and New Hampshire."³⁶

Map 1 shows the exchanges, extraterritorial lines, and toll stations in New Hampshire in 1899. At all of these exchanges, usually women and girls connected calls locally and to other exchanges. Men were often, but not always, the night operators. This is what NET&T had succeeded in establishing by the time that independent companies started to build companies strong enough to compete seriously with NET&T. The pockets of territory not served by NET&T were fertile ground for farmer lines, mutual telephone

³⁶ Doolittle to J.N. Keller, General Manager, NET&T, 6 September 1895, AT&T Box 1279, Long Distance and Toll Service in New England Tel. & Tel., microfiche.

companies owned by the subscribers, and independent companies uncontrolled by Bell.

Even in areas with already established lines, NET&T did not go unchallenged.

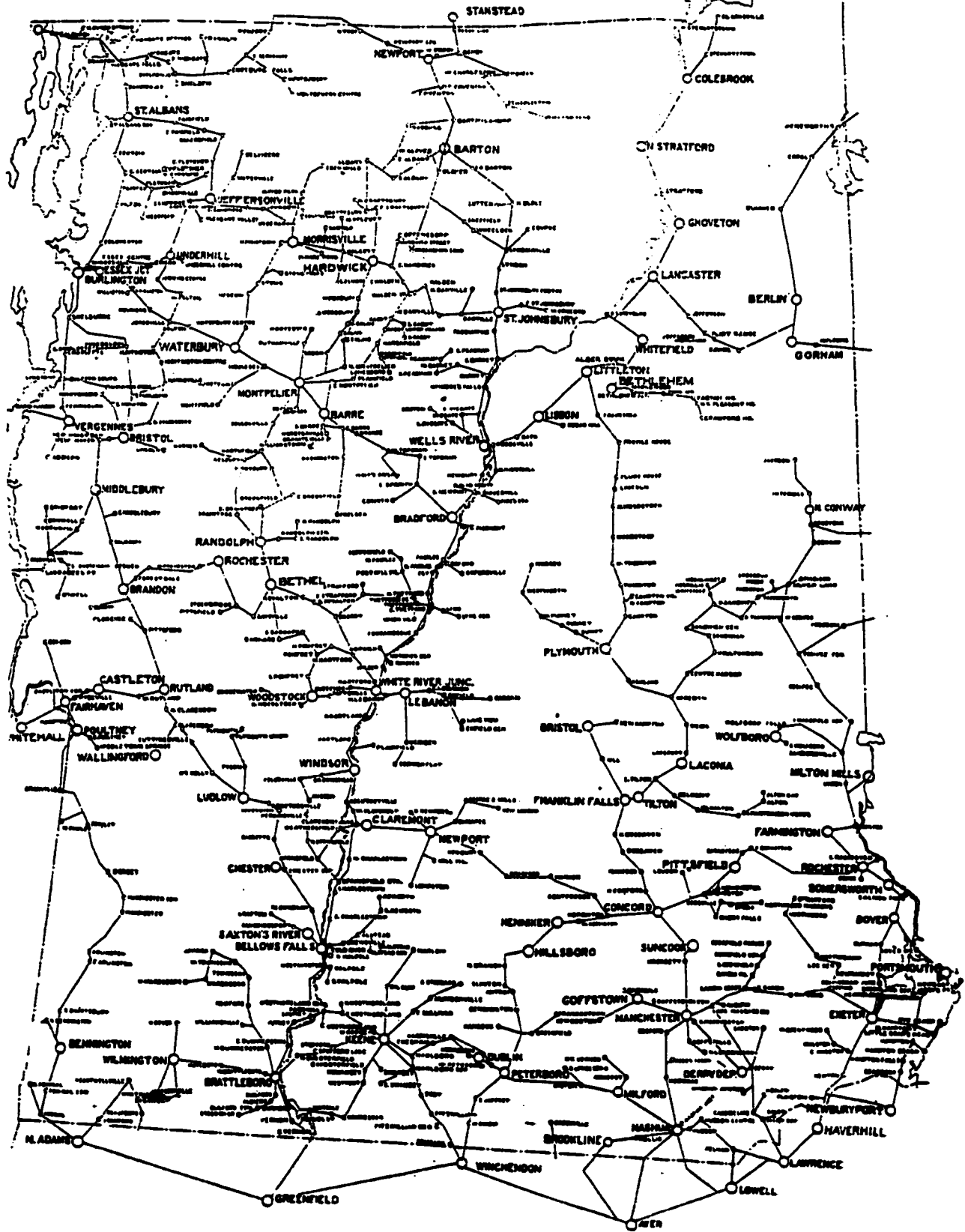
Independent companies attempted to wrest some of the telephone market from NET&T in

Manchester, for instance, but they all had given up or been acquired by NET&T by 1901.

Hard pressed by the need to invest large sums for lines over long distances, NET&T

conceded territory to independent companies and farmer lines in some instances.

Map 2: New Hampshire and Vermont Exchanges & Connections - 1899
Source: NET&T Directory (1899), A.



Subsidiaries of Bell controlled specific areas of the United States. NET&T, the first, incorporated on March 12, 1878. NET&T (not the same company as that which served New England later) brought Bell telephones to Maine, New Hampshire, and Vermont. By 1900 there were nine U.S. Bell subsidiaries.

In New Hampshire, NET&T was leery of independents. Some of the single Bell pay phones in rural areas were used in ways that did not meet the approval of Bell. A detailed internal memo between American Bell Telephone personnel in 1896 told of a competing line in Penacook that a Bell engineer had visited. NET&T already had an exchange in Concord and long distance lines running through the nearby Penacook area. The competing exchange was small, managed by John Chadwick, who seems to have had a firm hold on local communication. In addition to running the telephone company, he was also "U.S. Mail contractor, agent for the American Express Company, and owner of a livery stable." The manager invited the AT&T man to look around the central office, which was on the ground floor of a wooden building. The item that caught the AT&T man's eye was the Bell telephone booth with its extension to the operator. "As one enters there is a counter on the right, and a Bell Telephone booth at the left. The Pennacook switchboard is back of the counter, and there is also an extension desk set back of the counter, connected to the Bell Telephone toll booth, so that the Pennacook operator attends to both systems." The local equipment was made in Concord for about fifty subscribers, a small exchange by Bell standards. The memo described the rudimentary switchboard and the operator that was shown to the engineer, with no effort to hide the set-up in any way.

The switchboard is about two feet square, and in many respects resembles an electric light switchboard. At the top are two rows of drops, but some of them do not work well, and five lines have extension bells to summon the attention of the operator.

When a call is received, a plug attached to a flexible cord at the lower part of the board is put into the jack, and the listening key resembles the handle of a cider spigot, and the jacks are looped together similar to the methods of an electric light station...I was told that the switchboard was designed to avoid all patents.

There are not any protectors on the system. The lines are annunciator wire, attached to porcelain knobs, on buildings in the village and to light poles elsewhere.³⁷

The memo included a sketch from memory of the telephone switchboard. It was common for Bell Telephone pay stations to be placed in public places of business where pay customers could make calls and where messages could be taken. In Pennacook, the procedure had been refined to include a local telephone switchboard. Messages could then be delivered by an operator at the telephone switchboard while she also switched local calls. This did not please the Bell managers, though the owner had been careful in his preparations not to infringe upon patents or to make illegal connections to the Bell telephone line. In an attached memo dated 28 December 1896, stated, "We have not heretofore looked favorably upon working arrangements of any kind between our licensees and opposition. Pennacook being part of Concord, it would seem as though the New England Co. ought itself to supply any service which may be needed."

In fact the Bell companies had rejected, and would continue to fight against, an integrated telephone system that connected Bell companies and Bell licensees with independent lines. They would not do so until forced in 1911 by the threat of government regulation. Until then the Bell Companies would continue to compete where they could

³⁷ C. Woodbury to J.P. Davis, 17 December 1896; AT&T Box 1279, Public Pay Station, Office of Competing Company-1896, microfiche.

afford to and cede territory where they felt the economic returns would be too small to warrant the investment. This meant that rural areas continued to meet rebuff when they requested service from Bell companies.

Fierce Competition

Dissatisfaction as well as an eye for profit fueled the independent, non-Bell telephone movement. For example, because of Bell's policy of leasing telephones primarily for business needs, farmers who petitioned for a telephone franchise before 1900 could count on being turned down. If a group of farmers started their own mutual company, they could count on high fees for connecting to the nearest urban Bell lines. Seeing opportunity beyond challenging Bell in the cities, independents also looked to the countryside as a selling point for wider service, claiming that they could offer communication with those outside the city limits where Bell could not. Once the independents began gaining worrisome strength, Bell responded to the competition, deciding that the rural customer could indeed be a profitable customer.

By 1905, New England Telephone, licensed by Bell, claimed that 98% of Maine, New Hampshire, Vermont, and Massachusetts was serviced by either private or public NET&T telephones, but local, independent telephone companies filled in more gaps than 98% admitted. Bell never regained the absolute monopoly that it enjoyed before its original patents expired. Competition did at times result in the nightmare of telephone wars that Bell executives predicted, although telephone wars in New Hampshire were minor for NET&T compared with some experiences outside the state.

Lewiston, Maine, delivered an example of competition that illustrated exactly why NET&T and the other Bell subsidiaries had reason to be sensitive to potential competitors

in large exchanges. NET&T viewed the northern New England states in terms of population densities, distances from Boston, wires strung, and services offered rather than in terms of state boundary lines. The telephone war between independents and NET&T in Lewiston had less to do with Maine than it had to do with the overriding problem of controlling telephone service in municipal and outlying areas. What happened anywhere in northern New England, whether in Vermont or Maine or northern Massachusetts, affected the way NET&T interpreted events and made decisions in New Hampshire. Crumbling newspaper clippings in a telephone scrapbook kept by Dave Noyes, the manager of the Bell company in Lewiston, tell the story of the Lewiston struggle. NET&T came to Maine via Portland in 1879, and to Lewiston, a milltown, in 1881.³⁸

In 1894, when Bell's patents expired, fierce competition broke out immediately in Lewiston. According to the *Lewiston Daily Sun*, local doctors, druggists, and grocers were starting a movement to incorporate an independent telephone company because they felt that New England Telephone charged too much for service.³⁹ At the time, there were 400 telephones in Lewiston & Auburn belonging to NET&T. The article noted that "The general result of the [patent] decision is that the telephone business is reduced to commercial competition in which the fittest must survive...The day of the monopoly is

³⁸ Even before that, in 1878, two Farmington, Maine, two mavericks, S.E. Beedy and John Linscott, built a telephone line between their houses, quite against the Bell patents. After years of litigation, the U.S. Supreme Court finally ruled in favor of the Bell patents on 19 March 1888. Nevertheless, 125 non-Bell companies had been formed in the U.S. before 1894. Some merely sold stock but those already operating, like Beedy and Linscott, had to cease after the Supreme Court decision in 1888. The industry waited until 1894 to explode.

³⁹ *Lewiston Daily Sun*, 21 December 1894, Noyes Maine scrapbook.

over.⁴⁰ Or as a December 20, 1894, headline put it: "DAY OF MONOPOLY IS OVER. TELEPHONES LIKELY TO BECOME AS COMMON AS STOVES."⁴¹

On the same front, Beedy and Linscott formed the Dirigo Telephone Company, which opened its first telephone exchange in 1893. In 1898, Dirigo, with 174 miles of wire strung in cities nearby, petitioned the Lewiston city government for permission to offer service to Lewiston subscribers. Noting that only a jealously protective New England Telephone Company served Lewiston, the Dirigo lawyer argued that subscribers in other towns that had allowed competition paid rates lower than those paid by subscribers in Lewiston. In the face of uneven performance by Dirigo elsewhere and in the face of suspicions that Dirigo was merely speculating and not serious about installing telephone service, the Lewiston mayor and alderman voted four to two against the petition.⁴²

Calling the telephone business a "natural monopoly," the aldermen decided in favor of the efficiencies of a single telephone company in the city. The aldermen also noted that the state legislature had awarded the Dirigo charter fifteen years earlier, "before the relation of the telephone to the social and business life of the day was known by anyone."⁴³ Under that charter, the local municipality had the right to grant or deny permission to locate poles and string wires. The state policy changed over time,

...and therefore we find that in 1895, when the Legislature provided that telephone companies might be formed under the general law, it was declared that no such company should be permitted to operate in any place where a similar company was already operating, unless by agreement with the existing company or by express authority from the Legislature.⁴⁴

40. "AUBURN'S NEW SCHEME, Plan to Start a Local Telephone System With Low Rates," *Lewiston Daily Sun*, 12 December 1894, in Noyes Maine scrapbook.

41. "DAY OF MONOPOLY IS OVER," *Lewiston Herald*, 20 December 1894, in Noyes Maine scrapbook..

42. "THE FINAL VOTE," *Lewiston Evening Journal*, 9 February 1898, in Noyes Maine scrapbook..

43. *Ibid.*

44. *Ibid.*

The Lewiston city government had no idea what trouble this would cause.

In the telephone wars, when one company went bankrupt, other companies moved in to claim territory and subscribers. Thus, when the unfortunate Dirigo Telephone Company failed in December, 1898, it became part of the Northeastern Telephone Company, another non-Bell company in the area. By then, non-Bell telephone companies were becoming both significant and viable, servicing telephones almost equal in number to Bell telephones in use in the country as a whole. Bell still controlled the long distance lines, however, and priced their services accordingly, not always to everyone's satisfaction. On October 22, 1900, in Portland, where NET housed its long-distance switchboards for Lewiston, 38 businesses who were NET&T subscribers petitioned the Board of Mayor and Alderman for relief, calling the Bell service "slow, inefficient and vexatious, and notwithstanding frequent representations to that effect to the manager of the company's office in this city, it still [is]...unsatisfactory." They urged the board to give "authority for installation of competitive service in this city..."⁴⁵

The power of Bell incited resistance. By 1901, when yet another independent, the Eastern Telephone Company sought an amendment to its charter from the state legislature, the argument ran in favor of competition. Mr. Mayo of Foxcroft spoke to his colleagues in the legislature this way, according to the *Lewiston Evening Journal* of February 14, 1901:

My idea of the New England Company is that it is a gigantic monopoly, a trust of the first water. The citizens of Maine last fall voted against such trusts. I believe that the New England Company is the rich man's luxury, and I do believe that the Eastern [Maine] Company is the poor man's friend.⁴⁶

45. Newspaper unknown, 29 October 1900 in Noyes Maine scrapbook.

46. "WAXED ELOQUENT: A Bout of Oratory in House at Augusta Over Eastern Telephone Matter," *Lewiston Evening Journal*, 14 February 1901, in Noyes Maine scrapbook.

The same paper reported that Mr. Walker of Starks was of the opinion that New England Telephone was "this foreign corporation asking a life lease of the telephone business."⁴⁷ The Eastern Company succeeded in its petition.

With anti-Bell sentiment growing, the independents' fortunes turned. The Eastern Maine Telephone Company in 1901 and the Lewiston and Auburn Company in 1903 successfully petitioned the Lewiston city government for franchises, gaining permission to run wires on poles or underground through the city streets. This was in addition to the New England Telephone wires that were already in place. Then Eastern sold out and the Northeastern Company, as the Lewiston and Auburn Automatic Company in 1905, became the ultimate competitor of NET&T in Lewiston.

The pro-Bell forces did not rest under the attack. Even as the Bell monopoly cracked in Lewiston, ex-mayor Judkins and others still argued against allowing companies other than NET&T to hold franchises. The motives of competitors were, they reminded listeners, motivated by profit, not concern for the common good. Arguing against competition, proponents of a one-company system declared that telephones were not like retail stores or railroads. "What does a store sell? Merchandise. What does a railroad sell? Transportation. What does a telephone company sell? A chance to talk...A telephone company doesn't sell talk, doesn't talk for you. It just sells you a chance to talk." Competition in railroading lowers prices, they said. In telephony, competition raised prices because

...just remember that a telephone company sells a chance to talk with people; when you divide up a chance to talk with people into two parts (as you

47. "WAXED ELOQUENT: A Bout of Oratory in House at Augusta Over Eastern Telephone Matter," *Lewiston Evening Journal*, 14 February 1901, in Noyes Maine scrapbook.

would do in the case of two telephone companies) neither part is as good as the whole, that you must have two telephones and pay for them in order to get a whole service.⁴⁸

The new Lewiston city government did not agree with the ex-mayor's assessment.

In fact, during the next decade the city government would feel less and less able to manage the constant attempts by NET&T to gain the upper hand.

R.W. Crockett was a voice of dissent against approving the Lewiston and Auburn Company petition or any further franchises in Lewiston in 1903, suggesting to the alderman and mayor that the city should sell, not give away, rights, if at all. Crockett also objected to the proliferation of wires. "We have our telephone wires, our municipal and private electric light wires, our police and fire alarm wires, and our overhead trolley wires; and now it is proposed that we grant a franchise allowing another telephone company to maintain a new system, which means a new and separate wire for every telephone that may be installed." Quite accurately Mr. Crockett predicted, "if this permit is granted it means a telephone war, in which one company is bound to absorb the other."⁴⁹

Efforts at Regulation

Legislative charter-granting powers and local franchise-granting powers were the main weapons of opponents against the Bell monopoly. Otherwise, during the Progressive Era the telephone business went virtually unregulated. Theoretically, apart from patent litigation, federal regulation began in 1888 when the year-old Interstate Commerce Commission (ICC) was granted authority to regulate the telephone. The ICC was more concerned with railroads, however, and did not budget for any telephone regulation until

48. Judkins letter, *Lewiston Evening Journal*, 31 July 1903, in Noyes Maine scrapbook.

49. "The Giving of Franchises: What R.W. Crockett Esq. said Before Lewiston Board, Mayor and Aldermen, Tuesday," newspaper unknown, 24 April 1903, in Noyes Maine scrapbook.

1910. Even in 1910, the ICC's attention to telephones was mostly advisory, in spite of pressure from some quarters for the government to take over telephone service. In fact, the C.E.O. of Bell, Thomas Vail, suggested federal regulation of the telephone industry in 1907. Vail proposed, for instance, that the federal government should set rates and standards for equipment. This was healthy self-interest; regulation would control independents, assuage governmental anxieties, and give Bell, which was still the industry giant with the best governmental connections, the edge. In truth, without either competition or governmental regulation, rate-setting and areas serviced depended entirely on what Bell decided would yield the highest profit. Local interests were not necessarily best served by the regional Bells' attitude.⁵⁰

State and municipal governments were left to struggle with the questions posed by the growth of telephony. At the state level, companies had to receive their charters from the legislature. State corporation laws set limits on how stock was offered and on levels of capitalization. State legislatures defined in charters just where particular telephone companies could set up service. At the local level, city governments granted franchises. City governments regulated areas served and the placement and maintenance of poles and conduits within municipal boundaries. No governmental bodies, however, set rates or standards for service and equipment.

In this context, some of Bell Telephone's worst nightmares materialized in Lewiston. The city government of Lewiston, Maine had granted four telephone franchises within its city limits by 1905, although only two, NET&T and Northeastern, survived. On

⁵⁰ See Kenneth Lipartito, *The Bell System and Regional Business* (Baltimore: The Johns Hopkins University Press, 1989) and Gabriel Kolko, *Railroads and Regulation, 1877-1916* (Princeton: Princeton University Press, 1965).

July 17, 1905, the Lewiston Mayor and Board of Alderman met to consider a routine petition by New England Telephone to expand service, to erect poles and construct telephone lines along four roads. Originally scheduled to take place at 9:30 a.m., the hearing was held that evening. City officials met in closed session for half an hour, keeping the unsuspecting New England Telephone representative, who had come up from Portland on the train twice that day, waiting. Then, "At 8:30 the door to the Mayor's office opened and the Mayor and five perspiring alderman appeared."⁵¹ The officials voted to pass the petition on the condition that NET&T give the city twenty free telephones, instead of the twelve previously granted. This would then match the twenty free telephones granted the city by the lone independent telephone company in Lewiston, Northeastern's Automatic Telephone Company; the Automatic Company had, in fact, agreed to supply as many telephones as the city needed.

The aldermen argued that the city should not give away franchise rights for nothing, while the NET&T official argued that NET&T had lived up to its 1902 agreement with the city, which gave one free telephone for every 2000 inhabitants until the population reached 150,000. This was a standard policy, he said, arguing that "Lewiston receives the same benefits as other cities, and surely you can't ask for more....I should say there is no possible chance that the company would change its basis of free distribution of phones."⁵²

Alderman Voyer replied that the city had "already given the New England Telephone Co. a great many privileges, and if they don't feel like reciprocating, we shall have to be more careful in the future."⁵³

51. "N.E.Tel & Tel Turned Down," *Lewiston Daily Sun*, 18 July 1905, in Noyes Maine scrapbook.

52. *Ibid.*

53. *Ibid.*

Further newspaper accounts in the fall of 1905 noted that the city paid NET \$400 annually for sixteen additional phones plus toll charges for telephone service. Restless taxpayers asked what the city received in return for granting franchise rights to NET&T; certain taxpayers urged the city to maintain its stand on requiring additional free telephones from the company. As a mischievous countermove, the Automatic Phone Company offered to install free telephones in any school building housing a Bell telephone, if the Bell telephone were removed. In this case, NET sidestepped city officials by buying private land rights to set poles.

Having more financial reserves, NET&T outlasted the independent companies in Lewiston. In 1908, NET&T bought the majority of the failed Northeastern Telephone Company's stock at a receiver's sale. With that, competition died in Lewiston. The rights to Northeastern's conduits and poles reverted back to the city. In 1909, NET&T paid \$9,000 to the city for the rights to Northeastern's lines. In 1910, NET&T petitioned Lewiston to lay lines to connect the NET&T facilities with the former Automatic Phone Company's facilities. The old battle for more free telephones for the city resurfaced. Sensing a final chance, the Lewiston aldermen, who had taken the precaution in the \$9,000 bill of sale to secure the twenty free telephones formerly provided by Northeastern and the Automatic System, now threatened to declare all the city's contracts with NET&T null and void unless more than twelve free NET&T telephones were granted for municipal use. They noted that even the telephones in the schools were subject to regular rates, and teachers had to use pay phones, which cost five cents a call, to call the superintendent's office.⁵⁴

54. "N.E. Tel Co Held Up," *Lewiston Evening Journal*, 23 June 1910, in Noyes Maine scrapbook.

NET&T prevailed. Just a year later, the March 29, 1911 *Lewiston Daily Sun* extended the telephone company's invitation to all readers to visit the brick second story addition to the Lewiston and Auburn exchange of the New England Telephone and Telegraph Company. The new According to the article, at 32,000 calls a day, each operator would handle an average of 200 calls an hour, or more than three calls a minute. Each would also have access to a rest room for operators that "in appointment will be the equal of any in the state."⁵⁵

The bitterness evident in the Lewiston telephone war flared in other pockets in New England. In Lisbon Falls, Maine, the *Lisbon Enterprise* ran headlines: "KEEP THEM OUT. The New England Telephone Company Seeks to Get Valuable Franchise Without Equivalent. AWAKE, OH YE CITIZENS!"⁵⁶ Farmers at a Pomona Grange meeting in Aroostook County in 1905 found "..the New England Company's prices too high, its limit of communication too short."⁵⁷ Grange members, composing a sizeable political and economic unit, were ready to subscribe to Farmers' Company cooperative, but work stopped when the company was outflanked by NET&T. In the words of one account,

The New England Telephone Company about that time hustled to extend its line into every and over every section of the country. It put on extra crews of workmen and sent out its canvassing agents into almost every school district, in every town and over every road. Even where the rural citizen was so far in a rural distance from village and business as never to suppose a telephone company would pay their respects to them by an offer of a telephone.⁵⁸

In Rumford Falls, outlying farmers petitioned the Rumford town government for the

55. Ibid.

56. "Awake Oh Ye Citizens!" *Lisbon Enterprise*, 24 August 1906, in Noyes Maine scrapbook.

57. "News Of Aroostook, Another Telephone Battle Is Being Waged," unknown newspaper, undated, probably 1905, in Noyes scrapbook.

58. Ibid.

right to erect poles in Rumford. NET&T resisted connecting their system in Rumford Falls to the independent farmers' lines. The local paper pointed out that "There is no expectation that the residents of Rumford Falls will be connected with the new line--the only purpose is to put the merchants in direct communication with the farming community."⁵⁹ Typically, the farmers would not use a switchboard, but would operate the signaling themselves. Subscribers would own, not lease, their telephones. In addition to business uses, which saved trips to town, the farmers (including the women) interviewed by the newspaper found the telephone largely social, "as it enables them to converse with their neighbors far and near."⁶⁰ It was also appreciated in emergencies.

Harold Chellis Builds A Telephone Line

The Lewiston, Maine case and the farmers in Aroostook County exemplified the competitive aspects of the industry climate in which the independent Meriden Telephone Company began. The Lewiston events ran parallel to telephone events in Meriden, one of many rural areas that NET&T had chosen not to service fully.

By 1898 Plainfield blacksmith I.W. Spalding had a public Bell telephone at his place of business.⁶¹ By the next year, 1899, the store of Chellis and Stickney, run by Alvah Chellis and Lewis Stickney, also had a Bell pay telephone, but no Bell telephone exchange had ever served Meriden. Stepping into the breach in 1898, twenty-two-year-old Harold Chellis erected a single local "farmer line" that passed through the Chellis and

⁵⁹ "A Strong Petition, Merchants and Farmers Unite," *The Rumford Citizen*, 18 October 1906, in Noyes Maine scrapbook.

⁶⁰ *Ibid.*

⁶¹ *N.H. Register*, 1898. It is possible that one was in place before then. The *N.H. Register* was inconsistent in showing pay telephones or telephone exchanges. No pay telephones were noted for Manchester in 1897, for instance, even though pay telephones had been in place for many years.

Stickney store.

In 1898 bachelor Harold Chellis lived with his sisters Abbie Susan and May Belle and their widowed mother Electa at the Chellis family farm. Both Electa and Harold kept daily diaries. In the excerpts below, Harold's entries are in straight type and Electa's in italics. The entries show how the telephone work merged with the regular farm work.⁶² During the first part of the year, Harold carried out the farm chores with hired men as he was used to doing. Until June there was no indication that Harold had any interest in telephones, but he did sign on as agent to sell farm equipment for the Adriance Tool Co. and with another company to sell cream separators. Notched into the side of Chellis Hill, on a dirt road, the farm was subject to fierce weather in the winter of 1898, and traveling to the village was hard. After a storm or winds, there was no communication with the outside world without heavy shoveling of huge snowdrifts. Finally the snow and ice melted. Mud season was always unpredictable. Travelers had to slog over dirt roads furrowed with wet, sloppy ruts. Some years on dirt roads the mud could measure a foot or more deep and a suck a shoe off a horse or knock a wheel off a wagon. Then, too, communication with the outside world could stop entirely unless one walked the mile to the village. For all of that, Harold, May Belle, Abbie, and Electa lived a varied life. The farm prospered reasonably, and the family had strong social ties built around work, church, the Grange, Town Hall, and Kimball Union Academy. Chores followed seasonal patterns. Harold's aging mother showed signs of keeping up with women's issues: February 13, 1898 – "Mother went to Wildey's lecture on 'The New Woman.'" No matter what, the weather interposed: "February 17, 1898-- Elmer + I shoveled out road

⁶² Electa Chellis, diary, 1898, and Harold Chellis, diary, 1898, from Chellis family papers.

to village. Drifted the worst ever seen down the hill. Had to shovel every foot from top to bottom of hill. Averaged 4 or 5 feet deep. Took over 3 hours to get to Mr. Newell's. Drove down in P.M. with milk to creamery. Elmer went with plow on sled." It was in this year that young Harold started to branch out from farm work to try raising more income, through selling farm equipment, building and running a creamery, and building a telephone line: March 7, 1898 – "Mr. R + I went to Bellows Falls to see about separators. I took the agency + bought a No. 3 machine."

In June, Harold made the decision to build a telephone line after "talking telephone" with a woman who may have been his older sister May Belle. The work of buying instruments and stringing wire still had to take place gradually in between daily and seasonal farm chores. The telephone line went to Harold's cousin Alvah's, to the post office at Alvah's store, and to friend Will Wood's. Harold made the first call on July 25, 1898, calling his family after installing the phone at his cousin's store, which also housed the Post Office. In the diary, Harold referred to cousin Alvah Bean Chellis's house as "A.B.C.'s."

June 9, 1898 May + Harold are talking telephone. Will put one in I think.

June 20, 1898 Harold went to Alvah's. measured the places for the telephone poles.

June 25, 1898 Churned 24# butter. Leach Carl Sweeney hoed corn. I went over to Will Wood's + we looked at telephone poles in P.M. Belle went for Abbie at Lebanon.

June 25, 1898 Harold went to Alvah's to cut telephone poles.

June 29, 1898 A.B.C. Earl Will Wood + I got out 26 poles from Will's swamp in A.M. Made 32# butter in P.M. Carl + Severy peeled bark. Set up horse rake for Orra Bugbee in eve.

July 11, 1898 Went to Lebanon with Belle to take train for Boston. Got 300 cracked corn 1 mile tel. wire carried 47# butter to M.+ F. 14¢. Carl mowed + raked.

July 20, 1898 Harold put telephone wire in.

July 25, 1898 Harold went to Lebanon after the Telephones. Harold put the telephone in at the store + rung us up.

July 28, 1898 Carl mowed with machine a little. Looked like rain so we got in hay in road. Worked in horse barn on fork. I mowed in P.M. Put batteries in phone at P.O. worked all right. Mother + Abbie went to village in P.M.

July 28, 1898 Harold went to the village. Completed the Telephone to the store + talked with us. Mary was there + talked too.

August 1, 1898 Put up horse fork in horse barn + unloaded a big load. Mr. + Mrs. Wood called. Abbie + I went over to A.B.C.'s in eve to put up phone. Rained. Carl went to city.

August 23, 1898 Worked at odd jobs in A.M. Built stairs to back porch, took churn ring head off, etc. Went to village in P.M. Had a very hard thunder storm. Blew out 2 fuses on Tel. line. Sweeny + I went to village in eve. + to Will Woods + Mary Chellis' on Tel. work.

August 26, 1898 Harold cut his oats. Afternoon finished putting in the Telephone from Will Woods to the store.

September 11, 1898 Had frost. Mother [] and I went to church. Tel. line broke. Carlos Jennie + Grace called. Paid 20 – on note.

September 24, 1898 Frank husked corn in A.M. I helped Will Wood cut tree off Tel. wire by Bugbee's. Put up fence below barnyard gate of old iron pipe in P.M.

At the same time that he was building the telephone line, Harold was also building a creamery on the farm so that he could churn and sell larger amounts of butter. The labor-intensive butter business lasted for many years at the farm. The cows were milked and the cream separated. After the butter was churned, it was drained and shaped,

pressed with a butter stamp, and wrapped in parchment paper before delivery. As usual, much depended on the weather. Now that there was a telephone line to keep in order, there was one more reason to hope for mild seasons.

November 23, 1898 Churned in creamery for first time. Mary + Conner + Hattie took tea here. Alvah came at 6:30. Conner + I went to slight of hand entertainment at Town Hall.

November 27, 1898 Stormed very hard. Did not go to church. Telephoned "once in awhile." Wind blew. Snow flew.

December 1, 1898 Worked on Tel. line.

December 2, 1898 Harold went to Will Woods to finish fixing the telephone.

December 4, 1898 All went to church + over to A.B.C.'s to dinner. Got home at 5. The wind began to blow at 5 and increased till 12. The worst storm ever known here. Blew doors off + Dean Miller's chimney over + through the roof. Snowed all the time very damp. Broke Tel. line in 2 places.

December 5, 1898 Spliced Tel. line by Alvah's + over to Woods. Took dinner at Alvah's. Bert carried Abbie to Lebanon in P.M. She staid over night at Mrs. Daniels and started for Plymouth in morning on 7:28 train.

The new telephone line was a single circuit with all the parties able to pick up the receiver and hear any other conversation. Each party had a magneto ringer to crank, and each party was assigned a unique number of rings as their own code. If a caller wanted to speak with someone at the Chellis farm and the Chellis ring was three, then the caller would turn the crank rapidly three times on their telephone box at home. This would send a current over the line that would ring all other bells on the line three times. Only someone in the Chellis household was supposed to pick up and answer that call, however, since the three rings indicated the call was for the Chellis phone. No operator was needed to make calls because any caller could signal and talk to anyone else on the line. This

party line arrangement had simplicity as its virtue but lack of privacy as its drawback, unless one were interested in hearing what other people were saying. Listening to calls meant for someone else became known as “listening in” and was a common occurrence on farmer lines and party lines.

When he could, Harold Chellis attended farmers’ institutes. The Farmers’ Institute, by the New Hampshire Board of Agriculture, was a periodic program on issues and topics of concern to farmers. One of the Board of Agriculture’s goals was to find owners for the abandoned farms that plagued New Hampshire in the last quarter of the nineteenth century. Many farmers failed or simply pulled up stakes. Families too exhausted in pocketbook and spirit to carry on left for the cities or the west. In a count of abandoned farms authorized by the New Hampshire legislature in 1887, Meriden had two. The solution promoted by the governor and Board of Agriculture was to attract city people back to the countryside as tourists or as seasonal home owners. The plan worked, and many of the abandoned farms did become seasonal retreats. Cornish, bordering on Plainfield, became the site of a celebrated artists’ colony that included Maxfield Parrish and Progressive writer and politician Winston Churchill (not Britain’s Winston Churchill).⁶³ A frequent speaker at the Farmer’s Institutes was J.D. Quakenbos, a professor from Columbia University who spent his summers in New London, New Hampshire, and who eventually retired to that town. Prone to stringing superlatives and adjectives into word pictures of Nature in bloom, he promoted his vision of how the New Hampshire countryside should look in order to attract seasonal tourists from the city. His

⁶³ See Virginia Colby and James Atkinson, *Footprints of the Past* (Concord, N.H.: N.H. Historical Society, 1996).

vision did not include family farms sharing bucolic roads with telephone poles, the very type of poles erected by farmer Chellis. Farmers should protect their roads' natural beauty, he said. They should not "abandon our roads to that despoiler of natural charms, the lineman, with his ghastly telephone poles....If these things have to come, let them cut their own paths. Force them by law to avoid our venerable highways, with all their clusters of sweet association." The despoiler lined the sides of roads with poles hung with wires in clear sight of the traveler. "Your mountain villages are turned by him into giant pincushions. The ground in his wake is covered with the debris of shrubbery and forest trees. Some of your highways have come to resemble settler's clearings, with their ugly piles of brown brush, their stripped tree trunks, and gnarled, crooked, peeled poles." Tourists made the argument for beauty an economic one. According to Quakenbos, a line of telephone poles detracted from land values, "hundreds of dollars apiece subtracted in a single day from the value of farmhouses for residential purposes by the builders of telephone lines...locations of exceptional beauty are rendered unsaleable to city people by a string of ugly telephone poles." If the poles had to exist, said Quakenbos, then "Let these companies buy the right of way over the fields. Force them out of the most picturesque roads in the world."⁶⁴

In spite of Professor Quakenbos and his opinions, Harold Chellis and NET&T persisted in stringing lines on poles. More people wanted to join the Chellis telephone line and some wanted to be able to talk long distance to people outside of Meriden. With

⁶⁴ J.D. Quakenbos, address at Good Roads Institute, Keene, N.H., 17 May 1896, in *Report of the N.H. Board of Agriculture from November 1, 1896, to October 1, 1898.*

the pay telephone in the Chellis and Stickney store, people on the Chellis line could receive messages taken from the pay phone by the store clerk, much as the operator did in Pennacook. In 1901, Harold made an agreement with NET&T. In a letter to his future wife he wrote that he had just received a contract from NET&T for a line in Meriden. Since Harold had already built a Meriden line, this contract was probably to attach his line to the NET&T line at the pay telephone in the local store. NET&T displayed some reluctance, taking four months to "get the contract in shape." Harold was not pleased with the performance of the company, observing somewhat askance that "Great bodies move slowly."⁶⁵ A switch, termed an "F" switch, was installed at the store that would connect the Chellis line to NET&T, making long distance calls possible.⁶⁶ Since there was only one line and most calls were made locally by the callers themselves, a switchboard and an operator were not necessary. The switch was used only on request by a caller to someone at the store, and it was also closed at night so that there was an outside connection all night long. Harold Chellis was responsible for collecting toll charges for long distance calls on the NET&T line and delivering them to the office in White River Junction.

Cooperation

The lack of standard connections between independent local and Bell-controlled long-distance wires made independent service more constricted than New England Telephone service. Bell refused to make the link if they wanted to offer full telephone service to the area. The competition between non-integrated telephone companies, often

⁶⁵ Harold Chellis to Mary E. Westgate, 12 November 1901, Chellis family papers.

⁶⁶ Harold Chellis to NET&T, Harold Chellis letterbook, Chellis family papers.

two or more within one city, made telephone logistics at times absurd. In some locales, a small local company offered telephone service that was, perhaps, not as good a NET&T's, but the price was lower and the quality acceptable. In those cases, such as in Meriden, NET&T agreed to connect to the local line for a fee. Calls out were charged to the caller on a per-mile basis. A burst in independent lines in New Hampshire came after the turn of the century. This can be traced in the tax records. Telephone and telegraph companies were taxed on "poles, wires, instruments, apparatus, office furniture, and fixtures of all kinds."⁶⁷ The relative valuations show that many companies were very small.

⁶⁷ Chapter 64, Sect. 3, *The Public Statutes of the State of New Hampshire* (Manchester: John B. Clarke, 1891), 201.

Table 24: Telephone Companies Taxed by the State of New Hampshire, 1882-1917

| Year | NET&T Valuation | NET&T Tax | Meriden Valuation | Meriden Tax | # N.H. Telephone Co.s Taxed | # N.H. Telephone Co.s Valued \$1000 or Less |
|------|-----------------|-----------|-------------------|-------------|-----------------------------|---|
| 1882 | - | - | not in rpt. | - | none | - |
| 1883 | none in N.H. | | not in rpt. | - | 8 | 2 |
| 1884 | 200,000.00 | 2473.40 | not in rpt. | - | 8 | 4 |
| 1885 | 200,000.00 | 2324.00 | not in rpt. | - | 8 | 4 |
| 1886 | 200,000.00 | 2357.20 | not in rpt. | - | 8 | 4 |
| 1887 | 135,000.00 | 1583.55 | not in rpt. | - | 7 | 3 |
| 1888 | 114,750.00 | 1744.20 | not in rpt. | - | 7 | 3 |
| 1889 | 118,800.00 | 1758.24 | not in rpt. | - | 7 | 3 |
| 1890 | 135,000.00 | 1782.00 | not in rpt. | - | 6 | 2 |
| 1891 | 140,000.00 | 1947.68 | not in rpt. | - | 6 | 2 |
| 1892 | 130,000.00 | 1924.00 | not in rpt. | - | 6 | 2 |
| 1893 | 141,000.00 | 2115.00 | not in rpt. | - | 5 | 1 |
| 1894 | 150,000.00 | 2250.00 | not in rpt. | - | 4 | 1 |
| 1895 | 170,000.00 | 2584.00 | not in rpt. | - | 4 | 1 |
| 1896 | 185,000.00 | 2960.00 | not in rpt. | - | 4 | 1 |
| 1897 | 200,000.00 | 3280.00 | not in rpt. | - | 5 | 1 |
| 1898 | 225,000.00 | 3712.50 | not in rpt. | - | 10 | 2 |
| 1899 | 300,000.00 | 5010.00 | not in rpt. | - | 8 | 1 |
| 1900 | 300,000.00 | 5100.00 | not in rpt. | - | 7 | 2 |
| 1901 | 320,000.00 | 5408.00 | not in rpt. | - | 15 | 8 |
| 1902 | 335,000.00 | 5829.00 | not in rpt. | - | 15 | 7 |
| 1903 | 400,000.00 | 7000.00 | not in rpt. | - | 16 | 7 |
| 1904 | 500,000.00 | 8500.00 | not in rpt. | - | 17 | 4 |
| 1905 | 500,000.00 | 8850.00 | not in rpt. | - | 22 | 10 |
| 1906 | 600,000.00 | 10,344.00 | not in rpt. | - | 31 | 16 |
| 1907 | 675,000.00 | 11,610.00 | not in rpt. | - | 33 | 12 |
| 1908 | 850,000.00 | 14,620.00 | 500.00 | 8.60 | 44 | 19 |
| 1909 | 1,050,000.00 | 22,449.00 | 700.00 | 14.97 | 59 | 33 |
| 1910 | 1,062,400.00 | 21,864.19 | 700.00 | 14.41 | 56 | 30 |
| 1911 | 1,484,250.00 | 31,184.09 | 732.00 | 15.38 | 57 | 26 |
| 1912 | 2,525,000.00 | 39,137.50 | 1500.00 | 23.25 | 61 | 22 |
| 1913 | not in rpt. | | not in rpt. | | | |
| 1914 | 3,050,000.00 | 50,325.00 | 1700.00 | 28.05 | 65 | 27 |
| 1915 | 3,202,000.00 | 53,793.60 | 2200.00 | 36.96 | 66 | 26 |
| 1916 | 3,490,000.00 | 60,377.00 | 1500.00 | 25.95 | 62 | 26 |
| 1917 | 3,800,000.00 | 67,640.00 | 1800.00 | 32.04 | 59 | 23 |
| 1918 | 4,160,000.00 | 77,376.00 | 1500.00 | 27.90 | 52 | 20 |

Source: New Hampshire State Treasurer's Reports, 1882-1918.

The division between Bell and non-Bell companies was not as clear-cut as the tax records make it seem. NET&T held some or all of the stock in some of the companies not listed as belonging to NET&T. Some were also sub-licensees of NET&T, owned

independently but using Bell equipment and linked into the Bell lines. This was what the Meriden Telephone Company would become and remain, first with the 1901 contract for a line into Meriden and then with the lease and installation of the switchboard in 1904. Under both arrangements, long distance calls cost extra, and the Chellis company was responsible for collection. To smooth relations with sub-licensees and to educate their owners and workers, NET&T hired a representative to act as a liaison and held conventions of sub-licensees.

Recognizing the strength in numbers, the Maine Independent Telephone Association, representing 70 companies and 10,600 telephones, met for its second annual meeting in Lewiston on January 9, 1908, more than a decade before New Hampshire independents united in an association. They adopted the constitution and by-laws drawn up the year before, and they congratulated themselves on the miles of toll line and new construction that had been added during the year. Only twenty-eight more miles had to be laid in order to connect Portland with Quebec. The telephone men also discussed a trunk connecting the entire state of Maine as well as making connections with New Hampshire and Vermont independent telephone companies. Cooperation with each other offered them a chance against the giant Bell. In New Hampshire, independent companies formed into the independent Telephone Association of New Hampshire and met for the first time July 26, 1922 at the Weirs in Laconia. Harold Chellis was elected secretary.⁶⁸

More Work For Mary

In August 5, 1904, when Harold brought his wife Mary and their new baby back to Chellis farm and the new telephone switchboard, Meriden began a new era in

communications. Now Meriden had a switchboard and an operator. Subscribers still rang each other if the person they wanted to call was on their own line, but if the person they wanted to call was on another line, they rang the operator, who made the connection. The operator also made the connection with Lebanon for long-distance calls. As the years went by, more people wanted telephones. In January 1906 there were twenty-five subscribers. In 1907, when Harold ordered another five-drop strip for the switchboard, there were seven lines and thirty-seven subscribers. In 1909 there were fifty-two subscribers.⁶⁹ The family grew used to the switchboard, as much a part of daily household life as the farmwork and childcare.

In 1910, Mary and Harold Chellis had their second child, Clara; their first child, Howard, was now six. Still sole owner of the Meriden Telephone Company, Harold was now stringing lines for the new Meriden Electric Light and Power Company, of which he was manager. The electric lines had to be hung on poles higher than the telephone wires, for safety. They also had to be kept separate from the telephone wires to avoid the sounds of interference over the telephone. Mary Chellis had been telephone operator for six years and was not pleased that Harold was gone so frequently while he worked on the electric lines. To her mind, it was enough that he had to be away from the house so often on telephone business: fixing lines, installing and repairing telephones, collecting bills. Now the electrical work added new hours to Harold's travels.

In the diary of Mary Chellis, kept during all of the changes in 1910, the farm work continued without abatement. Animals had to be fed, bred, birthed, and slaughtered. Cows

⁶⁸ Telephone Association of New Hampshire, meeting minute book, 26 July 1922, ms, Alderic Violette Collection.

had to be milked, butter made, crops planted, and hay cut. The farm house brimmed with the daily living and dirty shoes of hired help, children, and extended family. The housework never stopped. Meals had to be cooked, dishes washed, beds changed, floors mopped, clothing washed, and ironing done. The unpredictable and omnipresent switchboard rang whenever any customer wished to make a call. In the blur of work, the telephone could ring and interrupt the other chores at anytime, and it did. Calls from out-of-town came in on the toll line. Unless she could deputize someone else temporarily, Mary was responsible for answering and connecting the calls. Making out the monthly, itemized telephone bills by hand was another chore to be completed, usually at night by Mary, sometimes with the help of Harold. Meanwhile, Mary was pregnant again.

By 1910, Harold's sister Abbie had become an art teacher. Mary's sister Bessie was helping regularly at the Chellis house and usually slept there. Harold's mother Electa no longer lived at the Chellis farmhouse. Fatigue was never far away. Even when ill, household members did not escape the chores. Recovering from the measles, Harold did what he could to help.

January 11, 1910 Today I rinsed and hung out the yesterday wash. Harold up at the switchboard for several hours today, ate his dinner there. I ironed two white table cloths after dark besides some other ironing.

The activities of the two farms -- the Westgate farm belonging to Mary's parents and the Chellis farm -- overlapped. The women and men visited and helped each other in both households.

January 22, 1910 1 egg. Ma washed dishes + strained lard - Matthew killed 4 roosters + 4 hens - I dressed + carried down to hotel in eve. Papa up - had left some saws to be filed over to Frank French. Harold fixed

⁶⁹ NET&T, *Directory*, North Central Section, 1907 + 1909. Harold Chellis to NET&T, 30 January, 1906, Harold Chellis letterbook.

stable telephones + John Moore's cleared main line. Ma made the sauce today. Harold very tired tonight.

As the weather warmed in March and the snow melted, the men tapped the prime maple sugar orchard, about 600 trees total, and boiled down the sap with a wood fire under the evaporator in the sap house. Mud emerged in the roads, and it was a question whether to take a sleigh or a wagon over the melting snows. Either one required catching, harnessing, and hitching one or two horses. The household did not yet have an automobile.

March 5, 1910 17 eggs. Harold got all ready to go to Junction "for to buy a horse." He finally decided not to go – unhitched went to tapping - tapped 200 before dinner. Pa came up with our buckets and his horse helped tap until after 4. They have 400 trees tapped. Bess went home. Senior play. We were too tired to think about going.

The creamery that Harold had built in 1898 still churned the family's cream into butter, which Harold sold. Mary sold eggs. The maple syrup found a ready market in Lebanon. Always tinkering, Harold passed the long hours of one night while he was watching the sap boil trying something new with the telephone to keep the telephone bell still; he made it possible for the drop to fall on the switchboard without the bell ringing when someone called in from the saphouse. No one would hear the summons if they were away from the board, but anyone at the board would see the drop fall without having to hear a ring, a small but hopeful step in the quest for a more peaceful household.

March 20, 1910 Another sap day. Phon worked till a little past 12 - gathered 16 bbl. Harold boiled all day - was very tired. Bess came around 8:30. I got very tired but not so bad as some days. Harold fixed his sap house telephone tonight so that it would throw the switchboard drop without ringing the telephone.

March 27, 1910 Easter! But no church for us. Work always work. Harold took John home tonight - stayed down all night and will come up in the morning. Will drive Foxy up.

Even though she had been married and had lived in the Chellis house for seven years, Mary still referred to the farm of her parents over the hills as “home.” A lifelong close relationship with her parents sustained her and pulled at her at the same time. By spring the pregnancy showed, and the fatigue of pregnancy while caring for a preschooler left Mary in need of more rest than usual. On April 3 she got out of the house long enough to go to church where her aunts teased her somewhat insensitively about the way she looked. Mary remarked in her diary that “Aunt Belle said I was getting to be a fat old lady. Aunt M. said she wanted to pinch my cheeks they looked so fat.” Even if people teased her, she liked being away. Mary’s spirits rose and fell with the number of interruptions from the switchboard, the amount of time she had alone with Howard and Harold, and the times she could get away from the house for a while. When she was home, chores and fatigue – hers and Harold’s -- consumed her: April 15, 1910 - “I washed the heavy gray blankets - sheets and a few colored clothes - greens for dinner. Got terribly tired...I was awfully tired + discouraged tonight.” As planting season arrived, Harold worked outside even though there were snow flakes, and Mary “put away things, answered the telephone, mended - finished a band, put loop on towel + all such odd jobs...H. whitewashed the hēn house, hoed strawberries, planted peas and radishes. I did supper dishes, spread small things on the grass, did telephone bills.” Tired, Harold went to bed at the same time that his son did. Mary stayed up longer.⁷⁰ Occasionally little Howard needed reprimanding to be taught about the farm and its creatures that one day would require his care. One May day, his mother ironed and his father left for Lebanon at 6:15 a.m. for grass seed to plant. To occupy himself, “Howard chased the little pigs

⁷⁰ Mary Westgate Chellis, diary, 5 May 1910.

over to Elmer's and used his stick." He disobeyed Mary so she "set him in a chair for a half hour and asked him how he would feel if he should kill one of the little pigs and he said, 'Why Mother, how could I tell until the pig died how I should feel?'"⁷¹

Mary followed work in the barn and out on the telephone lines, but her immediate vision focused inside the boundaries of the house and its doorstep. The road running by the house and the telephone switchboard brought more of the world within those boundaries. On May 10, "Two tramps to feed beans, coffee + apple pie. 2 for 25¢ - a smarty telephone guy over this line today and B[ess] told him he was no gentleman." Mary's diary entries on wash day never showed much enthusiasm. At best she was steadfast but unwilling. Before automatic washing machines, millions of women suffered through Mondays similarly. "I had started the wash, got sheets done out. Hard day for every body I guess.... Mondays are what you might call blue Mondays."⁷² Some of the once-a-year chores got left until somebody had time to do them between the daily rounds. Weeks after the maple sugar taps had been removed from the trees, the women cooked, cleaned, ironed, took care of the telephone, and finally attacked a pile of cans left over from sapping season. A local woman, Mrs. Dean, was hired to assist with the housework to free Mary for childcare and the telephone switchboard. "Mrs. Dean did dishes ironed 2 muslin curtains. I was 'Hello Girl.' Did manage to get some codfish + potata ready for dinner. I ironed after dinner. Mrs. Dean mopped dining room, did dinner dishes, cleaned up a lot of syrup cans, cleaned in box, swept up."⁷³ Always there was the refrain, "Did

⁷¹ Mary Westgate Chellis, diary, 13 May 1910.

⁷² Mary Westgate Chellis, diary, 16 May 1910.

⁷³ Mary Westgate Chellis, diary, 25 May 1910.

meals, dishes, + telephone!...Harold looked pretty white and tired tonight.”⁷⁴ The unpredictable telephone lines took Harold away, usually during bad weather, which raised havoc with the wires. “It was rainy all the while...Harold hunted for trouble on line 5. Changed Mrs. Carr’s telephone from cottage to farm.” Even when the board was quiet and all lines transmitting, Mary and Harold could get to bed and then hear their own telephone ring. A night-time interruption from a relative who should have known better annoyed Mary enough for her to write a line in the diary that “Bess called after we had gone to bed.”⁷⁵ The days wore on toward summer. On the solstice, the Chellis family had their first strawberries of the season, but that did not help their mood. “H churned 26 lb. [butter] for folks I believe. I cleaned corn beef jar, scalded brine, cleaned piccalille jar for beef. Hot...Harold seems to be terribly out of sorts.... Board very busy. H went to concert. Why must I get so blue I wonder.”⁷⁶ The pregnancy would end in a successful birth in less than a month, but they had to wait a bit longer yet.

Two nights later, Harold took three pounds of butter to Mary’s parents. Howard stayed there with his grandparents while Harold made a visit to a political gathering, meeting Robert Bass at the home of writer Winston Churchill. Bass was contemplating running for governor of New Hampshire. Harold was interested in politics. He did his part as a community member, helping to build the new grange hall, serving periodically as Sunday School superintendent, and faithfully attending town meeting. In 1910 he was still tied to the farm and his young family so did not run for elected office, but he did follow the issues. During the Progressive Era, New Hampshire politicians took the lead

⁷⁴ Mary Westgate Chellis, diary, 30 May 1910.

⁷⁵ Mary Westgate Chellis, diary, 31 May 1910.

⁷⁶ Mary Westgate Chellis, diary, 21 June 1910.

in Republican Party reform, and Cornish author Winston Churchill was in the forefront. He won a seat as representative to the New Hampshire legislature in 1902 and again in 1907. He ran for governor and lost in 1906. He was a friend and supporter of Robert Perkins Bass, also a Progressive, who won the election and became governor of New Hampshire in 1911. Cornish bordered Plainfield, and Harold already knew the Churchills. After he met Bass briefly on that June evening, he left Mary alone overnight and stayed away to install more telephones.⁷⁷

Two weeks later, July 6, Harold and Mary's second child, Clara Electa, was born. Mary stayed home for the birth, attended by her sister Bessie and another woman named Mary, possibly Mary L. Chellis, sixty-four-year-old sister of Alvah Chellis.⁷⁸ In 1910 postpartum women were kept abed for a week or more if possible because it was thought that they needed that time to recover from birth. Mary, at least, was grateful for the chance to receive care without having to assume regular chores immediately. She stayed in bed for eleven days, getting up only when her nurse was leaving. Other family women stepped in to tend the baby and the switchboard after the nurse was gone.

From the time that the Chellis family first had a telephone, in 1898, they used it to inform one another of family logistics and to keep in touch when visits were not possible. much as telephones are used today. In 1910 for the first time, the telephone made it possible for Mary's parents to learn of a Chellis birth as soon as it was accomplished.

⁷⁷ Mary Westgate Chellis, diary, 23 June 1910. Politics took Harold from home as he reached maturity and served in elected office. In 1918 and 1919 he was town selectman, and in 1920-21 he was Plainfield's Representative to the New Hampshire General Court, the state's house of representatives. In 1925-26 he was town treasurer.

⁷⁸ Bessie took a nursing course and became a midwife in Plainfield. She married in 1915 and lived to be 103. See Zea and Norwalk, eds., *Choice White Pines*, 460.

July 6, 1910 H very busy getting ready for Orren tomorrow. I did little things here + there all morning - at noon I wasn't feeling very well. B decided to go to Plain and H decided not to attend the Old Home Week meeting at Plainfield this evening. B worked in the kitchen doing little things all the afternoon and started home at 6:30. She returned at 9:30 with Mary. At 10:40 a little girl arrived at this house. She weighed 8 lb. and was a very welcome guest. Bess telephoned Ma right away. We got quieted down by midnight I think.

Mary, the birth attendant, stayed to help until July 17. During that time she was much appreciated by the bedbound Mary Chellis, who felt guilty for being the cause rather than the doer of work. A low point came with hot weather on July 10: "The hottest day of the season. Harold had a terribly busy day, twas hard for everyone and someway made me feel as if I was to blame for every one's being so busy. H had chicken to kill, cherries + strawberries to pick, cream to freeze - and it was so hot. Elmer said he had never seen a hotter day since he lived here. The chicken was delicious." On July 17, Mary Chellis "sat up for the first time - 20 minutes before Mary went." After being in bed for two weeks, she was faint when she tried to sit, so her mother came to help. Harold's mother got supper, three woman friends stopped by to view the newborn, and Harold slept on a cot in the same room with his wife. The careful parents "fixed a bed for the baby on two chairs between us. Each of us had one eye open to see that she didn't smother."⁷⁹

By August the solicitous care had ended and Mary was back at the switchboard and tending to her two children. No matter what, the telephone switchboard, which was as old as Howard, and the new electric company, which was as young as the new baby, required care and nurturing.

⁷⁹ Mary Westgate Chellis, diary, 17 July 1910.

August 15, 1910 I had rather a strenuous time on phone. Baby went to sleep with Howard – board fearfully busy – worked till 11:30.

August 27, 1910 Such a day! Electric light business makes me shed many tears. Harold and Alvah went over west Lebanon way on business. Mr. Hunt did not come when Bessie came, for which I was so thankful. He + Pa went on Ascutney Mt today and the kitchen was in a bigger mess than it generally is

With the telephone business in the house, every family event was interspersed with telephone events. If Howard were sick and needed attention, he slept on a cot in the dining room by the switchboard where he could be monitored by Mary while she connected calls. The baby slept in the dining room in a carriage. When the doctor came on September 8, he gave a feverish Howard worm pills and then paid his telephone bill.

September 8, 1910 Howard was sick on the cot in dining room all day – very feverish. Gave him worm tablets. Dr. paid his telephone bill here at the house. Mrs. Dean ironed all day. H saw the agents at the village today. In the afternoon he was lost. Got home just at dark. Had been over to Poverty lane. It has been a bitterly hard day. Baby fussy. Howard sick. No better tonight.

The next day the pills had worked and Howard was better. Mary got a reprieve, and subscribers heard a man's voice when they made calls because "Harold... worked on switchboard in afternoon so answered some calls. That was an awful help." Three days after his bout with worms, Howard began school in the village, so during the school days Mary had the baby to watch but not her son.⁸⁰

Having the new baby and the switchboard, however, Mary was doubly bound to stay at home, even when the rest of the family went on excursions. Late summer and

⁸⁰ Mary Westgate Chellis, diary, 12 September 1910: "My boy started for school this morning. He wore the little red suit that was Georgie Miller's. I put up his dinner and kissed him goodbye and Bess took him down to school... Marion asked how old he was and he told her. Then she asked when he was six and he said 'I near till that.'"

early fall was the season of agricultural fairs in New Hampshire. In rural communities, the local fair was an annual event. There would be exhibits of animals, vegetables, flowers, home canning, and handiwork. Food, competitions, entertainments, and socializing took up the entire day. Families went in groups, young people made plans to meet and “go around” with their friends, and everyone returned home late, usually bedraggled and dusty or wet. In 1910, Mary stayed home while the rest of the family went to the fair.

September 21, 1910 Harold, Howard + Bess went to fair [] Left at 7:10 took Mrs. Howe 2 lb. butter, returned about 7 in eve. We put up sandwiches and drink. cake. Mrs. Chellis went with Elmer’s folks. Baby + I stayed home with the telephone just as Howard + I used to do so many times. It was very busy. Baby was so good - wasn’t out of her carriage only to nurse until after six. She is such a dear little baby. B + H got wet just as they were leaving the fair grounds.

The fair-goers had their comeuppance, however, “The day after! Bess all done up. Harold too had a cold”⁸¹ The young family struggled through the grinding days, and Mary earned the refrain she often wrote in her diary: “We all get so tired.”⁸² The leaves on the trees turned color and the weather turned more crisp. Harold and five men dug the potatoes. Harold churned and sold butter. The threshers came.

Compared with the life of a telephone operator sitting in a long line with the others at the common battery switchboard in Manchester, Mary Chellis had greater freedom from oversight and a more total view of the telephone business for which she worked. She knew when the lines were down and when Harold went out to work on them. She knew when new equipment was ordered, when it arrived, and when it was

⁸¹ Mary Westgate Chellis, diary, 21 + 22 September 1910.

⁸² Mary Westgate Chellis, diary, 4 October 1910.

installed. She knew how much Harold had to do for maintenance and when it did not get done. She knew how her switchboard operating fit into the whole. Her diary does not give the impression that she thought of the telephone operating in any way different from washing the dishes or ironing. The only difference to her was that if a drop came down on the switchboard, she had to leave whatever she was doing to answer it. The telephone had priority in that way and thus was an intrusion into other chores, so on October 8, she “answered 88 calls” and “didn’t get much done” even though she had gotten an early start. The treat was when Harold stayed home, as he did on October 24: “Put [telephone] batteries at [] Cutts. Harold at home all day and perhaps it didn’t seem good! It was such a treat, I felt so happy.” Not only was Harold home, but the men cleaned up the creamery after they churned instead of bringing the pans to the kitchen for the women to clean, for which Mary was “duly thankful.” The joy did not last. Just a week later, the telephone and electric businesses drew Harold away as much as ever, and Mary wrote, “H. worked on line as usual. I wish he were ever at home. I am so tired of it all and have been but it does no good.”⁸³ All through November there was a sense of making no progress. “Harold still working on that miserable old line. We are both dead tired and I’ve got cold. We can’t seem to get the work along and be any where near comfortable.” The bright news was that the baby was sleeping well.⁸⁴ The storekeepers at the Morse and Mason store where the village pay phone had been for years were giving Harold a hard time, too. Mary had little patience with them, but she did not like the atmosphere of disagreement. “Harold had a hard day. H was down to talk with Morse + Mason. They

⁸³ Mary Westgate Chellis, diary, 31 October 1910.

⁸⁴ Mary Westgate Chellis, diary, 7 November 1910.

act like sulky kids. I asked Bess to stay. The day has seemed awfully hard some way. I felt as if I needed a prop." The next day, Mary decided to take her trade somewhere other than Morse and Mason, so she "Went to Dryer's store for the first time." Harold had had enough, too, and he "was down and took out pay station at Morse + Mason's."⁸⁵ The children were a comfort, there even when Mary was on duty on the switchboard, and at least there was health and opportunity to work: November 26, 1910 – "Clara is lots of company at night when the rest are all away. She is a very dear little lady we all think. There is very little to write about for every day is just work and go to bed and get up to work some more. But I am thankful to be able to work." Mary's life revolved around the switchboard in the dining room with the children nearby and Harold away somewhere working on a line. The sameness commanded a mixed contentment and impatience: December 11, 1910 – " A very cold day...I put baby on the floor by the sitting room register on some pillows after I bathed her. Howard was there with her and they were quite happy for some little time. Harold is very tired. O! If that line is ever completed."

NET&T Cooperation

Not all independent companies could get access to NET&T toll lines the way Meriden did. Just after NET faced down the Lewiston city aldermen in 1910, the question of nationalization of telephone and telegraph systems became more of a threat to all telephone companies. Attitudes toward the telephone and its uses reached a new level of maturity, based on three decades of experience. Just in time, and probably not accidentally, independent telephone leaders began calling for a new mode of operation within the industry. In 1910, the past president of the national independent association told his

⁸⁵ Mary Westgate Chellis, diary, 18 +19 November 1910.

colleagues at a convention, "The day of destructive competition in the telephone business is nearly ended. We are going to have an era of constructive competition."⁸⁶

Significantly, AT&T also read the implications of public opinion and responded to keep nationalization at bay. Called the Kingsbury Commitment, a single letter of December 19, 1913 changed the way independents and Bell companies would interact. The letter to the U.S. Attorney General from N.C. Kingsbury, vice president of AT&T, agreed to (1) sell Western Union Telegraph Company, of which AT&T had acquired controlling interest in 1909, (2) stop acquiring competing telephone companies without government approval, and (3) connect with independent telephone companies for long distance service.⁸⁷ The Kingsbury Agreement in 1913 came about because the national government was on the verge of imposing public ownership. In theory, local companies could now tie into the AT&T long distance network and have access to all other exchanges in the network. In fact, they were charged a high percentage of the toll revenues, and technology made some additional demands, because local equipment had to be mechanically compatible with Bell equipment. This led to more standardization. Sub-licensees had the contractual right to lease Bell equipment and received technical assistance, but this meant that they were subject to policy and equipment decisions made by Bell.

The limits and dangers of unhampered competition had, by then, become evident to the public, and the federal government was now strong enough and determined enough to become an additional player in the equation. It cannot be assumed, however, that the federal government spoke automatically for the consumer rather than for its own hegemony over

⁸⁶ USITA, *Ring of Success*, 9.

⁸⁷ *Ibid.*

troublesome rivals. What can be said is that impending federal regulation forced a more cooperative stance among all telephone companies. The crisis passed, for the time being the government did impose control over the telephone industry, and the goal of a national system now only awaited developments in cable and amplifier technology to make truly long-distance calls possible.

For a short period later in that decade, the U.S. would seize control of telephone companies. Great Britain nationalized the British telephone system in 1912. In the U.S., Woodrow Wilson took office in 1913. The 1913 Kingsbury Agreement forestalled federal action against the Bell companies, but the Post Office General persisted in proposing nationalization of the telephone and telegraph systems. Similar sentiment grew in the populace, wary both of high-handed AT&T behavior in a competitive vacuum and of inefficient telephone systems in a telephone war. Government control offered an alternative, but nationalization would wait. Seeing the power of the government on one hand and the Bell organization on the other, the various independent telephone company coalitions merged into the strong United States Independent Telephone Association (USITA) in 1915. USITA took on the job of speaking for independent interests.

Between 1918 and 1919, under the assumption of wartime powers, the U.S. government did take over the telephone and telegraph industries by proclamation. Although rates were raised, government-run telephone operations still lost money and required taxpayer subsidies. This helped swing public opinion once again toward private ownership of the telephone.⁸⁸ In 1919, control of telephone service returned to the private sector. The Meriden Telephone Company had lost money during the war, so Harold Chellis

⁸⁸ Brooks, *Telephone*, 148-159.

continued to charge the higher rates originally imposed by the Postmaster General. The New Hampshire Public Service Commission granted approval.⁸⁹

The Bell association of companies was still perceived as a hungry giant. In 1922, E.K. Hall, vice president of AT&T, wrote reassuringly of a corporate change of heart to the president of USITA. Though the previous practice had been to acquire independent companies whenever economical and practical, Hall now said, "the general policy of this company and associated companies is today, and...will continue to be, not to purchase or consolidate with connecting or duplicating companies, except in special cases."⁹⁰

Mary Chellis's job as telephone operator could have been different if NET&T and Harold Chellis had failed to work together from the beginning. That wire to the outside world meant more calls through the switchboard, which meant more interruptions of other work. Boarding students at Kimball Union Academy came from towns and even countries outside of Meriden. Their calls from the K.U.A. pay telephones went through Mary's switchboard and familiarized her with sounds and voices from far away that she would never see in person. The cooperation with NET&T meant that Mary and the other operators had to be familiar with NET&T terminology, regulations, and procedures. At the switchboard, the operator had to time the long distant calls and notice when they were complete even while she was answering and connecting local calls. She had to write all the information on toll tickets so that the information could be transferred to the monthly bills. The monthly telephone bills had to include itemized toll calls, the person calling, the number called, the duration of the call, and the charge. This tedious task took several

⁸⁹ Meriden Telephone Company announcement to customers regarding rates as of Dec. 31, 1919, Chellis family papers.

⁹⁰ USITA, *Ring of Success*, 10.

days of part-time work at odd hours. Cooperation with NET&T also meant that the equipment in Meriden had to be compatible with NET&T lines and switchboards. As telephone operator, Mary Chellis had many freedoms not enjoyed on the job by operators at the city board in Manchester, New Hampshire, but, like the Manchester operators, she was never free of the requirements and limits set by the equipment that she used.

CHAPTER FOUR

THE EQUIPMENT AND THE JOB

David Chellis, grandson of Mary E.W. Chellis, continued as manager of the family telephone business after his father Frank, his uncle Howard, and his grandfather Harold before him. Born into a family engrossed in running the small-town company, he learned about the equipment from family members and started to work with it before he was a teenager – as an installer, a repairman, and an operator. The stories he heard about the old days when telephony began in Meriden gave him and his siblings a long personal perspective on equipment and technology.

Look what we can do now with an electronic switch: call waiting, call forwarding, voice mail. We have all this stuff we used to do for nothing. [It used to be, Ethel might be talking on the phone.] My grandmother [Mary Chellis] might know that Ethel was waiting for a call from her doctor, and if that call came in, she just might kindly tell Ethel the doctor was calling. That was call waiting.

“Are you trying to reach Ralph? Well, he’s not there today. He’s over at the neighbor’s helping put the barn up.” And the call forwarding took place.

Today we think it’s so ingenious what can be done. We charge for it today. That’s the part I find funny, the things that we think technology has cured for us. The cures were there a long time ago, and they were much more personable.¹

The telephone instrument and the accessories it spawned created new jobs. During the first hundred years of the telephone, the Bell companies and most independents constructed a system that could not function without operators. The equipment in the

¹ David Chellis interview by Judith Moyer, 16 May 2000.

system needed operators to give service to subscribers. Operators linked customers' instruments, connecting wires, and central switching equipment and gave the machinery a human voice. Operators allowed the interfaces, company to company, that made it possible to use machinery of different vintage and design. As moving parts that allowed the system to interpret and respond to changing demands, operators were locked in a shifting web of lines, switchboards, transmitters, and receivers. The character, state of advancement, and limitations of telephone hardware meshed with corporate goals, customer demands, social expectations, and workers' goals to create the parameters of telephone operating. The way the nuts and bolts and wires were constructed and what they could do determined many of the demands made on operators and how many, if any, operators were needed to keep the telephone system running. Until 1973, when Meriden went to dial, there were still manual operators in New Hampshire. After 1973, the operators who were left had special functions that became more centralized and more automated. Eventually, automation had almost entirely replaced the thousands of operators who had once made the system possible.

On June 13, 1912, telephone operator Mary Chellis, the woman who would become Dave Chellis's grandmother, enjoyed a welcome day away from the switchboard. She was free of its cords. When she was free of the switchboard she was most happy. It was her parents' thirty-fourth wedding anniversary, and Mary had a satisfying visit with her mother. She worried about the crops freezing in the severe cold snap on Chellis Hill as she drove to and from Plainfield. Ned, the skittish horse she drove, shied and jumped around, but Mary was skillful enough to keep the buggy from upending. She traveled safely along the hilly dirt roads, conscious of her cold hands on the reins, the hands that,

when home, were part of the telephone system reaching out of Meriden to the world.

Today, however, she was unhitched.

Technology Creates Work

The same day that Mary Chellis celebrated her parents' thirty-fourth wedding anniversary, the Special Committee on Woman's Suffrage held a hearing on a proposed state constitutional amendment at the New Hampshire state house in Concord. Mrs. Robbins of Manchester spoke against the proposed amendment. A club woman who considered herself part of the city's elite, Mrs. Robbins had recently become alarmed at the apparent strength of the suffragists. Speaking for her group, she testified, "We have absolutely no organization, but are just individual women who have reluctantly come out of our homes in this public way, which is most distasteful to us." To raise the alarm, she went to her telephone. "We telephoned to our friends and asked them, after an apology, whether they were for or against woman's suffrage. 'Why, I am opposed to it certainly,'" they said.

Able to afford telephones, these women used the instrument to avoid a public meeting. They quickly organized a petition-signing campaign amongst themselves and collected signatures. "Nobody went around, nobody canvassed, we simply telephoned to different ones, and they telephoned their friends, sort of an endless chain affair, and in four days we had over seven hundred names." The telephone connected the women of their class into a system that stretched through their world. The telephone was of great benefit for their purposes and the purposes were serious.

At the same time, Mrs. Robbins felt that the telephone had interfered with the good order of domestic society. Making a leap from politics to economics, she argued

that voting would not raise wages for women, but that supply and demand would prevail. She used telephone operating as an example, testifying with experienced certainty that women would rather work as telephone operators than as domestics. "A girl, as you know, will work in a telephone office for \$6 a week and pay her own expenses, while if she were to go into somebody's kitchen and fulfill the very simple duties there that any untrained foreign girl will learn in six months, she can earn \$7 a week and all her expenses." Domestics earned more in Manchester because the supply was short. The higher wages for domestics had not yet solved the issue, however. Working women still preferred telephone operating.

Elemental order was amiss, and the cosmic impropriety had some causal relationship with technology, voting, and choices for working women. With assurance, Mrs. Robbins felt that she spoke among equals when she suggested to the men of the committee, "Now if women are going to regulate wages, why don't they begin with the servant girl problem, one of the most stupendous problems before the American people today, upon which the health and even lives of the citizens -- men, women, and children - - depend?" Her experience verified the same trend that the U.S. Census analysts were in the process of identifying: "It is today well nigh impossible to induce the right kind of girl to go into any home to do housework...this most important and vital occupation has been made objectionable." Anyway, she was certain that woman suffrage would do nothing but contribute to society's ills.²

In Manchester and in Mrs. Robbins' mind, telephone technology was class-linked.

² N.H. Association Opposed to Woman's Suffrage, *N.H. Constitutional Convention Hearing Before Special Committee on Woman's Suffrage, June 13, 1912*, 10-13.

The upper classes who could afford telephones had them in their houses and businesses and used them socially and for business purposes. The brief period when independent companies had attempted to establish less expensive telephone alternatives in Manchester had passed. Bell telephone rates ensured that the instrument was still common only in households with enough disposable income to afford the luxury. To some women, however, the telephone represented a job to be done rather than a service to be used. Women aspiring to be telephone operators viewed the technology as an occupational choice, perhaps an escape route from less desirable jobs such as around-the-clock, live-in, domestic service. For them, the equipment presented both possibilities and limits.

Hardware enabled the operator to become a part of a grand machine, the telephone system. It integrated her into the system and allowed her to connect the parts. While the job of telephone operator grew in a milieu of social expectations and business decisions, equipment changes affected the job most palpably for the women at the board.

Nineteenth century telephones were never far from the experimental stage. In the twentieth century, experimental knowledge matured into development of a telephone network connecting millions of diverse instruments to each other through thousands of manual, electro-manual, and electronic switching stations. The system grew and, within it, the numbers of operator positions grew. Even the most threatening change, automatic switching, did not eliminate the immediate need for operators, partly because the conversions to dial came gradually and piecemeal over several decades and partly because automation did not perform all the functions of operators. The reduction in operator positions took place gradually and attrition was felt by operators in different ways, depending on their life stages and the stages of their careers.

Occupational Outlook

In the new century, scattered telephone operators like Mary Chellis and May Merrill Sumner did not seem to form a significant new category of working women. They were single examples working in near isolation who served the needs of a new technology with local applications. Even in Manchester, which had eighteen operators working at the board for NET&T in 1900, the telephone operators taken together formed an insignificant group when compared with others like mill or office workers. Yet the telephone operators' voices greeted people daily and seemed to be at the center of community linkages that expanded visibly as poles, wires, and telephones proliferated. An operator's voice was always there when one rang into the central office to make a call. The telephone and the ubiquitous woman operators resided in the consciousness of people trying to fathom and explain changes linked to technology in their world.

The numbers of telephone operators rose. The occupational outlook for women was changing. The U.S. Census tracked the changes nationally. Between 1910 and 1920 they found five occupations decreasing in unmistakable trends, trends that reflected technological change and education. As Mrs. Robbins and her class discovered, fewer women were willing to work as domestic servants if they could find more independent jobs for which they were qualified. Dressmaking fell with the rise of factory-made garments, mass-produced sewing patterns for home use, and the home sewing machine. Mechanized steam laundries replaced women who washed other people's laundry by hand.

**Table 25: Occupations of Employed Women
16 Years of Age and Over in the U.S. -- 1910 and 1920**

| Occupation | 1910 | 1920 |
|--|-------------|-------------|
| All occupations | 29,188,575 | 34,241,749 |
| All non-agricultural pursuits | 6,041,362 | 7,306,844 |
| Five decreasing occupations | | |
| Servants | 1,234,758 | 981,557 |
| Dressmakers and seamstresses (not in factory) | 446,555 | 235,519 |
| Laundresses (not in laundry) | 513,586 | 383,622 |
| Milliners & millinery dealers | 121,446 | 69,598 |
| Boarding & lodging house keepers | 142,392 | 114,740 |
| Other Nonagricultural pursuits | 3,582,625 | 5,521,808 |

Source: Joseph A. Hill, *Women in Gainful Occupations, 1870 to 1920*, Census Monographs IX (Washington: U.S. Government Printing Office, 1929), 28.

In the same period, there were big increases in the numbers of women working in certain other jobs that signified new trends, especially in clerical and service jobs. War, economic ups and downs, education, technology, and expectations contributed to the changes. Office work and retail sales were notable trend-makers. The rise in religious and charity workers reflected the change from volunteers to professional social workers. World War I pressed women into paying work, some in occupations vacated by men going to war.

**Table 26: Selected Occupations of Employed Women
16 Years of Age and Over in the U.S. -- 1910 & 1920**

| Occupation | 1910 | 1920 | % increase |
|---|-------------|-------------|-------------------|
| Teachers (school) | 476,661 | 635,207 | 33.3 |
| Stenographers & typists | 261,202 | 559,748 | 114.3 |
| Saleswomen & clerks in stores | 350,723 | 514,056 | 46.6 |
| Bookkeepers, cashiers, and accountants | 185,299 | 356,603 | 92.4 |
| Housekeepers & stewardesses | 173,280 | 204,350 | 17.9 |
| Clerks (except clerks in stores) | 119,385 | 463,570 | 288.3 |
| Midwives & nurses (not trained) | 116,746 | 137,431 | 17.7 |
| Telephone operators | 86,081 | 175,469 | 103.8 |
| Waitresses | 83,597 | 114,718 | 37.2 |
| Laborers (manufacturing, not otherwise specified) | 80,048 | 160,133 | 100.0 |
| Trained nurses | 76,481 | 143,664 | 87.8 |
| Religious, charity, and welfare workers | 8,877 | 26,927 | 203.3 |
| Postmasters | 8,718 | 11,208 | 28.6 |
| Telegraph operators | 8,199 | 16,860 | 105.6 |
| College presidents & professors | 2,958 | 10,075 | 240.6 |

Source: Joseph A. Hill, *Women in Gainful Occupations, 1870 to 1920*, Census Monographs IX (Washington: U.S. Government Printing Office, 1929), 33.

By 1950, when automatic switching was about to cause telephone operating to slow and eventually decline in its growth, the occupational picture for women had continued shifting toward retail and clerical jobs, of which telephone operating was one. Women still performed the lowest paying jobs and much menial work. Even though women had moved into many more job categories, gender still served as a bar to women in certain male-identified jobs, especially high-paying professional and managerial positions. Table

27 illustrates the trends toward retail and clerical jobs in occupations held by the most women between 1900 and 1950.

Table 27: The Largest Occupations of Women in the U.S. 1900-1950

| Occupation | 1900 | 1910 | 1920 | 1930 | 1940 | 1950 |
|--|------|------|------|------|------|------|
| General household workers | x | x | x | x | x | x |
| Teachers | x | x | x | x | x | x |
| Saleswomen | x | x | x | x | x | x |
| Stenographers, typists, secretaries | -- | x | x | x | x | x |
| General clerical workers | -- | -- | x | x | x | x |
| Bookkeepers | -- | -- | x | x | x | x |
| Operatives -- apparel | -- | -- | -- | x | x | x |
| Nurses (professional) | -- | -- | -- | -- | x | x |
| Waitresses | -- | -- | -- | -- | x | x |
| Telephone operators | -- | -- | -- | -- | -- | x |
| Housekeepers (private household) | x | x | x | x | x | -- |
| Laundresses | x | x | x | x | -- | -- |
| Farmworkers (unpaid family or home farm) | x | x | x | x | -- | -- |
| Dressmakers, seamstresses | x | x | x | x | -- | -- |
| Farmers | x | x | -- | -- | -- | -- |
| Operatives – textile mills | x | x | -- | -- | -- | -- |
| Farmworkers (wage workers) | x | -- | -- | -- | -- | -- |

Source: U.S. Department of Labor, Women's Bureau, *Changes in Women's Occupations, 1940-1950*, *Changes in Women's Occupations, 1940-1950*. WB Bulletin No. 253 (Washington: U.S. Government Printing Office, 1954) 13.

In New Hampshire in 1950, as Manchester was turning to dial, telephone operators were well down on the list of occupations employing the largest number of women. These numbers did not entirely predict the number of women who would, at one time or another in their lives, become operators. Policies of penalizing mothers and wives who worked as operators contributed to rapid turnover. Except for a core of career operators, telephone

operating was often only one in a series of jobs held by a woman through her years of paid work.

**Table 28: Occupations Employing the Most Women
14 Years and Older in New Hampshire - 1950**

| Occupation | Women Employed |
|---|----------------|
| Total | 64,343 |
| Manufacturing non-durable goods | 10,540 |
| footwear, except rubber | 5,764 |
| textile mill products | 3,127 |
| Saleswomen and sales clerks, retail trade | 3,905 |
| Sewers and stitchers | 3,378 |
| Teachers - elementary | 2,396 |
| Bookkeepers | 2,349 |
| Professional nurses | 2,087 |
| Waiters | 1,877 |
| Secretaries | 1,867 |
| Manufacturing durable goods | 1,667 |
| Clerks, examiners, and inspectors - manufacturing | 1,716 |
| Telephone operators | 1,571 |
| Stenographers | 996 |
| Housekeepers, private household | 966 |
| Laundry and dry cleaning operatives | 857 |
| Teachers - secondary | 816 |

Source: U.S. Bureau of the Census, 1960 *Characteristics of the Population* 1, Part 31, New Hampshire, Table 120, 156-161.

The Equipment and The Job

In telephony, women were expected to work as operators and clerical workers, not managers, installers, repairmen, or engineers. Sex role assignment in relation to equipment was a defining factor in the telephone hierarchy.³ Men made, designed, and installed the equipment. Men made the decisions concerning what equipment to invest in and how to deploy it. As operators, women used the equipment according to procedures established by men.

³ See Phyllis A. Wallace, ed., *Equal Employment Opportunity and the AT&T Case* (Cambridge: The MIT Press, 1976). The findings are consistent with the experiences reported by operators interviewed in Project *Number Please*.

The job of telephone operator was linked intimately with the equipment in front of her and around her. She not only looked at it and heard it; it formed around her body and she wore it. In the beginning there was little precedent for such a job -- no legions of airline pilots, no electronic virtual reality headsets and control sticks for research and entertainment. Industry managers were concerned with fast and courteous service for customers, but they did not understand the meaning of the experience for the operator. Like other forms of intimacy, the tie to the board could be experienced as a transcendence of the finite self, or as an uneasy and sometimes frustrating attempt to match one's desires to another's, or as a freedom-limiting bond. At the switchboard, the operator could become both more and less than herself.

The modern world's longest experience with machinery in relation to bodies at work thus far had been in factories. The U.S. Women's Labor Bureau recognized something of the uniqueness of telephone switchboard work. "The equipment of a telephone operator is more complex than that of most industrial and machine operators. Each operator is closely connected to her board with an individual headset -- an earpiece closely banded to her head and a mouthpiece (transmitter) attached to a breastplate hanging around her neck." The equipment was built to fit bodies of a certain size and strength. It was built to allow right-handed bodies to sit and work with great speed, elbow-to-elbow. For eight hours or more a day the telephone operator lived in and controlled an electronic world of travel through space via voice over wires. She had skills that gave her control and a limited kind of power. "She must have a fingertip mastery of the ringing, listening, dial, and other keys on her keyshelf; of the row or rows of cords for making connections; of the location and meaning of all parts of the

honeycombed formation of the jacks and trunks for recording, for switching, for toll circuits, for tandem, for information, etc.”⁴ She had to know her tools and understand what they had to tell her. “An operator must recognize by their lamp-cap markings and color schemes the signals indicating differences in services such as party line, pay station, measured service, telegraph office, PBX installation, and tributary.” At first operators had used ordinary clocks to time calls, but special timers were developed to help the timing function, which could be difficult to track amongst fast-paced connections. “Calculagraphs and other electric-clock timers must be used for timing interzone and long-distance calls. As supplementary working tools, the operator must know the use of key sleeves (small fiber rings) and cord clips used as reminders in monitoring.” She had to understand the system, and she had to think as a part of that system. She had to meld her language to the other parts of the machine, whether human, mechanical, or electronic. “A special vocabulary of prescribed phrases used in teamwork with other operators must be memorized. A long list of abbreviations of localities, as well as a list of codes for procedures and ticketing, must be a ready part of her working knowledge.”⁵

Once she understood the message that the machines told her, she had to respond in an appropriate way with bodily movements and voice. Of course, any improvements in equipment translated into the need to learn new signals and respond in new ways, while letting old ways go. She had to do all of this as fast as she could in multiple patterns without making mistakes. “At most positions an operator is not engaged with only one

⁴ U.S. Dept. of Labor, Woman’s Bureau, *The Woman Telephone Worker*, Bulletin No. 207 (Washington: U.S. Government Printing Office, 1946), 4.

⁵ *Ibid.*

call at a time, but is watching for new signals, watching calls in process for recalls, and watching for disconnects.” In addition, some of what she had to do was for company paperwork, not just to make the system work for message transmission. “On the outward boards many calls must be ticketed and timed. Ticketing and timing must be speedy, accurate, and legible, as the entries are used as a guide in following through on connections and, also, for billing and accounting records.” The eye-hand coordination and the acuity of hearing was perhaps better delivered speedily by younger operators. “The operator’s eyes, ears, and both hands must coordinate in answering signals. Her ears must be attuned to characteristic sounds such as order, dial, busy, and out-of-order tones.” The experienced operator had the advantage of knowing through much repetition how to respond, though all for the customer and the company, not for herself. “She must grasp immediately the type of service and call involved, handling it in accordance with the best mechanical procedures. She must obtain all needed information for speeding the call on its way and for billing and protecting the revenue interests of the company.”⁶ She was there to respond, not to initiate.

Wire and Cable

Transmission of human speech depended on the signal being heard and understood. Crackles, whistles, a sound like ocean waves in a shell, echoes, interference from other sources of electricity, scraps of other telephone conversations, and sounds like steak sizzling could be expected during the first decades of the telephone. Even though a sound could be heard, it could not always be understood as human conversation. First

⁶ U.S. Dept. of Labor, Woman’s Bureau, *The Woman Telephone Worker*, Bulletin No. 207 (Washington: U.S. Government Printing Office, 1946), 4.

telephone conversations had to be conducted at a shout or with the mouth touching the transmitter, depending on the kind of telephone used. By 1925 the quality of telephone transmission was good enough to require talking only as loudly as one would have to speak to a person standing twenty feet away in a quiet field. By 1940, because of more improvements one could speak as if to a person only ten feet away.⁷

While first attentions were paid to telephone instruments, expansion in size and reach of the telephone system had to wait especially for advances in wire and cable construction. The first telephone wires imitated the telegraph's thick iron wires open to the air and elements. The telephone lines required pole crosspieces and insulators to separate them. They were not capable of carrying large numbers of messages simultaneously, so they proliferated quickly and visibly. Surviving photographs of cities such as New York in the late 1800s show black tangles of lines and crosspieces stacked in a dozen or more tiers confusing the skyline. Heavy snows, pelting ice, or high winds brought down lines, broke wires, and confounded electrical groundings. Above-ground wires suffered from bullets, "malicious persons," beetles, lightning, and over-hanging limbs. The poles on which the wires hung decayed in the ground, lost their cross arms, collided with wagon wheel hubs, and became standing fodder for gnawing horses.

Small wonder that once insulating methods and economics would allow it, cities put wires underground. Experimentation with insulation materials and drawn copper wire allowed more messages to be carried on fewer and smaller lines or over single cables. Experimentation showed how to transmit multiple messages through the same wire.

⁷ Arthur W. Page, *The Bell Telephone System*. (New York: Harper & Brothers Publishers, 1941), 22.

Cables, bundles of wires in protective coverings, were developed. Stringing double wires rather than single grounded wires improved the audibility and clarity of speech.

In 1900, satisfactory long distance service could only connect points a maximum of 1000 miles apart. At that time, AT&T had about 300,000 miles of long lines in the eastern United States only.⁸ Improvements in transmission wires and the development of the vacuum tube repeater made truly long-distance calls possible around 1914. Until that time, long-distance speech became weaker with distance, especially in wet conditions. Amplification in telephones helped but did not solve the problem. Repeaters on the cables strengthened the signal periodically so that it could continue farther. The first transcontinental telephone call took place in January 1915, between New York and San Francisco with the help of repeaters and a method called loading. Wireless transmission of voices – by radio -- from Arlington, Virginia, to Paris, France, also took place in 1915. These transmission advances released the telephone system from the limit of distance, and by 1920 there were 3,000,000 miles of long distance circuits that covered the entire country.⁹ Much later in the twentieth century, co-axial cable continued these trends. By the end of the twentieth century, hundreds of thousands of simultaneous conversations and digitized messages could be carried by cables of fiber-optic filaments the diameter of a hair.

Systematized stringing of wire and cable led to patterns that brought calls into local exchanges that were then connected to other exchanges. The ideal central office location required the least amount of wire to reach all points served in the exchange.

⁸ Fagen, ed., *Early Years*, 252 & 347.

⁹ Fagen, ed., *Early Years*, 347.

Once a central office was located, calls could be passed to and from other exchanges through cables called trunks and then routed to individual telephones on the local level. Likewise, long distance traffic traveled through long distance offices that then passed the calls along through trunks, perhaps through a series of long-distance offices, until the local exchange was reached. On maps showing the routes of long distance cables, lines from local exchanges in the neighboring towns converged on large exchanges such as Manchester. Trunks left Manchester and converged on cities such as Lawrence and Boston. Mathematical probability formulas and frequency studies helped telephone engineers to design systems to carry the expected loads. If everyone in the system tried to call at once, however, there were not enough circuits to oblige, and the system became clogged.

Operators experienced the results of these changes and equipment design decisions at their boards. Some of the developments in wire and cable improved clarity of transmitted speech. This meant the operator no longer had to shout to be heard, and she could hear customers more easily. When long distance calling became possible and practical, toll calls increased. In small exchanges this meant that the single operator had more calls to connect to distant points and then to time and manually record on small slips of paper or toll cards. In large exchanges, operators at low boards dedicated to long distance were necessary to connect the calls. Some operators had the job of connecting the trunk lines between exchanges and dealt only with other operators, not with customers.

When it became possible and practical to carry more messages over lines, the operator experienced increased traffic at her switchboard, and this necessitated increases

in the speed of handling a larger volume of calls while still under the demand for accuracy. When the system was too busy for all calls to get through instantly and customers had to wait, the operator experienced those results, too. Alderic Violette, Chairman of the Board of the Merrimack County Telephone Company in Contoocook, New Hampshire, saw firsthand the pressure on the company's operators in the year before that switchboard cut over to dial. During busy periods, the manual switchboard did not have enough circuits to handle all calls. On one occasion, Mr. Violette walked into the switchboard room to find an experienced and competent operator in tears. Through the tears she said,

“Dick, look at this switchboard. Every set of cords is in use and look at the number of drops that are down and I don't have any more cords to answer with. I also have 30 toll calls waiting to be passed to Concord, and I don't have cords to do that either. The people are just horrid when I'm able to answer because they had to wait. One of my best friends, that I served the Grange supper with last night, just said some awful things to me. We've been accused of being out walking the dog before and mean things like that. We're used to that, but this is just too much. What are we going to do?”¹⁰

By Mr. Violette's calculations a year after cutting over to dial, Merrimack County Telephone Company would have needed fifteen or more operators, each with twelve sets of cords, to handle the amount of traffic that was switched automatically. In this case, when all of the cords on the manual board were in use, customers were trying to call in, and the limitations of the equipment made more calls impossible, the customers blamed the operator for being slow or negligent. As the human but faceless voice of the telephone system, the operator bore the customers' frustrations, as operators had since

¹⁰ Alderic O. Violette, “The Old Telephone System,” lecture to the Peterborough Historical Society, Peterborough, N.H., March 21, 1993.

they began connecting calls. In most cases operators were instructed to pass such calls to supervisors or chief operators. In small exchanges this was not possible because there most likely was only one operator on duty. Yet even when the customers knew the operator personally, the faceless safety of the telephone seemed to give permission for uncivil words that would not be spoken face-to-face.

Chairs, Headsets, Switchboards

Two pieces of equipment had particular bearing on operators' personal comfort and efficiency: the chair and the headset. Early photos of operators show them standing, sitting in ordinary wooden chairs, and sitting on stools. Nothing was standardized. By 1900, Bell operators were beginning to use high chairs with unpadded backs and seats. A rung at foot height on the chair or a bar on the board provided foot support and a place to stand when it was necessary to reach high plugs. By the time toll calls had become common, the toll operators worked at boards of normal table height with corresponding chairs. Local operators on the larger local boards sat on the high chairs. In 1937, Bell issued standardized specifications for operators' chairs, and photos from then on demonstrate the longevity of the results. Operators in the Number Please Project interviews reported that the chairs were "comfortable enough." Some local operators in lightly supervised small exchanges brought pillows to pad their chairs.

Technicians tinkered with ways for operators to talk to and hear callers while still having both hands free to work. The earliest commercial board, in New Haven, used a hand-held set on the end of a cord as both receiver and transmitter. The short-lived Havilland set featured a six-pound box for transmitting, held in front of the mouth by a

bracket resting on the shoulders, plus a headset for receiving that was held against the ear. A more common strategy was to suspend the transmitter in a mouthpiece on the board in front of the operator while she wore a receiver held to her ear or ears by a headset. This required the operator to make sure she spoke directly into the mouthpiece and did not turn her head. The suspended transmitter was used well into the twentieth century.

Alternatively, by 1900, a tulip-shaped mouthpiece was attached to a chestplate and suspended from the operator's neck while a receiver was held against the ear by a headset. This too lasted for several decades, until it was replaced by a lighter-weight mouthpiece and receiver in the 1950s. In this new style, the mouthpiece, the size of a spool of thread, was suspended by an arm that arched downward along the side of the face to the front of the operator's mouth, held by the same headset that supported the receiver against the ear. This had the advantage of moving with the operator's head, no matter which way she turned. Photos show operators wearing versions of this well into the 1970s. Versions after that have retained the feature of a one-piece unit worn on the head with the mouthpiece automatically positioned in front of the mouth. Subsequent headsets have become progressively lighter and less intrusive. The transmitters and receivers within the operators' headsets worked toward more clear reception and transmission. Miniaturization of components led to lighter weight and smaller parts. The means of attaching the headset to the head varied from caps to single and double metal bands.

The plugs and cords that attached headsets to the switchboard were compatible with the switchboard's jack size and transmission specifications. As these changed, the headsets changed to accommodate them. The operator's concerns were about comfort

and ease of use over several hours as well as clarity of receiving and transmission. At times the headband was too tight or the earpiece uncomfortable. Weight was a major consideration because the heavier sets were both fatiguing and painful. Irene Bresnahan-Hebert, who began work as an operator in Manchester in 1945, remembered the discomfort. "It had a breastplate and I guess you'd call it a cone that you would speak into. The headpiece would give you a headache after awhile. There were two metal straps and after awhile it would dig in. It was rather heavy and cumbersome, warm in the summer." The improvement in comfort came with smaller size. "They came out with very much lighter instruments that you put in your ear. It had a very thin wire that would come to the front of your mouth with a little speaker there. It was much lighter and more comfortable."¹¹

In large exchanges, the protocol included a personal headset for each operator, which she had to keep clean. In small exchanges, the operator might not even wear her headset, or she might remove it between infrequent calls. The headset she used was probably worn by the operator during the shift before her and the one who came on the next shift after her.

Before transporting messages by telephone could extend through a wide network, a method had to be devised to connect terminals, in this case individual telephones. How could a wire running from an individual telephone connect independently to all other telephones in the system? One solution beckoned from a sister technology: use telegraph lines and switchboard design. Telegraphy had grown in tandem with the railroads during the waves of industrial expansion flooding across the nineteenth century United States.

¹¹ Irene Bresnahan-Hebert interview by Robert Perreault, 4 May 2000.

By 1876 when Bell patented his telephone, telegraph lines already criss-crossed the countryside and connected cities. By 1880, Western Union, which in reality if not legally held a beleaguered monopoly on the telegraph business, connected 12,386 offices nationally.¹²

In large offices, the telegraphers sat at tables separated by low partitions, sending and receiving in code on keypads. Telegraphy had the same problem with numbers of lines that telephony had, but on a smaller scale. Telegraph offices, usually not individual homes or businesses, were the terminal points of telegraph equipment. From there, messenger boys or, infrequently, girls would hand-carry messages to local recipients. Messengers also worked within the offices themselves, carrying messages between key operators and making connections on rudimentary switchboards. Messenger boys using pegs and cords on telegraph switchboards foreshadowed telephone operators. These operators did not sit but stood, and yelling back and forth was necessary to complete connections on large boards.

Telephones outgrew telegraph switchboards, which did not fit telephony's need to connect many more lines for longer periods and for clear speech transmission, not Morse code. Experimental designs proliferated. In New Haven, Connecticut, the first commercial switchboard used dials, not plugs, to connect twenty-one subscribers on eight lines in 1878. All switchboards, however, had to allow the same functions. Somehow the caller had to let the switchboard operator know that he wished to make a call, the operator had to have a way to find out whom the caller wanted, the operator had

¹²Edwin Gabler, *The American Telegrapher: A Social History, 1860-1900* (New Brunswick: Rutgers University Press, 1988), 44.

to have a way to notify the party called, there had to be a way to connect the caller and the person called, and there had to be a way for the operator to know when the call was finished in order to disconnect.

Boards that depended on operators to perform these functions were called manual boards. Boards that depended on machinery and electricity to perform these functions without human intervention were called automatic. The development of switchboards paralleled the drive to find ways to automate manual functions. Improvements in the first boards attempted to simplify what started out to be a complicated process. The board used by May Merrill in Manchester is an example of how the telephone borrowed from telegraph technology and how the result required much more from the operator than later boards would.

Using the Early Manchester Switchboard

The switchboard described by May Merrill may very well have evolved from that used by the American District Telegraph Company of Chicago, a combined version that used both telegraph and telephone technology as well as separate wiring for signaling and talking. One line from the switchboard to each customer carried a telegraphic call box signal. A call box at the customer's station was precoded with two messages for the operator: "telephone use" and "telephone through." When the caller wished to make a call, he triggered the "telephone use" message, which appeared at the position of Operator One. Operator One wrote down who was calling and what line they were on and passed that information to Operator Two. Second lines to each subscriber transmitted the voice, and these lines were wired to the switchboard of Operator Two. On the switchboard were rows of terminals marked by holes corresponding to each subscriber line. Operator Two

plugged her headset into the line of the caller, spoke to the caller, and found out whom he wished to call. She then disconnected her headset from the caller and connected it to the party being called. Using her foot or hand to turn a magneto crank, which generated a low-voltage current, she sent a current of electricity over the line to a bell on the caller's telephone apparatus. If the party being called heard the bell, he answered, and the operator pulled a double-ended cord from her pocket. The pegs on the ends of the double-ended cords were sized to fit into the subscribers' holes. On the switchboard, the operator disconnected her headset. She then inserted one plug of her double-ended cord into the line of the caller and the other end into the line of the party being called. At this point Operator Two was ready to begin connecting another call. In the meantime, when the first callers were finished, the subscribers would hang up, and the original caller activated the call box message "telephone through." Operator One received the "telephone through" message at her position, wrote down the line number, and passed the paper to Operator Two. Operator Two pulled out the plugs connecting the two subscribers from that call and placed the cord back in her pocket, completing the process. While having separate talking and signaling circuits made connecting callers a complicated affair, the separation made wiring simpler and allowed boards to be smaller. A single signal wire could suffice for many customers because it was needed infrequently and for short durations.¹³

¹³ Fagen, ed., *Early Years*, 483-484.

Magneto Boards¹⁴

These early switchboards did not, however, become standard for telephones. The early switchboards that became the common telephone workhorses were called magneto boards. They depended on batteries at each telephone to provide electrical power. Magnets set up a current that allowed conversation over the wire. On the switchboard, coin-sized metal drops fell down when a subscriber signaled the operator. The operator saw the drop come down and plugged a cord into a hole on the board that connected with the caller's line. The caller told the operator whom he wanted to call, and the operator used a second cord to plug in and make the connection to the desired telephone. The operator sent an electrical current either manually (or by foot) or electrically to ring a bell and signal the called person to pick up the telephone. The operator determined if the call was finished by listening in to see if anyone was still talking on the line. In some systems the callers rang the operator to let her know they were done. To end the call, the operator disconnected both lines and returned them to their places on the tabletop in front of her. At first the lines were loose, which made them hard to handle, but weights were soon added, which pulled the disconnected plugs back down into upright positions in holes on the work surface in front of the operator's seat.¹⁵

The early Meriden magneto switchboard had bells attached to each of the four lines. When a customer wished to make a call, he turned the crank on his telephone box. This sent an electrical current through the wire that rang the bell and also caused the drop to fall down on a hinge. This alerted the operator, who may have been sitting at the

¹⁴ This and following paragraphs are based on discussions with telephone technicians and operators as well as cited sources.

¹⁵ See photos of plugs and cords on switchboards in Appendix B.

switchboard or out in the kitchen peeling potatoes or in the bedroom scrubbing the floor. If she were outside, the outdoor extension bell alerted her. The operator returned to the switchboard. She plugged one end of a cord into the opening corresponding to the line with the drop down. Pushing a key on her desktop, she asked whom the caller wished to call. The caller said the person's name or number. The operator said "thank you" and plugged into the opening for the line where the called party could be found. In Meriden this was most likely a party line. The operator rang the number of long and short rings that was that person's code: three short rings would be for number 3. One long and three short rings would be 13. Two long and three short rings would be 23, and so on. The number 2-13 would be said "two ring thirteen." It meant ring number 13 on line two. When the call was finished, the caller would give the magneto crank on his phone a turn to "ring off," to let the operator know she could disconnect the call.

Later switchboards in Meriden did not have bells, except for the alarm bell that woke the sleeping operator for an emergency at night. Meriden remained a magneto system with drops until they converted to automatic switching. Meriden never had a common battery system because the Bell organization did not consider their common battery boards to be cost effective in small exchanges. The final conversion to dial from magneto in the last New Hampshire predial system was in Meriden in 1973.

The simplicity that made magneto boards appealing also made them difficult to use in larger exchanges. Common battery boards solved several problems. A common battery in the central office made power more centrally controllable and more consistent. Lights rather than drops, one for each line on the board, indicated when a caller wished to make a call. The lights occupied less space on the face of the board so that more lines

could terminate within reach of a seated operator. Lights also indicated when a call was finished so that the operator no longer had to listen in to determine when to disconnect.

Equipment technicians had to understand what their equipment meant to operators. Good operators made telephone connections look deceptively simple. An entire line of operators, shoulder to shoulder, plugging in and taking down hundreds of connections an hour gave the impression of a many-armed machine. Analyzing the movements in sequence showed technicians exactly what their machinery required of the operator and suggested possible discrete intervention points where one small equipment change might save seconds or eliminate one small step that would add up to saved time when multiplied by many calls and many operators in a year. A classic text for technicians learning about the mechanical and electrical aspects of telephony described the ways the operator had to respond and initiate on a common battery board. The sequence of movements was complicated by the need for speed and accuracy, all the while maintaining the utmost in pleasantness of voice and courtesy.

We may now trace through the complete cycle of operations of the simple common-battery switchboard...the subscriber at Station A removes his receiver from its hook. This ...lights the line lamp...In response to this call, the operator inserts the answering plug and throws her listening key forward. The operator's talking set is thus connected ... and she is able to converse with the calling subscriber...Learning that the called-for subscriber is the one at Station B, the operator inserts the calling plug into the jack associated with the line leading to that station and presses backward the ringing key...The supervisory lamp is thus displayed ...The display of this lamp is continued until the party at Station B responds by removing his receiver from its hook... Both supervisory lamps remain out as long as the two subscribers are conversing, but when either of them replaces his receiver on its hook, the corresponding ...lamp lights. When both of the lamps become illuminated, the operator knows that both subscribers are through talking and she takes down the connection.¹⁶

¹⁶ Samuel G. McMeen and Kempster B. Miller, *Telephony: A Comprehensive and Detailed Exposition of the Theory and Practice of the Telephone Art* (Chicago: American Technical Society, 1923), 377 + 378.

These boards, then, were a few steps closer to automation. The first common battery board in New Hampshire was installed in Manchester in 1900. Multiple boards repeated the circuit terminals for each telephone on panels strung along in a straight line. The number of panels was determined by how many operators were needed to offer prompt service at peak traffic times. The larger the number of telephones in the exchange, the larger the number of jacks on each panel. The answering jacks, those that were used to answer calls coming in, were spread throughout the board, so that a single operator did not have the ability to answer all incoming calls. All outgoing lines, however, had circuit terminals at each position. This meant that a single operator in this system could connect her incoming calls to any other line in the exchange. A common battery exchange with a multiple board could handle up to 10,000 lines, a number determined by the number of jacks an operator could reach to plug into from a single position on a multiple board.

Automatic Switching¹⁷

Automatic systems, associated with dial and push-button telephones, also had an early beginning. These actually were semi-automatic because they still relied on operators for some functions such as information, long-distance dialing, and interfacing with nondial equipment. The debate over whether to use automatic or manual systems reflected mechanical realities as well as social and economic decisions. The 1923 telephone technician's training manual took up the debate this way:

¹⁷ For a text devoted to the technical aspects of automatic switching, see G.E. Schindler, Jr., ed., *A History of Engineering and Science in the Bell System: Switching Technology, 1925-1975* (Bell Telephone Laboratories, 1982).

Usually the conditions which make for unskilled labor also lend themselves to the use of comparatively simple systems. Thus in a small village remote from large cities the complexity inherent in a common-battery multiple switchboard would be objectionable. The village would probably not afford a man adequately skilled to care for it, and the size of the exchange would not warrant the expense of keeping such a man. Fortunately no such switchboard is needed. A far simpler device, the plain magneto switchboard—so simple that the girl who manipulates it may also often care for its troubles—is admirably adapted to the purpose. So it is with the automatic telephone system; even its most enthusiastic advocate would be foolish indeed to contend that for all places and purposes it was superior to the manual.¹⁸

The automatic system that became most successful commercially was patented in 1891 by a Kansas City undertaker named Almon Strowger. Determined to circumvent operators, Strowger patented what became known as the step-by-step system, which first used push-buttons but eventually used dial. Automatic switching was possible, but it put more responsibility on the caller rather than the operator. While the Automatic Electric Company pioneered automated systems and touted their privacy, Bell decision-makers retained manual switching for several more decades, claiming that better, more economical service was possible with operators. In Maine, when The Automatic Electric Company mounted a serious challenge to Bell and one other company competing for Lewiston's and Auburn's telephone business, it promoted the benefits of automation. According to advertisements taken out in local newspapers, the telephone installed by the Lewiston and Auburn Automatic Company was "Waitless, Out-of-orderless, Girl-less."¹⁹ The telephone was waitless because one dialed local numbers directly. It was girl-less because dialing eliminated the need for local operators, although long distance and

¹⁸ McMeen and Miller, *Telephony*, 475.

¹⁹ Lewiston & Auburn Automatic Company advertisement, newspaper unknown, 1-4 June 1904 in Noyes scrapbook. Scrapbook was probably kept by the manager of the Bell Telephone Company's Portland, Maine, exchange.

information operators were still necessary. People would know what the term *girl-less* meant because telephone operators were, by then, almost exclusively female and were called *telephone girls* or *hello girls*.

Bell won the telephone war in Lewiston by 1910. In a later turn-around, Bell contracted to use The Automatic Company's step-by-step dialing system in Bell exchanges, the first of these in Norfolk, Virginia in November 1919. In the step-by-step system, numbers were located in the system mechanically, step-by-step, as each digit was dialed. In the 1930s, the new crossbar switch memorized numbers that callers wanted before dialing them. The crossbar allowed more powerful control circuits that were faster in selecting routes for the call. Fully electronic switching -- switching that used the movement of electrons to order up, select, and route numbered calls -- was first installed in the U.S. in Chicago in 1976. It could answer 350,000 calls an hour with 100,000 terminals.²⁰ Its speed and relative freedom from human hands pointed toward the telephone system of the twenty-first century.

As some locales went to dial while others did not, various configurations of operators and partially-automated systems were tried. In some, as noted above, local customers could dial each other but had to use the operator for other functions. In others, customers contacted the operator, who then dialed the desired number. In others, operators from dial systems connected with operators in manual systems, who then manually connected with the desired number. At times, push buttons replaced dials.

Developments in the machinery led to the possibility of large-scale networks. The system grew piecemeal within local exchanges, between city and city, and across parts of

the country until a tiered structure emerged. Operators worked at all levels. There were local exchanges with one central switching location. Large local exchanges that exceeded 10,000 lines had to add other central offices, and some operators and trunk lines were dedicated to communication between the exchanges. The addition of connections to lines outside of the exchange made toll operators necessary, dedicated to making and recording long-distance connections. Information operators at local and regional levels provided directory service. Within exchanges, chief operators and supervisors provided supervisory and management functions.

The staggered change from manual to automatic created a heterogeneous system of old and new magneto and automatic equipment across the state and the country. Such a system required a variety of operators. Operators in small exchanges did by themselves what several operators in large exchanges did. Operators in large exchanges learned the duties and protocols of several different positions so that they could move and fill in where needed. Jobs were standardized enough so that operators could move from exchange to exchange or state to state with little difficulty. In a large local office, an operator would learn these positions, all of which answered a need arising out of equipment requirements or limits:

²⁰ Prescott C. Mabon, *Mission Communications: The Story of Bell Laboratories* (Murray Hill, New Jersey: Bell Laboratories, Inc., 1975), 77.

Table 29: Usual Operator Positions in Local Offices -- 1946

| Position | Type of Service |
|-----------------------|---|
| Manual A | Handle out-going calls, local and interzone, of all types, such as flat, measured rate, pay station, party line, rural, tributary, etc. |
| DSA | Assist dial subscribers on local and interzone calls. |
| Manual B | Handle incoming calls to manual subscribers. |
| Cordless B | Handle incoming calls from manual to dial subscribers. |
| Tandem | Where direct circuits are not available to operators, switch calls from one office to another. |
| Information | Render auxiliary information service to customers and long-distance operators. |
| Intercept | Intercept calls that cannot be completed because of number changes, disconnects, etc. |
| Verifying | Check working conditions of lines for customers and operators. |
| Trouble (manual) | Handle calls on out-of-order lines. |
| Sender monitor (dial) | Handle incorrectly dialed calls and attend to dial equipment trouble signals. |
| Official board | Handle PBX (private branch exchange) for telephone company's business. |
| Pay-station attendant | Render special service at stations, hotels, conventions, etc. |

Source: U.S. Dept. of Labor, Woman's Bureau, *The Woman Telephone Worker*, Bulletin No. 207 (Washington: U.S. Government Printing Office, 1946) 3.

Long distance offices linked long distance wires with local exchanges. Long distance boards might be housed separately or in a room with local exchange boards on another wall. Long distance operators made connections between local exchanges by communicating by voice or automatically, depending upon whether the local exchanges had manual or automated switching. Calls were routed point-to-point along designated or alternate routes, depending upon which lines were available.

Table 30: Usual Operator Positions in Long Distance Offices -- 1946

| Position | Type of Service |
|-------------------------------|---|
| CLR (combined line recording) | Record calls and follow through on initial efforts to establish a long-distance connection. |
| TX or point-to-point | Handle delayed and incompletd calls. |
| Inward | Handle incoming calls. |
| Through or RX | Handle calls passing through to a distant point. |
| Tandem | Attend intermediary board that serves as a circuit pool for distant points. |
| Rate and route | Render auxiliary service to long-distance operators on routes and rates to distant points. |
| Ticket distributing | Distribute, file, and check toll tickets. |
| TWX | Handle outgoing and incoming teletype messages. |

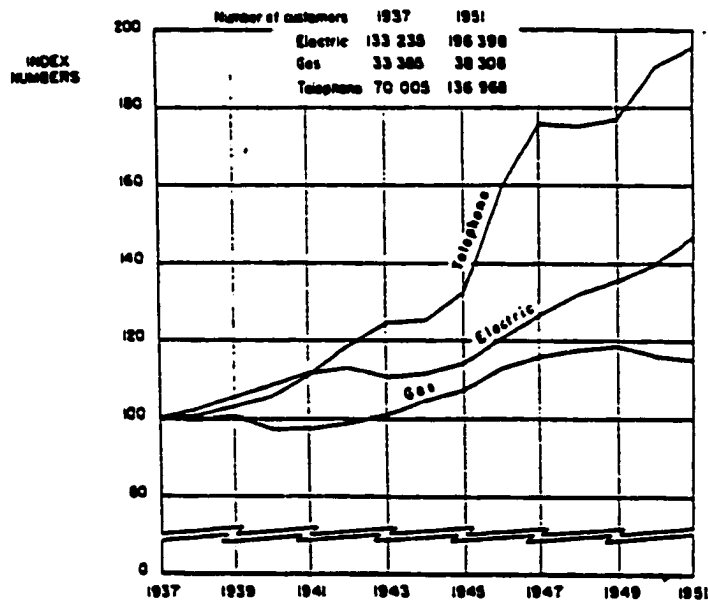
Source: U.S. Dept. of Labor, Woman's Bureau, *The Woman Telephone Worker*, Bulletin No. 207 (Washington: U.S. Government Printing Office, 1946) 3.

Automatic Switching in New Hampshire

Just before New Hampshire began large-scale change to dial, there were 123,742 subscribers in the state. Of these, 108 were connected to the Meriden Telephone Company lines and 117,163 to NET&T, excluding extension and P.B.X. phones. All of the nineteen independent companies in the state had magneto switchboards.²¹ Public decision-makers considered automatic switching a desirable advance in telephony. A rate increase requested of the Public Service Commission in New Hampshire by NET&T was deflected and denied, partially because of the minimal attempt by Bell to convert manual switchboards to automatic in the state. On December 3, 1946 NET&T filed a request with the Public Service commission for an increase in rates effective February 1, 1947. In a series of ensuing petitions and decisions, part of the debate between the regulatory commission and NET&T revolved around the small number of New Hampshire

telephones converted to dial, relative to those in neighboring states. Up to that point, the greatest dial conversion in New Hampshire had occurred in April of 1949, increasing to 25 per cent dial from 3 per cent in 1945.²² NET&T claimed that it was stretched financially by the need to satisfy the postwar surge in requests for telephone service. This was due to an increase in telephone use rather than a large increase in population. Before World War II, there were around 17 telephones per 100 people in New Hampshire areas served by NET&T. By 1954 this had nearly doubled to 31 per 100 people.

**Graph 1: Trend of N.H. Telephone Customers
1937-1951**



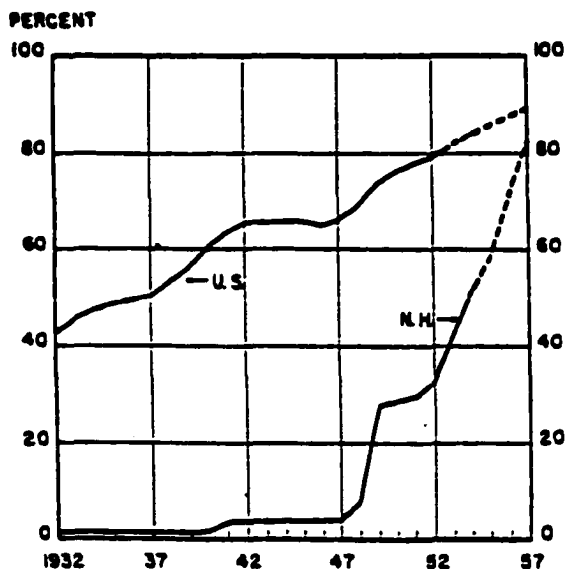
Source: N.H. Public Utilities Commission, *Biennial Report to the Governor and Legislature* (1 December, 1952) 15.

Between the time that NET&T first started petitioning for rate increases and 1952, when higher rates became officially sanctioned, NET&T began in earnest to convert New Hampshire telephones to dial. By 1954 in New Hampshire, 51% of NET&T telephones and 21% of independent telephones were dial.

²¹ N.H. Public Service Commission, *Annual Statistical Report for 1949*, 102-103

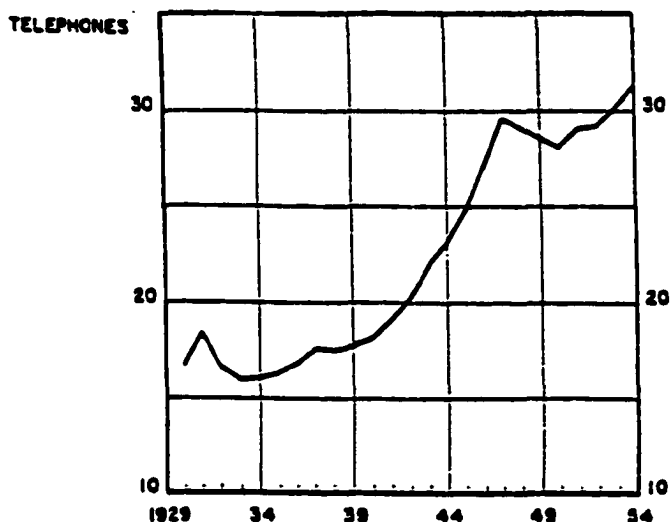
²² State of New Hampshire, Public Service Commission, *Reports and Orders, January 1, 1949 to December 31, 1949*, 292.

**Graph 2: Dial Telephones, Percent of Total
N.H. (NET&T Co.) vs U.S. (Bell System)**



Source: N.H. Public Utilities Commission, *Biennial Report to the Governor and Legislature* (1 December 1954), 5.

**Graph 3: Number of Telephones
Per 100 People in Area Served in N.H. by NET&T Co.**



Source: N.H. Public Utilities Commission, *Biennial Report to the Governor and Legislature* (1 December 1954), 6.

The first step-by-step system in New Hampshire was installed by Bell in Manchester in 1949, opening officially April 30, 1950. The first independent, non-Bell company in New Hampshire to cut over to dial was in Wilton three years later. The last NET&T exchange to go to dial – there were still nondial independents -- in New Hampshire, from a tiny magneto board in operator Agnes Sweatt's living room, was in Errol in 1965. The entire state, except for Meriden, was automated for local calling by 1964, and seventy percent of New Hampshire had Direct Distance Dialing.²³ Meriden enjoyed a certain notoriety, and periodic articles in newspapers and magazines parlayed an amused nostalgia about the difficulties of meshing with the rest of the world. More than one Meridian who tried to call from out of town encountered skeptical city operators who knew nothing of manual operating. The son of one of the Meriden operators was one:

I remember trying to call home when I was in Schofield Barracks, Hawaii. I told the operator that I wanted 8 ring 4, in Meriden, N.H. She insisted that I hang up and try again later when I was sober and could remember the whole number!! After talking to at least three or four supervisors, I begged them to please just TRY it! AND sure enough the call went through, well that is, AFTER talking to Henrietta Davis [one of the Meriden operators] for at least ten minutes. But in reality, that was really neat!!!!!! When Henrietta was on the switchboard, I talked to her almost as long as I did to the party that I was calling.²⁴

By 1970, ninety-two percent of New Hampshire customers had Direct Distance Dialing, and in 1973 Meriden completed its cutover to dial, the last in the state. David Chellis was a young man working with his brother, father, and aunt in the business. No one lived in the Chellis farmhouse where Harold and Mary Chellis had started the

²³ N.H. PUC, *Biennial Report to the Governor and Legislature* 1964, 10.

²⁴ Annamay Chapman, e-mail, 8 December 1999.

business, brought up their family, and died, but the house was still the telephone company office. The switchboard still stood just inside the door in the little room off the dining room. Outsiders viewed the small magneto exchange with humor, romanticization, or disbelief. For the family, trying to offer competent service with a magneto switchboard had become a burden. The change to dial was not an event to be lamented.

David Chellis remembered, “[Dial was] the way everyone was going, and we were just too busy to continue [manually.] By the time we finally converted to dial, the operators were [feeling], ‘I can’t keep doing this.’” Obtaining magneto telephones to install and repair was hard, and the old-time image no longer worked in reality. “[For newcomers,] the image was quaint: ‘Crank phones? What kind of a hick town have I moved to?’ At the time we converted, eleven people total could be calling in or out of Meriden. So, during busy periods you’d have to tell people, ‘We have no circuits right now. We’ll call you back when we have something available.’” The volume of use and the 24-hours-a-day service pushed to the limits the family’s ability to man the switchboard. “We would have somebody [hired] until 10 or 11 o’clock at night. Then [Mary Chellis’s son Frank] would come over and be on as operator from 11 until 7 in the morning. Somebody [else from the family] would come over until the scheduled operator got here.” The bed was still by the switchboard in the room off the dining room, so the night operator could sleep if no one called. “You’d get up several times because there were people making calls. Maybe at midnight you’d go back to bed, you might get to sleep until 2:30, and then somebody would decide they wanted to make [a call]. Every night.” The change to dial made manual operators in Meriden no longer necessary. “When that last call was made, [the operators] had no more job. We had a couple of

high school girls that had been working as operators for us, so that was no big deal to them. Henrietta had retired. Audrey, who still works for us at the office in Meriden, was relatively new.” The end came as a moment of sadness and a moment of relief. “When the switchboard was done, [Aunt] Hazel was done. That was fine by her. She was ready. We had a party here and we had a party at the new office. We knew it had to be.”²⁵

At about that time, the thirteen independent telephone companies in New Hampshire represented about five percent of its telephones, and NET&T controlled the remainder.²⁶ All New Hampshire exchanges, both NET&T and independents, had converted to automatic switching.

Speed and Accuracy

Of utmost importance, speed of service was defined as how quickly a customer was acknowledged, the desired parties connected, and the finished call disconnected. The motive behind automation was partly to increase speed, partly to improve accuracy. Where automation did not exist to solve the problem, a balance between speed and accuracy was up to the operator herself, recognizing that “The quality of telephone service cannot be measured alone in terms of *prompt answering*,” which meant within three seconds. Operators were not machines and they were fallible. If they were prompt but not accurate, if they plugged into the wrong jack, connected to the wrong number, or took down a call before it was done, then service suffered. Supervisors had to gauge the pressure they put on operators, too, because “it seems quite the rule that where the effort

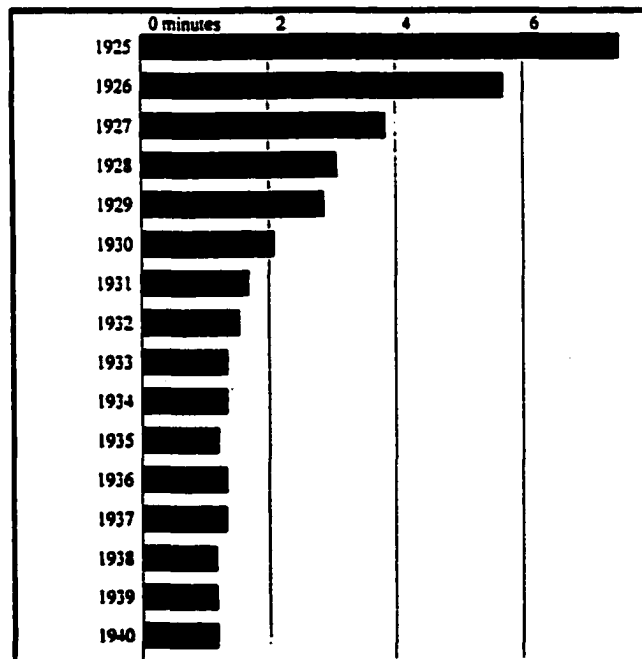
²⁵ Daivid Chellis interview by Judith Moyer, 16 May 2000.

²⁶ N.H. PUC, *Biennial Report to the Governor and Legislature* 1972, 13.

of the management is principally devoted to securing and maintaining extreme speed of original answering, all the other elements suffer in due proportion."²⁷

While the human and mechanical networks were developing, other improvements in manual and automatic boards brought full automation closer to realization. Common battery switchboards automated some of the operator's former functions. When the operator plugged into a circuit, she no longer had to move a switch to speak or hear. Master ringing keys replaced separate ringing keys for each line. Use of the ringing key automatically disconnected the operator's headset from the circuit and transferred it to the next line into which she plugged. Connections to busy lines were automatically blocked. This, it was felt, made service faster, more accurate, and more secret because the operator did not need to listen in at any time during the conversation.

Graph 4: Average Number of Minutes to Make Long Distance Connections in the Bell System -- 1925-1940



Source: Arthur W. Page, *The Bell Telephone System* (New York: Harper & Bros., 1941), 19.

²⁷ McMeen and Miller, *Telephony*, 652 & 653.

Functions such as timing and recording toll calls also became automated, although, as with all moves toward automation, individual telephone exchanges varied greatly in their adoption of the features.

The U.S. Women's Bureau in 1963 was concerned with the impact of technology on women's jobs in the telephone industry. Recognizing that automation was a long process happening gradually over a large area, they claimed that "planning permitted conversion from manual to dial operations in each community with little or no actual displacement of permanent employees." The bureau found "few if any large layoffs." Planning meant limiting new hiring to people who were informed that their jobs were temporary, not replacing employees lost due to normal attrition such as retirement, and reassigning existing operators to dial offices or other positions in the company. Without automation, the workforce needs might have become impossible to fill. The Women's Bureau echoed Bell company claims: "If there had been no increase in the use of the automatic dial system since its inception in 1921 and no change in productivity, more than 750,000 operators would have been needed in 1960 instead of the 225,000 employed."²⁸

Telephone usage patterns shifted radically between 1945 and 1960, toward more telephones and more calls per user, putting demands on telephone providers. According to nation-wide FCC data, telephone company employees increased in all categories except telephone operators.

²⁸ U.S. Dept. of Labor, U.S. Women's Bureau, *Women Telephone Workers and Changing Technology*, WB Bulletin 286 (Washington: U.S. Government Printing Office, 1963), 1.

**Table 31: Employment in Class A Telephone Carriers
by Major Occupational Group - 1945 and 1960**

| Major Occupational Group | 1945 | 1945 | 1945 | 1960 | 1960 | 1960 |
|---|---------|---------|----------|---------|---------|----------|
| | Total | Female | % Female | Total | Female | % Female |
| Total employees | 397,955 | 288,402 | 72.5 | 626,399 | 359,752 | 57.4 |
| Officials and managerial assistants | 3,595 | 59 | 1.6 | 6,031 | 134 | 2.2 |
| Professional and semiprofessional employees | 17,160 | 1,866 | 10.9 | 47,202 | 6,945 | 14.7 |
| Business office and sales employees | 18,114 | 11,730 | 64.8 | 45,658 | 30,486 | 66.7 |
| Clerical employees | 64,903 | 58,706 | 90.5 | 133,479 | 121,936 | 91.4 |
| Telephone operators | 207,622 | 207,533 | 99.6 | 191,973 | 191,943 | 99.98 |
| Construction, installation, and maintenance employees | 68,658 | 506 | .7 | 174,995 | 431 | .02 |
| Building, supplies, and motor vehicle employees | 17,788 | 7,972 | 44.8 | 26,088 | 7,856 | 30.1 |
| Other employees | 115 | 30 | 26.1 | 973 | 21 | 2.2 |

Source: U.S. Dept. of Labor, Women's Bureau, *Women Telephone Workers and Changing Technology*, WB Bulletin 286 (Washington: U.S. Government Printing Office, 1963), 3.

In theory, planning ensured that the change to dial did not affect permanent employees.

It did have an effect on the demographics of the telephone workforce. The proportion of women to men in the telephone system dropped from 72% to 53% as the number of telephone operators fell. Nearly all telephone operators were women, so the change to automatic switching had a greater negative impact on them than on men as a group. The Women's Bureau concluded that "The introduction of dial equipment for local calls probably has been the most significant technological factor affecting the jobs of

operators.”³⁰ The operators who were left found that their jobs had changed even though they had survived the cut. The Women’s Bureau found “a decrease in routine and an increase in public relations aspects.”

In New Hampshire, as elsewhere, the total number of telephone operators fell as dial took over. Some operators, like those in Meriden, felt relief that the equipment would now do what the existing manual cord boards had not been able to accomplish, handle the increased load. Other operators did feel the displacement. The women who were hired as temporary workers did not all want to leave when they did. The women who were reassigned did not all feel fulfilled by their new positions.

The ultimate employment results of automation were confounded by challenges to the telephone industry’s policies of maintaining a white-male-dominated hierarchy dependent upon discriminatory employment practices. The federal Equal Opportunity Employment Commission used Title VII of the 1964 Civil Rights Act as the basis for intervention in 1970 in an AT&T request for a long-distance rate increase. At the time, the Bell system, which comprised AT&T and twenty-four subsidiaries like NET&T, was the largest private employer in the United States. Hearings took place through the Federal Communications Commission, and it was found that the Bell system discriminated in its employment practices on the basis of race, sex, and national origin. A consent decree in 1973, the same year Meriden converted to dial, settled the case and included an agreement that practices would be brought into balance. After that, more men became telephone operators and there were attempts to bring women into jobs

³⁰ U.S. Dept. of Labor, Women’s Bureau, *Women Telephone Workers and Changing Technology*, WB Bulletin 286 (Washington: U.S. Government Printing Office, 1963), 5.

formerly male-dominated. Whatever the results after 1973, the heyday of the manual telephone operator was gone.

The Best

A statement made in 1911 by the general manager of the local telephone company in Enosburg Falls, Vermont, held true all through the heyday of the telephone operator. At the second convention of NET&T's Sub-License Companies in Boston, the general manager spoke to his peers on the construction and maintenance of a telephone company's plant. Like many exchanges in rural New Hampshire, the farming community of Enosburg Falls had a small exchange that gave four women employment. Their approach was set by the precedents at NET&T, hiring and training girls to the standards of Bell toll work. The manager told his audience that, "I believe in employing the best help to be obtained. We make it a practice to have bright, intelligent girls in our office, get them interested in the work, train each to handle toll business, and then endeavor to keep them...we have four girls who have been with us from three to nine years, and all are competent to qualify as toll operators in a New England office." His reasoning was that even the best equipment served the customers only as well as the operators did their jobs. He said, "The question of operation I believe to be the principal one. If you have first-class construction, proper maintenance, and poor operating, it is hard to make people believe they are receiving full value for their money." To the telephone user, the equipment was nothing without good service, and good service depended on good operators. To the operator, the equipment was the ultimate determinant of her job.

Statistics help corroborate such a conclusion. In 1932 the U.S. Bureau of Labor Statistics was concerned about worker displacement. Already confronted with an

economic depression, the government was trying to study and predict the outcomes of automatic switching on telephone workers. Telephone operating already had a predial average annual turnover of 40%, due in great part to telephone companies' employment policies that penalized married and pregnant women. About 30% of U.S. telephones had been converted to dial, and the statisticians wanted to know how much dial conversion affected the employment of operators. The bureau concluded, based on Bell system statistics, that if the usual number of telephone calls were made, "under normal operating conditions, complete conversion to the dial system means an average displacement of about two-thirds of the operators" who would be working if dial had not been installed.³⁰ High annual telephone operator turnover gave the telephone companies the leeway to hire temporary and part-time employees that, when discontinued, would not be considered victims of technological change. Therefore the claims by telephone companies that regular operators would be retained or moved into other jobs disguised the actual numbers of women who would not be employed after conversions to dial.

The career of operator Madeline Fuller bridged the change from manual to dial. She lived the changes from the personal service of the magneto boards to the "girl-less" Direct Distance Dialing. Several kinds of boards were in use in New Hampshire when Madeline Fuller began work as a telephone operator in southern New Hampshire just at the end of World War II, in 1946. Hers could be the story of hundreds of operators in the state and, indeed, across the United States. Her career illustrates how equipment and operators interacted and affected each other. She chose to accept and adjust to the changes in her career. "Everything was growing. I have seen so many changes, from the

³⁰ U.S. Bureau of Labor Statistics, *Monthly Labor Review* 34, no. 2 (February 1932), 240.

drop system to the local switchboard and then the toll board and then cutting hours so people could dial their own toll calls. You just go with it and find out that that is the best way to go.” She saw the changeover to dial, beginning in Manchester. After that came more changes. “That has come a long way, from ‘Number please’ to Direct Distance Dialing. And then they went to the Automatic Call Directory. ACD office. That’s when I got out, because the operator’s duties were no longer interesting then. You just dealt with the console.” Women who had been operators and who wanted to continue with NET&T were offered other jobs. Madeline Fuller tried something completely different. “I went into equipment engineering and started from square one all over again. It was behind the scenes, learning how the equipment worked and what was needed to satisfy the customer, instead of just answering their calls.” She finally left, somewhat reluctantly, when offered an early retirement package. In spite of her philosophical approach to change, she never really gave up the habit of work. “They made a pretty good offer, but now I feel like I should still be working. I’ve been out for two years.” For the purposes of statistics, she would be considered one of the operators who was not displaced by automatic dialing, but she was forced by automation to change. Her final wisdom was spoken by one who had seen the change and survived: “The more you fight change, the worse off you are.”³¹

³¹ Madeline Fuller interview by Jeannine Levesque, 21 December 1992. For a more complete excerpt showing how this operator’s career changed with equipment changes, see Appendix C.

CHAPTER FIVE

HEYDAY

The heyday of the “number please” operator in New Hampshire gained momentum during the second decade of the twentieth century. It spanned the Roaring Twenties, the Great Depression, World War II, and the consumer expansion following World War II.¹ In that period the Bell vision of an interconnected, intercontinental, Bell-dominated telephone system was realized. The underpinnings of that system hinged on the interconnections between Bell subsidiaries and non-Bell sub-licensees that developed. The interconnections depended upon standardization of equipment, compatible procedures, a hierarchical system, and the human operators who switched the calls through from point to point.

Given their varied lives and the different settings in which they worked, telephone operators were not a monolithic group of female wage-earners, alike in all respects. One of the big determining factors of an operator's lot in the predial era was whether she worked in a rural or urban setting. The differences arose because of the character of management, the character of small towns, the roles of women in small towns, and the differing needs of rural and urban users of the telephone.

“Service,” Not Rental

Independent telephone companies failed to unite into a national telephone system that could compete with the long-distance communication offered by AT&T in the Bell system. By 1910 it was clear that interconnections between local telephone exchanges

¹ See Table 2 in Chapter One.

would have to depend on using Bell lines. Independent companies could do so by becoming Bell sub-licensees. In order to bring sub-licensee operations into line with Bell standards, NET&T offered conventions, liaisons, and technical assistance. The telephones residing in homes, offices, and on street corners, offered entry points for access to millions of miles of wire tended by people and machinery. The NET&T Directory pointed out to subscribers in 1909 that “the telephone instrument is only a small item in a great organization, and that each use of it, each call, brings into play many appliances besides the telephone and means definite work for a whole train of workers.” Customers did not rent a telephone; they bought telephone service, and that service depended upon operators in a huge and growing hierarchical system.²

The second annual convention of the NET&T sub-licensees was held in March 1911 in Boston. About one hundred and twenty-five delegates from the four northern New England states attended, with F.W. Story, NET&T vice president in charge of relations with sub-licensees, directing. There were two kinds of sub-licensees who entered into agreement with Bell affiliates like NET&T, those owned locally, called noncontrolled sub-licensees, and those whose stock was controlled by NET&T, called controlled sub-licensees. Noncontrolled companies were not quite in the NET&T camp and could not quite be controlled the way companies owned by NET&T could. NET&T recognized this when trying to standardize their system. Noncontrol put locally-owned sub-licensees “on a different basis than a controlled sub-licensee in the matter of adopting the suggestions and methods of the New England Company.” NET&T could not force decisions on owners like Harold Chellis, who, not surprisingly, were “as a rule...not inclined to adopt any [changes]

² NET&T, *Directory*, North Central Section (January 1909), viii.

that will increase their expense, unless they can see commensurate gains.” The big advantage to connection with NET&T for these companies was the chance to offer long-distance service to their subscribers by using NET&T lines.³

In the Bell hierarchy of sub-operating companies, NET&T controlled territory in Maine, New Hampshire, Vermont, and Massachusetts and so had the right to make Bell contracts with sub-licensees in that territory. Not yet compelled by the Kingsbury Agreement of 1913 to provide long distance service for any independent telephone company that wished to make a contract, NET&T nevertheless recognized advantages for itself in sub- licensee connections. Areas such as Meriden that were not lucrative enough to warrant staff and time to develop a full-fledged Bell-owned telephone company could be developed instead at local owners’ expense. When such locally-owned companies routed long-distance calls through Bell lines and central offices, this generated revenues for Bell. In 1911 Bell could still legally refuse to connect to a local company in contested areas where Bell affiliates wanted to establish Bell-controlled service, putting the local independent company at a competitive disadvantage.

NET&T executed its first sub- licensee contract with a company in Vermont, in 1898. By the time of the convention in 1911, most NET&T sub-licensees were in the three northern New England states. Of 57,429 NET&T sub- licensee stations operated by more than 200 companies, Massachusetts had 7,945, New Hampshire had 10,748, Vermont had 15,804, and Maine had 23,032. By comparison, NET&T had 327,676 total stations of its own.⁴ NET&T assembled the convention of sub-licensees to impart technical information,

³ H.W. Worthley, “The Relation of the Commercial Department to the Sub-Licensee,” *Second Convention of Sub-License Companies* (Boston: NET&T, 1911), 53.

⁴ F.W. Story, “Birth, Evolution, and Ultimate Destiny of the Sub-Licensee,” *Second Convention of Sub-License Companies* (Boston: NET&T, 1911), 17.

argue for uniform accounting procedures, persuade managers of the necessity for higher rates, and explain paperwork.

Some sub-licensees developed their businesses in lucrative markets in competition with NET&T, but most grew up in areas uncontested by Bell, which preferred to develop the most densely populated markets first, extending lines out from cities only as far as was profitable. If people who lived far from centers of population wished to have telephone service, they had to do as Harold Chellis had done: plant their own poles, string their own wire, and connect their own telephones. While the original Bell patents were in force, before 1893-4, farmer lines had to obtain Bell permission and use Bell equipment at Bell rates or none at all. Farmer and independent lines did not proliferate until after the original patents expired. By then any attempts at setting up long-distance communication faced Bell that had the huge head start. To discourage cheaper competition, Bell declined to connect with many farmer lines. Bell also refused at times to connect to non-Bell lines if these were of poor quality or if they represented potential future competition. Bell decided that inferior transmission to and from farmer and independent lines would reflect negatively on the Bell Company system.

By 1911 NET&T was developing a policy to try to connect all telephones into one Bell-controlled system from which Bell received toll revenues. An increase in toll calls was considered a better way to use existing plant and increase revenues immediately than by increasing the number of subscribers, which required an outlay for equipment. Toll call business could receive more Bell attention because of recent improvements in transmission; better toll calls were possible, and the more telephones that were connected into the Bell system, the more toll revenue was possible. NET&T was surprised to find that, in some

exchanges, as many as 50% of users did not know how to make a toll call. Customer instruction led to an increase.

In areas not served by Bell exchanges, NET&T had for many years attempted to maintain a presence by installing public pay telephones “to cover every village and hamlet with public station service.” When a toll line was extended through a territory, it was a relatively small matter to attach a pay telephone nearby. When Harold Chellis put up his first telephone wires, there was an NET&T pay phone in the store at the bottom of the hill less than a mile away. In Plainfield village there had been a pay phone for years, connected to the Windsor, Vermont, exchange. Not only did public telephones keep Bell in the public eye, but public pay telephones were also considered “a nursery for subscribers, as it is there that the people contract the telephone habit, which grows on them until they find that a telephone in their place of business, or their residence, or both, is necessary.” In 1911, a third of NET&T toll revenues came from the more than 9000 NET&T public telephones. This included 871 pay telephones in sub-licensee territory, like those in Meriden and Plainfield village.⁵

In this way the system of Bell and non-Bell telephones attached more and more territory and subscribers to its web. The web had a vision at its core, the Bell notion of centralized control extending downward and outward through a hierarchy. Bell used the military and the patriarchal family as metaphors and models for its corporate organization. A 1910 history of the telephone slanted unapologetically toward Bell referred to the telephone army: “The pay-envelop army that moves to work every morning in Telephonia

⁵ C.F. West, “Development of Toll Revenue in Territory of Sub-Licensees and Controlled Companies,” *Second Convention of Sub-License Companies* (Boston: NET&T, 1911), 49.

would be a host of one hundred and ten thousand men and girls, mostly girls -- as many girls as would fill Vassar College a hundred times and more, or double the population of Nevada.”⁶ Company literature for employees used the metaphors to fix an image in the minds of rank and file. In *Telephone Topics*, the NET&T magazine for employees, a short article about operators referred to “the army of Bell employees” and “operating forces.”⁷ In the book titled *The Bell Telephone System* that he wrote as an answer to the 1935 federal investigation of the virtual Bell monopoly of telephone service, AT&T Vice President Arthur W. Page extolled the management virtues of Frederick of Prussia, Steuben, Napoleon, and the German military. The staff and line management of the Bell system, he said, functioned the same as the military. “Instead of infantry, artillery, tanks or air forces, the telephone army has plant, traffic and commercial forces. All of these have supervisors of varying grades just as the army has corporals, sergeants, lieutenants, captains, majors, colonels and generals.”

In the traffic department of the telephone army, there was a supervisor for about every twelve operators. These were organized by a chief operator who in turn reported to a district manager. “A number of offices with their chief operator report to a district manager. He is responsible for the quality of service, the costs, and in fact everything about the conduct of these offices.” The district manager ensured that the people under him installed and maintained equipment, trained traffic personnel, and hired the number of operators needed. He coordinated with his managerial counterparts in the district commercial and plant departments. Divisions of two to seven districts came next in the hierarchy. Districts

⁶ Herbert Casson, *The History of the Telephone* (Chicago: A.C. McClurg & Co., 1910), 197.

⁷ “The Boss of a Talk Factory,” *Telephone Topics* (February 1920): 250.

reported to company headquarters, with general managers for traffic, commercial, and plant operations. In theory, the organization allowed and depended on the flow of information. Problems went up the ladder: "Any problem too much for the first person who gets it should quickly go up until it finds a man who knows the answer." Orders went down: "New experience, or new techniques, or new ideas, or new emphasis from headquarters should flow down." AT&T controlled the long distance lines and was the commander over regional operating companies like NET&T. The "general staff under the direction of the President of the American Telephone and Telegraph Company is responsible for overall system policies, for the dissemination to all operating units of improved practices discovered by staff study or arising in practice anywhere in the system." In the entire description of the system, the author referred to operators and chief operators as female. Everyone in line above this he referred to as male, reflecting actual practice in the company.⁸

Just as the army metaphor popped up frequently in reference to the telephone system, so did the family metaphor when female operators were the subject. In the 1914 February issue of *Telephone Topics*, an article explained "Why Telephone Operators Make Good Wives." The very virtues that made good operators also made good wives. The women had to choose one or the other of the occupations, however – marriage or telephone work – because, as the article explained, "we do not encourage the girls to stay after marriage. Their interest is divided between their domestic duties and their work, consequently they are apt to be tardy and more or less unpunctual in their attendance." The operators who chose to marry lost seniority and all opportunity for promotion. That meant

⁸ Arthur W. Page, *The Telephone System* (New York: Harper & Brothers, Publishers, 1941), 82-90.

that they lost the chance to choose the best hours to work and the chance to become supervisors, trainers, or chief operators. The speaker in the article considered such treatment an accepted matter of good business. "While we do not actually require an operator's resignation when she marries, we regard her continuance as temporary, and reserve promotion in telephone work for those whose devotion to telephone work is more single-minded." The reasons why women would opt for a Bell job rather than marriage also made good business sense to the article's author. "There are reasons why they don't all get married. Some of these girls are business women who have taken up telephone operating as a serious vocation, and after studying the possibilities offered by other vocations." When compared with jobs available to men within the telephone industry, the job of telephone operator might seem limited, but when compared to other options open to women such as work in mills or domestic servitude, telephone operating had undeniable attractions: "They see clean and attractive workrooms, pretty fair pay, desirable working conditions in general and opportunities for advancement." Of course, some women might prefer to both work for pay and marry, but given the necessity to make a choice, "Some girls dislike the narrow routine of housework but are generally interested in work that has some wider and more intimate relation to the business world." In a job identified with females, the telephone operator did not have to worry about losing her femininity, even without marriage. She could still be viewed as a woman because she served selflessly. "They see also the broad service they are able to render. That's the slogan of the twentieth century – Service." The article linked women's work with threads and weaving to telephone operating, saying, "They are weaving the threads of what go to make up our business or social life. Knowing

this, they feel a pride in their job and a desire to advance in the work rather than to marry.”⁹ The article admitted that some of the women have said, “No wedding bells for me” out of personal choice, and then the article summoned to mind the “fathers and mothers dependent on them” and “younger brothers and sisters to be fed and clothed, or other brothers and sisters struggling for professional educations which they could not have except for the financial help of such sisters.”¹⁰ In actual fact, most of the women were probably still living with relatives because the telephone operator’s wage was not enough to support independent living.

Through the next three decades, certain aspects of the job did not change appreciably. As the voice that greeted callers with the phrase “Number?” or “Number, please?” the telephone operator was considered essential in maintaining customer satisfaction. Operators outnumbered any other category of worker in the predial Bell system, yet operators occupied the low rung on the corporate ladder. Compared with other jobs in the Bell hierarchy, the job of operator fell short in pay and opportunities for advancement into other departments. Instead the operator occupied a predominantly woman’s world where she had face-to-face contact primarily with other female operators and supervisors.

The larger Bell companies exerted great effort to ensure standardized service from operators, through rules, training, and constant supervision. From the start, the rapid adoption of women as operators was based on the belief that women were more controllable when compared with the first teenaged boys who were hired as telephone operators.

⁹ See “Weavers of Speech” in Chapter Six and figure 10, Appendix B.

¹⁰ “Why Telephone Operators Make Good Wives,” *Telephone Topics* 9, no. 9 (February 1914): 266.

Looking back with a somewhat amused “boys-will-be-boys” tone, telephone historians of the twentieth century took delight in pointing out that, unlike the telephone girls, the boys were infamous failures in the job because “Nothing could be done with them. They were immune to all schemes of discipline,...they could not be controlled, and by general consent they were abolished.”¹¹ The replacement for the boys had to demonstrate an improvement in controllability. “In place of the noisy and obstreperous boy came the docile, soft-voiced girl.” The admirable qualities displayed by the “telephone girls,” as even adult woman operators came to be called, recapitulated Victorian notions of proper femininity. “Here at its best was shown the influence of the feminine touch. The quiet voice, pitched high, the deft fingers, the patient courtesy and attentiveness...” Sarah Josepha Hale of a generation before would have approved of and understood such a description.

Operators working in larger exchanges sat in lines at long switchboards.

Supervisors sat or stood behind them, able to listen in on any conversation to make sure that the operators were following the rules exactly. Training lasting up to four weeks prescribed exact phrases for every situation that might arise between operator and caller. In the interests of modesty and, more especially, in the interests of efficiency, the operator could not deviate from the scripted words. She also had to keep track of toll calls and move rapidly from caller to caller. To become an AT&T operator, a woman had to be no smaller than 5'4" tall, young, single, and reputable. She had to pass a personal screening and life-history examination, a physical examination, and a specific training regimen designed to turn every exchange with a customer into a prescribed pattern. The telephone company issued handbooks with rules and procedures. As early as 1893 the rules from New England

¹¹ Casson, *The Telephone*, 154.

Telephone, included "Rule 64. Operators must not engage in social conversation with each other while on duty." and "Rule 65. Operators must not leave the board when on duty without the consent of the Manager or the Chief Operator."¹² Needing permission to leave the switchboard, of course, included going to the ladies' room.

Why were women more docile as operators in large exchanges and why did they follow rules that boys and men would not? Aside from the life-long socialization of girls to act in acceptable feminine ways, women who were operators tended to have fewer desirable employment options than men of the same age, so the telephone companies could choose those they felt were best suited for telephone work. The girls had to take what they could get at the wage the company would pay. When displeased they could not talk back or they would lose the job and perhaps find no others equally as good.

The quality of women chosen was a further argument in favor of women as operators. Except following World War II, for most of the operator heyday, there was a large pool of potential employees from which the telephone company could choose. Managers could choose candidates who already exhibited the education, intelligence, willingness to follow the rules, and other personal attributes necessary to succeed in the position. These candidates were then trained to fulfill the belief voiced by the industry, that "Girls were easier to train; they did not waste time in retaliatory conversation, they were more careful; and they were much more likely to give 'the soft answer that turneth away wrath'" when the imperfect telephone system frustrated subscribers.¹³ Like the Victorian homemaker who exemplified Christian female virtue and inspired those around her to

¹² NET&T, *Rules and General Instructions - Managers* (Boston: NET&T, 1893), 14.

¹³ Casson, *The Telephone*, 155.

sublime civility, the telephone girl purportedly brought civility to the business world.

“She has done more than any other person to introduce courtesy into the business world.

She has done the most to abolish the old-time roughness and vulgarity...she has taken the friction out of conversation, and taught us the refinements of politeness.”¹⁴

Embedded in the drive for good service to customers was the efficient management of traffic. In the Progressive Era, scientific management was the watchword for forward-looking corporations who wanted to get the most out of their workers and materials, with as little waste as possible, to produce the best profits. The ideas of scientific management, made popular by F.W. Taylor, entailed observing and timing the most efficient workers' movements, and then establishing similar procedures for all workers to follow to increase efficiency.¹⁵ At its second sub-licensee convention, NET&T put forth the idea of scientific management. “Mr. Story spoke of scientific management and suggested that all of us are responsible to our companies for an increasing efficiency and the production of as little waste as possible.” Efficiency was the goal and there was “a strong relationship between scientific management and efficiency.” Application of the conclusions of scientific managers produced repetitive movement jobs that left little to worker discretion.

Strict efficiency at the switchboard required all three kinds of efficiency identified by the NET&T speaker. The first efficiency, “the efficiency of service,” meant the least expenditure of time and effort “from the subscriber's standpoint, not ours.” The second efficiency, “the efficiency of operation,” meant “the individual efficiency” of each worker. The third efficiency, “the efficiency of methods” meant the procedures established to

¹⁴ Casson, *The Telephone*, 159.

¹⁵ See Robert Kanigel, *The One Best Way: Frederick Winslow Taylor and the Enigma of Efficiency* (New York: Viking, 1997).

expend the least time and effort on tasks.¹⁶ Applied to telephone operators, scientific management meant that exchanges with enough staff established the amount of time allowed for switchboard operators to notice and answer calls, to make connections or give information, and to disconnect finished calls. It meant that supervisors and observers evaluated individual operators by counting calls taken per hour and by timing interactions between operators and callers. The times allotted varied with equipment capabilities and traffic loads, but the method of evaluation persisted through the decades as long as there were operators. Even after automatic switching eliminated switchboard operators, specialized operators such as those for information were expected to answer and dispense with calls within prescribed times. Eventually the equipment was built to feed the next information request into the operator's headset automatically as soon as she finished a call, so that she had no control over her own pace.

Small exchanges having relatively low traffic counts without monitoring and supervisory staff were another matter. A telephone operator in a small exchange with a single position on the board did not have a supervisor timing calls and overseeing performance. An operator like Mary Chellis was her own supervisor. If the board had two or more positions, the operator might work side-by-side with another who was her superior and who was aware of her performance just by being there. Night operators in both large and small exchanges had less supervision than their daytime counterparts. Even in Manchester, two operators could easily handle the traffic load at night, so supervisors did not stay after 11:00 p.m. to keep order and efficiency.

¹⁶B.J. Bowen, "Traffic Relations Between the New England Telephone and Telegraph Company and Its Sub-License Companies, With Special Reference to the New Connecting Company Traffic Agreement" *Second Convention of Sub-License Companies* (Boston: NET&T, 1911), 37.

Julia Hunt¹⁷

The night operator who worked in the Glendale exchange in 1930 just outside Laconia was an example. In March 1930, Julia Hunt became an operator at the Glendale exchange of the Central New Hampshire Telephone Company. By June she earned \$10 a week as the regular night operator, working six nights from 7:00 p.m. to 7:00 a.m., more or less, depending upon when she could get there and when the day operators came and went.

As Mary Chellis did in Meriden, Julia Hunt lived on a farm. Her work as an operator in a small telephone exchange took her out of the house and down to the telephone exchange office on the shore of Lake Winnepesaukee. The office was half a house rented from a widow, but the widow had nothing to do with the telephone company's business, so Julia had no household chores to attend to when she was on duty as an operator, unlike Mary Chellis. Her life as a single woman also differed from that of a wife and mother. Her telephone operating was only part of her life, but it proffered important meanings and personal connections.

The house where Julia lived had been built a century before by her great grandfather, but all was not the same as it used to be. Technology had come to Gilford. In Julia's 1930 diary, the telephone, the radio, the automobile, electricity, a May Tag washing machine, and a new Air Way vacuum cleaner entered the pages. Technology worked on Julia's life in ways that Julia used to her own ends. Julia liked technology. The technology that Julia loved best was the radio. In the diary entries dated before March 15, when Julia began her job as operator at the Glendale Telephone Exchange, she wrote more about the radio programs she heard than about the people she saw. The radio took on the guise of a

¹⁷ Julia Hunt, diary, 1930.

friend and a way out of the world circumscribed by the piazza of the Hunt homestead.

When she was not working at home or the telephone office, Julia liked to sit on the front piazza and watch the infrequent traffic: Fords, Chevrolets, Whippets, the milk truck, the fruit man, the Grand Union Tea Man, and horses and buggies. No one rode alone in a car; the few people who owned cars chauffeured the people who didn't. Julia could see who went by and who was riding with whom. Usually she could guess where they were going and when they would return. She always watched especially for the Ford she called 20-303. That would be Bill Roberts, who usually had two or three Weeks family members from Laconia with him, including Julia's best friend Ethel, who was the night telephone operator in Laconia. Relatives by marriage--Julia's uncle married Elizabeth Weeks--both thirty-four-year-old women still lived at home with their parents. In 1930, unknowingly living out her last year, Ethel worked as a part-time reporter at her father's newspaper, the *Laconia News and Critic*, and as a night operator at the Laconia telephone exchange. A suffragette, beautiful, popular, and from a family on the rise, she belonged to the Grange as part of her farming heritage.

The aunt that Julia and Ethel shared, Aunt Lizzie, lived upstairs in the Hunt house with her husband, Julia's Uncle Perry, and a changing assortment of grown children with their spouses. Downstairs, Perry's brother Charles Hunt and his wife Elizabeth lived with their three grown children. Son Tom, aged thirty, worked on the road for the town and on the farm for his father. Daughter Harriet, aged twenty-seven, worked as a telephone operator, housekeeper, and baby-sitter. Daughter Julia, aged thirty-four, had been a school teacher in one-room schools in and around Gilford. In 1930 she hired out as a live-in housekeeper in cases of illness or when women left their husbands and went to visit

relatives for several days. In March Julia became a telephone operator like her sister.

In 1930 the effects of the Depression began to be felt. On the farm, the Hunts had plenty of food, but they all did any chores they could to bring in cash. Behind the house, the barn and pastures and gardens climbed up out of sight. Here, Charles and Tom milked the cows and hayed. The womenfolk sold the milk to local store owners. In the summer, in the high back acres by the swamp, the women picked blueberries and raspberries to sell. Tom and Charles helped mailman Uncle Perry on his rural free delivery route. They serviced his Ford when it needed it, supplied the horse to use on the route in mud-time, and substituted as mailmen whenever Uncle Perry was ill. Occasionally extra children joined the household temporarily when Harriet or her mother babysat.

The women shared the non-paying household work. They tended the flower and vegetable gardens. They picked beans to can and baked bread and cakes. They washed dishes by hand, and when the house became too shabby, Julia assisted Harriet in re-papering and painting the kitchen, pantry, and living room. Harriet painted the wide boards on the floor deck grey, and, for a finishing touch, the sisters moved a picture from the front bedroom to a spot over the living room couch, not over Julia's piano, and called the results satisfying.

Modernity infiltrated the 1930 household with several relatively new technologies. All three men--father, uncle, and brother--had Ford cars which they used to drive the women to work, to shop, and to go visiting. The upstairs family had a telephone that the downstairs family shared. Julia, downstairs, had a radio that the upstairs folks came down to hear. The two families also shared a May Tag washer and an Air Way vacuum cleaner. Old ways, still familiar, hovered on the fringes, however. Julia ironed one day, "...but not

with the electric one." When the electricity failed, as it did during storms, then the kerosene lamps were reactivated. Monday washing did not always proceed in the May Tag; the women still washed a great deal by hand and hung it on the line to dry. When the indoor pump failed, they used the hand pump outside.

One of Julia's favorite programs, a 15-minute talk show called *Cheerio*, began in 1927 and aired at 8:30 a.m., six times a week. *Cheerio*'s original idea was to offer upliftment and solace for the sick and shut-ins. In order to keep the sentiment pure, the host would be unpaid and known only by the name "*Cheerio*," the word of greeting he used. Furthermore, there would be no advertising during the 15 minutes to avoid any semblance of materialism. *Cheerio* was Charles K. Fields, born in Vermont. Under NBC, *Cheerio* added homemakers to his original idea of shut-ins as an audience, because such women were also "shut-ins," in a way. Once a woman maintaining a home got the "menfolks off to work and her children to school...she turns from the door that closes back of them and faces the remainder of her household duties...with inanimate things there cannot help but be a let-down from the heart interest of the living objects."¹⁸ A cage of rented singing canaries opened the program. *Cheerio*'s fifteen friendly minutes packaged religious sentimentality and positive thinking with a smattering of music, eastern philosophy, and birthday greetings for the shut-ins and homemakers of America. Women like Julia Hunt who wanted more connection responded by making *Cheerio* one of the most popular radio shows of the late 1920s and early 1930s. Fans sent away for and displayed a card with a red C, "the outward and visible sign of an inward and spiritual grace that responds to the friendly impulse of

¹⁸ [Charles K. Fields], *The Story of Cheerio* (Garden City: Garden City Publishing Co., 1936), 222.

which the Cheerio broadcast was born."¹⁹

Julia was a woman waiting. The radio was a retreat while she waited. She could hear the grand musicians of the world, something she could never do in Gilford. She could listen to Taft's funeral and hear a program on discoveries in astronomy. She could become passive and be occupied without stirring from her home sphere. She could also listen while she worked around the house. The radio was a companion, but unlike the music and the diary and the telephone, radio required little active participation. Julia's obsession with radio programs abated somewhat in the spring. The weather allowed her to travel more freely and she became a telephone operator. When Julia became a telephone operator in March, the telephone enabled her to take the initiative as well as wait. She spoke to her friends for hours at a time, when the switchboard was not busy. She earned a modest income, which gave her small freedoms like going to the movies. It entertained her when she listened in on conversations during a slow night, and it kept her apprised of the events in the community.

Her sister Harriet started as an operator February 2, 1930. In her diary in March, Julia wrote that she intended to ask Clara, the chief operator, about a job. For once things turned out better than Julia anticipated; within a week she was working permanently at the exchange. Unlike her urban sisters, Julia did not have to endure three to four weeks of training. Her training was termed "breaking in," and seems to have lasted about three days.

By summertime, neighbor Estella James also joined the crew, as a substitute. Twenty-year-old Estella's "breaking in" period, like Julia's, also lasted three days.

The Glendale exchange had been a sub-licensee of NET&T since 1917, but

¹⁹ Fields, *Cheerio*, 225.

Glendale did not transfer to NET&T until 1931. Like Julia, the operators in independent companies had more control over their work and did not have to endure the rigorous standardized treatment imposed on urban operators working for full-fledged NET&T companies. There were the mechanics of the switchboard to learn, the names and numbers of subscribers, procedures in event of fire or emergency, how to make a long-distance connection, the protocol for answering calls and breaking off conversations, and procedures for record-keeping. Once she had learned all that, Julia was "broken-in." She became the regular night operator at the Glendale Exchange on June 1.

Two rooms housed the Glendale central office. One room held the switchboard, the other room an old-fashioned double bed with a tall wooden headboard. Two windows looked out onto the road, so that the operator could see the village comings and goings. Just around the corner, the town pier stretched out from the edge of Lake Winnepesaukee toward a picture postcard island. The operator could not stroll outside to look, however, unless someone covered the switchboard for her; she had to stay in her two small rooms.

The night operator on duty could turn on the alarm bell and go to sleep after 10:30, if she chose. If Mrs. Boynton, the widow who lived in the other half of the house and to whom the house belonged, were alone, she would bring in sandwiches or a hot drink and keep Julia company. Now and then Mrs. Boynton left the door open to her part of the house so that Julia could hear the radio. If Mrs. Boynton were gone for the evening, Julia's mother or sister would come down from the Hunt homestead four miles away and spend the night.

After about 9:00, the switchboard would go quiet. Before that there might be only three calls an hour. Once the Laconia Exchange where Ethel worked as night operator quieted down, Julia and Ethel would call one another, when they were getting along, and

talk for an hour or more, putting each other on hold if a call came in. Still on duty, they would call one another in the morning around 6:00 to wake up. Usually calls started coming in then, too.

Telephone work did not respect holidays. Julia worked Easter, Christmas, and New Year's Eve in 1930.²⁰ Usually the nights proceeded without variety, but once in a while something different happened for excitement. On May 11 "They blew out a fuse + so had to use the crank and the kerosene lights." May 24, while Julia was working as day operator and her sister Harriet was working nights, "Russell Clough hung himself this morning. Some busy believe me! They woke Harriet up at 4:30 Standard time or 3:30 Daylight Saving Time. Pa brought me to work and then took Harriet home. Awfully busy-busiest I've ever been so far...Called Clara to tell her the news...Everyone talking about the Clough affair."

When calls did come in at night, an alarm bell rang to wake the operator on duty. She could sleep either in her chair or in the bed in the next room. July 2, Julia "Had a call at 3:15 standard time and had some experience. Pulled chain off from light over desk last night + I knocked headset to floor. Talked with night operator [not Ethel] about 1/2 hour after." If on duty during a night when a thunderstorm threatened, Julia did not undress for bed, but slept clothed in case an emergency called her into action on the switchboard. Some of the calls were social calls to Julia from the townspeople. On December 31, she was awakened early. "First call [at work] at 5:45. Mr. Gustafson told me to look for the comet."

After becoming night operator, Julia had less time to listen to the radio, but she turned to the telephone for companionship. She took advantage of her new freedom to talk,

²⁰ Julia Hunt , diary, 1930.

discreetly, over the lines. When the board wasn't busy, which was often, she rang up Ethel, and they talked between calls. They could do this as operators, but they could not do this on their home telephones because their lines served many families. Julia's party line served 21 phones. Callers talked briefly or were encouraged to hang up by others wanting to use the line. There was also no privacy on a party line; it was understood that everyone listened and therefore one was careful about what one said. The conversations between Julia and Ethel when they were working unsupervised on the switchboards could not be monitored by others and were thus a way to hold lengthy and private discussions. Julia's emotional life depended on talking with Ethel. Many days Ethel did not call, at home or work, even though she promised. When Julia was waiting she was often disappointed.

A newspaper clipping tucked between two September pages tells us that Ethel Weeks died in March 29, 1931 at age 34 of a diabetic coma. She was engaged to be married to William F. Roberts of Laconia. On September 2, 1931, Bill Roberts married Ethel's sister Hazel and moved in with the Weeks family.

Julia always lived with her parents until they died. After their deaths, Julia stayed in various boarding houses and rooms, never having enough money to do better. She was a woman caught between the nineteenth century and the electronic age of the twentieth century. Like a nineteenth-century spinster living at home with her parents, she found her autonomy limited by her dependence. She relied on others to transport her to friends, to work, and to recreation. All of her social connections revolved around family. Her father was an officer in both the Grange and the church, Julia's two social venues. Visitors to the house came to buy the farm's milk or to visit all the family, not just her.

As a telephone operator, Julia earned a woman's typical small wages. This, too,

impinged on her freedom. She regretted the shortage of money that kept her from going out "sporting" more often. She liked the movies when she could afford them, and she liked daily outings to the lake or to Laconia. In the main, however, her sporting was like that of many New Hampshire farm women; everyone looked forward to and took part in the Grange and church activities. Between the several churches and the four Granges within comfortable driving distance, one could manage to go out two or three nights a week. Contemporaries report that Julia was "odd" but always involved in the community. She played piano at the Grange and organ at church. When asked to, she sang in an alto voice unmistakably hers. She visited other women who showed her their sewing projects and who shared recipes with her. Some gave her small gifts and hand-me-down clothes.²¹

Within the daily recitation of chores and small pleasures, Julia created an emotional life built on waiting. She fulfilled her duties as a daughter and single woman of the town and as a telephone operator, and she waited. She bathed and dressed and waited on the front piazza to see if anyone would offer her a ride to the annual summer Grange outing, to which she desperately wanted to go; no one did. She waited for her friends to call, and they often didn't. She waited to hear about a job at the telephone exchange. She waited to get well when ill. She waited for the weather to turn warmer or colder. She waited to see what 1930 would bring. While she waited, she sustained herself with dreams and memories. The telephone and radio helped.

The ways she used the telephone and radio suited her own needs. The technology helped her feel emotionally connected to a community of friends. This did not in any way

²¹ Julia Hunt , diary, 1930. Hector L. Bolduc, ed., *The Gilford Story* (Gilford: Thompson Ames, Gilford Historical Society, 1962). Estella Colby James interview by Judith Moyer, 20 November 1992. Raymond Wickson interview by Judith Moyer, 23 October 1992.

fulfill the original visions of the men who made the tools of mass communication. Instead, women like Julia used both radio and the telephone for creating and maintaining social ties in common, unifying rituals. Julia often wrote of loneliness in her diary. She clung to ties with Ethel and Bill through the telephone. When that failed, she turned to the radio. One of the verses that Cheerio read on the radio tried to answer the feelings of many women caught in loneliness. Cheerio hoped that lonely listeners would heal, realizing that the new electronic medium of radio connected them. Julia Hunt might have said the same of the telephone: "But now each day I'll wake and say 'Thank God, I have a friend!' My loneliness, my sadness have at last come to an end."²² Julia Hunt is evidence that the telephone not only decreased the isolation of farm women who were customers, but it also decreased the isolation of at least some women who were operators.

Demographically, Julia Hunt -- native white, single, and between the ages of 25 and 34 -- fit the dominant demographic profile of New Hampshire telephone operators in 1930. This paradigm was fairly stable throughout the predial era, until some latitude developed during the post-World War II operator shortages and during 1970s policy changes.

²² Fields, *Cheerio*, 11.

Table 32: Female Telephone Operators, New Hampshire – 1930

| | |
|------------------|-----|
| Total | 799 |
| Nativity | |
| native white | 750 |
| foreign white | 49 |
| nonwhite | 0 |
| other | 0 |
| Marital Status | |
| single/unknown* | 537 |
| married | 200 |
| widowed/divorced | 62 |
| Age | |
| 10-17** | 18 |
| 18-19 | 81 |
| 20-24 | 239 |
| 25-34 | 249 |
| 35-44 | 136 |
| 45-54 | 56 |
| 55-64 | 14 |
| 65-74 | 4 |

Source: U.S. Bureau of the Census, 1930 *Population*, vol. 4, Table 11, 990; Table 17, 992; Table 23, 994.

* This was the category enumerated in the census. Some operators married secretly because of the effects on their jobs.

** There was also one male 10-17 years old.

As a rural operator, Julia Hunt was in the minority in New Hampshire. Rural and small town operators dominated the memories of nondial telephone customers, but urban operators out-numbered rural operators. This was not surprising since by 1920, more than half of the New Hampshire population lived in urban areas.²³ A decade after Julia Hunt became a night operator, female urban operators were still the largest group of telephone operators in the state.

²³ U.S. Census, 1980 *Population*, vol. 1, Number of Inhabitants, Table 13, 1-51.

Table 33: Telephone Operators New Hampshire -- 1940

| SEX | TOTAL | URBAN | RURAL NON-FARM | RURAL FARM |
|---------------|--------------|--------------|---------------------------|-----------------------|
| Male | 47 5.3% | 26 2.9% | 17 1.9% | 4 .4% |
| Female | 846 94.7% | 530 59.4% | 266 29.8% | 50 5.6% |

Source: U.S. Bureau of the Census, 1940 Population, vol. 3, Part 4, Table 10, 114 & 116.

Even though they were in the minority, rural operators become the standard bearers for nondial telephone service in customers' memories. The Warner Women's Oral History Project from Warner, New Hampshire, collected interviews that communicated a sense of the place of the telephone operator in the small town. No one would mistake these for stories about urban operators.²⁴

Sylvia: I remember the old telephone system. I was thirteen when Elmer Bartlett asked me to work at the telephone office, probably because my sister Eileen worked there. It was always an invitation job. I worked afternoons, after school or evenings or holidays and Sundays. I was there when the kids were doing other things, but I got twenty cents an hour compared to the kids who babysat for ten cents an hour. I worked there through high school.

It was an old magneto drop system. Someone would call, it would ring and the drop would come down. You'd plug in and they'd tell you who they wanted, and you'd connect the other cord. There'd be three or four phones on a line, even eight or ten on the outskirts of town. Quite often

²⁴ See Appendix A for a discussion of the method of transcription and editing used in these interviews.

they'd ring in and try
to get their line, if it was busy.
I had a crank, so if the electricity
went off, I cranked all the numbers--
three long and one short and so
on. It was busy, especially when
there was a fire and everybody in town
called to find out where the fire
was.

Dot: Nothing got by the operator. She
could tell you where the doctor was. You could
call in and say, "If my daughter calls in
tell her I'll be home soon." You might try to
call someone: "They're not home right now, I can
see her up the street. You give her about
five minutes and she'll be home again."

Lynn: When we first moved to Warner, I was
fifteen. We had a wall phone and I would
stand on a box to crank it to get the
operator, Pat Smith. The entire
North Village was on that line. When I walked
down the road to visit Roxanne, I'd tell Pat,
"I'll be at Roxanne's." Pat knew
who was where. You could just call and
ask where the fire was or leave a
message. Everyone listened and you never
had to tell anyone you were ill, had
visitors, or were gone for the day.

Julia Hunt at the Glendale Exchange in 1930 would have understood perfectly. The telephone operator from Sunapee also would have understood. During World War II, many soldiers called home by long distance telephone. When they returned to a base that had telephone access, they stood in line for hours to call home. The completion of these connections were important to the soldiers and their families, but making the connections was not always simple. It could take several minutes to ferry a call request long-distance through as many as twenty operators. Because of equipment limitations and the peculiar

relationship of the operator to the people she served, a call to a small town exchange had features that calls to urban exchanges did not. A World war II story, told by a former SeaBee contrasts urban and rural telephone predial exchanges and gives us an idea why it took several minutes to connect a long-distance call.

Howard Pratt was a SeaBee in the Pacific during World War II. His wife, Elizabeth, lived with her family in Sunapee, next door to the von Dredens, who had a telephone. When Howard got back to San Francisco from the Pacific, he wanted to call home and tell everyone he was all right. The long line of servicemen “waited with pocketfuls of quarters to call home.” When he finally got to the telephone, he did not remember with certainty the name of the neighbor with the telephone. “I spoke to the operator in San Francisco. At that time there was no direct dialing, no instant communication across the country. It was all getting one operator to call another city and that city to another city and finally all across the United States to eventually get hooked up to your party.” Instead of Adolph Von Dreden he asked for Arthur Van Streden. “Well, there was a little bit of a wait, and she looked through the telephone books, I guess, and she informed me that there was no such person in Sunapee. She asked if I had a street address, and I said ‘Ma'am, we hardly have names for streets let alone any numbers on them. It's a very small town we're talking about.’” She regretted that she could not help him.

The San Francisco operator, being in a large city, was used to connecting by number, and that required the proper number. Howard persisted. “You get me the operator in Sunapee, New Hampshire, and I will get my wife on the phone.” Apparently unused to small town telephone exchanges, she told him that he could not do that. Howard now felt he had two missions, to speak with his wife and to educate a big city operator. “Okay,” he

said, "You get me the Sunapee operator, and you listen in, and you'll learn a lot about how things work in a small town." Now she informed him that she was not allowed to listen in.

Howard had an answer. "I know you're in a great big office and right behind you there's a supervisor walking up and down. Just raise your hand and ask her to come over and ask her if you can do a poor old SeaBee a big favor and get him to talk to his wife, and ask permission for you to listen in to how it's done."

She asked for and received permission, then Howard warned her, "When you get to Sunapee, there's going to be a long wait before the operator answers." Unlike the San Francisco switchboard, which was busy with servicemen's calls, in Sunapee "nobody telephones anybody at this hour. Everybody's in bed. There's no need for the operator to be up and around, so she's in bed and the switchboard is in the next room. When the phone rings there's a buzzer right by her bed to wake her up. But this is December and it's cold. She'll have to get up, get on her slippers, get on her bathrobe, and eventually she'll get out and answer the phone. So just hold on. When the phone starts to ring in Sunapee let it ring and ring until the operator answers." Again the operator was dubious, thinking that he was playing a serviceman's joke, but she went along with the suggestion.

The call was passed along across the country from operator to operator. "She pushed her plugs or whatever they had to do in San Francisco and the next thing I knew it was Reno, Nevada." As he remembered it, the call went through Salt Lake City, Denver, Omaha, Chicago, Cleveland, Buffalo, Syracuse, and Springfield, Massachusetts, to Keene, New Hampshire, and then Newport. The Newport operator rang the Sunapee switchboard while Howard and the San Francisco operator waited across the continent, perhaps two minutes by his estimation. Then the operator answered. "Hello, this is Sunapee, Mrs.

Calkins speaking.”

Howard said “Hi, Mrs. Calkins!”

She recognized his voice and exclaimed more than asked, “Howard, is this you? Howard Pratt...are you really here?” She asked if he was all right and told him about his four-year-old son. “He's getting to be such a big boy.” she said, and she told him his wife was doing fine and that the snow was halfway up to the window sills.

By this time Howard was getting impatient, and he knew it did not matter what the neighbor's full name was. “Mrs. Calkins, would you please call Arty's house and get Elizabeth on the phone?”

Knowing all the town's telephone numbers, family relationships, and where everyone lived, Mrs. Calkins had anticipated his request. She said, “I've been ringing it ever since I heard you say ‘Hello’ the first time. So don't you fuss, because any minute now Elizabeth's going to be on the phone, as soon as Artie can get across, bang on the door and get them waked up and get her. You know, Arty's got to get downstairs. The phone is down by the kitchen, and there's a lot of snow out there.” Being interested in the young man she knew so well, she instructed him further, “Now, you tell me all about how things are with you while we wait.”

Eventually Elizabeth came to the phone, and they talked a long time. Mrs. Calkins had to stay up at the switchboard until the call was ended in order to take down the cords she had connected, so she heard at least parts of the conversation. In the city, a supervisor kept watch on the operator listening in, but no supervisor monitored Mrs. Calkins sitting there in her robe and slippers while she chatted and listened. When they finished, Howard asked the operator in San Francisco if she had heard all that. She declared that she had not

listened in when he talked with his wife, but that she had heard the rest and hardly believed it. The night operator continued her work in San Francisco and Mrs. Calkins went back to bed in Sunapee. To this day Howard believes in “technology and the joys and benefits of living in a small town.”²⁵

Small town operators like Mrs. Calkins during the heyday of predial telephones were a part of the community in ways that the anonymous San Francisco operator never could be. Rural operators knew the people they served, recognizing voices without being told names. The townspeople felt a security and confidence when they heard the familiar voice, always there for an emergency or for information. Furthermore, equipment at small exchanges was often of an older vintage, in some cases genuinely antique. While part of the intimacy of operator and customers in a small exchange was the result of a smaller volume of calls and a face-to-face familiarity, it was also a function of the switchboard’s manual requirements; older equipment in the smaller exchanges made the operator an essential partner in the making of calls in a way that more automated systems did not.

Equipment was only one of the reasons for the perceived difference in personal service between large and small exchanges. Large exchanges had more operators and supervisory staff on duty. They also handled a greater volume of traffic at a faster pace. In larger exchanges, monitoring equipment allowed the observation of operator behavior. This introduced a hierarchical element absent in small exchanges with only one or two operators on duty at a time. In large exchanges, teamwork and service to the customer became standardized and enforced so that the operators almost became pieces of equipment themselves, cogs in the machinery, heard but not seen.

²⁵ Howard Pratt interview by Judith Moyer, 5 March 1998.

The ways that Mrs. Calkins and the San Francisco operator were chosen for their jobs were quite different. Mrs. Calkins was chief operator and had the telephone switchboard in her home. She also was married. Urban operators were penalized if they were married and went through a more formal method of application. Standards were high for screening prospective Bell employees. Before World War II, a successful applicant for beginning operating “was expected to be a high-school graduate, at least 18 but not much older, in good physical condition, and living at home or with close relatives.” Often she had a relative or friend working in the telephone company who had recommended her. During World War II, many occupations opened up to women that had been formerly dominated by men. Because some women and girls went to work in other occupations and because some telephone operators enlisted and worked as operators in the armed services, a shortage of qualified applicants plagued domestic, civilian telephone operating. The Bell system had to lower some of its qualifications. During wartime operators simply had to possess “normal intelligence, good health, and a friendly personality.” When the tight labor supply eased sometime after World War II, higher qualifications resumed. A physical examination checked for general health, good eyesight, and good hearing. Screening could include a battery of mental and aptitude tests. Ideal candidates had mental and physical characteristics that matched the expectations of operators: “a pleasing voice, alertness, manual dexterity for handling equipment and tools of the job, legible penmanship, ability to make simple calculations rapidly and accurately.” They also had personalities that would mesh in “cooperating with other operators in establishing connections” and “a stable

disposition not easily ruffled by irritable customers, and courteousness.”²⁶

Of course, no such formal requirements hindered hiring operators for small exchanges. Most often the telephone company manager or the chief operator already knew the likely candidates in town and simply asked them if they would like a job.

Interviews with Manchester operators point out more ways that post-World War II urban and rural operators’ experiences diverged. Unions, for instance, never found a foothold in rural exchanges but did in larger New Hampshire exchanges such as Manchester. Some operators believed in unions and worked passionately for them while others considered the unions necessary but not particularly helpful to them personally. Irene Bresnahan-Hebert was skeptical: “You had to be a member whether you liked it or not. It was almost like what they called a closed shop. They claimed they got us raises all the time. I think it was better for the men, the outside plant, any male-dominated department. But the female telephone operators were always behind everyone else. If another department got three weeks vacation for x number of years service, the operators were still stuck in two weeks. It didn’t do an awful lot for telephone operators I would claim.”²⁷

Sylvia Russell worked as an operator until about 1970, in Maine and New Hampshire, then went to work for the IBEW, the International Brotherhood of Electrical Workers, which included operators. One of her jobs was to talk with operators and find out their concerns and dissatisfactions. She did not always find dissension, even about the differences in pay between operators in NET&T urban and smaller exchanges. “They had

²⁶U.S. Dept. of Labor, Woman’s Bureau, *The Woman Telephone Worker*, Bulletin No. 207 (Washington: U.S. Government Printing Office, 1946), 2.

²⁷ Irene Bresnahan-Hebert interview by Robert Perreault, 4 May 2000.

four pay scales for operators. I remember talking to this lovely lady up in Claremont, and she said ‘Oh no, dear, I think it’s perfectly fair that the operators in Boston make a lot more money. We have clean air up here in Claremont.’” The dedication of workers, both urban and rural, impressed her. “These people were so dedicated. If the company only appreciated the dedication and treated these people well they never would have had a union. These people would have taken a cut in pay if the company said they were losing money. They came in, even people who were retired, when there was a storm, outages -- everybody would come into work. You felt needed, almost like the Red Cross....that’s the dedication.”²⁸

The pay in Manchester, compared to other jobs available, was considered by the operators to be good. In 1945 Irene Bresnahan-Hebert made \$18 to \$23 a week, and the telephone office was “one of the better paying places in Manchester.” They made less than men working in the company in other departments but more than their rural counterparts. As an urban long-distance operator and then information operator, Irene was always aware of supervisors and observers, unlike in small exchanges. “There’d be a light that would come in that would indicate there was someone there that needed assistance. So you would plug it in, ask what they wanted. You had to say the right thing at the right time. Knowing a supervisor was watching and possibly an observer was listening, “you had a certain prescribed amount of time to take your plug and put it in the proper location to get New York, California, to plug it in and get an operator to answer there.” The observers would evaluate the operators according to set procedures. “You had to process the information correctly at a certain speed, be always polite, never rude,

²⁸ Sylvia Russell interview by Diane Woods, 22 December 1998.

and once the connection was established, you left that alone. You weren't supposed to listen to what they were saying. And then you'd get ready for the next one. You could have five or six calls going while you were taking down information and if one hung up, an indicator light came on, and you were supposed to disconnect and do that on time because people paid by the minute."

In Meriden, one of the few nonfamily operators was Anna Mae, a fourteen-year-old girl who worked after school while Mary Chellis napped in the same room, a less formal version of supervision. "Grammy Chellis taught me. I really liked it. She told me about recognizing when someone was calling in and about the way to push the buttons and especially that you didn't listen. You didn't dare listen in." In case of emergency or a question that Anna Mae could not answer, "Grammy Chellis was taking her nap on that couch in the switchboard room, so I would just speak to her and she would immediately take over."²⁹ Mary Chellis herself would not be supervised. "She was efficient and businesslike, but they never could teach her to answer on that back cord. She'd always answer on the front cord and then take it out and put the other in and ring on the front cord. She did it her way."³⁰

There were consequences for poor performance by the more formally supervised Manchester operators. They could be fired, subject to more training, or chastised. Irene remembered "If it took you too long, then you'd be corrected. There was always someone walking behind, watching what you were doing. Saturdays and Sundays, there was what they called an observer. She was downstairs in a different room and she would pick and choose a call to listen to. There was always somebody listening. [It] made you rather

²⁹ Anna Mae Chapman interview by Judith Moyer, 8 December 1999.

careful.” Even so, Irene liked being a long-distance operator well enough, but the stress of being a directory operator was frustrating because “everything was timed. You were like a piece of machinery. The ‘help the customer’ attitude had changed to ‘do as many as you can, as fast as you can, and however fast you do it is not fast enough.’” The biggest advantage of working for the telephone company in Manchester came from having a steady employer. She preferred office work to operating, however, because “Telephone operating made me very nervous. I liked office work better. After you learn the ropes of being a telephone operator, it’s automatic. You don’t use your head much. And I liked office work because there was more of an individual responsibility, and it took more of your brain to use.”³¹

Telephone operating was considered similar to office work in many respects by 1950, but the numbers of office workers far exceeded the numbers of operators. 1950 was the decade when the numbers of operators in New Hampshire peaked, then fell as exchanges converted to dial. In the U.S., telephone operating was one of the top ten largest occupations for women.

Table 34: Top 10 Largest Occupations for U.S. Women, 1950

| Occupation | Absolute Number | % of All Workers |
|---------------------------------------|-----------------|------------------|
| Stenographers, typists, secretaries | 1,501,090 | 94 |
| Salewomen – retail trade | 1,192,323 | 49 |
| Teachers | 834,996 | 75 |
| Operatives – apparel, accessories | 616,864 | 81 |
| Bookkeepers | 556,229 | 77 |
| Waitresses | 545,565 | 82 |
| Nurses (professional) | 388,921 | 98 |
| Telephone operators | 341,706 | 95 |
| Managers, proprietors – retail trade | 320,139 | 17 |
| Farm laborers (unpaid family workers) | 317,578 | 35 |

Source: U.S. Department of Labor, Women’s Bureau, *Changes in Women’s Occupations, 1940-1950*, (Washington: U.S. Government printing Office, 1954), 14.

³⁰ Vera Chellis interview by Judith Moyer, 7 December 1999.

³¹ Irene Bresnahan-Hebert interview by Robert Perreault, 4 May 2000.

While not the largest of clerical occupations, telephone operating had one of the highest female percentages, 95%, of the total number of employed operators.

Table 35: Largest Clerical Occupations for U.S. Women, 1950

| Occupation | % distribution | % of all such workers who are female |
|--|----------------|--------------------------------------|
| Total | 100 | 62 |
| Stenographers, typists, secretaries | 35 | 94 |
| Bookkeepers | 13 | 77 |
| Telephone operators | 8 | 95 |
| Cashiers | 4 | 81 |
| Office-machine operators | 3 | 82 |
| Attendants – physician’s, dentist’s office | 1 | 95 |

Source: U.S. Department of Labor, Women’s Bureau, *Changes in Women’s Occupations, 1940-1950*, (Washington: U.S. Government Printing office, 1954), 38.

As seen by the percentage of females, the severe gendered divisions continued in both rural and urban settings in New Hampshire, to the end of manual telephone operating in 1973. In Meriden, the men of the Chellis family took their turns at the switchboard, including David Chellis, who began telephone operating as a child. “The male voice was a novelty. Uncle Howard would divvy his time between office manager and the switchboard. Hazel, his wife, used to joke that when his shift ended and a woman went back on the switchboard, on their first call into White River they would get this syrupy-sweet operator’s voice saying, ‘White River,’ and as soon as White River heard a woman’s voice, they would go right back to a stern and cold ‘thank you.’ They were just different to Howard.”³² In Manchester, central office repairmen helped when it was busy and there were not enough operators, but, mostly, “It was just an accepted thing. There were women’s jobs and there were men’s jobs.”³³

³² David Chellis interview by Judith Moyer, 16 May 2000.

³³ Mary C, Byrne interview by Robert Perreault, 12 May 2000.

CHAPTER SIX

IMAGE AND SERVICE

The voice of the telephone was a woman's voice and the image of the operator was a woman. An image of a telephone operator from a 1915 American Telephone and Telegraph Company advertisement is so well known that it still elicits instant recognition from telephone workers in the year 2000. Telephone company employees can buy posters of it or silk-screened copies of it on sweatshirts and caps. It appears on commemorative plates and is woven into divan throws. The image is called *Weavers of Speech*.

In the image, an operator sits on a tall chair still recognizable to operators decades later. She is young, probably in her twenties, Caucasian, and dressed in a white blouse and dark skirt. The blouse drapes modestly over a trim figure with little definition. Her hair is bound into a demure, modest style. Her arms are covered by the long sleeves of her blouse, and her legs are out of sight somewhere in the romantic swirl surrounding the scenes of the countryside. She would look perfectly right were we to replace the wires in her hands with teacup and saucer. (See Appendix B, figure 10.)

The ad copy, under the bold title *Weavers of Speech*, read in part:

Day and night, invisible hands shift the shuttles to and fro, weaving the thoughts of men and women into a pattern....The weavers are the 70,000 Bell operators. Out of sight of the subscribers, these weavers of speech sit silently at the switchboards, swiftly and skillfully interlacing the cords which guide the human voice over the country in all directions....This is Bell Service. Not only is it necessary to provide the facilities for the weaving of speech, but these facilities must be vitalized with the skill and

intelligence which, in the Bell System, have made Universal Service the privilege of millions.¹

From four telephone poles marching out of the background, telephone wires pass like a skein of yarn into the hands of the young telephone operator. She does not weave this. The weaving imagery is in name only. Instead, the lines drape in a group from one hand to the other and then swing singly from the graceful fingertips to three small scenes appearing to float in the ethers in the left of the picture. The topmost wires stretch a short way to a city of tall buildings. The middle wires drop over the roof of a white house tucked into a rural landscape of fields and trees. Smoke rises from the chimney. The bottom wires fall with a pleasing curve toward a cluster of factories with smoking stacks. None of the wires actually touch any of these buildings. They merely suggest a connection. Goddess-like, the operator holds the image together, and she dwarfs the world she serves.

“BELL SERVICE, BELL SYSTEM, UNIVERSAL SERVICE.” These three phrases, in upper case lettering, expressed the public message and the mantra of the Bell system. The equipment existed to make the operator’s work possible and the operator existed to make the conversations of customers possible. She existed to serve the customer and the company, both populations made up of primarily males in the early periods of the telephone. According to the ad, the Bell operator worked with skill and intelligence. The image made her attractive, young, trim, and decidedly modest. All of her attention was given to the task at hand. She transformed the wires with her femininity, infusing the scene with grace and tranquility.

¹ American Telephone and Telegraph Company, *Weavers of Speech* (December 1915). An advertisement distributed to national magazines. Box 2061, AT&T Archives, Warren, N.J. See Appendix B, figure 10.

The images of the wires' destination could be born of her imagination as she visualizes the connections. The only actual hardware we see consists of steady poles delivering their wires to this young woman wearing a headset and mouthpiece. We see no switchboard. We get no sense of the wear and tear of trying to answer multiple calls in seven seconds each on a board that puts 10,000 lines within the operator's reach.

Weavers of Speech appeared later in New England Telephone's employee magazine, *Telephone Topics*, in the 1920s. This time it was used with an inspirational message that encouraged the use of imagery by operators.

As a telephone operator do you see the switchboard, the plugs, the cords, the jacks, or do you look beyond and see the people? Can you see in your mind an exchange, not a switchboard but the people? Can you see beyond that?...Can you see the home, the office, the factory, the farm? Can you see in your mind a nation of people bound together by the telephone?²

The suggested visualization was to culminate in an image of the operator, the self, rendering the highest act possible in human life, to be of service to another. "When you complete a connection or handle a call do you have a real mental picture of an *act of service*?" In that image, every telephone call became an opportunity for the operator to serve: "Telephone calls are not telephone calls at all, they are *acts of service*."

As in the advertising copy, this passage singled out service as the product of the Bell telephone system and the operator as the agent of this product. Presumably an operator believing in the ethic of service would work all the harder and better. The emphasis on self-effacing good service was an extension to the workplace of domestic advice given to American wives in the nineteenth century. Readers of Victorian advice-givers like Sarah

² *Telephone Topics*, page and date unknown. Sometime in the 1920s.

Joseph Hale or Marion Harland could have easily recognized the sentiment in the exhortation saying, “To some the opportunity to be of service is very great, but to no one greater than to a telephone operator... the greatest thing in life is to be of service.” Like the wife and mother, the operator was to visualize and value herself as a giver and sustainer of life, not of children but of the telephone system itself: “The very tides of human life ebb and flow beneath your fingers. If you make a picture in your mind of the Telephone System with all that it means as a triumph of inventive genius, engineering skill and human labor, go still further and you will see that with all its greatness it is dead until your fingers give it life.”³

The theme of service ties every image of operators throughout the history of the telephone, no matter what the source, location, or time period. The theme of service combines cultural forms predating the telephone, business decisions associated with the telephone, and cultural fantasies expressing needs of telephone customers. In *Weavers of Speech*, telephone operating was an extension of the feminine role; operators did not work with the hardware of a technology, but instead worked to serve people in ways related, metaphorically at least, to traditional women’s work. The image drew on a powerful cultural myth.

The word myth has suggests a complicated, multileveled view of the relationship between ideas and mundane experience. Colloquially, the word describes, often in a denigrating way, a fiction that is untrue when tested by experience. More deeply, myth is a narrative or idea that points to interpretations and beliefs behind everyday experience. Some of the myths surrounding operators were constructed by the industry to further its

³ *Telephone Topics*, page and date unknown. Sometime in the 1920s.

own aims. Some of the myths arose out of previously existing cultural images and expectations of women. Some came from collective experience, as revealed by the similarity of stories told by small town customers about predial telephone operators they remember. Intersections of these images built powerful, enduring portrayals of woman's place in the world of technology that, as in *Weavers of Speech*, applied domestic thinking about women to a new, commercial occupation. It construed the argument that Victorians used to elevate domestic science as woman's proper sphere and fulfillment of the essential female nature: women were created to give birth and to nurture and thus to serve others, whether in the home or in the workplace. This drew on the very root of beliefs about women and of creation itself.

Images served as shorthand reminders of beliefs about woman's place in relation to telephone technology and business. Stories about or similar to the images informed both the observer and the participant how they should act in the world of telephone technology. The images offered instruction as to what was appropriate behavior and appropriate thinking. They interpreted how the elements – operators, subscribers, and equipment -- fit into a larger whole, and they offered a vision of the future. On the surface, the images were simple, reassuring and often charming depictions of women at work. Deeper down, they were depictions of beliefs – or desires -- about women's place in relation to others and to creation.

Telephone Men and Women at Work

In the United States, the Bell telephone system always held a giant's share of the business. For the first seventeen years Bell maintained a monopoly. Even during the period of virulent competition between 1893 and 1913, termed the telephone wars, Bell

was the industry giant by which all others measured their own height. Out of sheer size, what Bell said and did affected smaller telephone companies and set the standards for the industry as a whole. After the Kingsbury Agreement of 1913, non-Bell telephone companies had the right to link into the Bell long distance lines. Under threats of stiffer regulation and possible nationalization by the federal government, a cooperative nationwide telephone system developed consisting of seventeen regional Bell companies, the parent Bell company (American Telephone and Telegraph Company), and independent non-Bell companies. The independents that linked into the Bell system were called sub-licensees of the Bell system. They received technical assistance from Bell in the interests of consistent, good quality telephone service. At meetings of sub-licensees, Bell presenters used many of the same thoughts and images that Bell used with its own employees and in public advertising. Unabashedly, Bell spread its distinct vision of telephone service and system throughout its own ranks and throughout the United States.

The Bell companies, of which New England Telephone Company was one of the earliest, developed an advertising strategy that concentrated on creating an image with a consistent public message: Our product is service and we provide better service than anyone else. New England Telephone & Telegraph Company brought the Bell message and presence to New Hampshire. Their headquarters were on Milk Street in Boston until 1948, when the company moved into its new flagship headquarters at 185 Franklin Street in Boston. Fans of Superman and the Empire State Building would recognize the Franklin Street architecture: a massive stone rectangle set in a slightly wider base and hatted with ascending blocks of diminishing size, all of it indented with rows and columns of windows. Decades later, when telephone workers pass under the *bas relief* of

a golden bell over the main entrance to 185 Franklin Street, they pass through revolving doors into a dusky marble rotunda fifty feet across. If they look upward, and many do not, they see a stunning, continuous, 120-foot-long mural that moves the eye from left to right around the rotunda walls. The 197 characters swirl through tableaux of work-in-progress intertwined with equipment and machinery depicting the New England Telephone system. If sound came from these images, there would be the clack and clang of metal on metal, the spritz of electricity, and the purposeful talk of linesmen and office workers. Many of the voices would be women's and many of them would be saying "Number, please," "Thank you," and "I'm sorry, that line is busy."

The intended inspirational message is Service. Telephone operators occupy the portion of the mural straight ahead directly over the door opposite the entrance. A line of eight telephone "girls" wearing Jello colors sit elbow-to-elbow on high swivel chairs of a design standardized by the Bell Laboratories in 1935. Small racks under the seats, designed especially for the purpose, hold pocketbooks. The young women use both hands to plug and unplug cords on a multiple, common battery switchboard. A supervisor leans forward over the shoulder of one "girl" to help, perhaps, with a difficult caller. Two others sit in chairs behind the line of operators at the board, monitoring. Another intent woman, a chief operator wearing a headset, observes with notebook in hand. At a shorter switchboard, two toll operators handle long-distance calls. A single information operator sits with one hand on a massive open telephone book while paging through another from a two-tiered stack. Not a movement or word is wasted or gratuitous. Not a head is turned away from the task. There is only purpose here. All is

structured. Everything works in a perfect concordance of humans, furniture, paper, and machinery.

Operators seeing this scene may or may not have been inspired, but all was not well for them. Caught in the drive to provide good service and profits, they knew automatic switches would replace them. Massive Bell conversions to dial had begun in New England by 1948. By 1966 NET&T conversions would be complete. The mural did not shrink from this, because the point was to illustrate the advertised purpose of the system, which was to offer the best service. Now a record of events gone by, a once prophetic cluster of men bends over blueprints on a drafting table in front of the switchboard. In the middle background, like manifestations of the designers' plans, strong, silent young men tip an automatic switching panel into place.

The idea and the mural are infused with power massive enough to drive an industry and a dominant sector of society. The New England Telephone Publicity Department chose Dean Cornwell, a premier muralist of the 1930s and 1940s, to paint the mural *Telephone Men and Women at Work* in order to warm the new rotunda that felt too much like a mausoleum. Cornwell worked in the style of heroic realism, depicting the common man in bold technological creation. Similarities of style can be seen between his work and that of his friend Norman Rockwell, though Cornwell's mural has a sharper edge and lacks Rockwell's humility and humor.

The New England Telephone Company had an active role in producing the mural. The audio-visual supervisor from the NET&T publicity department traveled around New England with Cornwell for a year, taking photos of telephone men, women, and

equipment at work.⁴ Cornwell used live models as well, several for the male figures but only a single favorite for the adult females. Six-foot-high pencil sketches gave the dozen people in the publicity department, about evenly divided between men and women, repeated chances to critique the developing concept. The men in the department tended to focus on design accuracy of equipment while the women tended to focus on getting the “woman things” right: the sequences of the women’s work, the depth of necklines, the sizes of figures, the length of skirts, and the styles of hair.

The final twelve panels, painted on canvas, were glued to the wall in an apparently seamless circle. The first one-quarter of the mural shows the history of the telephone, beginning with inventor Alexander Graham Bell demonstrating his creation, the first male telephone operators, and the later female telephone operators. Here and all through the panels, a strictly gendered division of labor was maintained. The remaining three-quarters of the mural depicted the different departments of the telephone company at work in 1947. Structurally, the composition was based on a series of triangular clusters rising and falling from left to right but with bases solidly on the ground. Vertical posts and trees push against the topline of the mural and appear to function as building supports in the rotunda itself. Many of the images in the mural were taken from actual places and events, and nothing was allowed that was not a New England scene.

Human technology pushes Nature to the background here. Tree peaks in the background vie with telephone poles for vertical space. A shadowy rise in the landscape supports a glimpse of a village of New England clapboarded houses, and the hills metamorphose into a distant mass of city buildings. In the one panel where Nature

⁴ Edward Palmer interview by Judith Moyer, 9 April 1995.

becomes visible, it is Angry Nature wreaking havoc with all that man hath wrought. Men struggle to reset poles toppling under the forces of waves and wind. Wires hang useless under the weight of ice. A woman operator maintains her post in a smoke-filled building, working by the light of a lantern. A flock of white pigeons, like doves of peace, escape from the fury into the tranquil golden sky over the busy man-made purpose of the earlier panels.

Visually, the disorder of natural cataclysm is the one spot where dark forces in the background threaten to create a breach in the orderly world of man and technology. There is no doubt of the power of the threat. The natural world must be fought and controlled by heroic men and women, lest it inundate all that has been created. As the one perfectly geometrical shape in the center of chaotic destruction, a rainbow signals the divine promise of the restoration of order. One end of the rainbow intersects with the silhouetted God-like figure of a linesman straddling an unsteady tangle of crossbars.

A vision of human order and perfection is evident in the telephone workers. All the figures in the mural are larger than life with angular features. The men are strong and manly, the women attractive and fashionable, yet modest. All of the workers are Caucasian and none have visible handicaps. The public figures are only somewhat less perfect, although they do include two old men with Santa Claus beards, a grinning man with a tooth missing, and a petulant little girl. All the children are blond, even a naked (except for shoes and socks) cherub in his mother's arms. All the figures are dressed according to middle class standards of the day and all are behaving within strictly defined gender roles. All of the women and girls wear stylish but not gaudy skirts or dresses. The adult women wear high-heeled shoes. All of the women have medium-length or long

brown or blond hair that is bound, coiled, or braided; not a single strand flies out of place. The use of a single model for the female figures shows in same slim waists, youthful faces, and straight shoulders. Images of old, short, fat or otherwise imperfect have no place here. These are idealized women who could be wives, mothers, or faithful office workers without blemish. Likewise, the men approach a stereotyped ideal, although they have slightly more leeway in variety. Differences in dress between white-collar workers and laborers make it clear that there is a hierarchy, although the virile action figures of the men doing physical labor dominate. The top of the hierarchy is invisible here. We see no top managers, no hovering visages of presidents and vice presidents, no stockholders. This art glorifies the common worker.

New England Telephone Company intended for *Telephone Men and Women at Work* to do more than decorate the walls with warm colors. The message was meant for both employees and customers: New England telephone people use the equipment and battle Nature herself if necessary to provide dependable, fast, accurate service. The system did not exist for the employees; quite the opposite was true. Telephone men and women were to take the inspiration to heart and strive to meet the ideal. Customers were to trust the telephone company and understand that the workers were giving their all. If this happened, then humanity would prevail over Nature and keep the dangers of disorder at bay.

Telephone Men and Women at Work glorifies the ideals of white, middle class, technological culture at mid-century in the United States. The middle class was both the source and the result of corporate industrial growth, and the visual marriage of the two expresses this. It accurately portrays the usually rigid division of labor by gender in the

telephone industry as a whole. It portrays the meshing of equipment and people and comments on the necessity for technology to maintain human culture and human existence itself. As is characteristic of its genre, it does not portray the variations and imperfections in humanity, even though humans are at the center of the vision. It glorifies the dominant conventions of the day. It does not challenge them, nor does it portray or even hint at the dangers of technology -- the potentials for pollution, the stresses on the human body and psyche, the mind of its own that technology often seems to exercise. Rather, the mural instructs using an ideal. It interprets for the viewer an ideal that is spectacular in its insistence on the possibilities for heroic acts in the dailiness of corporate work life centered on technology.

A Flaw

A competing image from 1915 held no such view and uncovered a flaw in the corporate technology. The flaw led to hardship for telephone operators. In the report to the U.S. Commission on Industrial Relations, the field investigator summarized her findings from a study of Bell telephone operators in eight U.S. cities, mostly in the West and Midwest. None were in New Hampshire.

In addition to concluding that telephone operator wages were too low to allow independent living, the investigator criticized the telephone companies for thinking of service to customers in its demands on operators, putting customers, not operators first. "The impatient and busy public is always at the opposite end of the telephone demanding its pound of efficiency flesh and the tyranny of the subscriber in this regard becomes naturally reflected in the telephone management and its method of dealing with its

operators.”⁵ Advocating minimum wage laws and protective regulation, prominent women’s labor issues of the time, the investigator went on to “set down for your benefit certain impressions...that were left upon and remain insistently vivid in my mind...”⁶ She observed that telephone operating was unique as an occupation for women and, seeing farther than she realized into the future of electronic work, she observed that “the exhaustion which it entails is not so much physical as mental and nervous; a depletion of the nervous force.”⁷ The nervous depletion derived from the nature of the work, requiring speed under pressure, and also from the system of constant observation “by supervisors, chief operators and managers, in and about the operating rooms, which is extremely exacting and disciplinary.” Maybe, the investigator wrote, no other woman’s industrial occupation was accomplished under such supervision, none where “remissness is more instantly checked by the incisive action of an overseer.” This image was of operating rooms lined as sweat shops.

These young girls are pinioned for hours at a sitting to their metal head-sets, facing the flickering lights constantly coming and going with their minds and bodies tense, keyed up to the highest point of nervous energy, compelled to listen in meekness and humility to insults and complaints from irascible subscribers, plugging in and plugging out hundreds of calls per hour with a thousand nervous muscular motions of the body, while a supervising task mistress walks back and forth behind her, urging her energies up to alertness at the least sign of laxity or impatience, and secret monitors listen while she works, recording all errors and deviations from the rules. This is the daily situation of the telephone switchboard operator; never varying, never changing.⁸

⁵ Nelle B. Curry, *Investigation of the Wages and Conditions of Telephone Operating: Report to United States Commission on Industrial Relations* (1915), 26.

⁶ Curry, *Investigation*, 25.

⁷ Curry, *Investigation*, 32.

⁸ Curry, *Investigation*, 33.

Other long-held cultural images intruded in the description, particularly one of woman as prone to weakness and hysteria. The investigator claimed that “Nervous collapses at the switchboard are of frequent occurrence.” Telephone operating rooms in cities were often on upper floors of brick buildings and these were the days of fans in the summer, not air conditioning. Fans, when on however, made hearing difficult and blew around the light-weight toll tickets. Dress codes demanded that operators wear modest clothing, similar to what was acceptable for a teacher, so they came to work in high necks on blouses, long sleeves, and long skirts. It may not have been just myth manifesting, then, when it was reported that “Hysterical attacks, where the operator, after reaching the limit of her endurance, throws up her hands, screams and faints at her work, are said to occur quite frequently, during the busiest periods and most frequently during the summer days.”⁹

The investigator found that expectations for the number of calls per hour that an operator would answer ranged from 200 to 600, depending on the type of switchboard and type of calls. She concluded that under the demands of an “impatient and busy public,” the job was “nerve-wracking.” In fact, one of the managers said, “We prefer girls of naturally nervous temperaments -- they make better operators—they are more alert.”¹⁰ High service was expected from *The Voice with a Smile*.

The investigator reported conversations with many operators to prove her point:

No. 138, Los Angeles...She says to be “poked in the back and told to hurry when you are working as fast as you possibly can is not very soothing on the nerves.” She says she has crying spells—cries without

⁹ Curry, *Investigation*, 30.

¹⁰ Curry, *Investigation*, 29.

reason. Says nearly all the girls do, that it is nearly an everyday occurrence at the office.

No. 146, Los Angeles... Worked a little over a year before she had the breakdown. She says girls at the board are “not allowed to speak one word to each other—not allowed to turn their heads—not even allowed to smile, nor to fold hands, nor cross feet, nor even to lean back in their chairs.”¹¹

She concluded, that under current conditions, older women were not as likely to be hired.

The company preferred young girls because “they are more likely to live at home.” This was best because the wages made it hard for an operator to support herself independently.

An operator living with her parents was also less likely to behave in ways unbecoming to a modest woman. Younger women were also “keener for the work, livelier in spirit...

They enter with more eagerness and zest into the excitement.... They worry less.”

Inexperienced and just emerging from the rule-laden atmosphere of high school, young girls were “more alert to discipline.” The strain of sitting for long hours and stretching quickly to reach the tops of high boards was less wearing on the young, who were

“physically more able to stand the strain.” This explained to the investigator why “year by year, there is drawn into the service of the telephone companies an army of girls in their years of adolescence, and after a few years’ work they disappear from the service.”¹²

The actual experiences of telephone operators put the viewpoints of the epic Franklin Street mural and the romantic *Weavers of Speech* in question. Did the ideal of female service in harmony with machines actually exist? One operator quoted in the 1915 report said, “The management expects you to be just a machine.”¹³ Photographs of operators from the different eras and the Cornwell mural have a certain sameness about

¹¹ Curry, *Investigation*, 36.

¹² Curry, *Investigation*, 42.

¹³ Curry, *Investigation*, 35.

them that communicates the similarity to machines, all the operators sitting in identical positions facing a long board. They are part of the whole. While union negotiations and government regulations did soften some of the worst aspects of the job, the job nevertheless continued to make unique demands.

Why Operators Make Good Wives

Associations with cultural expectations about women came to the foreground in another image presented by NET&T appearing soon after the Curry report. An article, “Why Operators Make Good Wives,” appearing in the February 1916 *Telephone Topics* magazine seems at first glance to be tongue-in-cheek. It is not. Even though two hearts shot through with an arrow decorated the cover of the issue, and even though the article began by exploring the effects of leap year on the telephone operator population, the article was quite serious in its presentation of operator imagery. Two men speak:

...Now, we want [this] kind of a girl for a telephone operator just as you want her for a wife. If you really want her—and she wants you—we lose....

When a girl qualifies for employment, she must be between the ages of seventeen and twenty-five; she must be healthy, even-tempered, of good moral character, of good disposition, not hysterical, and have good eyesight and hearing....She learns how to speak in a voice that is courteous and well-modulated; she learns how to control her temper, even at times when there is great temptation to “talk back”; she learns how to size up people by their manner of speech. When she has been with us four years or so, which is the average term of service, she has rounded out into a pretty capable sort of a woman—in fact, I may say, into an exceptional and superior sort of a woman.

This presented the telephone company as a kind of finishing school, a school for wives. The query then refuted issues brought up in the Curry report. A fictitious interlocutor played a moderate Devil’s advocate, wondering if the newspaper article was true that stated “operators didn’t last more than three or four years, because they

broke down and had tuberculosis, hysteria, and other diseases; in other words, that the physical and nervous strain undermined their health.” The Bell spokesman’s quick answer replied quickly and viscerally, “Oh, bosh” The question resembled images of supposed dirty telegraph offices two generations before where women would get soiled in mind and dress and possibly catch tuberculosis. The spokesman decried the image for operators. “Let anyone take a walk through a telephone central office; I don’t care when he goes or what office he selects. I’ll bet he’ll be stumped to find a healthier looking or better looking lot of women” As an aside, the spokesman also took exception to the impressions peddled by some of the culture’s image-makers (and breakers), “comic cartoonists, who draw a branch exchange board as their idea of a central office switchboard, and then represent the operator as sewing, crocheting or gossiping with her male subscribers....It’s just plain rot.¹⁴

The connections between men as customers and girls as operators originated in the initial company vision of the telephone as an instrument for business purposes. The domestic ideal of women serving men gave the notion moral underpinnings. The business market was a market of males, and telephone operators were expected to provide service to these males, even if they were irascible and impatient, two words often applied to male subscribers of the day in telephone literature. This view had a sister in the feminization of office work occurring at the same time that women moved into operator jobs. The parallel is more than accidental. In her study of the banking and insurance industries, Angel Kwolek-Folland noted that the images of wife and office secretary melded in the literature of the 1920s. This ideal “office wife” was an unmarried office

¹⁴ “Why Operators make Good Wives,” *Telephone Topics* 9, no.9 (February 1916): 265-266.

worker who served the needs of the male executive. She was attractive, “with a sense of duty, a willingness to subsume self into work, an unflinching devotion to her boss and his business, and an inherent difference from men.”¹⁵

Other telephone scholars have noted this connection. Lana Rakow found a visual representation of this relationship with businessmen in a 1917 New York Telephone Company advertisement. Large lettering announced “Co-operators” beneath a picture of a young, cheerful operator who could have stepped out of the *Weavers of Speech* picture. On either side of her, two middle-aged men in suits held telephones to their ears. The copy noted that all three parties in a call must cooperate. “The operator co-operates by giving you the desired connections quickly, accurately and courteously.”¹⁶ A 1925 advertisement for Illinois Bell System likewise placed the operator in the middle, this time in the middle of city buildings representing Chicago and New York. Here the copy read, “ 15% of calls disposed of in 5 minutes or less....That’s speed! The kind of speed every businessman will appreciate.”¹⁷

Rulebooks

Company rulebooks as well as unwritten but explicit regulations instructed operators in the behavior that would, it was felt, attain the high ideals of good service. While these rulebooks grew fatter over the decades, the basics remained the same. A New England Telephone Company operator in 1893, had she abided by all the rules, would have not smoked or read in the operating room. She would have arrived on time

¹⁵ Angel Kwolek-Folland, *Engendering Business* (Baltimore: Johns-Hopkins University Press, 1994), 67.

¹⁶ Lana Rakow, “Women and the Telephone,” in *Technology and Women’s Voices*, ed. Cheris Kramarae (New York: Routledge & Kegan Paul, 1988), 218.

¹⁷ Rakow, *Women’s Voices*, 213.

and remained awake during night duty at an all-night office. If on duty at night she would have called in to the Boston office every half hour between 9 p.m. and 7 a.m. She would not have asked favors of subscribers and she would not have listened to subscribers' conversations. Surely she would not have engaged in "social conversation" with other operators while on duty, and she would have spoken in a low tone close to the transmitter. She would have used required phrases such as "What number?" and "Line busy." She would have seen that subscribers requested calls by number and not by name. She would have taken great care "not to connect a party to a line already in use, or to tell a subscriber a line is busy when it is not." She would have inserted and withdrawn the switchboard plugs by the handles, never the cords, and she would have answered all calls promptly, day or night. She would have done this, always, with unflagging politeness and courtesy.¹⁸

The 1899 NET&T rulebook added a few rules and expanded some of the others. The good operator would not, for instance, read, eat lunches, or do needlework at the switchboard. She would be courteous in all her dealings with subscribers, but would hold no conversation beyond that necessary in making connections. More specifically, the good operator would not spread information. She was reminded that "The names of parties using the telephone and the nature of their communication must be considered strictly confidential, and must be divulged to no one. Any violation of this rule will be considered as sufficient cause for immediate dismissal."¹⁹

In 1931 the operator who conformed to the New England telephone ideal image

¹⁸ NET&T, *Rules and General Instructions* (Boston: NET&T, 1893).

¹⁹ NET&T, *Rules for the Government and Information of Operators* (Boston: NET&T, 1899).

followed one hundred pages of written regulations and procedures in addition to knowing and following the unwritten rules about dress and behavior. Standardization and efficiency of service were the stated purposes behind these rules.²⁰ They also were a way of keeping woman operators within the boundaries of role definitions illustrated by the company images. Rulebooks required politeness and courtesy, no matter what the provocation. Difficult callers, if they could not be handled with the prescribed phrases, were to be handed off to a chief operator or supervisor. Presumably rules and regulations are created to avoid infractions that are likely to happen or to prevent repetition of infractions that have already occurred. Therefore one can infer that in actuality, some, and perhaps a good many, operators did not naturally conform to and attain the expressed Bell ideals, thus making the rules necessary.

Popular Songs

More than 400 pre-1940 copyrighted songs about the telephone were counted by one telephone enthusiast.²¹ These songs give some indication of how the public viewed operators and the telephone. A favorite often mentioned and even sung in interviews for this study was the sentimentalized 1937 song *Hello Central, Give Me Heaven*, dating back to 1937. It illustrates how the telephone had become an instrument of intimacy in some people's minds and how this intimacy was tightly bound around with ideas about women. Female operators whose job it was to give selfless service and please the customer were good subjects for sentimentalized songs because women were already associated with feelings and with caring intimacy in the culture.

²⁰ In 1893, there were three pages in the NET&T Rules and General Instructions handbook relating to operators.

²¹ "Its Praises Sweetly Sung," *Telephone Topics* (November 1940): 4-5, & 19.

Papa I'm so sad and lonely, Sobbed a tearful little child.
 Since dear mama's gone to heaven, Papa darling you've not smiled;
 I will speak to her and tell her, That we want her to come home;
 Just you listen and I'll call her Through the telephone:

Chorus:

You can find her with the angels on the golden stair.
 She'll be glad it's me who's speaking call her, won't you please;
 For I want to surely tell her, we're so lonely here.

How her heart thrilled in that moment, And the wires seemed to moan;
 I will answer just to please her, Yes, dear heart, I'll soon come home;
 Kiss me, mama, kiss your darling, Through the telephone.²²

In the above lyric, the operator was the agent through which one contacted heaven, and thus was perhaps a step closer to heaven than everyone else. The operator decided to speak as the dead mother would to comfort the grieving child. Her decision was a logical extension of Bell's service ideals and of the cultural expectation that motherly instincts would guide the behavior of women.

In a 1914 hymn called *The Royal Telephone*, the first line began, "Central's never busy Always on the line/ You can hear from Heaven Almost any time." Here one could "telephone to glory" and central was elevated to divine status; whatever Central was, heaven had one.²³ In a 1918 song, *Hello Central, Give Me No Man's Land*, the operator was requested by a young child to call her father who was fighting in World War I. The operator was always there when the customer had a need, and Central had a way of reaching anywhere one wanted to reach, heavenly or hellish.

Central was not always depicted as the divine interventionist, however. She also had a bumbling side and perhaps an incipient, modest sexual side, but still related to service to another person. In *Is There Still Room For me 'Neath The Old Apple Tree*

²² Chas. K. Harris, *Hello Central, Give Me Heaven* (Chicago, Illinois: Calumet Music Co., 1937).

²³ Chas. H. Powell and Peter Shupe, *The Royal Telephone* (Chicago, Illinois: M.M. Cole Publishing Co., 1914).

(1915), an impatient man called his former sweetheart in Maine to see if there was hope for him if he returned to her. In 1915, calling long distance usually meant waiting as much as several minutes while the call was handed from operator to operator across the map. This was occasion for impatience and caller frustration, especially if an operator disconnected the call en route or during the conversation. In the first verse the caller said to the long distance operator, "I hate to hold the wire, don't get mad if I complain. I long to hear my sweetheart's voice again." The call went through, but now he had to suffer interruption:

Listen operator, what's the matter with this 'phone
 It seems to me you never had a sweetheart of your own.
 You say there's wire trouble and you've got the numbers mixed
 Well, hurry up and get the wires fixed.
 Is that you dear? Yes I can hear, they cut us off somehow...²⁴

The problems multiplied for the lovers in *A Ring On The Finger Is Worth Two On The 'Phone* (1911). This time the woman complained to both Central and her sweetheart. First she had trouble with everybody listening in on the party line.

Honey boy I'd like to know, Why you phone and tease me so?
 Ev'rybody listens when you're on the wire.

Audiences understood this lament perfectly because for decades most telephones were on party lines. Even in the 1950s, telephone companies struggled to keep up with expansion by installing party lines and then converting them to private lines when the equipment and time allowed. In the second verse, the singer had worse trouble, attributable to an operator who connected the wrong parties.

Central, central, I am lost, Don't you know the wires are crossed?
 And my honey's talking to another girl.
 Hear her saying o'er the wire, That he is her heart's desire...

²⁴ Edgar Leslie, Lew Brown, and Maurice Abrahams, *Is There Still Room For Me 'Neath The Old Apple Tree* (New York: Maurice Abrahams Music Co., 1915).

The singer finally gave up in exasperation,

Don't call me up! Don't call me up!
You know Central's list'ning all the time.²⁵

While it is doubtful that operators actually contributed to the breakup of relationships over the wire, the point remains that, as intermediaries, they could connect or disconnect life-changing conversations as well as listen to all one said. It was expected that they would perform quickly, accurately, and discretely. If they did not then one was entitled to complain about and to them.

My Little Phone Girl ("Number, Please?") focused even more directly on what the operator could do for the customer:

"Number please" the operator says to you, Ev'ry time you telephone,
Then she starts to connect you to somebody Someone that you think would be at home.
Perhaps first they "don't answer" and then she says "What ring please" "Ring them again"
Often you've heard her say "Line busy" Then to her you like to say

Chorus

Hello my 'phone girl my little phone girl
Hurry and please connect me,
Don't keep me "waiting" it's aggravating
I want to talk right now,
It's "emergency" and you can help me
if you connect Oh "open your key"
Please "plug in" I'm waiting
My little 'phone girl don't forget your "Service first."

Some folks used to think it was marvelous If they talked from east to West,
Nowadays its different for there's telephones Ev'rywhere thru' out this universe.
Now we've "Supervisors" and "Information" Also "Toll" and "Observer"
Then we have a "Chief operator" Besides my little 'phone girl.²⁶

Community Images

Community members who remember pre-dial telephone operators remember

²⁵ Jack Mahoney and Geo. W. Meyer, *A Ring on the Finger is Worth Two on the Phone* (New York: F.B. Haviland Co., 1911).

²⁶ Leo T. Corcoran and A.F. Conkling, *My Little Phone Girl "Number, Please?"* (Boston: Leo T. Corcoran Music Publisher, 1916).

variations on two themes: the operator as busybody and the operator as helping angel.

Both images related to quality of service. Phrases such as “She always knew everybody’s business” recur over and over. For instance, one informant told this story:

My sister’s boyfriend called her when he was away studying music. After the call was over, my mother rang up the operator to see what the charges would be, and the operator said, “That will be so much and so much, and I’d make that other fellow pay if I were you.” Obviously she had been listening!²⁷

The other side of knowing everybody’s business was the possession of knowledge that would allow or lead the operator to help out in times of emergency. Letters praising operators who worked for New England Telephone Company illustrated this:

January 9, 1959: My car had broken down on the road, about halfway between Newport and Claremont, and I think the operator tried almost every garage from Newport to Claremont before she got one who would finally come out. She was very patient and friendly, and I know I was close to tears by the time she did get help for me.²⁸

December 7, 1961: This morning a sudden death occurred in the Parish, and it became necessary to locate the husband of the deceased lady. We only knew he was working in a shoe factory within a half-hour drive from Derry. I at once called the Supervisor on duty in Manchester and explained the case to her. The immediate cooperation and efficiency which followed was amazing. Within a very short while the telephone girls had located Mr. Alfred Cote and he called his home.²⁹

A feature article brought the point home:

There was no answer to the Operator’s repeated calls of “number, please” and Mrs. Boutwell, on duty at the next position, took over and finally received a reply that the woman calling had “just had a little dizzy spell...” The answer was in the negative when Mrs. Boutwell asked if a doctor was wanted.

Mrs. Boutwell recognized the caller as a Mrs. White, a lady of 80, and recalled that Mr. White is deaf...the two Operators were unable to locate any close neighbors.

²⁷ Dory Clark in “It Had To be Done, So I Did It,” Warner Women’s Oral History Project (Warner, NH: 1985).

²⁸ “Our Customers Say...,” *The Granite Stater* (May, 1959), 6.

²⁹ “In The Mailbag,” *The Granite Stater* (February, 1962), 21.

The Operators decided that since Mrs. Boutwell was due to go off duty at 3:30 anyhow, she should leave early and go to the White residence to make certain the elderly lady had not had an attack.

...Mrs. Boutwell found the front and side doors locked but, pressing her investigation, found a back one through which she gained entry. She found Mrs. White semi-conscious on the floor, the husband unaware of the circumstances since he was lying on a couch with his hearing aid turned off. A physician was summoned and Mrs. Boutwell stayed until the doctor arrived.

...Mrs. Boutwell said that while she treasured the citation, "the gratitude of the Whites is the memory that will stay with me longest."³⁰

Dial Images

With automatic switching, telephone companies communicated changed images of operators because the over-riding message was good service. The messages about operators always functioned as a variable dependent on the dominant constant, service. Automatic switching became mechanically possible in 1893, when the first automatic exchange opened in LaPorte, Indiana. Automatic switching replaced the operator with machinery that could recognize and find the called number, make the connection, and break off the connection at the end of the call. Advertising for the Automatic Company's telephones emphasized independence from the operator. One advertisement came from the telephone war between the New England Telephone Company and The Automatic Company in Lewiston and Auburn, Maine, in June, 1904. The Lewiston *Daily Sun* advertisement reads, "Always on Duty. What? The Girlless, Waitless, Out of Orderless Automatic Telephone."³¹ An August ad for the same company read, "The Professional

³⁰ "Peterborough Operator Awarded Citation for Saving Life of Elderly Woman," *Granite Stater* (March 15, 1956), 1.

³¹ Lewiston *Daily Sun*, June, 1904, in Noyes Maine scrapbook.

Man, The Business Man, The Working Man. All admit the superiority of the Automatic Telephone over the old style....A secret, private line every time you talk.”³²

The advent of dial marked the beginning of the end for the old-time switchboard operator in large and small exchanges. While exchanges still needed information operators and trouble-shooters, the reduced need for operators depleted the army of “telephone girls.” With the depletion came a nostalgia that drew on the old images of the kinds of service offered in small exchanges. That image was well illustrated by a 1954 article about Meriden in the Worcester (Massachusetts) *Telegram*. Mary E.W. Chellis, first operator and widow of the founder of the Meriden Telephone Company, was shown seated solidly at the switchboard in the small room off of her dining room. She wore a short-sleeved dress dotted with a small rose print. It was her fiftieth year as an operator and she now owned the company, which her son managed. A typical conversation between her and a customer was reported:

“That you, Mary? “ came the voice from the other end. “How’s the cold?...That’s good. Would you ring up McCreay’s store for me, Mary; I want to see if my package came in yet.”

That’s the way most calls come through, she says. People just don’t use the numbers too much, especially if they’re calling the combination store-and-post office or the church....

“We could give more people private lines,” says son Howard, business manager... of the company, but folks just don’t want them. Party lines are more neighborly....

The Meriden switchboard, like any city board, operates around the clock, but the local folks don’t do much telephoning after 11 at night. Mrs. Chellis sleeps right beside it, though, to handle emergency calls...

The town has neither a fire nor a police department, so when someone calls to report a fire, Mrs. Chellis has to take charge of the situation.

³² Lewiston *Daily Sun*, August, 1904, in Noyes Maine scrapbook.

The delight in small-town Yankee telephone companies was repeated in a September 1965 *New Hampshire Profiles* article about the next-to-last New England Telephone exchange in New Hampshire to convert to dial. It too focused on the switchboard that had been in the operator's living room, this time for forty-four years in Errol. The operator, Agnes Sweatt, brought up four children single-handedly, babysat, took in laundry from the nearby tourist hotels, and was Errol's only telephone operator for forty-two years until she finally hired help for the last two years before the coming of dial.

Something has finally come along to replace Agnes. The telephone people call it "Direct Dialing." Naturally enough the people of Errol and Millsfield and Wentworth Location and Magalloway and Wilson's Mills are reluctant to find praise for the new service. After all, what does an operator who is fifty miles away, as the crow flies, over in Littleton...know about affairs in Errol? "Bessie home today?" "Bill Bryant's gone fishing." ...people are reluctant up Errol way.³³

A photo caption offered an image of a service lost with the conversion to dial. Under the picture of Etta Sweatt's farm a mile to the west of Errol center, it reads, "Whenever a summer shower bears down on the farm, [Etta] has always called Agnes so that the housewives of Errol would have a ten-minute warning to get their wash off the clothesline." When dial came to Errol, laundry took a longer time to dry.

With the completion of conversion to dial in New Hampshire, the operators became minimized and the equipment maximized in advertisements and articles. An article in the *Granite Stater* hailed the last NET&T dial conversion in New Hampshire.

The big day came and went without a real celebration. After all, employees have been involved in conversions for decades. The important thing everybody said was to provide the new dial customers with dial telephones...

As in other areas the conversion meant transfers and retirements for switchboard operators. One operator explained she was pleased to

³³ Stephen Whitney, "That you, Agnes?" *New Hampshire Profiles* (September 1965): 18.

retire and watch the change...."Things are going to change...with this faster service."³⁴

In the name of service, switchboard operators would now step back and let the machinery deliver. The business decision, of course, did not depend on just delivering service, but maximizing profits while delivering service. Then the same rationale – quality service – that was used to put female operators into the equation was used to remove them. Machines could now deliver better service than human telephone operators.

In interviews, some operators repeated the ideal of selfless service for the good of others. Many did feel the gratification of contributing to the good of others. Some operators did feel like weavers of speech. At the same time, romanticized images in company literature, advertisements, and the popular media made many of the actual experiences of operators invisible. Oral history interviews demonstrated that the images of operators propagated by the industry and held by the public did not do justice to the actual work experiences of operators. The images could and did exist independent of the experience.

³⁴ "100% Dial Phone Service," *Granite Stater* (October 27, 1965): 1 & 4.

CONCLUSION

This dissertation adds to telephone history by introducing and contextualizing operators' perspectives. The effort called for new sources and used old sources in new ways. Many oral historians have united oral history with studies of work, for instance, but none have done so extensively with telephone operators. Much of the published history of the telephone has centered around the men who developed the technology and who ran the companies. The women who ran the switchboards in the predial era have been studied less vigorously. The record is far from complete, especially the story of telephone operators in rural settings like New Hampshire. Project *Number, Please* recorded the memories of former New Hampshire rural and urban telephone operators whose memories would otherwise have died with them. Here, New Hampshire telephone business history was a backdrop for the operators.

Telephone companies used women as operators in an attempt to humanize technology at low cost. The telephone companies, and soon the public, linked telephone operating with romanticized female nurturing and homemaking skills, skills such as weaving (community relationships), and watching over loved ones. The idealization of female operators' work did more than humanize technology. It also recalled the efforts of nineteenth century reformers to idealize the teaching role of women, who provided a cheap source of labor in a growing public school system. As a burgeoning new industry, telephony had a big appetite for trainable, docile, cheap labor. Like teaching, telephony sought to tap and adapt the newly enlarged labor pool for new labor needs. Both defined

the work in terms of women's traditional roles in the community, making the work seem acceptable and even desirable. A similar phenomenon occurred with office work.

Defining telephone operating as women's work affected the conditions of labor, wages paid, and ability to organize, but it did not wipe out differences among operators. Such differences were anchored in differing roles and conditions of employment, primarily dependent on exchange size. Differences also existed in age, education, marital status, and commitment to either full or part-time employment. Throughout the predial era, technical developments, the evolution of the corporate structure and character of telephone companies and their management procedures, changing customer expectations, government regulation, and labor resistance all worked to shape and reshape operators' jobs. Expansion in the communications network at times almost overwhelmed manual telephone switching, beginning with telephones built to connect two points without any operators and eventually spreading out into a labyrinthine system that needed hundreds of thousands of operators to encompass the world.

Despite forces for change, three near-constants persisted throughout the period of predial telephone operation in New Hampshire: the gender-based set of expectations and pigeonholing that defined where and how women could work in the telephone system, the centrality of switchboard operators to the telephone system's day-to-day interactions with customers, and the differences between large and small exchanges.

Telephone operators' jobs diversified as the system developed, but much less in small-town and rural exchanges. May Merrill in Manchester and Mary Chellis in Meriden had more in common in the early days of the telephone than their counterparts did in the time of dial conversion. In the beginning, before an extensive long distance

system, operators in large and small exchanges shared similar job descriptions. Supervision, equipment, and corporate hierarchies were still new and undeveloped. In small exchanges like Meriden in the first half of the twentieth century, change came slowly. In Meriden, supervision remained an informal family affair. More lines in Meriden demanded new switchboards periodically, but for the first fifty years, whoever was answering the Chellis switchboard served as local operator, long distance operator, information, emergency dispatcher, and village communication center.

When technical and corporate change came, operators' jobs changed correspondingly, especially in large exchanges like Manchester. Manchester's common battery local board and the single-position magneto board evinced profound differences by 1925 (See figures 3 and 4 in Appendix B). While the Manchester operators at the local board sat so close that they brushed elbows, the single-position operator suffered no impedance. By herself, the single operator faced a fifty-line board of magneto drops with ten cord pairs that she could connect; her board could handle ten telephone calls simultaneously. By contrast, the closely-supervised common battery operator faced two hundred lights and twenty cord pairs directly in front of her, and she was expected to help with the panels on either side of her if needed. Figure 7 illustrates the degree of diversification that had been achieved in New Hampshire by 1925. While at small exchanges, one or two operators performed all functions, including some bookkeeping, Manchester had "A" board or local operators, toll or long-distance operators, "B" board operators who passed calls from exchange to exchange over cable lines called trunks, information operators, a chief operator, supervisors, and a clerk (See figure 7, Appendix B).

Dial conversion caused even greater differentiation. As dial progressed, not necessarily by size of exchange, remaining operator functions were removed from local sites to regional centers like Manchester. In the 1960s, when Meriden finally added a second position to handle peak loads, Manchester operators no longer connected calls, but instead served as regional operators for information and trouble shooting. Mary Chellis's job in Meriden was largely unchanged; her diary contained a mix of telephone operating and family chores in 1964 as it did in 1904. After sixty years she retired because of a broken hip and hands that shook too much. Individual country operators like Mary Chellis worked flexibly in jobs that required multiple tasks for good quality service. As the familiar, omnipresent voice at the switchboard, a country operator performing multiple tasks epitomized the telephone operator idealized in media and memory. The more impersonal and impersonalized city operators, trained in efficiency and standardized service, had less opportunity to imprint themselves on their jobs. They found ways to do so, however, even under watchful supervisors, and their voices still assured customers that a person, not a machine, was ready to put service first.

Diaries and oral history interviews of operators show where the individual experiences of both rural and urban operators did or did not match the popular or corporate vision. Successful operators had an attitude of "service, first," and those at the urban boards were willing, either from lack of other choices or from temperament, to follow the many rules and regulations at least well enough to avoid detection and dismissal. While the urban operator's job was desirable when compared with other work options for the women, the low pay, the lack of individual initiative, and the need to work quickly under constant observation made the ordinary switchboard operator's job

particularly stressful. The requirement to extend courtesy to every customer added more stress to both rural and urban operating. While urban operators may have seemed courteous, they did not always feel it, and they could at least hand off difficult callers to supervisors. Rural operators had little or no supervision and had to handle even difficult callers, so they could employ less standardized responses.

When the last New England Telephone & Telegraph exchanges converted to dial in northern New Hampshire, the statewide magazine *New Hampshire Profiles* featured operator Agnes Sweatt, who would be replaced by automatic switching in Errol. The switchboard in Errol was situated in Agnes Sweatt's living room, looking out onto Main Street, a short distance east of Dixville Notch in the White Mountains. Dropping east, down out of the notch, farmland spread across a plateau, which was rimmed at the far edge by the village of Errol. Bad weather habitually swept out of the notch and across the fields before hitting the village. In the farewell magazine article, a picture of the farmhouse where Hartley and Etta Sweatt ("cousins of some degree to Agnes") lived, backed by Dixville Notch had this caption: "In the isolation of the farm, Etta tells you that the telephone is her only friend. But she uses it well. Whenever a summer shower bears down on the farm, she has always called Agnes so that the housewives of Errol would have a ten-minute warning to get their wash off the clothesline."¹ There would be more wet wash in Errol once Agnes was no longer switchboard operator.

People remember losing homey things with the conversion to automatic switching. Given the chance to return to a predial system, however, most would not. In my public lectures about New Hampshire telephone operators, I conclude by asking how

¹ Stephen Whitney, "That You, Agnes?" *New Hampshire Profiles* (September 1965): 18.

many of the people who have used a predial system would go back to that system (but not that time) if they could. Of 871 respondents, 57 have said they would like to have a predial telephone system again, citing the frustrations of encountering recordings, menus, and impersonal service; they miss the “number, please” operator. The respondents who did not wish to return to a predial system disliked the impersonal service but felt that the greater speed and privacy outweighed any disadvantages of automation. As users of the telephone, former operators have voted in favor of the automated system, but as former operators they sometimes lament the loss of their jobs. More than one has said, “I loved my job! I’d go back in a moment!”

Conversion to dial eventually delivered more homogeneous telephone service to rural and urban customers alike; they shared similar hardware and the same regional operator services. The operators who remained worked from regional centers that were so heavily consolidated that by the new twenty-first century, none were left in New Hampshire. Consoles had replaced towering rows of plugboards, lightweight headsets had replaced headache-causing predecessors, computers had replaced revolving banks of telephone books, automatic timing had replaced hand-written toll tickets, and automatic answering had replaced the operator’s initiative in deciding how fast to answer calls. For about a century, the “voice with a smile” within the communications labyrinth performed both machine-like and humanizing functions. The delivery of that voice was a moment in technology that altered women’s work options without radically altering the social expectations that the public held of working women. Even if they wanted to break entirely free of gendered limitations, they could not. Women as telephone operators could never leave gender behind. Many operators interviewed said that they never thought about it, but

whether they were promoted or demoted, what hours they worked, what pay they received, and the rules of department they had to follow hinged on cultural and company expectations of womanhood, marital status, and motherhood.

Telephone system size and automatic switching made the predial operator obsolete. Most of the operators interviewed did not analyze their responses to this change. For them, it was simple. As one put it, "The operators were getting fewer and fewer, that's all. It's been amazing to see so many different changes."² Another felt the diminished role not worth her while: "I got out because the operator's duties were no longer interesting. You just dealt with the console, and you dealt with the customers all day long that the operator couldn't satisfy. I really didn't want to get through. Looking back, it was an experience. It was an interesting career."³ For those who had thrived, personal contact had been a central feature of the job. All the operators felt the lack of personal contact when they were replaced by automatic switching. There was no choice other than acceptance, but, as customers, operators did reap the same benefits as other customers, the speed and privacy of automatic switching. As Connie Bastille put it, "The personal part of it is all gone. I didn't like the idea of a machine, no personal service, but I could get my sister in California as quick as I could dial the historical [society] here. I still think very fondly of helping people."⁴

Communication of findings such as these to the public have inspired experimentation with ways to present oral history, such as live theater productions using excerpts from oral history transcripts. A larger discussion of this and the issues encountered

² Interview of Annie McNamara by Ellen Derby, 11 April 1994.

³ Interview of Madeline Fuller by Jeannine Levesque, 21 December 1992.

⁴ Interview of Connie Bastille by Gertrude Cleverdon, 9 November 1993.

is included in Appendix A. Many photographs have recorded the visual history of New Hampshire telephone operating. Operators have personal snapshots, news media took photos, and the industry produced photos for their records and for public relations use. I have included a few of them in Appendix B. They supplement the verbal record and in some cases they are all that is left. I showed some of my photographs at a historical society lecture about New Hampshire telephone operators, and a woman in the audience gasped at one image. One of the operators from 1925 was her deceased mother, and no photos of her survived in the family. Public history had made a circle again, coming from the people to the scholars, then returning like rain to the people as an image from the past.

APPENDICES

APPENDIX A

USING TRANSCRIPTS FOR PUBLIC PRESENTATIONS

Oral history makes it possible to salvage the historical detail of human experience available in no other way. Most often, the oral historian uses oral sources to create written records that are then used as primary sources. Although the audio recording, if there is one, is often considered the primary historical document of an interview, in practice researchers rarely go back to the tapes, and instead rely on the printed transcripts to get their information. Therefore transcribing comes heavily loaded with questions surrounding the relationships among the spoken word, the written word, the nature of memory, the nature of human narrative, and the nature of historical meaning.

This quickly becomes apparent when one attempts oral history. One of the most frequently asked questions when people first tackle oral history is, "How do I transcribe the interviews?" The question never resolves itself satisfactorily, because the written word never fully equals the spoken word. "Where do I put the periods?" people ask. "This person doesn't speak with punctuation." Or, "Do I include the 'ums' and 'ers' and repeated words? What about sentences that are started and never finished? How do I indicate pauses?"

Transcribers find that the spoken word has pitch, volume, tone, and usually fractured syntax. The spoken word ignores punctuation; it takes place in a setting that

includes place and other people. The spoken word is sandwiched in between other spoken words and events. There are sounds on audio recordings that are not words at all.

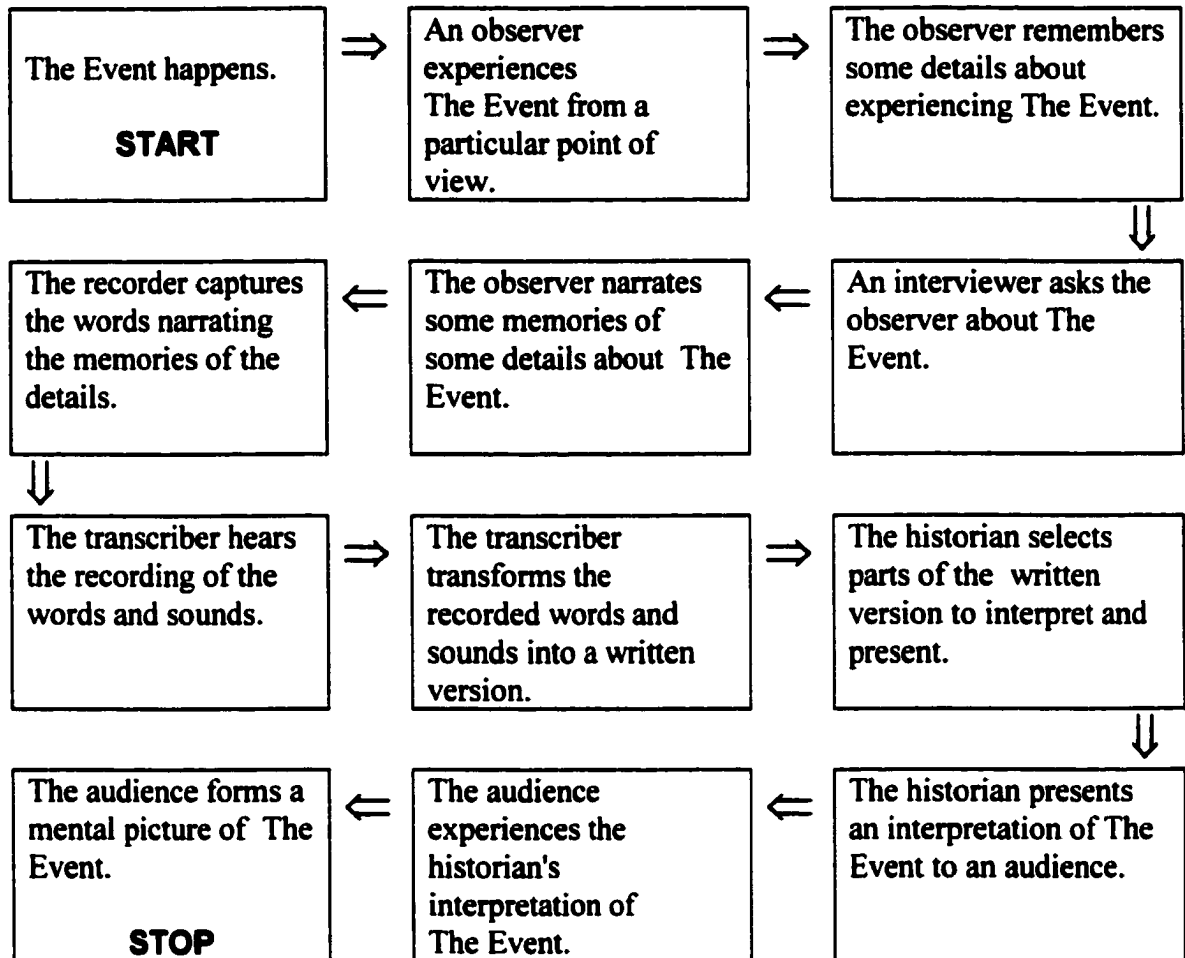
The time-consuming step of going back and listening to the recording might seem to be the answer. Recordings, however, while providing clues such as pitch and volume, still do not communicate visual information such as setting and body language.

Videotape seems an obvious answer, but the camera does not have peripheral vision; its myopic eye does not see beyond the width of the lens. Furthermore, in addition to being archivally short-lived, videotape introduces other variables that influence the interview before the words emerge – lights, filming crew, a staring lens.

Trying to create a “true” transcription raises its own questions: What is the purpose of the interview: to gather as much accurate information as possible about an event or to fathom how a narrator remembers and tells about an event? What does oral history record, the interview itself or the event in the past about which we are asking? More philosophically, is there an objective event in the past to which we have access through oral history interviews? Questions asked by linguists enter also. If the word is only a symbol of a meaning, then can a word or words accurately convey meaning? As symbols strung together, can words tell us accurately about an event in the past? Can the written word transport the full cargo of an interview to an audience in the future?

There is some truth to the common belief that getting the story “from the horse’s mouth” is the closest that we can approach the truth of an event in a linear past. If you want to get the real story, ask someone who was there, the saying goes. Unfortunately, transcribing is only one of several steps where validity and veracity must be considered

and safeguarded. Error and inaccuracy can creep in every step of the way between an event and its retelling.



Under these conditions, can the audience's concept accurately reflect the original event?

To minimize distortion, oral historians use guidelines to keep their methodology within the bounds of accepted practice. To keep transcriptions fairly standardized, the

Project Number, Please transcribers followed these guidelines:

- Leave at least 1" margins all the way around each page.
- Number each transcript page at bottom center.
- Double space.
- Identify the top of the first page with the interviewee's name, interviewer's name, place, and date.

- Use each speaker's full name one time, then use last names or initials.
- Identify beginnings of tapes, number and side: START OF TAPE I, SIDE B.
- Identify endings of tapes, number and side: END OF TAPE 1, SIDE B.
- Identify end of interview: END OF INTERVIEW.
- Transcribe both questions and answers. Transcribe word-for-word in most cases, but do exclude meaningless "ums," "ers," and false starts.
- Do punctuate, but do not feel the need to impose grammatical correctness where none exists. The goal is to maintain something of the feeling of the person talking, and people rarely speak with perfect grammar and punctuation.
- Try a couple of times to make out muddy words, then use brackets to indicate words not heard clearly.

Other sources of data, such as physical artifacts, written documentation, and more interviews serve as methodological balance weights in oral history. A single interview by itself can pose frustrating questions, while an interview in the context of other data clarifies details and adds to a sense of the whole. A pool of oral interviews with supporting data and varied written sources allows one to identify and perhaps resolve contested points and form a fuller picture about an event and its meaning.

After collecting and mentally digesting information about an event, how does one convey historically accurate meaning and sense in a form, in a reasonable amount of time, that speaks to the public? Public complaints about boring, egghead scholars who cannot communicate with normal people indicate a real or imagined communication gap. Clearly, public programs must grab and hold audience attention, or there will be no audiences. My goal here is to speak in a language that is understood and accepted by both the historical profession and the lay public. How can historians maintain high scholarly standards while reaching for public understanding?

The standard guides to oral history for the lay practitioner is not of great help in answering this question. The often used Barbara Allen and Lynwood Montell dispense practical and clear advice about transcription, without bothering to consider philosophical arguments about validity. They suggest verbatim transcribing, then light editing to standardize spellings and word forms and to remove the *ums* and *ers*. They recommend leaving grammar uncorrected. Under the heading of summarizing, they say, “We suggest that the oral text be summarized before inclusion if it is rambling and disjointed.” Later they add,

When oral texts are coherent and articulate, they may be used in their entirety, framed on both sides with the writer’s own words. Handling texts in such a manner allows the informants to speak in their own words. As a result there is less danger of misinterpreting the speakers’ meaning, and the printed page is richer for the inclusion of the human voice in the historical record.¹

Another commonly used text, by Erma K. Baum, suggests editing after a verbatim copy of the interview has been filed. Editing includes condensing “chit-chat” and “impediments to the flow of the narrative which could be eliminated without loss...” Unclear accounts may be clarified, scattered pieces of accounts put together, factual matters such as dates checked and corrected, and repetitions removed. Baum then recommends asking the informant to examine the edited copy and add any corrections as well. The edited copy then becomes the primary document and presumably will be a more accurate, smoother reading account.²

¹ Barbara Allen and Lynwood Montell, *From Memory To History: Using Oral Sources in Local Historical Research* (Nashville: The American Association for State and Local History, 1981), 106 + 107.

² Willa K. Baum, *Transcribing and Editing Oral History* (Nashville: American Association for State and Local History, 1991), 42-49.

A more recent and often-cited how-to text by Donald Richie dispenses with the topic of transcription quickly in his question-and-answer format. He says, "Editing is usually necessary to make sense of the spoken word when put down in writing." Also, "...transcribers are justified in replacing constantly repeated cues [such as starting every sentence with the word and] with punctuation and paragraph breaks." He points out that in the United States, the trend has been to consider the written transcript as the primary document while in Canada, more care has been given to the aural recording. Brackets can be used to indicate added information or correction. to transcripts after the interview.³ Although he mentions that stage productions have been based on oral history, he does not consider their validity or editing methods.

More scholarly works tend to raise more serious questions about validity of the interview and texts from the interview. They, too, however, do not speak of editing for performance. Anthropologist Ruth Finnegan faces the question of live performances based on oral history more squarely:

This form of distributing and publicising oral "texts" is mostly kept invisible in the scholarly world, so not much can be said about its frequency or conventions. But some scholars certainly advocate or practice it... This [brings up] yet again the familiar question of just what if anything is the "essential text." What a faithful rendering of it, what a re-creation. Live performance as a medium for dissemination raises in a direct form issues that need to be considered throughout all the stages of processing texts. It can certainly not be assumed to be self-evidently less faithful than other media.⁴

³ Donald A. Ritchie, *Doing Oral History: Practical Advice and Reasonable Explanations for Anyone* (New York: Twayne Publishers, 1995) 44-48.

⁴ Ruth Finnegan, *Oral Traditions and the Verbal Arts: A Guide to Research Practices* (New York: Routledge, 1992), 209-210.

The question of how to convey meaning is never satisfactorily answered, but the practice of careful, well-informed, editing and compression does bring an audience close to the meaning of the interview and the events remembered.

The steps of gathering and recording information are only the beginnings of communicating the meaning of an interview to an audience. In practical terms, an audience will not read all the pages of a transcript or all the transcripts produced by a project. Because one hour of interview will yield thirty or more pages of double-spaced, typed transcript, a single project's transcripts can easily number in the hundreds or thousands of pages. An interpreter must distill the meaning of the interviews and put them into a form – a book, a museum exhibition, a photo exhibit with captions, a stage presentation – that an audience can absorb and digest in a relatively short period of time.

I have experimented with public, oral presentations of interviews put together to inform and entertain an audience. Compression and transposition of transcripts produces abridged versions that maintain basic syntax of the original speaker. In some ways, all historians make similar decisions with their sources. Compression requires choices of what to discard and what to leave in place. A single word or phrase, one “ain’t” for instance, might stand for many words or phrases in the original while setting a tone. The person making those decisions, the historical editor, must use her knowledge of the original event, derived from background research or other interviews or other primary sources, to help decide what to cut and in what order to present sentences and phrases that appear in disjointed locations in the transcripts. The editor must revisit the recording or check tone of voice and words that may have been transcribed incorrectly. In the end, the

edited arrangement may, in fact, convey the original event more accurately than the interview did.⁵

An Example

For oral presentations of material based in turn on oral histories, one must excerpt pieces from raw transcripts. Keeping the purpose in mind, these pieces must be easily understandable by a public audience on first listening. Does excerpting, compressing, and rearranging interviews destroy historical accuracy? The first part of the process is not very different from accepted practices in excerpting and interpreting written sources. Here is an example from which to judge. The words in bold are excerpted in the first step to juxtapose parts of the transcription that flow together most easily.

From page 1 of transcript:¹

- JL: So you got to work as an operator. Would you tell me a little bit about it?
 PS: Well, **my sister was older than I, and she graduated before I did. It was in the middle of the 1930s, the height of the Depression, so you worked where you could work, and she learned to be an operator first, and then I learned when I was sixteen. And from the time I was sixteen until I was -- well, early twenties -- I worked as an operator.** She went to New London to work for the Telephone Company, and I worked for the New England Tel & Tel. That's how I learned and that's what I did. When I got out of high school, I had a job, so I kept it. [laughs] And I didn't go to college. So I stayed with that until probably the early 1940s, and then I had a chance to get into an office, so I took it. I was receptionist and ran the PBX...

From page 2 of transcript:

- JL: So I take it that all of that was basically in the pre-dial.
 PS: Oh, yes. Very, very much so. This was at [] Board, and it was in a private residence. **The office was in a private residence, right at the**

⁵ This proposition includes two philosophical suppositions: (1) an objective, original event existed in the past, and (2) some renditions about that event are more accurate than others. The public, for the most part, also expects historical programming to proceed on the assumption that events exist in linear historical time. As a practical matter, historical programming must at least start there and then proceed to deeper questions or risk being misunderstood entirely.

harbor -- in Sunapee Harbor -- right across from the water. Very pleasant working surroundings, most of the time, except the dead of winter. The chief operator was also the night operator. It was her house, so she took the night operating. There were three other operators all busy during the summer. We were a resort town, so we were very busy in the summer. And then as the winter came, schedules were very sort of up and down because she took a lot of the duties -- if the weather was bad and she couldn't get out or anything -- she just said, "I'll do it today." [laughs] So it was very pu and down during the winter months. But in the summer, it was very, very hectic. [laughs]

From page 4 of transcript:

JL: What did your family feel about you going to work as an operator?

PS: Oh, they were totally receptive. They knew that I would need something. I wasn't able to go to college right then. It was a very bad time, financially, for them. I could have worked myself through, I guess, if I had really applied myself. But I decided, "Oh, well, maybe I'll go in another year." Well, you know, you put something off, and it doesn't always work to go back. They were very, very glad that I had something to do after I got out of high school because they knew I felt bad that I wouldn't be going to college. Of course, a lot of people weren't going to college in those days, anyway. I felt very lucky to be able to walk right in, graduating, and know I was going to have the same job.

From pages 5-8 of the transcript:

PS: It was very, very enlightening -- it really was -- for someone just out of high school. You learned a lot about a lot of things. [laughs] And it was exciting, too. It was quite a responsibility at times. You had a volunteer fire department, so if there was a fire, they called you to let you know where it was. Or, sometimes they'd be out, away from town enough, and they'd call in to ask me where it was. And, of course, the whole town would call in, asking where the fire was. So it could get very exciting at times. As I say, quite a little responsibility when you were there by yourself, which was after Labor Day, it's usually just one person. They had three positions. If you were alone, you sat in the middle position and worked the other two, if you got terribly busy. But usually you didn't get that busy.

JL: Were you responsible for calling out the volunteer fire department, or did they have an alarm system?

PS: Well, they had an alarm system, which I think was a church bell for in town. It was when I was really young. Yes, there was. There was a siren. Earlier on there wasn't a siren. When I was a little girl, we just had the church bell. But then there was a siren, and that carried just

about all over town. And then if anyone didn't show up and []knew where he was, then you could always call him. It was very exciting. It worked. [laughs]

JL: Were you there -- you probably missed the flood in 1936. I don't even know if it hit Sunapee.

PS: No, no. I don't remember that. We had the 1938 hurricane. I was working. And, of course, I was right by the lake. I think I worked until about eight o'clock that night. I really don't remember if we heard much on the radio. Of course, we didn't have television in those days. We may have heard something on the radio. **I know the wind did start to pick up, and as it got dark, across from the water -- I thought, "Well, I guess we are going to have a real storm." Then I remember my father called in and he said, "I'm coming up to meet you when you get off. I will walk to meet you," because the wind was really picking up, and we didn't live too far from there. But I can remember the big oak trees -- they're still there. I had to walk around, and these big old trees were there. Of course, it was very dark in the harbor after Labor Day. I mean, everything closed down. He came up, and I can remember those trees blowing so hard and making such a noise -- creaking noises. I really didn't know. And it got really wild later in the evening, and the next day they were all around the lake. It was really bad. The trees -- and the power was out. It was quite a storm.** [laughs]

JL: Did the phones go out, too?

PS: **Yes, the phones were out. We had a hand generator, you had to crank like this, to make your own power. It's like patting your head and rubbing your stomach. You have to make the generator go round and round, and you had to ring. Of course, whoever's number it was -- there would be like one long ring and two short rings. So it wasn't just one ring. It had to be a ring for whoever number's you were calling. So that got to be quite an art to do that. We were struck by lightning once. I was all by myself. That was in another September -- a very bad storm. The bolts were going down into the lake. I guess the rules were you did not have to answer a local call if you thought the electricity was too bad. You could wait a few minutes before you answered. If an out-of-call came, you were supposed to answer it. I did, however -- I saw a boat go down into the lake, and I thought, "Well, I hope nobody's going to call in right now." Well, of course, I did have a call from out-of-town, so I waited just a few seconds to see if there was going to be another -- so I eased the key over and went in. [laughs] I ended up on the desk, on the other end of the -- something happened, and anyway - - it really did. We got really stuck, period. So the generator worked, and, of course, I had to stay right there.**

[end of side one, tape one]

Of course, I had to stay right there. And I think I did know where the chief operator was, and I called her, and she came back anyway. But, oh. I had a terrible headache. [laughs] And I think there was a very bad fire, because I think I went home. She said, "Go home." I went home, and I think she called me soon after that to come back because we had really lots of fires, and she was so busy. So I went back for another hour or so. So I tell my children if I act funny, that's why. I was struck by lightning. [laughs] I showed them where I got struck one time and they got a kick out of that. The house is still there. People still live in it. It's right in the same place. So it wasn't all just boring. It was fun. [laughs]

From pages 11-12 of the transcript:

JL: I suppose the person[] an emergency.

PS: Oh, yes. You really were a go-between. Then you just had to be there. It was the type of job, in those days, that you had to be there, no matter what. I mean, someone had to be there, no matter what the circumstances. [laughs] I mean, the day of the lightning -- there was no way [] I'm going to get out of here. I just had to stay there until someone else came. It was just that type of job. You sort of had to get used to that feeling that when you were there, you were there. It's kind of like being in the medical profession -- a nurse or something. You're there, and you're there until somebody comes and takes over for you. It was a responsibility.

JL: Did you find that effected you in other facets of your life?

PS: No. I guess, in a way. I don't really think I probably was that way anyway. Before I had something I was supposed to do, I guess I probably was going to finish it. But I think it did, probably, make me a little bit more responsible, in most ways. It certainly did introduce me to the trials and tribulations that people have, that I wouldn't have known about otherwise. I mean, just living in town, I wouldn't have known. You knew when someone was sick, or you knew when somebody had a death in the family, or someone was very sick. You just sort of learned more about people's real life from just being at the switchboard. I mean, it was just another facet you wouldn't have known about. And that's why you had to be very discreet. You didn't take your work home with you. And that helped me, I think, when I went into the office work. I can remember my boss would just caution me about certain -- we had a lot of military contacts and stuff. I knew what he meant when he said this is the work, and you don't -- and it was during the war, so everything was very -- you learned how to not talk about -- and his son was a Captain in the war and everything. I do think it had a little bearing on how I viewed my work. Yes, I think so.

The sections that might be used, indicated in bold print above, are then rearranged to follow a logical narrative form. Editing removes words and in some cases replaces selected words for understanding.

my sister was older than I, and she graduated before I did. It was in the middle of the 1930s, the height of the Depression, so you worked where you could work and she learned to be an operator first, and then I learned when I was sixteen. And from the time I was sixteen until I was -- well, early twenties -- I worked as an operator.

The office was in a private residence, right at the harbor -- in Sunapee Harbor -- right across from the water. Very pleasant working surroundings, most of the time, except the dead of winter. The chief operator was also the night operator. It was her house, so she took the night operating. There were three other operators all busy during the summer. We were a resort town, so we were very busy in the summer.

I wasn't able to go to college right then. It was a very bad time, financially,

Of course, a lot of people weren't going to college in those days, anyway. I felt very lucky to be able to walk right in, graduating, and know I was going to have the same job.

It was very, very enlightening for someone just out of high school.

And it was exciting, too. ~~It was quite a responsibility at times.~~ You had a volunteer fire department, so if there was a fire, they called you to let you know where it was.

And, of course, the whole town would call in, asking where the fire was. ~~So it could get very exciting at times.~~ As I say, quite a little responsibility when you were there by yourself, which was after Labor Day, it's usually just one person. They had three positions. If you were alone, you sat in the middle position and worked the other two, if you got terribly busy.

Well, they had an alarm system, which I think was a church bell for in town. It was when I was really young.

When I was a little girl, we just had the church bell. But then there was a siren, and that carried just about all over town.

cut

We had the 1938 hurricane. I was working. And, of course, I was right by the lake. I think I worked until about eight o'clock that night.

~~I know~~ the wind did start to pick up, and as it got dark, across from the water -- I thought, "Well, I guess we are going to have a real storm." ~~Then~~ ~~I remember~~ my father called in and he said, "I'm coming up to meet you when you get off. I will walk to meet you," because the wind was really picking up, and we didn't live too far from there. But I can remember the big oak trees -- they're still there. ~~I had to walk around, and these big old trees were there.~~ Of course, it was very dark in the harbor after Labor Day. I mean, everything closed down. ~~He came up, and~~ I can remember those trees blowing so hard and making ~~such a noise~~ -- creaking noises. ~~I really didn't know.~~ ^{And it} got really wild later in the evening, ~~and the next day~~ ^[the trees] they were all around the lake. ~~It was really bad. The trees--~~ and the power was out. It was quite a storm. [laughs]

Yes, the phones were out. We had a hand generator, you had to crank like this, to make your own power. It's like patting your head and rubbing your stomach. You ~~have~~ ^{had} to make the generator go round and round, and you had to ring.

~~So that got to be~~ quite an art to do that.

~~We were struck by lightning once.~~ I was all by myself. That was ⁽ⁱⁿ⁾ another September -- a very bad storm. The bolts were going down into the lake. ~~I guess~~ the rules were you did not have to answer a local call if you thought the electricity was too bad. You could wait a few minutes before you answered. If an out-of-^{town} call came, you were supposed to answer it. ~~I did, however--~~ I saw a boat go down into the lake, and I thought, "Well, I hope nobody's going to call in right now." Well, of course, I did have a call from out-of-town, so I waited just a few seconds to see if there was going to be another -- so I eased the key over and went in. [laughs] I ended up on the desk on the other end of the ~~desk-- something happened, and anyway-- it really did.~~ We got really stuck, period. ~~So~~ the generator worked, and, of course, I had to stay right there.

~~Of course, I had to stay right there.~~ And I think I did know where the chief operator was, and I called her, and she came back ~~anyway.~~ ^{But, oh,} I had a terrible headache. [laughs] And I think there was a very bad fire, because I think I went home. She said, "Go home." I went home, and I think she called me soon after that to come back because we had ~~really~~ lots of fires, and she was so busy. So I went back for another hour or so. So I tell my children if I act funny, that's why. I was struck by lightning. [laughs]

~~you just had to be there.~~ It was the type of job, in those days, that ~~you had to be there, no matter what~~ someone had to be there, no matter what the circumstances. [laughs] the day of the lightning ~~— there was no way — I'm going to get out of here.~~ I just had to stay there until someone else came. ~~You sort of had to get used to that feeling that when you were there, you were there.~~ It's kind of like being in the medical profession -- a nurse or something. You're there, and you're there until somebody comes and takes over for you. It was a responsibility.

It certainly did introduce me to the trials and tribulations that people have, that I wouldn't have known about otherwise. I mean, just living in town, I wouldn't have known. You knew when someone was sick, or you knew when somebody had a death in the family, ~~or someone was very sick.~~ You ~~just sort of~~ learned more about people's real life from just being at the switchboard.

And that's why you had to be very discreet.

You didn't take your work home with you.

It was quite a responsibility at times.

} *Previously deleted.
Restore.*

At this point, with a public, oral performance in mind, one can take another step in creating the script that might not be taken for a written rendition. Without changing wording, one can arrange line breaks to make the words speak easily when read. For more compression of meaning, as in poetry, one can look to eliminate more words. One can look for natural rhythms, repeated sounds, alliteration, parallel constructions, and strong images. The line breaks create accents and stresses. Sometimes line breaks play with the meaning on the page. Mostly this step goes by feel, rather than conscious decision-making, although when in doubt one can speak the lines out loud, counting syllables and stress marks. This now approaches the genre of "found poetry." How close it comes to poetry depends greatly on the richness of phrase and meaning that existed in the original transcript, because the editor is not free to invent, only to compress.

To be accurate in rendering the tone, it helps to work with only one transcript at a time. Flipping from transcript to transcript will trick the ear and lead to losing the individual voice. If successful, the final version of each interview will sound like natural speech, retaining the original syntax and character, but in compressed form. Reworking and worrying the lines too much can destroy the naturalness. Retained irregularities and line breaks indicate to the reader how the piece should sound.

For public, oral presentation, lines that do not follow one another logically can confuse and confound the final meaning unless they are moved to clusters where they make sense. An example here is in the fifth stanza where the explanation about having more operators on duty in the summer is combined with the line about being alone after Labor Day. That stanza still is not right in meaning. Perhaps it needs to be dropped altogether.

This form is meant to please the eye and the ear. This particular example does not have great poetic potential, and most do not, but the form brings out what rhythms and sounds and images are there to best advantage. The audience usually find the sounds pleasing without quite knowing why. The meaning of the original interview is communicated without a long, dry verbatim reading that loses weary listeners. At the very least, the readers find the shorter line length faster and easier to read.

Phyllis Sawyer Becomes An Operator

My sister was older than I, and she graduated
before I did. It was in the middle
of the 1930s, the height of the Depression,
so you worked where you could work. She learned
to be an operator first, and then I learned
when I was sixteen. From the time I was sixteen until
I was -- well, early twenties -- I worked

as an operator.

I wasn't able to go to college
right then. It was a very bad time, financially.
A lot of people weren't going to college
in those days. I felt very lucky to walk right in,
graduating, and know
I was going to have the job.

The office was in a private residence,
in Sunapee Harbor, right across from the water. Very
pleasant working surroundings, except
the dead of winter. The chief operator was also the night
operator. It was her house.

It was enlightening for someone just out
of high school, and it was exciting, too.
You had a volunteer fire department, so
if there was a fire, they called you to
let you know where it was.
The whole town would call in, asking where
the fire was.

Quite a responsibility
when you were there by yourself. They had
three positions. If you were alone,
you sat in the middle position and
worked
the other two, if you got terribly busy.
We were a resort town, so
we were very busy in the summer. After Labor Day,
it [was] usually just one person.

We had the 1938 hurricane.
I worked
until about eight o'clock that night,
right by the lake.

The wind did start to pick up, and as it
got dark, across from the water -- I thought,
"I guess we are going to have a real storm."
My father called in and he said,
"I'm coming up to meet you
when you get off. I will walk to meet you,"
because the wind was really picking up, and
we didn't live too far from there. I can

remember the big [old] oak trees -- they're still there. Of course, it was very dark in the harbor after Labor Day, everything closed down.

I can remember those trees blowing so hard and making creaking noises -- really wild later in the evening.

Yes, the phones were out. We had a hand generator, you had to crank, to make your own power. It's like patting your head and rubbing your stomach. You [had] to make the generator go round and round, and you had to ring. Quite an art. Next day [the trees] were [down] all around the lake and the power was out. It was quite a storm. [laughs]

Another September we were struck by lightning. I was all by myself. The bolts were going down into the lake. The rules were you did not have to answer a local call if you thought the electricity was too bad. You could wait a few minutes before you answered. If an out-of-[town]-call came, you were supposed to answer it.

I saw a [bolt] go down into the lake, and I thought, "I hope nobody's going to call in right now." Well, of course, I did have a call from out-of-town, so I waited just a few seconds to see if there was going to be another. I eased the key over and went in. [laughs] I ended up on the other end of the desk. We got really st[r]uck, period. The generator worked, and, of course, I had to stay right there.

I did know where the chief operator was,
 and I called her, and she came back. But, oh,
 I had a terrible headache. She said, "Go home."
 I went home, and she called me soon after that
 to come back because we had lots of fires, and
 she was so busy. So
 I went back for another hour. So
 I tell my children if I act funny, that's why.
 I was struck
 by lightning. [laughs]

It was the type of job, in those days, that
 someone had to be there, no matter what
 the circumstances. [laughs]
 The day of the lightning, I had to stay there until
 someone else came, like
 in the medical profession -- a nurse
 or something. You're there, and you're there until
 somebody comes and takes over for you. It was
 a responsibility.

It certainly did introduce me to
 the trials and tribulations that people have.
 I wouldn't have known otherwise. I mean,
 just living in town, I wouldn't have known. You knew
 when someone was sick, or you knew
 when somebody had a death in the family. You learned
 about people's real life being at the switchboard.

It was quite a responsibility at times.
 Quite a responsibility.

Presented in this compressed form, meaning often becomes more clear because the listener does not have to sort out extraneous words in odd patterns; every word counts. Concrete details have been retained and murky, imprecise phrases dropped. In the example above, images such as the creaking trees and the house at night come through better because they are not buried. The emotions and tone of the speaker – pride in responsibility, thankfulness at having a job, humor – have been retained.

As another advantage, more material can be communicated in an standard hour-long historical society program using this compressed form. Yet, in this process, does the editing cross a line and divorce itself from acceptable historical practice? When I pose this question at community oral history workshops, answers vary from strong “yes” to equally strong “no.”

A version of the following readers’ theater script was presented to an audience of independent telephone company owners and employees at the Balsams Hotel in Dixville Notch in the White Mountains of New Hampshire, in August of 1997. The performance was part of my on-going experimentation with ways to bring historical research and insights to people who have not seen the inside of a classroom for some time and are probably glad of it.

At such a performance, when the audience quiets down and the readers are introduced, we look at the faces and see expectation. Their ages can range from youngsters who have difficulty sitting still to elders who have difficulty remaining awake. They want to be entertained as well as informed. We may never have seen them before, may never see them again, and have only an hour to an hour-and-a-half of their time to create an impression.

The performance space for our readings is often a historical meeting hall built for other purposes – a church, a Grange, a converted stable, a gymnasium, a schoolroom. It is often older than any of us there and has a story of its own to tell. Rarely, in New Hampshire, does it have a stage, theater lighting, modern wiring, a sound system, good acoustics, climate control, or comfortable chairs. Occasionally there are not enough chairs, but usually twenty to sixty will do.

How is a historian to remain true to the scholarly rules of the discipline and still fulfill the needs of such a moment? Oral history has the advantage of adapting itself to story-telling, and people love to hear stories well told. Perhaps we historians can impart information about the past or pose questions through stories and still maintain professional integrity while speaking in a well-received public language.

Because an hour is such a short time, every word, every moment of the script must have a purpose. I want the script to speak in a multitude of voices, not just mine, so in the selection and arrangement of material, I do not invent words. These are not loose paraphrasings. All of the words come from written sources or oral interviews. Some of the sequences have been changed and words have been removed, but individual voices remain true. The occasional necessary word that I insert in brackets exists only for clarity and comes from my understanding of the surrounding text.

Untruths do exist here. I do place people together on the stage who in fact never spoke to one another. By using program notes and internal hints in the performance, I hope to make this one liberty acceptable historically. Any words added for clarity or explanation that do not appear in the original document are enclosed in brackets.

Telephone Girls
Pre-dial Telephone Operators in New Hampshire
 © Judith Moyer 1998

[Three women in ¾-length dark skirts and long-sleeved, high-necked white blouses sit center-stage on high stools. They wear tulip-style headsets and mouthpieces. Another woman with a headset sits behind them. A similarly dressed cast member, without the headset, stands at an electronic piano keyboard at stage left. In this script, speakers are indicated by numbers 1, 2, and 3.]

1: One moment, please.

2: Ni-en tew ring four. Thank you.

All: Number, Please?

2: Did you get them? I will ring again.

3: Operator. I am ringing.

1: That line is busy.

3: Fine cents please. [*chime sound*]

All: Thank you.⁶

All: [*Cast sings My Little 'Phone Girl, accompanied by keyboard, played by Speaker 2:*]

“Number please” the operator says to you,
every time you telephone.
Then she starts to connect you to somebody,
someone that you think would be at home.
Perhaps first they “don’t answer” and then she says,
“What ring please?” “Ring them again.”
Often you’ve heard her say “Line busy”
Then to her you’d like to say...

CHORUS:

Hello my phone girl, my little phone girl
Hurry and please connect me.
Don’t keep me “waiting.”
It’s aggravating.
I want to talk right now.
It’s an “emergency”
and you can help me
if you connect. Oh, “open your key.”
Please “plug in,” I’m “waiting.”
My little phone girl,
don’t forget your “Service first.”

Some folks used to think that it was marvelous
If they talked from East to West.
Nowadays its different for there’s telephones
Everywhere throughout this universe.

⁶Traffic Department, *Local Operating Practice* (Boston: New England Telephone Company, 1922).

Now we've "supervisors" and "information"
 Also "Toll" and "Observer."
 Then we have a "Chief operator"
 Besides my little phone girl.

REPEAT CHORUS⁷

- 1:** *The History of the Telephone* by Herbert N. Casson, 1910.⁸
- 2:** Thirty-five short years, [1875 to 1910,] and presto!
 The newborn art of telephony
 is full grown. (Casson, v)
- 3:** The crowning glory of a telephone system of today
 is not so much the simple telephone itself,
 nor the maze and mileage of its cables, but rather
 the wonderful mechanism of the Switchboard. (Casson, 141)
- 1:** Several years before the telephone got
 a switchboard of its own, it made use of the boards
 that had been designed for the telegraph. These
 were as simple as wheelbarrows...(Casson, 143)
- 2:** In some exchanges as many as half a dozen operators
 were necessary to handle
 a single call.
- An editor who visited the Chicago exchange in 1879
 said of it: "The racket is almost deafening. Boys
 are rushing madly hither and thither, while others
 are putting in or taking out pegs from a central framework
 as if they were lunatics..." (Casson, 153)
- 1:** Boys, as operators, proved to be most complete and consistent
 failures. Their sins of omission and commission
 would fill a book...they could not be controlled,
 and by general consent
 they were abolished.

In place of the noisy and

⁷ Corcoran and Conkling, *My Little 'Phone Girl* (1916).

⁸ Casson, *History of the Telephone*, page numbers are in parentheses at ends of paragraphs.

obstreperous boy came the docile, soft-voiced girl...
The quiet voice, pitched high, the deft fingers, the
patient courtesy and attentiveness – these qualities
were precisely what the gentle telephone required
in its attendants. (Casson, 154)

- 1:** A telephone call under the boy regime meant
Bedlam and five minutes; afterwards
under the girl regime, it meant
silence and twenty seconds. (Casson. 155)
- 2:** If ever the rush of women into the business world
was an unmixed blessing, it was when
the boys of the telephone exchanges
were superseded
by girls. (Casson, 154)
- 3:** Whoever has once seen the long line of white arms
waving back and forth in front of the switchboard lights
must feel that he has looked upon
the very pulse of the city's life. (Casson, 156)
- 1:** The quality of telephone service depends upon
the girl at the exchange end of the wire. (Casson, 157)
More is demanded from her than from
any other servant of the public...Her clients refuse
to stand in line and quietly wait their turn...They do not see her
at work...They do not notice that
she answers a call in an average time of three and a half
seconds. They are in a hurry or
they would not be at the telephone...(Casson, 158)
- 3:** These telephone girls are the human part
of a great communication machine. (Casson, 156)
- 1:** **Listening In!** [*dramatic music from keyboard*]
The telephone operators sometimes listened in.
- 3:** Yes, yes. I don't think they had very much
in their own lives, so they liked to know
what was going on. They liked to get little bits of thrills
out of who was doing what.
- 1:** People on a party line

listened in to each other too,
and that was a bone of contention.⁹

- 2:** The telephone girl sits still in her chair
And listens to voices everywhere.
She knows all the gossip, she knows all the news,
She knows who is happy and who has the blues;

In fact, she could keep the whole town in a stew
If she told but one-tenth of all that she knew.
Say, kid, but doesn't it make your head whirl
When you think what you owe to the telephone girl?¹⁰

- 1:** Local Operating Practice, Traffic department, New England Telephone & Telegraph Company, 1922.

Employees and agents of the Telephone Company must not listen on connections except as may be necessary in the course of their work and they are forbidden to divulge any information regarding what they may overhear... Under the law employees or agents of the Telephone Company are personally liable to fine or imprisonment if they divulge any information obtained by them in connection with the handling of telephone calls.¹¹

- 3:** If we listened in, we never told anybody.¹²

- 1:** We'd have lost our job if we had! The only time I listened in was when I worked nights. I had to be all alone, and I listened in just to hear them talk. I [didn't] know a WORD they said. Most always it was in French anyway.¹³

- 2:** We had a monitoring key. You could push that and they wouldn't hear. You didn't listen, and if you did you just didn't repeat it.

In the bigger offices the supervisors could go over your head and monitor all the time, so if you got caught listening

⁹ Connie Bastille interview by Gertrude Cleverdon, 9 November 1993.

¹⁰ Judge, from a newspaper in Pittsfield, NH (title unknown), probably sometime between 1912-1928.

¹¹ New England Telephone and Telegraph Company, *Local Operating Practice* (Boston: 1922), 4.

¹² Ann Kimball interview by Judith Moyer, 8 August 1993.

¹³ Sara Kimball interview by Judith Moyer, 8 August 1993.

you got pulled down on the carpet for it. In Somersworth, sometimes a supervisor would listen in with you just to make sure your procedures were proper, but you always knew she was there because she would plug in right beside you.¹⁴

3: You got your rules and regulations from the [telephone company.] You heard nothing, you saw nothing.¹⁵

2: There was a small building which had been an old school house up by the [Hollis] town hall. It was moved down below the residence of Mr. Hildreth. In 1906, they moved in a small switchboard. That was the first time that [Hollis] had all night telephone service.

The manager of the telephone company, Mr. Albert Hildreth, was his own night operator for many years. He had a small cot, which he rolled in beside the switchboard, and he put on the buzzer that rang the bell. He never had a good night's sleep, but there weren't too many night calls in those days.

When my family moved to Hollis, in 1918, it's the first telephone that I had ever talked over. I used to know Henry [Hildreth] because we walked up the same street [to school.] He was a little fat boy then.

I started as an operator [in 1924] when I was seventeen years old. I had just graduated from high school, and there wasn't anything else for a girl to do in the town of Hollis. There were only two small grocery stores, and they were supplied with a clerk. We could do housekeeping or pick vegetables for the farmers, and that was about all there was. As I happened to live a five minute walk from the telephone office, they thought of me, and asked if I'd like to try to be spare -- ten cents an hour to learn, and after about a month, when they thought you were capable, they raised your pay to twelve cents.

¹⁴ Ann Kimball interview.

¹⁵ Anna Shute interview by Ellen Derby, 15 September 1993.

I did enjoy it because Mr. Hildreth was also Town Clerk of Hollis. We had to make out dog licenses, automobile licenses. After I learned to type, I recorded quite a bit of births, deaths and marriages. He had many automobile mortgages, which I had to record word-for-word on the typewriter.

I helped make out the bills and would also, on bill day, help fold the bills.

Mr. Hildreth was Chief of the Hollis Fire Department for many years, and the operator had to take fire calls and call all the firemen one-by-one to go to the fire.

Later on they put in the fire alarm system. We had to blow the whistle, which was on a high pole out back of the office. All the old maids in Hollis would call in and wonder where the fire was. It took your breath away. You had to think fast and then you blew the siren to get everybody out all at once. In those days, the whole town – able-bodied men – went to the fire, and they'd pull out the furniture and help what they could.¹⁶

- 1:** As soon as they heard [the alarm] they were all running in different directions.¹⁷
- 2:** We had many thundershowers in those days, and – during a loud thunder crack – all the drops would come [down on] the switchboard, and we would have to [push] the drops [back up] with a rubber-tipped pencil. We might get a little shock.

I married Henry Hildreth in 1939. In those days married [women] weren't supposed to work. It seemed to be all over town that you couldn't work if you were married. I don't know why I had to give up my job, [but] I didn't miss it too much because

¹⁶ Hilda Hildreth interview by Joan Jordan Grant, 8 December 1992.

¹⁷ Anna Shute interview.

I was busy with housework and a baby.¹⁸

- 1:** My sister was older than I, and she graduated before I did. It was in the middle of the 1930s, the height of the Depression, so you worked where you could work. She learned to be operator first. I learned when I was sixteen. [1936] I did not want to do waitressing. This was more steady, and not just seasonal. The pay for New England Telephone in the thirties was 25 cents an hour. A full week's pay would be twelve dollars and something.

The [telephone] office was in a private residence, right in Sunapee Harbor, right across from the water. Very pleasant working surroundings. The chief operator was also the night operator – it was her house. We were a resort town so we were busy in the summer -- very, very hectic.

I don't know if you've seen the old phone that had a box. There was a crank on it. [People who wanted to make a call] rang that, and the drop would come down [on the switchboard] in the [telephone] office. [The operator] would plug into that number, and then push a key over and say, "Number, please," They would tell you [who they wanted,] you would plug into the number, then you would just ring it. You had to keep checking and see if they were still talking. You'd ease the key over, [listen,] and then you'd just ease it back. Then you'd do it again after a certain period of time. If they weren't talking, you'd ask, "Are you through?" because you didn't want to disconnect them if they were just pausing. If they were finished, you needed to unplug everything. There was a lot of chatter. We had to be very careful.¹⁹

¹⁸ Hilda Hildreth interview.

¹⁹ Phyllis Sawyer interview by Jeannine Levesque, 7 December 1992.

3: Sometimes with lovers
there would be long silences, and they'd say,
"Get off the line, operator."²⁰

1: It was a very strict law,
you were not to listen in. I'm sure people have, but
I never did. It was a very small town – you knew
most of the people or the families. You learned
not to ever say anything about who called who
or when. [laughs] You learned
to be very discreet.

We had to wear headsets, [and we had]
this speaker clamped around [our] neck.
The earphone was very heavy.
We had it resting against our face until
we had to get it back on our ear. You'd try
to switch it around
and maybe use the other ear once in awhile.

We had to scrub our headsets
with disinfectant every two or three days.
They were very, very cumbersome,
and they were uncomfortable.

If you had three or four calls you'd just leave
[the headset] on
until those were through. If your board was all clear,
then you could take it off and rest. .
Usually
if you were reading or writing or doing homework
you would take it all off. Oh, in hot weather
it would be awful! I used to hate those things. Now,
they're so nice.²¹

3: The first year I was there, [1947], I was there
in the summer time. You had a breast plate and
it was awful.
because
they were heavy. We swore
they were made out of lead.
You had to put tissues underneath it so

²⁰ Annie McNamara interview by Ellen Derby, 11 April 1994.

²¹ Phyllis Sawyer interview.

the tissue would absorb some of the sweat. You'd have a strap around the neck so you'd have to strap it and hook it on here and that would be the horn.

And then you had the head set. You only had one side [on your ear] so you could hear what was going on around you. But the inconvenience...if you wanted to talk to the girl next to you, you couldn't because this thing was [in the way.] When the one piece came in, just at the beginning of '47, we thought we'd died and gone to heaven.

We thought this was really progressive, at the peak of the invention of the phone company.²²

1: PARTY LINES! [*dramatic music from keyboard*]

3: If you were on a party line you had to yield to somebody who had an emergency. It was illegal not to do that. However, these emergencies that used to crop up were calling Aunt Jo for that recipe, [that] type of thing. We would get the complaints that Mrs. Smith down the road wouldn't yield to my call. "Take that up with management." We didn't get involved.²³

1: Maybe you've heard of the man that lives out at what we call the stone castle? He wanted a private phone but that was the only house way up there and [the telephone company] wouldn't put one in figuring he was a fly-by-night and wouldn't be there too long.

[So he had a party line.]
And of course,

²² Alice Mitchell interview by Jeannine Levesque, 9 December 1992.

²³ Ibid.

when [two ladies who will remain unmentioned]
would get on that telephone, they wouldn't get off.
Hell or high water wouldn't get them off.

When they were talking
he'd take down the phone and
he'd ask them if
they wouldn't please hang up
because he had an important call.
They wouldn't do it. He'd straighten them out
but it wouldn't do any good.

They would argue that they had a right to use the phone
as long as they wanted
as long as they paid their bill.

There was no way the operator
could get them off either.
They wouldn't do it until
we had [the telephone people] come down from Keene
and [threaten to] take their phones out.
They were abusing their privilege.²⁴

2: Duty

[slow, saccharine music from keyboard, continuing through next four paragraphs]

All: We'd like to say a word or two
In true appreciation,
To the loyal girls who proved true blue,
A word of commendation.

During the days of storm and stress,
In sickness, cold, privations,
The telephone girls with faithfulness
Served loyally their stations.

O'er ice-bound streets, through snowy banks,
By howling blasts assaulted,
Tho' dreaded illness thinned their ranks,
The service never halted.

And so it is from year to year,

²⁴ Anna Shute interview.

In tranquil days or storming,
 In sickness, death, in fire or flood,
 Their duty still performing.²⁵

1: We were struck by lightning once. I was
 all by myself, in September, a very bad storm.
 You did not
 have to answer a local call
 if you thought the electricity was too bad –
 you could wait a few minutes before you answered.
 If an out-of-town call came,
 you were supposed to answer it.

I saw a bolt go down into the lake, and I thought,
 “I hope nobody’s going to call in right now.” Well, of course,
 I did have a call from out-of-town, so I waited
 just a few seconds. I eased the key over and
 went in. [laughs] Something happened.
 I ended up on the desk, on the other side
 of the [room]. We really got struck.

The generator worked
 so, of course, I had to stay
 right there. Oh, I had a
 terrible headache. I called the chief operator, and
 she came back. She said, “Go home.”
 I went home, and
 she called me soon after that to come back
 because
 we had lots of fires, and
 she was so busy.

So I tell my children
 if I act funny, that’s why – I was struck
 by lightning.

We had the 1938 hurricane. I worked
 until 8 o’clock that night. The wind
 did pick up, and as it got dark,
 across from the water, I thought, “Well,
 I guess we are going to have a real storm.”
 I can remember those big old oak trees

²⁵ Excerpt from Everett H. Davison (night operator, Lincoln, NH exchange), “Our Loyal Girls,” *Telephone Topics* (May 1920): 12.

blowing so hard and making creaking noises.
 The next day, all around the lake,
 the trees [were down] and the power was out.
 The phones were out. That was
 quite a storm.

It wasn't all boring.

In those days, you just
 had to be there, no matter what. The day of the lightning
 I just had to stay there until someone else came.
 It's kind of like being
 in the medical profession -- a nurse or something.
 You're there until somebody comes
 and takes over for you.
 It was a responsibility.

After I married and came down here [to Nashua]
 in 1946 I did have a chance to go
 into the Nashua office, but
 I didn't take the job.
 I wanted to get out of operating because
 it was starting to bother me physically. There's so much
 stretching. I started having backaches, and the doctor thought
 it was purely an occupational thing. So I decided to try
 something else.²⁶

2: Local Service Notes, Engineering Department, New England
 Telephone and Telegraph Company, 1920

Instead of over-reaching, the operator should make
 her balance secure by a firm footing, and rise
 from the chair round and rail of the platform, at the same time
 resting the free hand on the edge of the keyshelf.²⁷

- 2:** We sat on chairs that had a rung at the bottom.
 Luckily I had long arms for a short person, so
 I was able to reach. Sometimes, even the very tall person,
 you'd have to lift off the chair. You didn't like it
 when you got all the numbers [up high on the board.]
 I remember
 putting my heel on the rung and
 lifting up,

²⁶ Phyllis Sawyer interview.

²⁷ Engineering Department, *Local Service Notes* (Boston: New England Telephone and Telegraph Company, 1920), 8.

You really did get your exercise.

- 2:** It was very important that you were ambidextrous .
 You had to use you left as well as your right hand,
 going at the same time all the time. If
 the operator next to you was busy,
 it was up to you to answer some of her calls. Some operators
 just wanted to handle the customers in front of them.
 They would get picked up for that
 by the supervisor. And the operator that was busy
 didn't always want to take the cord, either,
 but she had to. There was a lot of overlapping.
 Never stopping.
 It was a grind, and you had to work fast.
 Overlapping—that's a well-known term to the old operator.
 One hand should never be idle.²⁸

- 1:** I was working on the switchboard
 [at the Portsmouth shipyard] when
 the [submarine] *Thresher* went down,
 lost at sea, April 10, 1963.

The girl beside me said, "Jean,
Thresher's in trouble." She was
 very solemn. The chief operator
 got up out of her seat and came over.
 The switchboard just lit up.
 The duty officer came in, and he said,
 "We've got trouble with *Thresher*. She's down,
 so you girls are in for some work."

There were four of us on that day.
 They housed the press in our building in an empty room.
 Every time we'd try to go out to go home, they'd
 bombard us. So the Navy said, "You stay here."
 They brought us food and whatever we needed.
 The girls who would try to come in, it was hard for them, so
 it was easier to keep us right on and
 work it that way.

By night time everybody knew. [The Navy] had
 to make the casualty assistance calls to the survivors.
 They said,

²⁸ Madeline Fuller interview by Jeannine Levesque 21 December 1992.

"Don't disconnect. Stay right with us, so that you know the minute we're through with this call, so that you can go right to the next."

We had to listen, to hear the families. One call was, "*Thresher* is overdue." The remarks would be, "Oh, we'll be here when she comes in," things like that.

Then the next call was the one that *Thresher* wasn't coming back. You didn't have time then to let your emotions get you, because you just were too busy. People were dumbfounded. Some of the women would scream, "Oh, no!" and cry and carry on. Most just accepted it: "This is it. It happened."

I was there in the shipyard about four days. I had my family at home, and I couldn't tell them why I couldn't come home, so I called and I said, "I'm going to be late. I may not be home tonight. Just watch TV, and you'll find out why I can't come home."²⁹

- 3:** I was only a part-time operator. The central office was in a home. It was very convenient for me because I had three children. The two girls were in school and the little boy was at home with me. He could go [to work] with me. He just took some toys and sat and played while I took care of the telephone. You didn't keep your headset on all the time -- you didn't have to. You could take your crocheting or knitting or whatever and work in between.³⁰

The children, when they got bored to death, used to call us. They'd take off the receiver and ring, and you'd say "Number, please," and they'd say, "2 8 1 apple." It got so we knew the kids were up there alone. If we

²⁹ Jean Santiago interview by Judith Moyer, 8 August 1996.

³⁰ Nettie Farr interview by Judith Moyer, 9 May 1993.

weren't too busy we would carry on a slight conversation with them and then tell them they'd have to hang up. We weren't supposed to talk with callers, only to identify what they wanted.

They did that very frequently when their parents weren't there. It didn't do any harm, and it probably satisfied them, so 281 apple came in for a telephone call quite frequently.³¹

I can remember one night there was a fire. If you're all alone at 12 o'clock at night, you just push the chair back and stand up. You get ready to move because sometimes the cords from the first position would want a number that was way up on the top corner on the second position. [Once] they heard the fire alarm you'd have 50 people ring in. You didn't know if that was another emergency or not, so you answered them as fast as you could. [Usually] it was just curiosity. Everybody felt they could call the operator for anything.³²

1: Courtesy At All Times [*sweet music from keyboard, continuing through next two paragraphs*]

3: Local Operating Practice, Traffic Department, New England Telephone and Telegraph Company, 1922
Instances will sometimes occur where a brief statement will present to the subscriber the true, courteous attitude of the operating force and give a personal touch...³³

1: Criticisms are of value and should be welcomed because they are the principal means whereby the company may learn of existing dissatisfaction. ³⁴

³¹ Isabelle Miller interview by Ellen Derby, 9 April 1993.

³² Mary Gilson interview by Elizabeth O. Jones, 29 October 1992.

³³ Traffic Department, *Local Operating Practice*, (Boston: New England Telephone and Telegraph Company, 1922), 8.

2: I don't know how many different girls I listen to each week – a dozen, I guess – but I have yet to hear one who hasn't a pleasant voice and isn't herself a courteous, cheery, considerate young lady. Were these long-suffering young ladies as abrupt, as crusty, as harsh, as I am sure some of us men would be were we in their places, the machinery of modern business would indeed need overhauling and much lubricating.

I...hope they are as pleasant at home and among their friends as they invariably are to me as we hold our little conversations. To tell the truth, I really believe they are.³⁵

3: You had to use the same phrases all the time. If you had someone who was irate or not quite sure what he was doing – which happened a lot– you had to learn how to handle [them]. I mean, they would just spout off at you for no reason, just because you were there.³⁶

1: It didn't make any difference whether the people were cross to you or not. You had to be "Number, please" and "Thank you."³⁷

2: Absolutely. "Number Please" and then "Thank You." Telephone courtesy. Definitely.³⁸

3: When I first started working [in the late 1940s, 1950s] the procedure was to answer, "Number, Please." So all of us younger girls used to say, "Bumble bees." Nobody knew the difference. Then we went to "operator" and then "Your call please." It changed. Every time you got a procedure down pat the telephone company

³⁴ Traffic Department, *Local Operating Practice*, (Boston: New England Telephone and Telegraph Company, 1922), 5.

³⁵ Excerpts from "The Hello Girls," *Telephone Topics* (February 1920), 245.

³⁶ Phyllis Sawyer interview.

³⁷ Anna Shute interview.

³⁸ Alice Mitchell interview.

would decide that they wanted to do something different.
It always kept you guessing.³⁹

- 1:** And we said “Hot potata” instead of “Operator.”⁴⁰
- 3:** I had a friend who was a telephone operator. One time she went to the movies and asked the guy for a ticket saying “Number Please” He just looked at her and gave her the tickets. It became so automatic that you could do your job and be doing almost anything else but you couldn't do anything else. You couldn't read or do needlework, even on slow times. They wanted you to keep your yapping down. They didn't want full blown conversations going on.⁴¹
- 2:** [I went to] Manchester High, and did not have further schooling. I went right to work for New England Telephone. 1946, in May. I ended up having 34 years with the company.

It was a grind but there were little games you could play. As you were operating, you'd try to fan your cords. You had to reach and almost stand up in your chair to the right of you, [to the] left.

This way, it was easier to take them down as conversation[s] ended.

You played little games like that, see if you could keep all your cords up at all times. That meant you were a real fast operator.

The minute they'd come down, you'd plug in and take another customer, quick. It made your day go by faster, instead of twiddling your thumbs. It could become tedious and boring if you didn't play mind games.

³⁹ Ann Kimball interview.

⁴⁰ Unknown informant in discussion at *Number, Please* lecture, Dover, NH, 9 May 1994.

⁴¹ Alice Mitchell interview.

To go to the restrooms, you had a number, and you put it on the back of your chair. If someone was already up there, there was no way you could go. They could only let one leave the room at a time, because they couldn't spare that position.

They had a dress code. No knee socks. No sneakers. No pants. Can you imagine? They were very, very rigid and very strict about the job. Some [operators] just couldn't take it. It wasn't for everybody.

There was a supervisor walking behind you, to make sure you were busy and that you saw all the lights. If it was really busy all those lights would be lit.

Sometimes that person had a right to be aggravated. The operator had to take the brunt of it -- you know, the screaming and yelling: "Well, I've been waiting three minutes!" like that. So you just had to calm the customer down and say you're very sorry, "What number would you like?" Pacify the customer.

That was the part of the job that a lot of people couldn't take. The customer would get to them.

I remember -- I [had been] working about three months -- [a man] picked up and I answered his signal and he just started to curse and swear. Me being very new and very young, I started to cry almost. I didn't let him know it, but it did affect me.

I determined that was never going to happen to me again. You built that toughness

around you. You had to say, "Hey,
this can't get to me,"
and go on from there and try
to satisfy your customers. When
you left that day you just said, "Hey,
that's part of the job."
Once you did that,
the more angry they were,
the more sweeter you were. [laughs]⁴²

3: We'd get to flirting with some of the guys on the phone. We were terrible. They would ask you when you were getting off work. They fell in the love with the voices. You'd tell them and then you'd ask them what they were going to wear so you could see them before you got out of the building. You could look out and if you didn't like [what you saw] you just kept right on walking. They didn't know who you were. We were terrible. It was fun. One time I did it and some guy was standing there, and I said what a dog. He was awful. I asked the girls if they were interested and nobody was interested so we all walked out together and kept on walking and just assumed he was waiting for somebody else.⁴³

1: I got mad at the phone company and I left -- the first time I ever really quit a job. I was young and I knew it all. I've always been one who could work by myself - give me a job and I'll get it done. They used to be forever listening in on your stations. It used to irk me. I could see the black box. One of the assistance supervisors or assistant managers - I forget what their names were - she'd sit there and plug in just to check you out.

Today I can see the value of it but in those years I thought, "They don't even trust you." and "What do they think I'm going to be doing at a switchboard?"

One day I was getting aggravated over that darned black box. I was talking with a girl, and I saw

⁴² Madeline Fuller interview.

⁴³ Alice Mitchell interview.

you know? So
 I was there when the customers
 who didn't want to dial
 their own numbers would ask for assistance.
 Two or three of us they kept on for that. We would talk
 them through it.

I have seen so many changes, from the drop system
 and then cutting hours so people could dial their own
 toll calls. You just go with it.
 The more you fight change,
 the worse off you are.⁴⁶

2: One town that changed [to dial] very early
 was Greenfield.

Richmond, too.
 [People] didn't like [dial]. They missed
 the personal contact and all the little services
 that had been given, but they adjusted.

They had no choice.

When Greenfield cut over to dial telephone,
 the people reacted. They panicked.
 The people said, "No."
 They didn't want it. They said,
 "We call
 the telephone office
 and they take care of it. How are we
 going to dial the number and
 get it right?"

I wondered at the time myself.
 "It must be simple," [I thought,] "or
 they wouldn't be putting it in."

And it was [simple.]

All you had to know
 was the number and how to use your finger
 to turn the thing.

It was 1931 when I started [as operator in Greenfield.]

⁴⁶ Madeline Fuller interview.

The kids should hear it now – 10 cents an hour
and you got your lunch. If you were there all day
you got a nice supper.

Mr. Smith was the agent, and he and his wife
did the operating. The office
was in the front room
of their house. He was blind.

This was the drop system, [so
Mr. Smith] could feel it with his hands and memorize it
that way. To record his toll calls
he had a Braille machine like a typewriter.

In those days,
they didn't have a bathroom
and you had to go through the kitchen
through the shed
and to the outhouse. Of course
you would [turn the alarm] bell on
and you'd hear that ringing.
Sometimes
they had to wait a bit, and, my God,
sometimes you had to run!

Mr. Smith was operator until they put the dial in.⁴⁷

- 1: My mother died when I was born, and
my father was not around, [so] I lived
with my sister and her husband. They thought
[me being an operator would be]
very nice because
if you worked for the telephone company
at that time
unless you did something real bad
you were pretty well set for life.

I had a friend who worked for the telephone company
They were looking for an operator in Dublin
for the summer. I went there for an interview
and started working in March 1937, without pay.
To learn.

⁴⁷Anna Shute interview.

[Training] was hands-on, being told or shown
how to do it
and then doing it.

It was a good job.

Then I came to Marlborough because
the regular operator they had
got married.

We had a two-position switchboard.
Forty lines.

It was in a house, in the living room.

[of] the agent,
Mrs. Harriet Parker.

We worked four hours straight,
eight hours a day, with no coffee breaks.
I worked quite a few years
8-12 and 2-6. No coffee breaks. We had
two hours for lunch
and I went home. \$12 a week, 25 cents an hour.

I memorized a good many of [the numbers]
especially the business lines. I had them
all in my head before I even started working because
I wouldn't want anyone to say,
"Oh, that stupid operator."

[People] were very friendly. They would say "Hi."
They'd say, "Well, I'm going to be
at such-and-such a place. Would you please
refer my calls?" We did that
quite frequently. They got a lot of service.
It was just something that we did.⁴⁸

- 3:** [In Peterborough] people would call up and say,
"I've got a cake in the oven. Would you please tell me
when 20 minutes is up?" Or
they would say
"Can you call me at 4:30 in the afternoon
because I'm going to be taking a nap and
I have to be sure to be awake."
There was a lot of personal service.

⁴⁸ Annie McNamara interview.

A center of information. Lost and found.⁴⁹

1: Now that you mention that they used to have a service, there was no charge for it, a wake-up service. If you had the real early morning shift you'd go in and see all these little papers stuck up: [call] such and such a number at 6:15 or whatever. You'd call. Some of them were very nice and some were really nasty to you. Here you are, doing them a service and then they holler at you because you woke them up.⁵⁰

3: They started talking about dial coming into the area, and I thought, "I'm going to have to work the rest of my life, so I guess I better move because once these small offices [like Marlborough] are gone..." So I called up Peterborough and I went over and I was hired. I went to work over there the day after Columbus Day, 1948.

I [got] supervisor training, [with] Jessie Hunt. We did it together. We had an instructor from Portsmouth come over for two weeks. We learned what a supervisor was supposed to do, and then I started training some of the operators. There were two or three supervisors and I did most of the training.

I had a chance to go to Boston and learn how to do studies [to] see if they had enough equipment in order to give good service.

I went to quite a few of the various dial offices. We had several girls working in each office to do different things. There would be studies. I went to places I didn't know existed – Kingston, Exeter, Salem. I have really done some interesting things.

The operators were getting

⁴⁹ Connie Bastille interview.

⁵⁰ Alice Mitchell interview.

fewer and fewer, that's all. It's been amazing to see so many different changes.⁵¹

- 1:** Everything was growing, getting much bigger. Now all the central offices in New Hampshire are finally cut over to the electronic switching system.

I got out, because the operator's duties were no longer interesting. You just dealt with the console, and you dealt with the customers all day long that the operator couldn't satisfy.

I really didn't want to get through. Looking back, it was an experience. It was an interesting career.⁵²

I did not like it when we changed to dial phones. [Before dial] there was the information operator. Now, you get this automatic thing that says, "This number is such-and-such. Write it down."

The personal part of it is all gone. I didn't like the idea of a machine, no personal service, but I could get my sister in California as quick as I could dial the Historical [Society] here.

I still think very fondly of helping people.⁵³

- 3:** As a telephone operator do you see the switchboard, the plugs, the cords, the jacks, or do you look beyond and see the people? Can you see in your mind an exchange, not a switchboard but the people? Can you see the home, the office, the factory, the farm? a nation of people bound together by the telephone?

Telephone calls are not telephone calls at all, they are *acts of service*... To some the opportunity to be of service is very great, but to no one greater than to a telephone operator...

⁵¹ Annie McNamara interview.

⁵² Madeline Fuller interview.

⁵³ Connie Bastille interview

The very tides of human life ebb and flow
 beneath your fingers.
 ...the Telephone System with all that it means
 is dead
 until your fingers give it life
 ...the greatest thing in life is
 to be of service.⁵⁴

All: Number, please?

All: (*sing*) CHORUS:

Hello my phone girl, my little phone girl
 Hurry and please connect me.
 Don't keep me "waiting."
 It's aggravating.
 I want to talk right now.
 It's an "emergency"
 and you can help me
 if you connect. Oh, "open your key."
 Please "plug in," I'm "waiting."
 My little phone girl,
 don't forget your "Service first."

-- END OF SCRIPT--

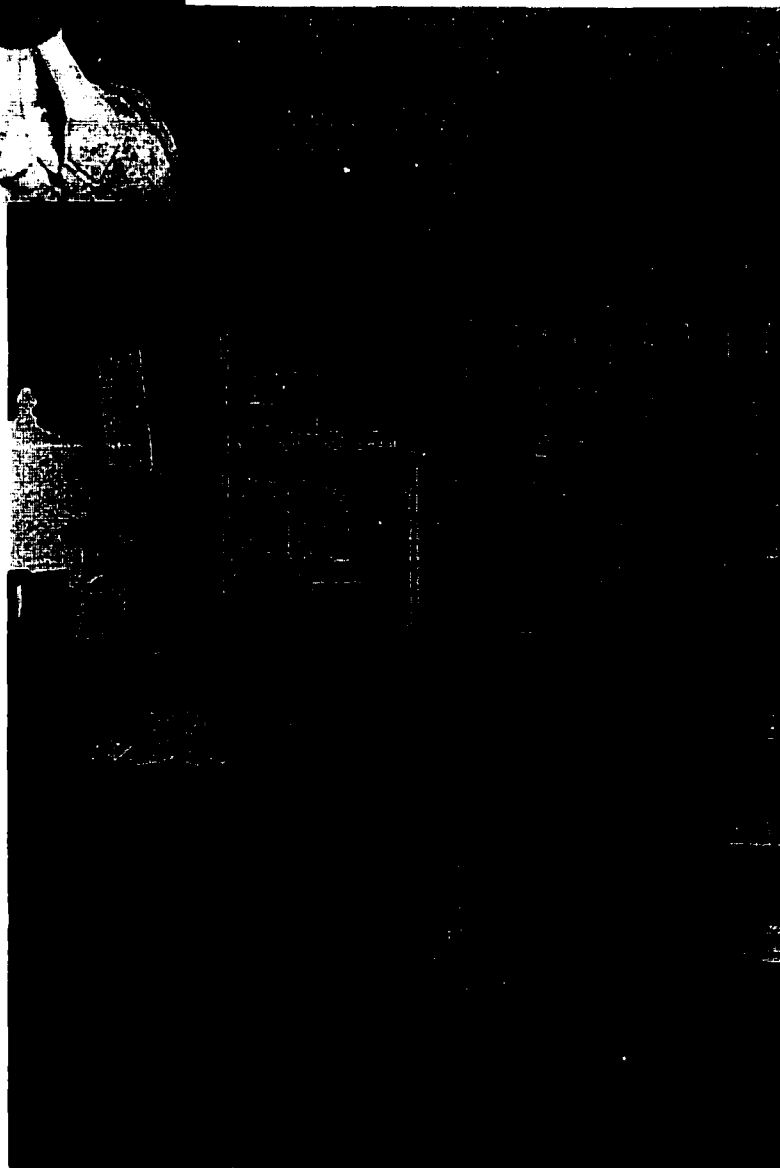
Audience response to this reading was enthusiastic and appreciative. As is usual after a reading like this, audience members wanted to discuss what they had heard and tell their own stories and memories. In spite of the warm acceptance, I feel that the script does not work as well as it might. It needs a story line to hold it together, a thread that runs throughout to lend structure and perhaps some dramatic momentum with better pacing. The diaries of Mary E. W. Chellis, cited in Chapter Three, might provide just what is needed for a rewrite.

⁵⁴ "Weavers of Speech," *Telephone Topics* (about 1920).

APPENDIX B VISUALS



**Fig. 1. May Merrill Sumner, c. 1903.
(Photo courtesy of Goffstown, New
Hampshire, Historical Society.)**



**Fig. 2. Interior of Otis Sumner's drugstore, Goffstown, New Hampshire, date
unknown. Note the telephone switchboard and operator in the back room,
visible through the door. (Photo courtesy of Goffstown Historical Society.)**



Fig. 3. Section of NET&T common battery, No. 1-C switchboard equipped for machine ringing, Manchester, New Hampshire, 1925. The keyshelf contains ringing and supervisory keys, supervisory lights, and subscribers' cords with plugs. Note toll tickets. (Photo courtesy of New England Telephone Pioneers.)



Fig. 4. NET&T Type T-134-E, 100-line switchboard in a small magneto office. This would have been tended by a single operator. Note the hanging mouthpiece. (Photo courtesy of New England Telephone Pioneers.)



Fig. 5. NET&T Service First sign, operators' sitting room, Rochester Central Office, 1925. (Photo courtesy of New England Telephone Pioneers.)

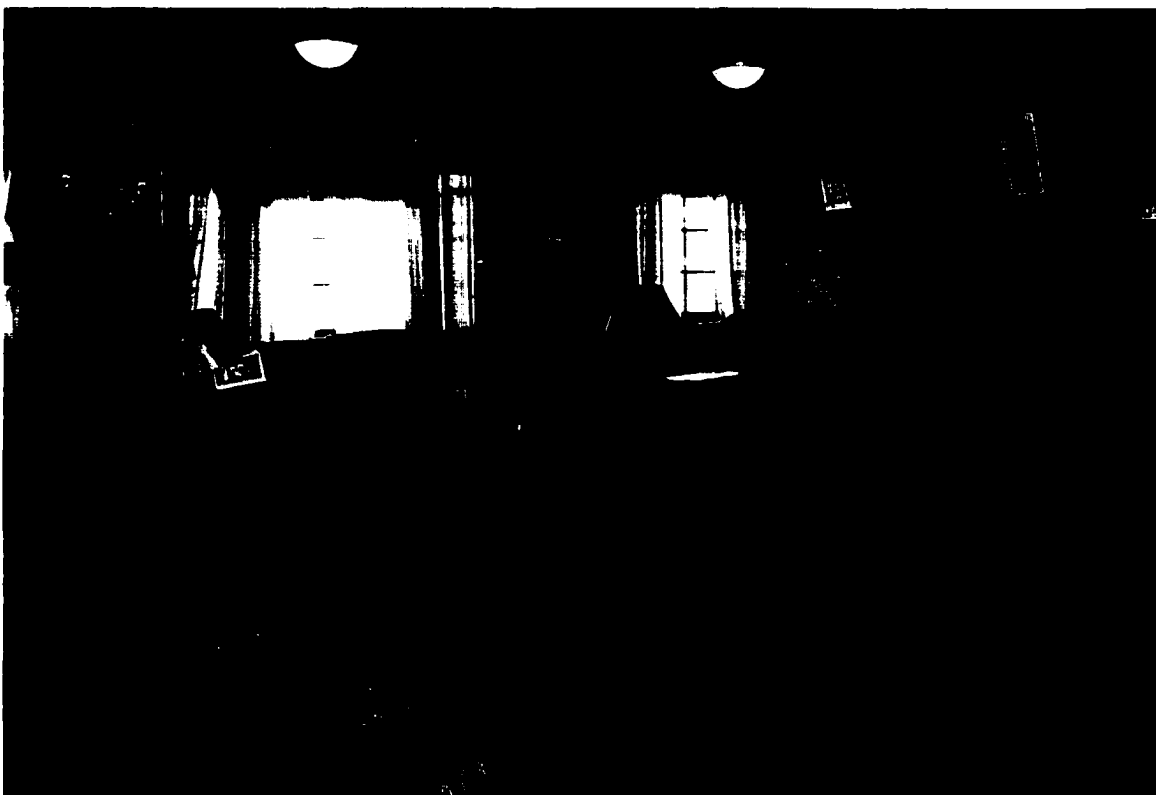


Fig. 6. NET&T operators' sitting room in New Hampshire's largest central office, Manchester, New Hampshire, 1925. (Photo courtesy of New England Telephone Pioneers.)



Fig. 7. NET&T No. 1-C office, Manchester, New Hampshire, 1925. The subscribers' "A" switchboard for local calls is on the left, the No. 1 toll board is at right front, and "B" trunk positions are at right rear. The desks in the center are, from front to back, the chief clerk, directory and information operator, and chief operator. The women standing are supervisors. (Photo courtesy of New England Telephone Pioneers.)



Fig. 8. Getting ready to install a new switchboard in the Chellis farm house, Meriden, New Hampshire, c. 1913. L to R, Frank Chellis, Harold Chellis, Howard Chellis. (Photo courtesy of Chellis family.)

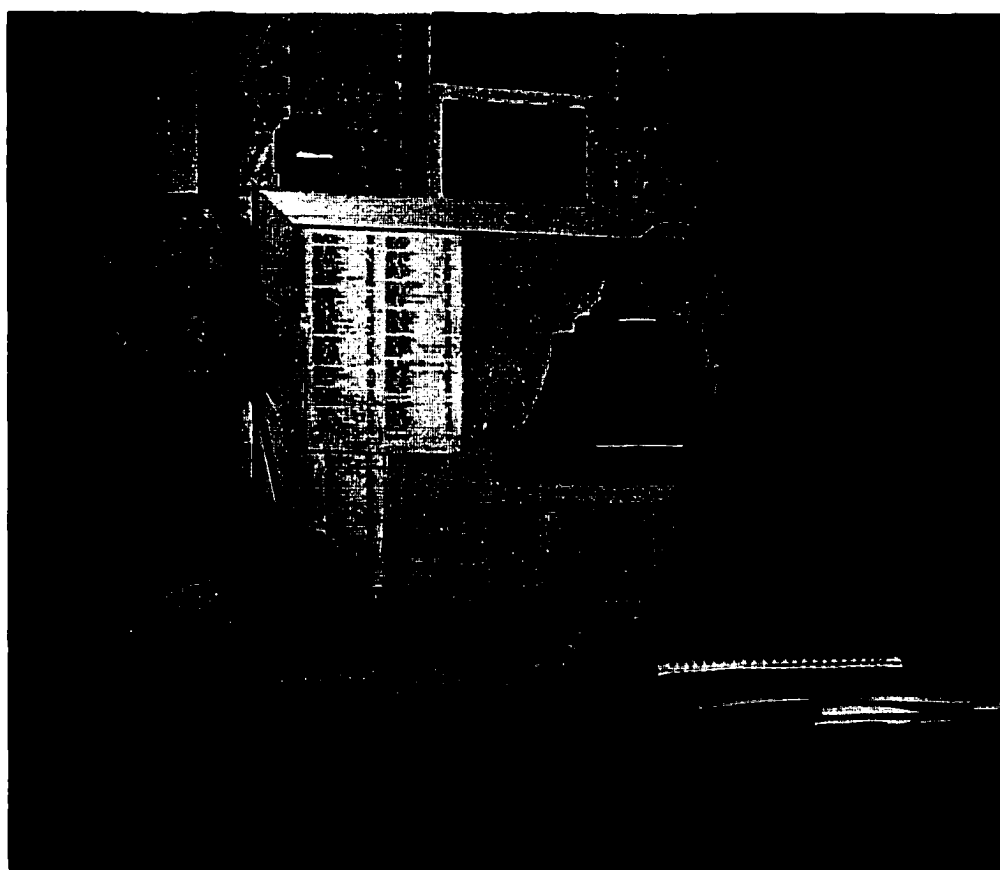


Fig. 9. Telephone operator Mary Westgate Chellis, Meriden, New Hampshire, 1954. (Photo courtesy of Chellis family.)



Weavers of Speech

Upon the magic looms of the Bell System, tens of millions of telephone messages are daily woven into a marvelous fabric, representing the countless activities of a busy people.

Day and night, invisible hands shift the shuttles to and fro, weaving the thoughts of men and women into a pattern which, if it could be seen as a tapestry, would tell a dramatic story of our business and social life.

In its warp and woof would mingle success and failure, triumph and tragedy, joy and sorrow, sentiment and shop-talk, heart emotions and million-dollar deals.

The weavers are the 70,000 Bell operators. Out of sight of the subscribers,

these weavers of speech sit silently at the switchboards, swiftly and skillfully interlacing the cords which guide the human voice over the country in all directions.

Whether a man wants his neighbor in town, or some one in a far-away state; whether the calls come one or ten a minute, the work of the operators is ever the same—making direct, instant communication everywhere possible.

This is Bell Service. Not only is it necessary to provide the facilities for the weaving of speech, but these facilities must be vitalized with the skill and intelligence which, in the Bell System, have made Universal Service the privilege of the millions.



AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy

One System

Universal Service

88

Fig. 10. "Weavers of Speech," an AT&T advertisement first appearing in 1915. Copy from AT&T Box 2061, AT&T Archives, Warren, N.J. (Photo courtesy of AT&T Archives.)

APPENDIX C:

MADELINE FULLER, MANCHESTER, N.H.¹

[I went to] Manchester High and I did not have further schooling. I went right from my senior year to go to work for New England telephone. 1946, in May. I was seventeen years old. I ended up having 34 years with the company.

Being a local operator, you had direct communication with a lot of the people right here in town. If you sat at the same position every day, you got the same customers every day. I just found it very interesting. It was a grind, and a lot of times you wondered how you'd make it through the day. But again, the next day went along smoothly. We were all like a family. We'd go out on break and chit-chat about the hard customers we had, or the fun ones. Christmas, people who really appreciated the operator would send you boxes of chocolates and wanted to know your name.

It was a grind but there were little games you could play. As you were operating, you'd try to fan your cords. You had to do quite a reach. You had to reach and almost stand up in your chair. If you were going to answer the light to the right of you, you would take that cord. And if you were going to answer the one over here, you'd take a left. You just sort of played a game. If you hand out your cords this way, it was much easier to take them down as the conversation ended. You played little games like that, see if you could keep all your cords up at all times. That meant you were a real fast operator. The minute they'd come down, you'd plug in and take another customer, so you could get it back up there quick. It made your day go by faster, instead of twiddling your thumbs. It could become tedious and boring if you didn't play mind games.

When two lights came on, that meant that conversation was done. You take those cords down right away because it was imperative for the customer that's waiting for [the line.] If you took them down too fast, it was very easy to pull the wrong one down, and that would mean the customer was cut off. And if he was cut off, he wasn't very happy. You had to do some explaining there. It was easy to do because we were going fast and furious.

In the old days we had those numbers that were unrealistic. Like, my mother's number was 1022W12. You had to ring. You had to hold the key in one long and then two short ones, because also on that line,

¹ Madeline Fuller interview by Jeannine Levesque, 21 December 1992.

which was about an eight-party line, there were people that had three rings, which would be three quick rings. Ring, ring, ring. You actually made the bells ring by the key that you used.

The W was one side of the line, and then it might have been another letter for the other side of the line. They had two sides of the line. If it was an eight-party line, you could hear four people. And the ones on the other side could hear four people, but you couldn't hear all eight people. Even though they could hear only four people of the eight, all eight really did tie up the line. And sometimes people were very irritated. They would call the telephone company and ask to be switched because they couldn't stand parties on their line talking all the time.

There was a supervisor walking behind you, to make sure you were busy and that you saw all the lights. You didn't really know which [light] came in first. If it was really busy and all the people picking up at once, all those lights would be lit. Of course your eyes had to go up in the switchboard once in awhile. You really didn't know which one picked up the telephone first, so sometimes that person had a right to be aggravated because they might have come on first. The operator had to take the brunt of it. You know, the screaming and yelling: "Well, I've been waiting three minutes!" like that. So you just had to calm the customer down and say you're very sorry, "What number would you like?" Pacify the customer. That was the part of the job that I think a lot of people couldn't take because the customer would get to them. That was part of your job, to pacify the customer and make sure that he did get service.

You really had to draw the line. When you left that day you just said, "Hey, that's part of the job." Once you understood that, it didn't bother you. I remember -- I [had been] working there about three months - - one time [a customer] picked up and I answered his signal and he just started to curse and swear. Me being very new and very young, he really got me going, and I started to cry almost. I didn't let him know it, but it did affect me that way. I determined that that was never going to happen to me again, to have him get to me. You sort of built that toughness around you. You just had to say, "Hey, this can't get to me," and go on from there and try to satisfy your customers. Once you did that, the more angry they were, the more sweeter you were. [laughs]

You could ring any number, up on the multiple [board.] The beginning of your number -- say it was 1022 -- that would be in the one thousand bank. You'd have to go up to the one thousand bank and go over to the 22, and you had to test to see if that line was busy.. I still have one of the old plugs that I use for a key chain, so I can give you a good demonstration. This was the plug that at the end looks a lot like the things we have connected to the tape recorder to make them work. When you went up in the bank [with the plug], the minute you touched the edge of the circuit there-- you had to have forty-five degree angle—you got static. That meant the line was busy. If you didn't do that and you went in, you'd

go over a busy line, and the party that was calling that number would hear their conversation. That was a real no-no. So you had to test it. But it all had to be done very fast. Test. Insert. Test. Insert. That was a real no-no to go over a line when it was busy. You were flying so fast it was easy to do. The circuit was very small.

We sat on chairs that had a rung at the bottom. Me being short, luckily I had long arms for a short person, so I was able to reach. Even then, the very tall person, sometimes your foot would be on the heel, and you'd have to lift off the chair a little bit to get in there because you had to test first. You didn't like it when you got all the numbers [up high on the board], but sometimes it worked out that way. I remember putting my heel on the rung and just sort of lifting up and going in. You really did get your exercise.

And it was very important that you were ambidextrous because you had to go to the left as well as to the right. You couldn't just do something with your right hand. Sometimes, if the operator next to you was busy – her position was busier than yours – it was up to you to answer some of hers. So you just took your cord by the plug, and you'd hand her the plug, and while she was doing her work she'd take it and put it in the circuit so that you could say, "Number please" to that customer. Some operators just wanted to handle the customers in front of them. They weren't good at passing the cord to the next girl, and they would get picked up for that by the supervisor. If you were in front of a position that was not as busy, it was your duty to pass that cord. And the operator that was busy didn't always want to take the cord, either, but she had to. There was a lot of what they called overlapping. You had to use you left as well as your right hand, going at the same time all the time. Never stopping. It was a grind, and you had to work fast. You had to learn the technique. There was a lot of technique that you had to get down pat. Sometimes it was only every other position being used, and the operator on each side would just reach over. You had to reach into that empty division and take all of those customers because no one was sitting there. Overlapping—that's a well-known term to the old operator. Overlap meant you did more than one thing at a time, with your hands. One hand should never be idle.

The toll operator was across the room. The toll board. I worked on that before I became a local operator because they happened to need toll operators first. They were in dire need of toll operators at the time, so they trained us to be a long distance operator. It was two or three years before I learned the local board. Nobody wanted to go from toll to a local board. In toll, you work all the time, but it wasn't this fast pace of reaching and pulling down. Not so fast because people called long distance, they stayed on for awhile. And it took you longer to put through one call, compared to just putting it up and ringing. So your arms did not have to fly.

You had to have certain pencils. When they put through toll calls, they had these little paper tickets, and you had to write everything on there very fast. Very tiny lines. I used to be a fairly decent writer years ago. You learned penmanship in school, but it all went down the drain when I became an operator because we had these little paper tickets with little tiny lines. We had to cram so much information on those little lines.

If the local switchboard was extra busy at times when the toll board wasn't, they would come over and ask for volunteers for the local board. "Any volunteers?" Nobody wanted to work the local board. If nobody volunteered they'd just say, "You, you, and you," and away you went. Those switchboards had to be answered. That was the duty of the supervisor. She had a pretty tough job. She just walked up and down behind the operators, watching the switchboard, watching those lights come in. If it looked like the volume was getting heavy, right away it was her duty to go up to the toll board. Say we had a big snowstorm coming. It's amazing what things affected the switchboard. Around Mother's Day it was real busy. Around Christmastime all the children pick up the phone and ask for Santa Claus.

Coin stations had a special position, and nobody wanted to sit there because they had to collect the money, return the money if the line was busy. There was a little more to it, in other words. Instead of just ringing numbers, you had a little paperwork there and a little headwork. You had to put a yellow clip on your cord—that meant a coin station. So in three minutes you had to put the time down on the ticket, when the conversation started and when it ended. We had a little book. You looked up the rate, if it went overtime. It all had to be done in a hurry. Everything had to be done fast. In three minutes, "I'm sorry, the three minutes are up. Would you please deposit." And then sometimes they would hang up and run away, and the operator was responsible. You'd have to be on the ball and ring and ring that coin station back to try to get that person to answer. Usually if you rang it enough someone would answer and they'd say, "I'm sorry, he's left, operator." I'd say, "He just hung up. He can't be left." And we used to have to really fight for the money. Sometimes they would come and pay and other times we wouldn't get our money. They didn't dock [your pay] but they made it known to you that you weren't to have too many of those.

Now, the times when it wasn't so busy, they would let some of the operators go home. They gave them what they call volunteer time off. They called it VT. You'd sign the book way ahead of schedule, and [the supervisor would] have to look at the book to see who signed first. Business dropped off, they'd ask if you wanted to go home. You just got paid for what you worked.

Of course we worked different shifts. In the summer, sometimes, I'd work five to eleven. Everybody liked that because you worked less hours and you got paid the night premium for working nights. You got

more money and you worked less hours. It was as busy as the daytime grind because you didn't have all your business people. When I worked five to eleven, a few of us would go to the beach for the day, and we would go to work at night. At five o'clock you would be so sunburned that you couldn't hardly move. Also, there was no air conditioning in those days, and we had these great big fans. They'd open the window and put the fan there, and it would blow on you and you'd feel prickly. It was really uncomfortable. Yet you couldn't stand it without the fans, and you were uncomfortable with the fans.

In order to go to the restrooms, you had a number, and you put it on the back of your chair. If someone was already up there, there was no way you could go. They could only let one leave the room at a time, because they couldn't spare that position.

They had a dress code. No knee socks. No sneakers. No pants. Can you imagine? They were very, very rigid and very strict about the job. Some of them just couldn't take it. It wasn't for everybody.

Later on I became a supervisor myself, after working for ten years. I worked as a supervisor for ten years. There are a lot of things the supervisor had to be responsible for: calling in more help or letting help go home or being aware that a storm was coming. It was like you really wanted to have a crystal ball because it was a no-no if you brought in too much help. Sometimes business would just happen to drop off, and they'd say, "Well, why were you loaded down with this many operators when in fact you only had so many calls?" All the calls were pegged, so they knew how many calls a day you went through. By the same token, you'd let them go home because business would drop off, and then it would start snowing, and business would pick up, and they'd say, "Well, why didn't you have more help on?" You had to walk the fine line as a supervisor and know what was going on. Even [during] a football game, [the telephone operators] wouldn't be busy because everybody would be sitting watching the game. So as a supervisor you had to know when those games were going to be played.

[Monitoring operators,] that was part of our duty too. We used to [have] a little black box on a pedestal. [If] you wanted to listen to an operator on position 202 or position 300, and you would plug into that and turn the key back, and you could monitor her. That was part of the supervisor's duty. You'd probably monitor her for twenty minutes or a half hour. You would note down her progress. We called them POs, Progress Observation. Especially a new operator. You would monitor her very closely for twelve weeks because they were on trial. Some of them just didn't make it after the training.

It was fairly interesting [being a supervisor] because you took the progress observations, plus you had a supervisor's console. Any time the operator couldn't satisfy a customer or couldn't help the customer, she'd

have to turn it over [to the supervisor.] So when we answered the console, we had customers.

In my era as a supervisor, all of a sudden we were letting the males come back in. As a supervisor I had to train. I trained the first male operator in the Nashua office. When he'd answer the customer's line, they would joke because it was unheard of for them to hear a male voice. They said, "Be careful you don't get your high heels caught in the rungs of those chairs." The poor guy would have to take all this from the customer.

You train a person on a dummy board. You had an operator sit in and she would be the customer. When they put them on the live switchboard and got the customer themselves, they were nervous. After a few hours they calmed down, but it was hard for the male because [they'd] have to take all those jokes. That was after dial.

When dial came into being, I stayed on. If you were married, you were laid off. But they did keep me on for almost a year. We had to train the customer how to dial their numbers. This was a new thing for the customer, so you could just picture how they didn't want to do it. Especially some of the older people. They were afraid not to be able to do it. Fear of the unknown, you know? So I was there when they first cut the customers who didn't want to dial their own numbers. They would ask for assistance. Two or three of us they kept on for that. We would talk them through it, and tell them why, and try to let them know this is going to be a way of life. After all, those people were desperate, especially the elderly.

You know, you really feel for the elderly couples in this high-tech age because everything has become so complicated. That was the beginning stages of technology taking hold, and they feared it, and they were confused. So I stayed on for quite a few months. I was laid off for about a year, collecting unemployment, and we had to go around looking for another job. Then they called me back. They needed more operators. I think that must have been in 1954 or 1955. I think the cut [-over to dial] was 1954.

Every time they'd come out with something different, they would take you out in a conference room and say, "Okay, now the company's deciding to do this. We want you to inform the customer." A lot of times [the customers] didn't like the change that the company was putting in. We had to know what to say to them. We were programmed to satisfy the customer. That was the number one priority, to satisfy the customer. You were like an in-between. You had the customer to satisfy and yet, if you didn't do everything exactly right, you had a supervisor that was over you and telling you, "You did not do that right."

I had a friend that transferred to Milford. It was a real small office, and it was antiquated equipment. It was the drop system. Every time a customer picked up the telephone, instead of a little light coming on, this little drop would come down. You'd see that and know that it was a person calling. It was like a horse shoe. The operator had to take the ruler

and push those back up. I was quite elated when I went up there. I went to visit her many times. I thought we were really ahead of the game after seeing that.

The operators in Milford did do a lot of personal service, and say, "We'll take a message," and they'd say, "Well, I'll call them." Small town and people didn't use the phones that much.

I have seen so many changes, from the drop system to the local switchboard and then the toll board and then cutting hours so people could dial their own toll calls. You just go with it and find out that that is the best way to go. The more you fight change, the worse off you are.

Everything was growing. The network system was getting much bigger. I was invited to the last cut-over in New Hampshire. Now all the central offices in New Hampshire are finally cut over to the electronic switching system, or DMS 10s. There are no more step-by-step offices left in New Hampshire. They have fiber-optic systems now, where they can put through so many lines in this little hair-like cable, and they're all insulated. Everything is underground and protected, so much better protected than before. A little wind storm and the lines were down. That has come a long way, from "Number please" to Direct Distance Dialing. That was the DDD. And then they went to the Automatic Call Directory. ACD office. That's when I got out, because the operator's duties were no longer interesting then. You just dealt with the console, and you dealt with the customers all day long that the operator couldn't satisfy. I didn't really deal with the operator anymore. I didn't have interaction with the operator and upper management. Before, you had interaction with management and upper management, and you also had interaction with the operator as well as customers. So that's when I decided, "I guess I'll go to another department." I went into equipment engineering and started from square one all over again. It was behind the scenes, learning how the equipment worked and what was needed to satisfy the customer, instead of just answering their calls.

I really didn't want to get through, but I took an offer. They made a pretty good offer, but now I feel like I should still be working. I've been out for two years. It was an interesting career.

APPENDIX D

UNIVERSITY OF NEW HAMPSHIRE

Office of Sponsored Research
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Durham, New Hampshire 03824-3585
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| | | | |
|---|--------------------------------|---------------------|----------|
| LAST NAME | Moyer | FIRST NAME | Judith |
| DEPT | History - Horton SSC | APP'L DATE | 6/9/2000 |
| OFF-CAMPUS ADDRESS (if applicable) | PO Box 754 Durham, NH 03824 | IRB # | 2358 |
| PROJECT TITLE | Number Please | REVIEW LEVEL | EXE |

The Institutional Review Board for the Protection of Human Subjects in Research has reviewed the protocol for your project as Exempt as described in Federal Regulations 45 CFR 46, Subsection 46.101 (b) (2), category 2 .

Approval is granted to conduct the project as described in your protocol. Changes in your protocol must be submitted to the IRB for review and approval prior to their implementation.

The protection of human subjects in your study is an ongoing process for which you hold primary responsibility. In receiving IRB approval for your protocol, you agree to conduct the project in accordance with the ethical principles and guidelines for the protection of human subjects in research, as described in the Belmont Report. The full text of the Belmont Report is available on the OSR information server at <http://www.unh.edu/osr/compliance/belmont.html> and by request from the Office of Sponsored Research.

There is no obligation for you to provide a report to the IRB upon project completion unless you experience any unusual or unanticipated results with regard to the participation of human subjects. Please report such events to this office promptly as they occur.

If you have questions or concerns about your project or this approval, please feel free to contact me directly at 862-2003. Please refer to the IRB # above in all correspondence related to this project. The IRB wishes you success with your research.

For the IRB,



Kara L. Eddy, MBA
Manager, Regulatory Compliance

cc: File
Lucy Salyer, History - Horton SSC

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