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BOSTON UNIVERSITY

GRADUATE SCHOOL

DISSERTATION

THE BIRTH AND EARLY YEARS OF THE BELL TELEPHONE SYSTEM, 1876-1880

by

Rosario Joseph Tosiello

A.B., Boston University, 1963; A.M., Boston University, 1964

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THE BIRTH AND EARLY YEARS OF THE BELL TELEPHONE SYSTEM, 1876-1880

(Order No.

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Major Professor: Robert V. Bruce, Professor of History

The roots of the Bell Telephone System reach back several years before the invention of the telephone to 1874, when Alexander Graham Bell was trying to invent an improved telegraph system. Bell agreed to divide future profits with Thomas Sanders, a leather merchant, and Gardiner G. Hubbard, a lawyer of some financial means, in return for the funds necessary to carry on his experiments. With the invention of the telephone, new and more formal arrangements were worked out, and the Bell Telephone System began its legal existence.

During the early period the financing of the telephone's commercialization rested chiefly upon Sanders and Hubbard personally. Initially they were hindered in their efforts to secure capital by the novelty of the telephone and the skepticism which greeted it, and later by their conflicting views of financial policy. Hubbard rejected, as long as possible, any proposals for interesting new investors which required surrender of the patentees' control of the business. Sanders, the main source of capital, however, was eager to secure new investors to share his burden. Ultimately Hubbard acceded to Sanders' view out of financial necessity.

While the Bell interests were trying to solve their financial difficulties they were confronted by the competition of the Western Union Telegraph Company. Having earlier scorned the offer of the telephone patent

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for one hundred thousand dollars, the Western Union soon realized its error. Since it was no longer possible to buy the telephone patent on satisfactory terms, the Western Union allied itself with several inventors who claimed priority of invention, and it set up a rival telephone organization based upon these questionable claims.

The Bell interests not only survived the fierce struggle but also succeeded in eliminating the Western Union from competition as a result of a compromise agreement. The Western Union compromised, despite its seemingly overwhelming strength, because its chief legal counsel advised that its patent claims were weak and also because it was being challenged by Jay Gould's rival telegraph organization, which was seeking an alliance with the Bell Company.

The competition of the Western Union proved to be a major influence on the development of the Bell interests, profoundly affecting not only their financing, but also their evolving policies for commercializing the telephone.

The growth of the Bell interests was further hampered during this period by the inefficient, sometimes crude, organization created to conduct the telephone business. Conflicting personalities, the necessity of pioneering solutions to new problems, as well as the struggle for existence with the Western Union, hindered the institutional development of the Bell interests. By the organization of the American Bell Telephone Company in mid-1880, most of these problems had either been solved or were about to be solved.

This dissertation, based upon hitherto unexploited company records, is a history of the Bell telephone interests during the critical years 1875-1880; of the problems they faced; and of the solutions they worked out which made possible their survival and growth.

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FOREWORD

This is a study of the origins and development of the Bell Telephone System from its earliest formal existence, the Bell Patent Association to the organization of the American Bell Telephone Company. Actually, the roots of the legal organization reach back several years before the invention of the telephone to the time when Alexander Graham Bell was trying to invent an improved telegraph system. Bell agreed to divide future profits with Thomas Sanders and Gardiner G. Hubbard in return for the funds necessary to carry on his experiments. With the invention of the telephone new and more formal arrangements were worked out, and the Bell Telephone System began its legal existence.

The successful commercial exploitation of the telephone depended upon the solution of two interrelated problems: finance and organization. During the early period the financing of the commercial development of the telephone rested chiefly upon the personal backing of Sanders and Hubbard. They were hindered in their efforts to secure capital by the novelty of the telephone and the skepticism which greeted it. In order to popularize it, and also to raise some immediate cash, Alexander Graham Bell undertook a lecture tour in the winter and spring of 1877. Partly as a result, the patent holders began receiving requests for the telephone and about midyear they began to rent telephones and organize rental agencies.

The increasing demand for telephones brought the Bell interests to a new level of difficulties, for larger amounts of capital were necessary to permit increased production of the instruments. Now that the previous obstacle to acquiring capital had been nearly eliminated, there was a new one: Western Union had decided to enter the field of telephonic communication.

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Having earlier scorned the offer of the telephone patent for the sum of one hundred thousand dollars, the Western Union soon realized its error and recognized the importance of the telephone, not only for its own profitability but also as a potential competitive threat. Since it was no longer possible to buy the telephone patent on satisfactory terms, the Western Union allied itself with several inventors who claimed priority of invention, and it set up a rival telephone organization based upon these questionable claims.

The competition of the Western Union proved to be a major influence on the development of the Bell telephone interests. It profoundly affected not only the financing of the Bell interests, but also the evolving policies for commercially developing the revolutionary invention.

The second major problem which threatened the existence of the Bell interests during these early years was the inefficient, sometimes crude, organization created to conduct the telephone business. Conflicting personalities, the necessity of pioneering solutions to new problems, as well as the struggle for existence with the Western Union hindered the institutional development of the Bell interests. Only gradually were these difficulties removed.

This dissertation, then, is the history of the Bell telephone interests during the critical years 1875-1880; of the problems they faced; and of the solutions they worked out which made possible their survival and ultimate transformation into "the world's largest, most powerful corporation," the American Telephone and Telegraph Company.[1]

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1. Joseph C. Goulden, Monopoly (New York: G. P. Putnam's Sons, 1968), p. 9.

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CHAPTER I

LEGAL BEGINNINGS

The basis of the Bell Telephone System is, of course, the telephone, which revolutionized communications and therefore society as well. The world was ready for it when it came. Its inventor, Alexander Graham Bell, was only one of many in the late nineteenth century who sought to increase the speed and efficiency of communication in one way or another. Others before him had even dreamed of transmitting speech electrically.[1] During the 1870's a number of minds were converging toward that goal. But Bell got there first. His achievement was the result of a concatenation of circumstances and events.

> If a computer searching for the most likely inventor of the telephone had run through the punch cards of all the world's people and places at that time, one name at least would have been printed out. It would have been that of an enthusiastic, ambitious, intelligent, imaginative young man with unusually keen hearing and a sense of pitch; a trained pianist; a man who knew the mechanics of speech and hearing and had a keen interest in telegraphy; one who lived in a society more eager for rapid communication than any one before; one who had easy access to leading scientists, skilled technicians, an academic community, and a community of enterprising capitalists.[2]

In other words, to succeed, Bell required great enthusiasm and drive to sustain him during the long difficult periods of research when the best theoreticians were convinced that the transmission of speech electrically was impossible. He needed a keen sense of hearing and pitch to perceive and recognize the faint electrical transmissions. He needed both intelligence and an acquaintance with what was known about electricity and

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1. Robert V. Bruce, "Alexander Graham Bell" (unpublished manuscript), "Prologue," p. 2.

2. Ibid., "The Multiple Telegraph," pp. 6-7.

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telegraphy. And, finally, he needed to live in a community which could supply him with other scientists and technicians and with financial backers willing to stake their fortunes on his finished invention.

Alexander Graham Bell at the age of twenty-five possessed most of these prerequisites, and those he did not have he would soon acquire.[1] He had a natural enthusiasm for scientific enquiry and a desire to reap the rewards a rapidly developing technological society would pay for an invention that speeded communications. He had the requisite senses, trained by his profession as a speech teacher. And Alexander Graham Bell was living in Boston, a center of intellectual and financial resources. He was the right man in the right place at the right time.

One of the conditions for Bell's success, financial backing, developed from his work in the field of natural communication. It was as a teacher of the deaf that Alexander Graham Bell initially met Thomas Sanders and Gardiner G. Hubbard, who later backed his experiments in electrical communication.

Bell met the first of his future backers, Thomas Sanders, sometime during the spring of 1871. Bell had recently arrived in Boston from Canada and was teaching at the Boston Day School for deaf children. Its principal had referred Thomas Sanders, a wealthy leather merchant, to Bell as a teacher for Sanders' deaf son George. During the autumn and winter of 1871-72 the two men became intimate friends, Bell often visiting Sanders' home.[2]

Since George Sanders was too young to attend the Boston Day School,

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1. Ibid.

2. "Deposition of Thomas Sanders, February 20, 1877," J. J. Storrow (ed.), "Proofs By and About Alexander G. Bell, 1875-89" (unpublished compilation), American Telephone and Telegraph Historical Library Vol. I, pp. 205/109-206/110.

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Bell agreed to take him under his charge as a private pupil.[1] Consequently, in September 1872, George went with his nurse to live at 35 West Newton Street, Boston, the same boarding house as Bell's. There he remained throughout the winter during which time his father frequently visited him and became aware that Bell was experimenting in telegraphy.[2] It was these early experiments in telegraphy that were to form the basis for the invention of the telephone.

The arrangement at the Boston residence proved to be unsatisfactory, and so in October 1873 Bell moved with George to the home of the latter's paternal grandmother in Salem. Bell commuted to Boston for his classes at Boston University. Bell was given the use of the Sanders' attic for his experiments.[3] While living at Salem Bell informed Sanders of his ideas about multiple telegraphy and even let Sanders help him make experimental apparatus.[4]

Bell met the second of his backers in April 1872 at the Clarke Institution for the Deaf and Dumb when he showed the president of that school, Gardiner G. Hubbard, what he had accomplished with the pupils during the short space of a month and reported on what he planned to do for the remainder of his visit. Not only did all go off "splendidly," but it also began a friendship that was to prove mutually advantageous.[5]

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1. Bruce, op. cit., "The Multiple Telegraph," p. 2.

2. Storrow, "Proofs," I, 205/109-206/110.

3. William Chauncy Langdon, "Two Founders of the Bell System," Bell Telephone Quarterly, II (October 1923), 269.

4. Storrow, "Proofs," I, 205/109-206/110.

5. "Deposition of Alexander G. Bell, February 26, 1883," Storrow, "Proofs," Vol. I, p. 527/1613.

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Although Bell and Hubbard both happened to be interested in telegraphy, their early exchanges were probably confined to the subject of educating the deaf. Bell soon moved on to the American Asylum in Hartford, and the opportunity for exploring other mutual interests passed.[1]

The idea of multiple telegraphy had originated in Bell's mind before he settled permanently in the United States in October 1872.[2] For the next two years he worked on his telegraph experiments in Boston and Salem, trying to perfect a device which would transmit several messages simultaneously over a single telegraph wire. During his summer vacation in Canada in 1874, Bell not only pondered multiple telegraphy but also conceived a method of sending articulate speech over a telegraph wire. He had in fact devised the fundamental elements of the speaking telephone, and all that remained was to reduce the theory to practice.[3]

The autumn of 1874 marked an important turning point in Bell's career as an inventor, for he now acquired the funds necessary to carry on his experiments. It seems likely that after his return from Canada Bell confided his concept of the telephone to Sanders, his confidant in multiple telegraphy. Because Bell had doubted that the transmission would be audible[4] and also because the concept was still only an untested theory, in contrast to Bell's multiple telegraphy, Sanders may not have been impressed. In any event, Bell's most recent multiple telegraph experiments were so promising that in late September or early October 1874 Sanders

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1. Bruce, op. cit., "Teacher of the Deaf," pp. 11-12.

2. The Bell Telephone: The Deposition of Alexander Graham Bell (Boston: American Bell Telephone Company, 1908), p. 290.

3. Ibid., 40.

4. Ibid.

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offered to pay all the expenses of securing patents and constructing instruments, in return for a half interest.[1] Sanders' gratitude for Bell's work with George[2] also played a part in the offer.

In early October, Bell first told Hubbard of his telegraphic experiments.[3] One evening while visiting the Hubbard family, he agreed to play the piano for them. In the midst of his performance Bell stopped, turned, asked if Hubbard knew that the piano would repeat a note sung into it, and demonstrated the phenomenon. Bell then explained that this principle of sympathetic vibration had led him to a device which would transmit several telegraphic messages simultaneously over a single wire.[4]

Hubbard already had a special interest in multiple telegraphy. He had been involved in an unsuccessful attack against the monopolistic Western Union Telegraph Company since the late 1860's. One of his tactics had been to charge it with not developing telegraphy to its most efficient and economical state by ignoring new technological advances which would make possible a reduction in rates and thereby a wider use of the telegraph.

As a corrective Hubbard presented to Congress a plan which called for the chartering of a new private corporation, the United States Postal Telegraph Company, with authority to build lines along postal roads and routes. The Post Office would act as the agency for receiving and delivering messages, while the Telegraph Company would undertake to transmit

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1. "Deposition of Thomas Sanders," Storrow, "Proofs," I, 206/110.

2. Langdon, "Two Founders," 270.

3. "Deposition of Gardiner G. Hubbard, January 10, 1877," Storrow "Proofs," I, 124/64; Alexander Graham Bell to Parents, October 20, 1874 (Bell Papers, National Geographic Society).

4. Storrow, "Proofs," I, 120/60.

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the messages for half the current rate. Hubbard proposed himself, relatives, and friends as incorporators.

Hubbard's enthusiastic lobbying brought the scheme to the verge of passage in 1874. So close was he to success that he was willing to risk not only his fortune but his home as well. He was blocked, however, by the vigorous defense of Western Union led by its president, William Orton.

At a Senate hearing that spring, Orton denied that Western Union had sacrificed technological advance for the sake of high profits and pointed to his company's recent acquisition of the Stearns Duplex system, which would double the number of messages transmitted. Hubbard responded by predicting that further developments would permit the simultaneous transmission of four or even eight messages. Shortly thereafter Western Union also acquired Edison's Quadruplex system and thus undercut Hubbard's argument. Such was the state of affairs when Bell indicated that he was working on a system of multiple telegraphy which would surpass existing methods.[1]

After searching the Patent Office for possible anticipation of the harmonic telegraph idea,[2] Hubbard made Bell an offer: financial assistance for his experiments in return for a half interest in the inventions.[3] But Bell had already made a similar agreement with Sanders. He accepted, providing some arrangement could be worked out with his first partner.

Given the current Credit Mobilier scandals and the prevailing distrust of "public men," Sanders at first doubted the wisdom of having let Hubbard

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1. Bruce, op. cit., "Allies and Adversaries," pp. 3-5.

2. Alexander Graham Bell to Parents, October 20, 1874, Bell Papers, National Geographic Society, hereafter cited NGS.

3. Alexander Graham Bell to Parents, October 23, 1874, NGS.

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in on the multiple telegraph.[1] But Sanders also appreciated Hubbard's organizational and promotional talents, and so he finally agreed that the three should become equal partners.[2]

No doubt Bell also told Hubbard about his most recent conception, the telephone.[3] Like Sanders, Hubbard was probably more impressed with Bell's telegraphic achievements, perhaps as vindication of his own predictions in rebuttal to Orton, and therefore thought primarily in terms of the telegraph rather than the telephone when becoming a partner. He expressed the opinion at the time that if Bell wished his inventions to be of commercial value he should confine himself to the development of multiple telegraphy.[4]

Thus the three men agreed verbally in October 1874,[5]

> we would advance the money needed for experimenting, taking out patents, and developing the invention, and that we three should own in common all the patents that he [Bell] might take out.[6]

The first formal action resulting from this partnership, which subsequent writers labelled the Bell Patent Association, was taken four months later when Bell's harmonic telegraph invention was ready for submission to the Patent Office. On February 25, 1875, the day of the application, Bell

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1. Alexander Graham Bell to Parents, October 23, 1874, NGS.

2. Bruce, op. cit., "Allies and Adversaries," p. 6.

3. Bell Telephone, 40.

4. "Deposition of Alexander G. Bell," Storrow, "Proofs," I, 527/1613.

5. Ibid., 522/1608.

6. Gardiner G. Hubbard to C. E. Boyle, Chairman of the Telephone Investigating Committee, May 20, 1886, American Telephone and Telegraph Historical Library, hereafter cited AT&T, Box 1113.

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executed a patent assignment which transferred to himself, Thomas Sanders, and Gardiner G. Hubbard all his right, title, and interest in "a certain invention for transmitting two or more telegraphic messages."[1] Two days later the partnership was formalized in a memorandum of agreement.[2]

The agreement began by restating and amplifying the terms of the informal partnership. It noted Bell's invention of "certain new and useful methods of and apparatus for telegraphy," his patent application and his assignment of the inventions and further improvements to the three partners. In return, Sanders and Hubbard reaffirmed that they would each contribute one half of the expenses not only of perfecting the instruments, but also of securing patents and defending against interferences.

The agreement then added a provision for the creation of a company, should the patents prove valuable, "for the purpose of more easily managing and controlling said patents." The stock would be issued according to the partners' respective interests, one third to each.[3]

Bell filed additional patent applications on March 6 and March 10 and thus added to the potential assets of the Bell Patent Association. All three of the applications became involved in interference proceedings with another inventor, Elisha Gray. Although all of the points of interference were finally decided in Bell's favor, only the application of March 6 was ever issued as a patent, number 161,739.[4] Thus six months after Bell,

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1. Patent Assignment, February 25, 1875, AT&T, Box 1103.

2. Bell Telephone, 302-303.

3. Memorandum of Agreement, Drawbaugh Case Exhibits, AT&T, Box 1103.

4. Bell Telephone, 253.

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Sanders, and Hubbard had agreed to associate themselves in a partnership they had their first tangible asset. It was not, however, to bring them any financial reward,[1] for Bell's later invention, the telephone, would supersede their interest in telegraphic improvements.

On the basis of the verbal agreement and the February 27 memorandum, Sanders and Hubbard provided money for equipment, supplies, and the assistance of Thomas A. Watson, an employee of Charles Williams' electrical shop, where most of Bell's equipment was being constructed. Bell did not receive any money for his own time and labor.[2] To provide for his own personal needs Bell continued to teach and was therefore unable to work on his invention full time, much to the chagrin of Gardiner Hubbard.[3]

Presumably Bell could have turned to his partners for assistance but he did not. He insisted upon maintaining his independence.[4] Even as late as February 1877 Bell preferred to "pay his individual expenses out of his own pocket," even though his partners were legally bound to pay them.[5] In an emergency Bell would borrow a small sum from Watson, who was less able to help him financially than his partners.[6] Part of Bell's desire for independence may have resulted from his growing intimacy with the Hubbard family and his special interest in Mabel Hubbard.

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1. William Chauncy Langdon, "The Early Corporate Development of the Telephone," Bell Telephone Quarterly, II (July 1923), 135.

2. Bruce, op. cit., "Patent Number 174,465," p. 1.

3. Bruce, op. cit., "Allies and Adversaries," p. 8.

4. Ibid.

5. Gardiner G. Hubbard to John Ponton, February 28, 1877, AT&T, Box 1123.

6. Bruce, op. cit., "Patent Number 174,465," p. 1.

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Initially, then, the Bell Patent Association was primarily concerned with telegraphic inventions. Seeking to promote Bell's invention and the Association's financial interests, Gardiner Hubbard arranged for a demonstration before President Orton of the Western Union on February 20, 1875, in Washington, D.C. Orton was sufficiently impressed to request another demonstration of the multiple telegraph in New York City under better conditions.[1]

In mid-March the second test was conducted, but Orton's attitude toward Bell's invention suddenly changed. During a luncheon break Orton received a visit from Elisha Gray, who displayed his own version of the multiple telegraph. When the Bell tests resumed in the afternoon, Orton informed Bell that Gray's instruments were not as crude as his. Further, Western Union would not adopt the invention, for to do so would benefit its old foe Gardiner Hubbard.

Hubbard offered to withdraw when he learned of this. Bell refused to allow that. Then Hubbard advised Bell to remove his invention from the Western Union offices and demonstrate it to the Atlantic and Pacific Telegraph Company, a rival. At this, Orton relented and said that while the company would not help develop the invention for Hubbard's benefit, personal feelings would not prevent its acquisition if perfected. Orton promised, however, to support Gray if the Bell interests brought their invention to Western Union's rival.[2] To further protect his company's interests Orton engaged Thomas Edison during the summer to investigate harmonic telegraphy.[3]

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1. Bruce, op. cit., "Allies and Adversaries," p. 20; Bell Telephone, 299-302.

2. Ibid., 20-21; 27-29.

3. Bruce, op. cit., "Patent Number 174,465," p. 30; Matthew Josephson, Edison (New York: McGraw-Hill Book Company, 1959), p. 139.

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The episode was portentous of future difficulties. Hubbard, because of his telegraphic connections, had been able to arrange the meeting between Western Union's chief official and an unknown inventor. Yet it was also largely due to Hubbard's involvement that the results of the meeting were somewhat unfavorable. Orton and the Western Union could not forget Hubbard's earlier attacks. Therefore, instead of getting help from a powerful potential buyer, the meeting established the outline for the future rivalry between the Bell interests and the Western Union.

Bell resumed the task of perfecting his harmonic telegraph with the aid of Thomas Watson. It was during this period that Bell first heard and recognized sound electrically transmitted. This, moreover, was done without any battery. "The musical note produced at the Receiving End was sensibly the equivalent of that at the Transmitting end in loudness as well as pitch."[1]

This discovery of June 2, 1875, revealed to Bell that his doubts of the telephone's ability to transmit audible sound generated magnetically were incorrect. His telephonic concept was not only theoretically correct but practicable as well. Much experimentation and development remained, but the telephone was born.

Bell, however, could not give his full attention to perfecting this latest invention, for his partners required him to continue work on the multiple telegraph, in which they saw more immediate pecuniary gain.[2] Their insistence lasted well beyond March 1876, when a patent had been issued for the telephone. Hubbard even got his daughter Mabel, who was engaged to Bell, to say that she would not marry him until he completed

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1. Bell Telephone, 57.

2. Bell Telephone, 364.

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his work on the telegraph.[1]

Only grudgingly did Sanders and Hubbard relinquish their interest in harmonic telegraphy in behalf of telephony. The question then necessarily arose whether or not the partnership covered the telephone. When the memorandum of agreement elaborating the terms of the Association had been executed in February 1875, there seems little doubt that both Sanders and Hubbard had been acquainted with Bell's idea of the telephone. Perhaps this explains Bell's belief, as later stated, that his partnership with Sanders and Hubbard did include the telephone.[2] At the time of the formation of the partnership, however, neither Sanders nor Hubbard seems to have cared much about Bell's newest concept.

The differing degree to which Sanders and Hubbard were impressed by the idea at the time of the partnership formation may explain why Hubbard later believed that the partnership agreement did not cover the telephone, Sanders that it did.[3] Of the two, Hubbard might have been more impressed by Bell's multiple telegraphy at the time of the agreement, since he had known of it for a shorter time than Sanders and had less time for his initial excitement to wear off. Moreover, Hubbard's acquaintance with the telephone idea, coming as it did soon after his learning of the multiple telegraph, might have seemed less significant not only because it was undeveloped but also because multiple telegraphy promised to fulfill the predictions he had made during the Senate hearings on the Western Union. The telephone not being a factor in his becoming a partner, it was

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1. Bruce, op. cit., "The Telephone Speaks," p. 13.

2. Storrow, "Proofs," I, 527/1613.

3. "Deposition of Gardiner G. Hubbard, June 25, 1879," Storrow, "Proofs," I, 92/958.

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probably not seen by him as part of the agreement.[1] Sanders, on the other hand, being less struck by the novelty of multiple telegraphy, may have been more conscious of the telephone idea. Moreover, like Bell, he may have viewed electrical transmission of articulate speech as a form of telegraphy.[2]

The issue was resolved after it had been submitted to Anthony Pollok, a patent attorney. He concluded that since Sanders and Hubbard had provided the funds which led to the invention, the telephone should properly come under the partnership, although it was not, in the strictest terms, part of the agreement.[3]

Thus, on September 15, 1876, Alexander Graham Bell executed an assignment of his telephone patents 174,465 and 178,399 to Bell, Sanders, and Hubbard.[4] There would be no future question regarding the legal owners of the basic telephone patent.[5]

The disposition of Bell's telephone earlier had led to a nearly fatal error. While in Canada on one of his regular sojourns there, Bell had arranged for George Brown, a neighbor, to take out a telephone patent in England. English patent law required that there should have been no previous publication of the invention's specifications anywhere. Therefore,

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1. Gardiner G. Hubbard to C. E. Boyle, May 20, 1886, AT&T, Box 1113.

2. Bell Telephone, 179.

3. Storrow, "Proofs," I, 92/958.

4. Patent Assignment, September 15, 1876, AT&T, Box 1103. Although dated September 15, 1876, the agreement must have been concluded earlier since the partnership agreement with Thomas A. Watson is dated September 1, 1876, and is referred to in a letter from Mabel Hubbard to Alexander Melville Bell, September 15, 1876.

5. Langdon, "Early Corporate Development," 137.

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Bell agreed to wait for an English patent before applying for one in the United States, although he had already completed his specifications for such an application in October 1875.[1]

Bell and his partners awaited word from Brown, who had sailed for Europe late in January 1876.[2] The delay lasted well into February, until Gardiner Hubbard, concerned about losing priority, took the initiative and instructed the Association's solicitors to file the specifications in the United States Patent Office. As a result, the application was filed on February 14, 1876, without Bell's knowledge or consent.[3] Later that same day a caveat, a declaration of intent to file for a patent, was filed on behalf of Elisha Gray, covering his ideas on telephony.

Hubbard's action was of critical importance. Since Bell's application was found to have been filed earlier than Gray's caveat, an interference lodged against Bell was promptly dissolved thus clearing the way for the issuance of a patent.[4] It was this patent, 174,465, which gave Bell's telephone its legal existence. There would be challenges to the patent and to Bell's claims to priority of its invention; but until they could be sustained, the Bell interests were in possession of a lawful patent which granted them sole control and disposition of the telephone. Had the patent been initially suspended and forced to undergo long-drawn-out litigation procedures, it would have been difficult if not impossible for the Bell interests to get financial backing for the fight or even to begin

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1. Bell Telephone, 139-140.
2. Ibid., 81.
3. Ibid., 81-82.
4. Bruce, op. cit., "Patent Number 174,465," p. 27.

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their telephone business. During such an interim they would have been at the mercy of more powerful, hostile interests.[1] That this was not so was due to the patent issuance and hence to Hubbard's decision to submit the application when he did.

During September 1876, when Bell, Sanders, and Hubbard finally reached accord over ownership of the telephone, Thomas A. Watson also became a member of the Patent Association. Up to this time Watson had been employed by Charles Williams in the manufacture of electrical equipment but specially assigned to Bell for work on the harmonic telegraph and later the telephone. Indeed, it was Watson who had been on the transmitting end of the line when Bell heard the first telephonically transmitted sounds on June 2.

During Watson's long assignment to Bell, the partners were highly impressed with his interest and efforts on their behalf, and so in the summer of 1876, at Bell's own urging,[3] Hubbard offered Watson an interest in the Association.[4] Watson was pleased with the offer since it signified satisfaction with his work, but he was undecided. The commercial success of the telephone was unclear and "I had a good job at Williams', earning journeymen's wages--three dollars a day--and putting money into the savings bank every month, and I was in line for the foremanship of the establishment."[5] After considering the offer for two weeks,[6] Watson accepted,

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1. Ibid., 22.

2. Bell Telephone, 125.

3. Alexander Graham Bell to Father, December 1, 1876, NGS.

4. Thomas A. Watson, Exploring Life (New York: D. Appleton & Company, 1926), p. 86.

5. Ibid.

6. Ibid.

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though still uncertain as to the correctness of his decision.[1]

By the terms of the contract, Watson was to receive a tenth interest in patents 161,739, 178,399 and 174,465 when they were transferred to a joint stock company in conformity with an undated agreement made by Bell, Sanders, and Hubbard.

Sanders and Hubbard agreed to pay Watson three dollars a day while his services were required by them. After September 5 he was to devote half of each day to adapting, perfecting, devising, and manufacturing instruments for developing the patents and introducing them to the public. Whenever the partners deemed it necessary, Watson was to give Williams his notice and commence full time work for the Association. Further, the partners agreed to pay Watson's rent in Boston as long as they considered it expedient and Watson's work reimbursed them.

Under Bell's direction, Watson was expected to work on the harmonic telegraph instruments, the autograph instrument, the transmission of messages by undulatory current, and, lastly, the telegraphic transmission of articulate messages.

As an afterthought, a provision was inserted that any invention Watson might make while acting under the agreement was to become the property of all parties.[2] The Bell interests ultimately gained about sixty patents as a result of this clause, and so Watson concluded: "this contract . . . was as good for Bell and his Associates as it was for me."[3]

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1. Thomas A. Watson, The Birth and Babyhood of the Telephone (New York: American Telephone and Telegraph Company), p. 18.

2. Patent Assignment and Contract, September 1, 1876, AT&T, Box 1068.

3. Watson, Exploring Life, p. 89.

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Thus by the end of September 1876 the first stage in the legal evolution of the Bell System had been reached. It would remain unchanged until mid-1877, when a new stage of legal organization was necessary to permit the commercialization of the telephone.

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CHAPTER II

CIDERMILLS, CORLISS ENGINES, AND TELEPHONES

Whatever benefits resulted from receiving a patent on March 3, 1876, Alexander Graham Bell and his partners still had much to do before they could reap the rewards of the telephone. They had to perfect it and bring it before the public. In pursuing this latter goal, their efforts were not unlike those of Samuel F. B. Morse, a predecessor in the field of electric communication.

Samuel Morse sought to have his invention, the telegraph, purchased by the United States government and incorporated into the Postal System. In order to accomplish this, Morse and his partners had to create public awareness and interest. Increasingly, then, the telegraph was exhibited to small groups of friends and academic colleagues,[1] to scientific societies,[2] and to the general public.[3] As a result, the House Committee on Commerce invited Morse to exhibit his telegraph in its rooms in the Capitol.[4]

Despite these demonstrations, the Congress reacted very slowly to Morse's proposals, and nearly two years elapsed without a definite decision. One historian has concluded that the reason was the inability of the public to comprehend the significance of the revolutionary invention

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1. Robert L. Thompson, Wiring a Continent: The History of the Telegraphic Industry in the United States 1832-1866 (Princeton: Princeton University Press, 1947), p. 10.

2. Carleton Mabee, The American Leonardo: The Life of Samuel F. B. Morse (New York: Alfred A. Knopf, 1944), p. 206.

3. Ibid., 207.

4. Ibid.

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and its identification of the telegraph with "various chimerical projects."[1] Time was needed to win public support for the telegraph.

The Congress did finally agree to subsidize the construction of a telegraph line from Baltimore to Washington, D.C., for demonstration purposes, but took no further action pending proof of the invention's utility. In the meantime the public in "good American fashion" flocked to see the latest scientific wonder. They were happy merely to view the instrument and be able to say they had seen it.[2]

The Baltimore-Washington line was used for various demonstrations and tests including chess games between players in the two cities. This activity soon had to be discontinued, for it was making an unfavorable impression on the religious community.[3]

By 1844 it became clear that whatever benefits were to accrue to Morse and his partners from the telegraph would have to be the results of their own efforts at commercial development. They therefore undertook to secure private backing through public exhibitions of the telegraph.

The first exhibition was held in Boston in the hope that funds could be raised for the construction of a line between that city and New York. When the demonstration failed to arouse much interest or any money, it was moved to New York. There the Morse interests believed businessmen would be more quick to recognize the commercial usefulness of the telegraph. Before the exhibition could take place, however, the sponsors had to convince the city authorities that a test line over housetops would not

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1. Thompson, Wiring a Continent, 16.

2. Ibid., 25-26.

3. Ibid.

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attract lightning and cause fires. This they accomplished when Dr. Benjamin Silliman vouched for the telegraph's safety and the Morse interests paid a fifty dollar fee. Unfortunately, the New York exhibition was no more successful than the Boston one. Not only did it fail to raise money for the construction of a Boston-New York line, but it also failed to raise enough money to cover expenses.[1] The Morse interests were ultimately forced to use other means to promote the commercialization of the telegraph.

Like Morse, Bell sought respectability for his invention by demonstrating it before scientific bodies and attempted to stimulate public interest and financial backing by giving lectures and demonstrations. There was even a brief flirtation with Congress in an effort to secure an appropriation, and arrangements were made to test the telephone in the Capitol.[2] Bell also evidenced a sensitivity to the religious community's interest in his invention. But whereas Morse apparently failed to stimulate public interest and support by demonstrations, Bell and his partners were successful. As a result of his lectures and demonstrations, Bell not only acquainted the public with the existence of his telephone and its potential uses, but also helped to stimulate a demand for it[3] and thus increased the likelihood of a successful telephone business.

Within two months of receiving a patent for his telephone, Alexander Graham Bell launched a campaign to bring his invention before the world. He began by introducing it to the academic community at Harvard College.[4]

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1. Thompson, Wiring a Continent, 29.

2. Letter from Alexander Graham Bell to Parents [January 1877], (Bell MSS, Boston University).

3. Watson, Birth and Babyhood, 31-32.

4. Alexander Graham Bell to Parents, May 3, 1876, NGS.

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A week or so later on May 10, 1876, Bell presented a paper to the American Academy of Arts and Sciences entitled "Researches in Telephony" and exhibited a number of his instruments in operation.[1] Fifteen days later he presented substantially the same paper to the 197th meeting of the Society of Arts, held at the Massachusetts Institute of Technology in Boston.[2]

The Boston Evening Transcript noted that "the experiments were novel and successful" and witnessed by a large audience which passed a vote of thanks to Bell.[3] In less than a month Bell had successfully exhibited his invention to prominent groups of academicians and scientists. He fully appreciated the significance of this: "My name is sure now to be well known to all scientific men . . . Already all the scientific men of Boston are talking about 'Telephony.'"[4]

Bell now began to consider entering the field of public lecturing. He speculated that lecturing on "Telephony" would bring him money and fame.[5]

The next demonstration and the first major exhibition was in Philadelphia at the Centennial Exposition on June 25, 1876. Although this was the public's first opportunity to see and evaluate the telephone, the Centennial was to prove more important in enhancing Bell's scientific reputation and placing a stamp of respectability on his invention than in creating widespread public attention.

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1. Bell Telephone, 94-95.
2. Ibid., 95-96.
3. Boston Evening Transcript, May 31, 1876.
4. Alexander Graham Bell to Mother, May 26, 1876, NGS.
5. Ibid.

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The International Exhibition of Arts, Manufactures and Products of the Soil and Mine was the sixth World's Fair and the first held in the United States. It commemorated the centennial of the Republic and was appropriately held in Philadelphia, one of the several cradles of liberty. Consequently the fair was popularly known as the Centennial Exhibition. It consisted of 200 buildings and enclosed 236 acres for exhibition purposes. The exhibition was open from May to November 1876; and before it closed, approximately 9,910,966 visitors walked its grounds, viewed its numerous exhibitions, and ate in its foreign restaurants.[1]

The Exhibition was intended to display the many scientific, mechanical, and cultural marvels and wonders of the day. Bell's telephone surely fitted this general requirement and was entitled to be exhibited at Philadelphia, but it very nearly was not.

Bell was reluctant to display his inventions at the Centennial. However, on the insistence of Gardiner Hubbard, who was one of the committee appointed by the Massachusetts Board of Education to plan the exhibit for the Department of Education and Science,[2] he relented and had his instruments shipped off to Philadelphia.[3]

Hubbard then began to urge Bell's presence at Philadelphia to insure the success of a demonstration of electrical and related equipment to be given in June for the Fair's judges. Bell refused, claiming that his teaching duties prevented such an appearance. Hubbard turned to his

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1. "Centennial Exhibition," Appleton's Annual Cyclopaedia and Register of Important Events of the Year 1876 (New York: D. Appleton and Company, 1889), New Series, Vol. I, pp. 262-282.

2. Leverett Saltonstall, Report of the Massachusetts Commissioner, p. 7.

3. Alexander Graham Bell, "Early Telephony," February 3, 1910 (Bell Papers, National Geographic Society).

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daughter Mabel for help.[1] As Bell's fiancée she had methods of persuasion not available to her father.

Mabel asked Aleck to accompany her down to the railroad station. Apparently she had no intention of departing for Philadelphia, but merely sought to use the occasion to wear down Bell's resistance.[2] He agreed to join her. Perhaps skeptical of her motives he reminded her that it was useless to try and change his mind. He could not go to Philadelphia.[3] When they reached the depot and he saw how pale and anxious she was, Bell could no longer resist her entreaties to go.[4] Besides, she used an "unfair advantage." "Who can bear to see a young girl weep?"[5] And so with the train moving off, Bell jumped on board without ticket or baggage.[6]

Bell had delayed his decision to exhibit so long that when his assistant and chief instrument maker, Thomas Watson, completed a special set of instruments, it was too late to obtain space in the regular electrical exhibit. But this proved to be no major obstacle, for Gardiner Hubbard in his capacity as a Fair official arranged to have them displayed in the educational exhibit.[7]

Upon arriving in Philadelphia Bell learned of this complication. Hubbard suggested that the instruments could be smuggled in without too

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1. Bell, "Early Telephony," 29-30.

2. Alexander Graham Bell's Corrections of Fred DeLand's Story Regarding the Centennial, October 1914, in Beinn Bhreagh Recorder, Vol. xvi; Alexander Graham Bell to Mother, June 18, 1876, NGS.

3. Bell, "Early Telephony," 29-30.

4. Alexander Graham Bell to Mother, June 18, 1876, NGS.

5. Bell, "Early Telephony," 29-30.

6. Bell's Corrections of DeLand Story.

7. Watson, Exploring Life, 84.

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much difficulty.[1] Bell became uncomfortable and longed to be back in Boston. He was determined that if he could not get his instruments into the Fair openly then he would not exhibit them at all: "If I find out that I shall have to smuggle my instruments in--I shall come right back and relinquish the whole thing."[2]

The burden of guilt became so great that Bell went to Hubbard and told him of his feelings. He explained that he wished to renew an application for exhibit space, and that failing to receive approval he would return to Boston. Further, "I said I did not want him to exert his influence merely because he happened to feel an interest in me personally and that I did not wish to feel that I had anything to conceal from the judges."[3]

Hubbard reassured his scrupulous partner that there was no need for concealment, no need to smuggle the instruments in, since he had already received a permit for Bell. He informed Bell that he would do as much for anyone as he wished to do for him. As further proof of the legitimacy of his actions (and perhaps to present Bell with an accomplished fact) Hubbard brought forth a catalogue listing Bell's name and describing his exhibits.[4] Bell was satisfied. Once again Hubbard had carried his view against Bell's with important consequences for the telephone.

Hubbard was also at work guiding and influencing other developments connected with the telephone demonstration. He advised Bell upon his arrival in Philadelphia to go to the Grand Villa Hotel, since a number of judges in the electrical department were lodged there. As a result, Bell was introduced to General H. K. Oliver and Professor James C. Watson, and

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1. Alexander Graham Bell to Mabel Hubbard, June 20, 1876, NGS.
2. Alexander Graham Bell to Mabel Hubbard, June 19, 1876, NGS.
3. Alexander Graham Bell to Mabel Hubbard, June 20, 1876, NGS.
4. Ibid.

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arrangements were made for him to meet Sir William Thomson, a leading electrical expert and the department's most distinguished judge.[1]

On June 21, Bell introduced himself to Sir William as the latter was examining Elisha Gray's telephonic apparatus. Thomson expressed interest in Bell's invention and a desire to see it just as soon as he finished with Gray's. However, he became so absorbed with the invention at hand that he was forced to postpone the preview. He said he would be in the exhibition hall on Sunday to view Gray's instruments, and he would appreciate Bell's exhibiting them then.[2]

Actually Hubbard had already arranged for the demonstration of Bell's telephone to take place on Sunday, June 25, before Sir William, Dom Pedro (the Emperor of Brazil), and the other judges immediately following their inspection of Gray's instruments.[3]

Bell was unhappy with the timing of the demonstration since he felt it would create the appearance of a direct confrontation with his rival inventor Elisha Gray. This was undesirable at that time because Bell was inadequately prepared. He lacked an assistant and the necessary battery power to insure success. However, he did possess the theory which he was sure would sustain him.[4] If he could only transmit vocal sounds he would be assured of notice.[5] At least he had the bond of Scotch nationality with Thomson, which Gray did not, and this might do him some good.[6]

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1. Alexander Graham Bell to Mabel Hubbard, June 20, 1876, NGS.

2. Alexander Graham Bell to Mabel Hubbard, June 21, 1876, NGS.

3. "Testimony of Gardiner G. Hubbard, June 25, 1879," Storrow, "Proofs," II, 95/961.

4. Alexander Graham Bell to Mabel Hubbard, June 21, 1876, NGS.

5. Alexander Graham Bell to Mabel Hubbard, June 22, 1876, NGS.

6. Alexander Graham Bell to Mabel Hubbard, June 21, 1876, NGS.

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As the time for the test drew near, Bell's problems were gradually solved. He made the acquaintance of an organ exhibitor who offered to repair one of the damaged instruments. The Atlantic and Pacific Telegraph Company offered to supply as much battery power as he needed, thus offsetting the advantage Gray enjoyed from his association with the Western Union.[1] And Gardiner Hubbard, although fatigued by the hot weather and his exertions on behalf of Bell's exhibit, arranged for an assistant before departing for Cambridge.[2] Bell's chances for a successful confrontation with Gray were now greatly enhanced.

June 25 was selected as the day for examining the electrical exhibits because it was a Sunday and the Fair was closed to the public. The judges would be free from large crowds in moving from one exhibit to another, and the exhibition hall would also be more quiet. Despite their relative freedom of travel, the judges still had a large number of exhibits to visit, and the hot weather which had forced Gardiner Hubbard's retreat persisted and was about to take its toll on the judges.

Bell followed them as they made their rounds. They finally came to Elisha Gray's exhibit, conspicuously located near one of the main aisles with the exhibit of the Western Electric Company.[3] It included an apparatus for transmitting musical sounds which Gray also described as a telephone. Its principle was not the same as Bell's telephone (undulatory current) but more like the principle of his harmonic telegraph (make-and-break current). Bell found Gray's discussion interesting but seemingly

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1. Alexander Graham Bell to Mabel Hubbard, June 22, 1876, NGS.

2. Storrow, "Proofs," II, 95/961.

3. James C. Watson to Editors, November 18, 1878, Nature, December 5, 1878, reprinted as Bell Telephone Company Advertisement B6/79, AT&T, Box 1005.

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interminable. When Gray finally finished, the judges decided to postpone further examinations of electrical apparatus to another day. They had decided not to proceed to the next exhibit, which was Bell's.[1]

Momentarily it seemed as if all the time, effort, and planning had been for nought. Bell had remained at Philadelphia as long as possible. His teaching duties in Boston could be ignored no longer. He must leave immediately, test or no test.[2] Without his presence to supervise the demonstration, the chance for success would be greatly reduced. Bell felt that the decision to postpone viewing his telephones meant that the judges would never see them.[3]

Just at this moment of defeat, chance, or more likely the result of good planning, intervened and saved the day for Bell and his telephone. Hubbard had chosen well the day when Bell was to conduct his demonstration, for not only was it to be before Sir William Thomson, but also before the Emperor of Brazil.

Dom Pedro had toured Boston earlier in the month and at Bell's urging[4] he had visited the Horace Mann School, where deaf mutes were taught to speak. There he met Bell for the first time.

As the judges began dispersing from Gray's exhibit,[5] Dom Pedro came up to Bell, whom he had recognized in the crowd during the test.[6] He greeted Bell and asked him about the deaf mutes in Boston. Bell replied

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1. Bell, "Early Telephony," 30-31.
2. Ibid.
3. Ibid.
4. Ibid.
5. Ibid.
6. Alexander Graham Bell to Parents, June 22, 1876, NGS.

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that they were doing nicely, and

> then I told him that I had an electrical invention which I wished to show the judges and that it was next on the programme. The Emperor then took my arm and we walked off together followed by the judges and the crowd.[1]

As the group proceeded to a side room in one of the galleries which was part of the Massachusetts' educational exhibit where Bell's instruments were displayed,[2] Bell explained that his harmonic telegraph could be operated more cheaply than Gray's.[3]

At the exhibit Bell demonstrated his harmonic telegraph first. Both Sir William and Dom Pedro succeeded in transmitting two signals simultaneously. This was Bell's first triumph over Gray, for the latter had failed in a similar experiment with his instruments. Then Bell explained the theory upon which the speaking telephone was based and "offered to test the transmission of the human voice," even though, as he was quick to point out, the telephone was still "an invention in embryo."[4]

Bell proceeded to one end of the gallery to the transmitter, which was about 300 feet from the group of judges seated about a table containing the receiver.[5] He began to speak. According to William Hubbard, whom Bell had sent to the receiving end to check on the success of the test, Sir William, recognizing the speaker's voice, started up, repeating "Do you understand what I say?" Bell had just articulated that question through

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1. Alexander Graham Bell to J. J. Storrow, May 16, 1896, AT&T, Box 1094.

2. James C. Watson to Editors, November 18, 1878, AT&T, Box 1005.

3. Alexander Graham Bell to Parents, June 22, 1876, NGS.

4. Alexander Graham Bell to Parents, June 27, 1876, NGS.

5. H.K.O. to Editor, February 22, 1879, Boston Transcript, February 26, 1879.

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his telephone. Sir William listened again and repeated Bell's question. He then rushed to the transmitter and burst upon Bell who was still shouting into the instrument, "Do you understand what I say?" Thomson asked Bell to sing or recite into the telephone. He listened and again confirmed the transmission by repeating Bell's recitation of Hamlet's soliloquy on death, "To be or not to be."[1] The audience responded to these reports with cheers and applause.[2]

Dom Pedro took the next turn at the receiver. He was no less amazed than Thomson to discover what was being emitted from the instrument as he placed it to his ear. He partly leaped from his seat, crying out, "I hear, I hear." He listened and again repeated the words in amazement and delight.[3] As he finished, the receiver was passed on to the other members of the party, who took turns listening.[4]

Elisha Gray, Bell's rival in harmonic telegraphy and soon to be in telephony, was among those who had an opportunity to listen at Bell's instrument. He listened intently and heard a faint, ghostly sound. He later recalled: "I finally thought I caught the words, 'Aye there's the rub.' I turned to the audience, repeating these words, and they cheered."[5] Sometime after the test, Bell and Gray discussed matters in dispute between them and decided that it might be advantageous for them to unite their

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1. Alexander Graham Bell to Parents, June 27, 1876, NGS.

2. "Deposition of Alexander G. Bell, February 26, 1883," Storrow, "Proofs," I, 616/1702.

3. H.K.O. to Editor, February 22, 1879, Boston Transcript, February 26, 1879.

4. Storrow, "Proofs," I, 616/1702.

5. "Deposition of Elisha Gray, April 5, 1879," Storrow, "Proofs," I, 446/138.

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telegraphic interests in order to promote fame and fortune for both.[1]

Sir William decided to make some additional tests and so the telephone was removed the next day from the educational exhibit to the Judges' Pavilion, where experiments were conducted in the evening after the visitors had left.[2] Bell was not present at these, since he had already left for Boston and his teaching duties, but he learned of their success from a telegram by William Hubbard: "Sir William is entirely satisfied with the experiments--never was more successful--a large number of sentences understood."[3] Thomson and Professor Watson were convinced that Bell had made a wonderful discovery and believed its complete development would follow in the near future.[4]

The news of these successful tests circulated freely, and shortly thereafter Elisha Gray visited Watson and questioned him about them. Gray then declared that the judges had been tricked, that the transmissions had been carried by metal contact through the wire rather than by undulatory current.[5] Whether he claimed further that such results were theoretically impossible, as stated by Professor Watson,[6] or that the results were impossible in view of the explanation of Bell's experiments, as argued by George B. Prescott,[7] Gray was preparing the basis for his later claim that

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1. Alexander Graham Bell to Parents, June 27, 1876, NGS.

2. James C. Watson to Editors, November 18, 1878, AT&T, Box 1005.

3. William H. Hubbard to Alexander Graham Bell, June 26, 1876, 9:15 PM, NGS.

4. James C. Watson to Editors, November 18, 1878.

5. Ibid.

6. Ibid.

7. George B. Prescott to James C. Watson, January 2, 1879, NGS.

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he had anticipated Bell in the invention of the telephone.

Despite Gray's warnings, the judges were convinced of the validity of Bell's claims, and Sir William Thomson so reported.[1] Consequently, Alexander Graham Bell was granted a Certificate of Award (September 27, 1876) for his electric telephone and multiple telegraph. In the "Report on Awards" (December 26, 1876) which accompanied the actual award, Sir William wrote that he and the other judges had been both astonished and delighted with the electric transmission of speech which they had verified with their own ears. Bell's telephone had achieved "a result of transcendent scientific interest." Thomson concluded:

> This [electric transmission of speech] perhaps the greatest marvel hitherto achieved by the electric telegraph has been obtained by appliances of quite a homespun and rudimentary character. With somewhat more advanced plans, and more powerful apparatus, we may confidently expect that Mr. Bell will give us the means of making voice and spoken words audible through the electric wire to an ear hundreds of miles distant.[2]

The delay in making the Centennial Award was due in part to Bell's own procrastination in returning the necessary papers to the Bureau of Awards at the Centennial.[3] And so the public had to wait several months before learning of Thomson's enthusiastic response to the telephone. Perhaps this explains why Bell's telephone attracted so little attention from the press during the weeks following the exhibition and demonstration. One of the few newspapers that did mention the telephone was the Boston Evening Transcript in its "Notes at the Centennial." It described Bell's

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1. James C. Watson to Editors, November 18, 1878, AT&T, Box 1005.

2. "Report on Awards," December 26, 1876 (Louis Clarke Scrapbook), AT&T, Box 1105.

3. Alexander Graham Bell to Mabel Hubbard, September 26, 1876, NGS.

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telephonic apparatus for the transmission of musical and articulate sounds by telegraph and tersely commented that "The experiments . . . have been highly interesting and satisfying in their results."[1]

Indeed, aside from the great excitement among the judges, it appears that the telephone went unnoticed by the visiting public as well as the press.[2] It is not difficult to understand why.

The two hundred exhibition buildings contained all sorts of wondrous displays and demonstrations to delight the senses and startle the imagination. The visitor to the Centennial could see English ceramics and furniture, French textiles for ladies' wear, Swiss clocks and music boxes, Norwegian silver filigree, and Rumanian amber.[3] Visitors interested in the advancement of womanhood could wander through the Women's Pavilion, which covered nearly an acre and was devoted to the products of female industry and ingenuity. They could even witness the spectacle of a female engineer operating the engine which provided the power for many of the ladies' demonstrations.[4]

For those concerned with culture there were the various exhibits of national art treasures. Most of them seemed to have contained works of "inferior merit." Both the English and American exhibits, however, were considered exceptions. The English displayed a carefully selected and

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1. Boston Evening Transcript, July 8, 1876.

2. Dee Brown, The Year of the Century: 1876 (New York: Charles Scribner's Sons, 1966), 132-133.
(Neither the extensive description in Appleton's Cyclopaedia nor that in William Dean Howells, "A Sennight of the Centennial," Atlantic Monthly, 38 (July 1876), p. 95, even mentions the presence of the telephone.)

3. Appleton's Cyclopaedia, 266-269.

4. Ibid., 272-273.

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excellent representation of contemporary national art, while the American presented good examples of early American paintings which in general bore a historical character.[1] Some of the French rooms were barred to the public, "but enough was visible to emphasize the national taste for the nude."[2]

In Machinery Hall visitors could see new and improved devices which would make their lives easier and more pleasing. They could witness a process for making rubber soles, a corset-weaving loom, envelope making by automatic machinery, cracker and candy making, speedier newspaper presses, and watchmaking by the Waltham Company.[3] In the Agricultural Exhibition the farmers and would-be farmers could see ploughs of the latest patterns, drills, seed planters, mowers and harvesters of a hundred styles, mechanical churns and cidermills, machines for making horseshoes, machines for butchers and meat packers and the hundred and one other agricultural implements which "the immense discrepancy between the extent of tillable ground and available labor . . . has prompted the quick brains of our ingenious men to invent."[4]

The chief attraction of the exhibition seems to have been the Corliss Engine, a metal monster with 44 inch cylinders, a 10 foot stroke, a gear wheel 30 feet in diameter, weighing a total of approximately 700 tons, and producing 1400 horsepower for the machines operating in the Hall of Machinery.[5] By virtue of its size and visibility it was the "cynosure of

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1. Ibid., 273.

2. William Dean Howells, "A Sennight of the Centennial," Atlantic Monthly, 38 (July 1876), p. 95.

3. Appleton's Cyclopaedia, 275.

4. Ibid., 279.

5. Appleton's Cyclopaedia, 274.

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the Centennial Exhibition."[1] The Corliss Engine was an example of the giantism that nineteenth century Americans admired in their mechanical marvels,[2] and it symbolized talent and progress in the new mechanical age.[3]

The telephone, in comparison, was a small, weak instrument whose operation was probably only described and not demonstrated to the general public. How could such seeming insignificance compete with a 700-ton engine for the notice of crowds which were enough "to make anybody supremely miserable, pushing and jamming."[4]

The Fair was, according to Alexander Graham Bell, "so prodigious and so wonderful that it absolutely staggers one to realize what the word 'Centennial Exhibition' means."[5] In addition to the nineteenth century American's proclivity for large machines, there were simply too many wondrous things on display for the telephone to have attracted special attention. William Dean Howells commented: "The whole season would not exhaust them; a week or a month enables you [only] to study a point here and there."[6]

Even Dom Pedro, upon revisiting the Centennial, found something other than the telephone to "astonish him more than all else"--the Walter Press on which a daily edition of the New York Times was printed.[7]

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1. John A. Garraty, The New Commonwealth (New York: Harper & Row, 1968), p. 96.

2. Brown, 1876, 129.

3. Allan Nevins, The Emergence of Modern America, 1865-1878 (New York: The MacMillan Company, 1927), pp. 308-309.

4. Cultivator & Country Gentleman, Vol. 41, 1876, p. 686, cited in Brown, 1876, 135.

5. Alexander Graham Bell to Mabel Hubbard, June 21, 1876, HGS.

6. Howells, "A Sennight," 106.

7. Scientific American, 35 (July 1876), p. 17.

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Although the Centennial exhibition of the telephone seems to have brought no direct and immediate benefit to the Bell interests, it did engage the attention and interest of Sir William Thomson, who upon his return from the United States discussed the telephone in the opening address of the annual meeting of the British Association for the Advancement of Science. This address was published in the British scientific journal Nature on September 14, 1876, and eleven days later in the Boston Daily Advertiser.[1]

It was his endorsement of Bell's telephone, which Sir William had first seen in operation at the Centennial, that brought it to the attention of the world's learned men and scientific bodies,[2] and especially to the American public. Bell himself appreciated the significance of Thomson's endorsement: "When Sir William Thompson [sic] spoke the whole world believed. I went to bed the night before an unknown man, and awoke to find myself famous."[3]

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1. Bell Telephone, 126.

2. Fred DeLand, "Notes on the Development of Telephone Service," The Popular Science Monthly, 69 (November 1906), pp. 435-436.

3. Bell, "Early Telephony," 32.

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CHAPTER III

LECTURES FOR PROFIT

For the remainder of 1876, after the Centennial test, Alexander Graham Bell continued his electrical experiments. The successful transmission of speech at the Centennial demonstration persuaded him that the telephone could be put into practical use, and so Bell concentrated his efforts on trying to discover the best construction of the telephone for more distant use. He now exchanged his laboratory, where he had only simulated long distance conditions, for testing on actual telegraph lines.[1]

The first of these new tests occurred early in July when Bell had his fiancée Mabel Hubbard speak over a telegraph loop running from Boston to Rye Beach, New Hampshire, and back to Boston. The experiment was only partially successful. Bell could recognize Mabel's voice but was unable to understand her speech. He was able to hear a young man articulate questions and singing over the line. Nevertheless, Mabel did enjoy the distinction of having been the first human whose voice traversed a real telegraph wire.[2]

Bell continued his tests under actual field conditions on July 9 and 12. During these tests Bell successfully transmitted several tunes to New York by means of a make-and-break organ. He also attempted speech over a loop from Boston to New York, but was less successful.[3] At the conclusion of these tests, Bell presented the telephones to Sir William Thomson, who had been in attendance.[4] It was these very instruments that Thomson used

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1. Bell Telephone, 112.

2. Alexander Graham Bell to Parents, July 7, 1876, NGS.

3. Bell Telephone, 112-113.

4. Alexander Graham Bell to Parents, July 17, 1876, NGS.

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in his address to the British Association for the Advancement of Science which brought Bell so much publicity.

The reaction of the Boston Traveller in reporting these tests was one of optimism for the future use of the instruments. It wondered why musical performances could not originate in Paris and be heard and enjoyed in the Boston Music Hall. Further, with the perfection of the speaking telephone, why might not there be "distinguished men delivering speeches to Washington, New York or London and audiences assembled in Music Hall or Faneuil Hall to listen."[1]

The next series of significant tests for the telephone occurred while Bell was on vacation at the family homestead in Brantford, Canada. During these tests Bell established a number of "firsts" for the telephone which were scientifically and commercially important.

On the evening of August 3, at a champagne supper in honor of his Uncle David, Bell succeeded in transmitting three voices simultaneously on a wire strung from an outbuilding to the verandah. Bell with two of his cousins sang the three parts of some "Bishop's glees." He explained its significance:

> The experiment is a very important one for it shows that with the undulatory current a single transmitting instrument A will suffice for any number of simultaneous messages--while with the intermittent current there must be a distinct instrument for each message sent.[2]

In effect, Bell's method of undulatory electrical transmissions was superior to the existing make-and-break system currently employed in electrical communications.

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1. Boston Traveller reprinted in New York Times, July 23, 1876.

2. Alexander Graham Bell to Mabel Hubbard, August 4, 1876, NGS.

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Earlier the same day Bell had connected a transmitter at the Brantford office of the Dominion Telegraph Company with a receiver at Mount Pleasant, five miles away. During the test Bell heard his Uncle David reciting and singing, as well as several other speakers. The voices were recognizable and occasional words were distinctly understood.[1]

On the evening of the 10th, a receiver was placed in Paris, eight miles from Brantford, and Bell was able to hear voices clear and strong. He was even able to recognize the voice of his father, who was not scheduled to be there.[2] Bell later believed that this test was the first time words and sentences spoken in one place were electrically transmitted and successfully reproduced in another place many miles away.[3]

Although Bell's experiments had been noted by the Canadian and American press, there does not appear to have been widespread interest in them at this time.[4] This was to change when word was received from England about Sir William Thomson's address to the British Association.

About the first of October Bell began to devote his efforts mainly to the telephone and subordinated his work on the multiple telegraph.[5]

The next important test demonstrating the commercial applicability of the telephone came on October 9 when Bell and Watson conversed over the private telegraph line of the Walworth Manufacturing Company from Boston

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1. Ibid.

2. Alexander Graham Bell to Mabel Hubbard, August 11, 1876, NGS.

3. Bell Telephone, 123. [Apparently Bell regarded the Mount Pleasant experiment only as a test of the telegraph wire. Ibid., 125.]

4. Catherine Mackenzie, Alexander Graham Bell: The Man Who Contracted Space (Boston: Houghton Mifflin Company, 1928), pp. 135-136.

5. Bell Telephone, 128.

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to Cambridgeport, a distance of two miles. After overcoming some technical difficulties which had threatened to end the test in failure, "the first long distance conversation began."[1] For the first time a sustained conversation was carried on by electrical means between persons several miles apart.[2]

To dispel the belief that the telephone could never be as accurate as the telegraph, Watson and Bell separately recorded part of their conversation. That record was carried in parallel columns the next morning in the Boston Daily Advertiser.[3] The Boston Evening Transcript declared that the success of the Walworth experiment marked a "revolution and advance in the world's progress worthy to rank with the practical completion of the first printing telegraph . . . and with the laying of the great ocean cables."[4]

Two days after the experiment Bell communicated the results to the American Academy of Arts and Sciences and demonstrated the instruments he had used.[5] This event was another public triumph for Alexander Graham Bell and his telephone. He considered the occasion as the "happiest day in my life. . . . I'm the only lecturer that has ever been applauded [by the Academy]."[6]

As the Centennial year came to a close, Bell was testing telephones which had thin iron diaphragms instead of the membrane diaphragms originally

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1. Watson, Birth and Babyhood, 19-20.
2. Bell Telephone, 129-130.
3. Watson, Birth and Babyhood, 20.
4. Boston Evening Transcript, October 19, 1876.
5. Bell Telephone, 130.
6. Alexander Graham Bell to Parents, October 12, 1876, NGS.

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used. To achieve the best results he sought an actual telegraph line for tests, rather than the artificial resistances used in his laboratory. Consequently he arranged to use the Cambridge time line which connected the Cambridge Observatory with Boston and from there to various clockmakers. Thus, Bell had at his disposal, during the evening when the line was not in use, a private testing line four or five miles in length.[1] The line was defective but it gave Bell and Watson good practice in dealing with trouble on long lines.[2]

Despite the many technical problems and difficulties Bell was able to write at this time: "The telephone reminds me of a child only it grows much more rapidly. What is before it in the future, no man can tell--but I see new possibilities before it--and new uses."[3]

Bell was not alone in this optimism. The Boston Sunday Herald declared that the future possibilities of the telephone could hardly be overestimated,[4] and the Boston Post predicted that: "The application of this discovery promises to completely revolutionize the business of transmitting messages by electricity between distant parts."[5]

Encouraged by successful tests and experiments Bell was soon convinced that the telephone was ready for immediate commercial use.[6] He was already

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1. Bell Telephone, 130-132.

2. Alexander Graham Bell to Mother, December 1876, NGS.

3. Alexander Graham Bell to Mrs. Gardiner G. Hubbard, November 14, 1876, NGS.

4. Boston Sunday Herald, October 22, 1876.

5. Boston Post, November 27, 1876.

6. Alexander Graham Bell to Mother, October 25, 1876, NGS; Alexander Graham Bell to Mabel Hubbard, November 14, 1876, NGS.

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receiving inquiries and offers for the use of the telephone;[1] one company even placed an order for ten instruments.[2] But these and other propositions required time to be fully considered. Not until mid-1877 would the Patent Association begin to lease its first telephones. It would be even later before Bell would realize any remuneration from such activities.

Bell's need for money remained. Indeed, there seemed to be a growing urgency, for Bell was anxious to marry Mabel Hubbard but his lack of money was proving an obstacle.[3] A ready solution to immediate financial needs was public lecturing.

As early as May 1876 Bell was proposing to enter the lecture field,[4] and by July 1876 he had received offers from two lecture bureaus, Redpath and Williams, to lecture on "Acoustics and Electricity." His readiness to take up public lecturing may have been dampened, however, by Mrs. Hubbard's opposition. She held a low opinion of persons engaged in such activities and "begged him as he valued his own and Mabel's happiness to stay at home and mind his proper business."[5]

Later in the year Bell's awareness of his financial needs became more acute as he contemplated developing the foreign rights to his invention. "I do not see why I should be cut out from all advantage except in America where I only have a three-tenth interest in my own inventions."[6] To

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1. Alexander Graham Bell to Mabel Hubbard, November 10, 1876, NGS; Alexander Graham Bell to Mother, December 1876, NGS.

2. Alexander Graham Bell to Mabel Hubbard, November 10, 1876, NGS.

3. Watson, Birth and Babyhood, 22.

4. Alexander Graham Bell to Mother, May 26, 1876, NGS.

5. Mrs. Gardiner G. Hubbard to Gardiner G. Hubbard, July 1876, NGS.

6. Alexander Graham Bell to Parents, October 10, 1876, NGS.

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develop these foreign interests was expensive and so Bell turned to friends for financial assistance. When this proved unsuccessful he turned to his family. First he offered his parents and his Uncle David any interest they desired in his foreign patents if they would pay the necessary expenses.[1] Then he asked his father to be security for him to borrow a thousand dollars.[2]

The prospect of going into debt, however, disturbed Bell and so he decided to do the best he could without borrowing. He would limit his efforts to secure patents to England and as many other countries as he could afford, trying "to live upon next to nothing in Boston."[3]

Alexander Graham Bell chafed under these conditions. He desired financial independence not only because it would enable him to marry Mabel, but also because it would "take me off the hardships of life and leave me free to follow out the ideas which interest me most."[4]

While Bell pondered his condition, and he and his partners began considering an offer by John Ponton of Pennsylvania to raise a substantial amount of capital to launch the telephone commercially,[5] he received word from a public lecturer that the mere mention of "Telephony" drew crowds and applause.[6] Conditions were propitious for public lectures on "Telephony."

New Years Day, 1877, found Bell in Washington in connection with a patent interference against his harmonic telegraph.[7] He used the occasion

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1. Ibid.
2. Alexander Graham Bell to Father, October 20, 1876, NGS.
3. Alexander Graham Bell to Mabel Hubbard, November 23, 1876, NGS.
4. Alexander Graham Bell to Mabel Hubbard, November 22, 1876, NGS.
5. Alexander Graham Bell to Mabel Hubbard, December 8, 1876, NGS.
6. Alexander Graham Bell to Mabel Hubbard, December 17, 1876, NGS.
7. Bell Telephone, 138.

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to demonstrate his telephone before the distinguished members of the Philosophical Society of Washington. This was also the occasion of Gardiner Hubbard's efforts to secure Congressional assistance in developing the telephone.[1] Demonstrations and tests such as these were increasing professional and public recognition of Bell and stimulating entrepreneurial interest in his invention.

Even Mrs. Hubbard was making her contribution by showing telephones to people, including the President of the Union Pacific Railroad.[2] Upon his return to Boston, Bell himself received two gentlemen from Detroit who came to make an offer for the telephone.[3] Further successful tests elicited newspaper accounts such as that in the Boston Daily Advertiser which announced: "Now all that is required to communicate between the most distant places is simply a line of wires and telephones."[4] This type of publicity stimulated still more offers.[5]

Bell increasingly utilized tests of his telephones to demonstrate their effectiveness and usefulness before groups of interested persons, some of whom might possibly take up the commercialization of the telephone.[6] The test at the Boston Rubber Shoe Company on January 31 was conducted in a manner that soon was to become typical of the format used by Professor Bell on his public lecture tour.

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1. Alexander Graham Bell to Parents [January 1877], (Bell MS, Boston University).

2. Alexander Graham Bell to Mabel Hubbard, January 12, 1877, NGS.

3. Alexander Graham Bell to Mabel Hubbard, January 18, 1877, NGS.

4. Boston Daily Advertiser, January 22, 1877.

5. Alexander Graham Bell to Mabel Hubbard, January 21, 1877, NGS; Alexander Graham Bell to Mabel Hubbard, January 22, 1877, NGS.

6. Boston Transcript, February 1, 1877.

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Bell, at Boston, and Watson, six miles away at Malden, commenced the test by conversing in tones loud enough so that the observers could distinguish the sounds. Then Watson spoke softly to each of the company, answering in turn questions that they asked him. He was even able to recognize some of his interrogators by the sound of their voice. Watson further succeeded in impressing the gathering by quoting various newspaper stories including the one which announced that the price of gold had closed the previous evening in New York at $105\frac{5}{8}$. The businessmen present were thus made to see the utility of the telephone to their activities. The finale came when a young lady at Malden, a "fair cantatrice" with a voice of "exquisite sweetness," began singing "The Last Rose of Summer" over the telephone.[1]

Successful tests such as this, predictions that the telephone was destined to achieve the "greatest possible results,"[2] and offers from interested parties could only have encouraged Bell's outlook on the future, but they in no way helped to relieve his immediate needs.

Early in February Bell had a disagreement with his father regarding certain financial arrangements between the two. Apparently Alexander Melville Bell also criticized the state of his son's financial affairs. The younger Bell retorted that his affairs were not in a "muddle" and that he possessed enough money to cover expenses. He explained that he could earn money for his foreign patents but preferred to borrow at interest and use the time to perfect the telephone. He concluded: "I am not in the habit of <u>begging</u> from you or anyone else. . . . If worst comes to the worst my patents just must go."[3]

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1. <u>Ibid</u>.

2. <u>Ibid</u>.

3. Alexander Graham Bell to Alexander Melville Bell, February 3, 1877, NGS.

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A partial solution to Bell's financial problems was imminent. He had been asked to address the Essex Institute of Salem, a scientific society, on February 12, 1877. On the evening of the performance, every seat was filled early, "men were standing in the doorways and the aisles were not to be distinguished from the regular rows of seats."[1] The demonstration proved to be a rousing success. The Boston Globe of February 13, in an article entitled "The First Newspaper Despatch Sent By Human Voice Over The Wires," declared: "The frequent and long continued applause showed that the audience appreciated fully the wonderful uses and experiments made with these machines."[2]

The first Essex lecture was so successful that Bell almost immediately began negotiating with the Secretary of the Institute for a repeat performance.[3] Whereas the first lecture had been free to the members of the Society, the second was to be for an admission fee.[4] Bell speculated that five hundred tickets at fifty cents would repay him for one night's work and one or two lectures would make him independent regarding his foreign patents. Further, these lectures would free him from teaching, which only yielded him five dollars per hour. He asked his fiancée: "Would it be beneath my dignity to make $200 a night by lecturing?"[5]

Out of the Essex Institute lecture emerged a series of public lectures given during the spring and summer of 1877. Bell's purposes in giving them

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1. Mabel Hubbard to Caroline McCurdy, February 16, 1877, NGS.
2. Boston Globe, February 13, 1877.
3. Alexander Graham Bell to Mabel Hubbard, February 13, 1877, NGS.
4. Watson, Birth and Babyhood, 24.
5. Alexander Graham Bell to Mabel Hubbard, February 13, 1877, NGS.

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were to raise money and prove the practicability of the instrument.[1] They accomplished that and more.

Bell's telephone lectures were usually held in auditoriums, lyceum halls, or opera houses of various sizes and acoustical quality. Special techniques were developed in order to compensate for these conditions and for the fact that telephones were still rudimentary instruments.

At each lecture three or four telephones were used,[2] one being placed on the stage for Bell's use and the remainder scattered through the hall, either suspended from the ceiling or attached to posts.[3] The wires of these instruments were connected to a miniature telegraph pole on stage and from there to a "switchboard" by means of which the transmissions could be alternately switched from one telephone to another.[4]

The telephones were the most powerful available, being fourteen or fifteen inches long and eight inches square, and containing an enormous horseshoe magnet.[5] The speakers were requested to shout as loudly as possible into the transmitter.[6] Consequently, even at a considerable distance from the receiver one could hear the speaker's voice if not understand what was being said. To insure understanding, "familiar sentences were employed and the words were known beforehand."[7] For

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1. "Deposition of Thomas Watson," Storrow, "Proofs," I, 430/304.

2. Watson, Birth and Babyhood, 24-25.

3. New Haven Daily Morning Journal and Courier, April 28, 1877, cited in J. Leigh Walsh, Connecticut Pioneers in Telephony (New Haven: Morris F. Tyler Chapter, Telephone Pioneers of America, 1950), pp. 19-24; Press Clipping, "Louis Clarke Scrapbook," p. 12, AT&T, Box 1105.

4. Providence Press, March 28, 1877.

5. Thomas A. Watson, "Pioneers in Telephone Engineering," Scientific American Supplement, April 5, 1918, p. 216.

6. Bell Telephone, 153-154.

7. Ibid.

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example, Bell's assistant Thomas Watson would shout "How do you do." Despite his clear articulation and the stentorian voice he had developed by shouting long and loudly into telephones during his association with Bell, it was not unusual for his message to come out "hoo, hoo, hoo," but the rhythm was enough to make the audience think they had heard the words perfectly.[1]

The telephones at the termini were connected by a telegraph wire secured from one of the major companies. Although the lectures utilized the lines of the Western Union on occasion, they seem to have usually depended on those of the Atlantic and Pacific Telegraph Company.

During some of the early lectures Bell made use of a regular Morse instrument and the services of a professional telegrapher in addition to his own telephones. Only when Bell was no longer afraid to rely upon the telephone as the sole means of communication between the termini did he dispense with the telegraph.[2]

For the Salem and Providence lectures Bell was in contact with Thomas Watson, who was located at their laboratory on Exeter Place, Boston. Watson was surrounded by a colorful assortment of individuals--journalists, musicians, singers, and invited guests.[3]

The lecture performances lasted between two hours and two and a half hours. Bell was usually introduced by someone of scientific, political, or cultural prominence. In New York he was introduced by Professor F. A. P. Barnard, the President of Columbia College,[4] in Providence by Governor

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1. Watson, "Pioneers," 216.

2. Note by Thomas A. Watson, Thomas A. Watson Collection (Boston Public Library), Vol. 5, Folder 66.

3. New York Times, February 27, 1877.

4. New York Tribune, May 12, 1877.

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Lippitt,[1] and in Boston by ex-Governor Gaston.[2]

Occasionally the lecture was delayed because of technical difficulties. Bell refused to begin until he was sure he was in communication with Watson. During the first Essex Institute lecture Bell kept his audience waiting forty-five minutes until conditions were just right. By the time he came out the audience was stamping its feet and canes.[3] In one instance Bell received word that the lines were unusable just as he stepped onto the stage. He had no choice but to keep talking until contact with Watson was made.[4] As a result, Professor Bell, a public speaker by training and profession, appeared ill-at-ease, causing a newspaper reporter to comment that he was probably more at home in the laboratory than on the lecture platform.[5]

Sometimes technical difficulties occurred in the midst of Bell's presentation and he was forced to stop and search out the cause. When the problems were insurmountable, the lectures ended earlier than planned.[6] During the lecture at Lawrence, Massachusetts, the problems were so great that no demonstration took place at all. Shout as loud as he might, Watson could not be heard over the telephone. This failure motivated a reporter to compose the poem "Waiting for Watson," in which, among other things, he expressed the audience's expectant attitude toward the telephone:

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1. Providence Press, April 6, 1877.

2. Boston Daily Advertiser, May 5, 1877.

3. Alexander Graham Bell to Gardiner G. Hubbard, February 13, 1877, NGS.

4. Alexander Graham Bell to Mabel Hubbard, April 7, 1877, NGS.

5. Providence Press, April 6, 1877.

6. New Haven Daily Morning Journal and Courier, April 28, 1877.

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Give but one lusty groan,
For bread we'll take a stone,
Ring your old telephone!
Ring, brother Watson![1]

Bell's performance consisted of lectures on various aspects of electrical experimentation interspersed with practical demonstrations of his several instruments. He usually began by describing the research which preceded his own, clearly giving credit to Page, Reiss, Gray, Wheatstone, and others for their contributions.[2] Then Bell signalled for music, and Watson would commence the practical demonstrations by either playing an organ himself[3] or having an assistant, Elisha Wilson, play it.[4] The music was transmitted by the make-and-break system, i.e., each time a key was depressed the vibrating organ reed made and broke the electrical circuit with the frequency of its vibration and produced a corresponding effect on an instrument at Bell's end.[5]

The repertoire included popular, spiritual, and patriotic favorites such as "America," "Hail Columbia," "Yankee Doodle," "Nearer to Thee," and "Killarney." The audience reacted with awe and wonderment to the organ music. Newspapers frequently referred to the sounds as "weird and supernatural,"[6] "manifestations,"[7] "doleful,"[8] "weird-like and ghostly"[9] and

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1. Watson, Birth and Babyhood, 30-31.
2. New York Herald, May 18, 1877.
3. Watson, "Pioneers," 216.
4. Watson, Birth and Babyhood, 24.
5. New Haven Daily Morning Journal and Courier, April 28, 1877.
6. New York Herald, May 12, 1877.
7. Manchester Union, May 9, 1877.
8. New York Times, May 19, 1877.
9. New York Herald, May 18, 1877.

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generally echoed the sentiments of the Manchester Union which declared: "The sensation produced by the first notes of the music was decidedly 'uncanny,' and had the Hall been darkened, we really believed some would have left unceremoniously."[1]

Professor Bell then would proceed to explain that the principle utilized in this transmission was not new but its application was. It could be used in the transmission of many telegraph messages over a single wire. Bell commented on the work done by Elisha Gray and Paul Latour, as well as his own, in this area. He carefully made the distinction, however, that "Mr. Gray's telephone was a mere means of transmitting musical tones" whereas his "was for transmitting vocal sounds--articulate speech."[2]

Bell further explained that he regarded the transmission of music only as a "scientific curiosity" and had not taken time to perfect it. Consequently, he asked the audience to excuse the discords.[3] He next demonstrated the principle's practical application by having "audible dots and dashes . . . in different notes" transmitted.[4] When this phase of the demonstration was completed, Bell signalled for the battery to be removed from the line.

The lecture continued until Bell received word that the battery had been cut out. Then he would hail Watson and attempt a conversation. Watson would shout such sentences as "How do you do?," "Good Evening," and "What do you think of the telephone?"[5] After this conversation came more musical

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1. Manchester Union, May 9, 1877.
2. New Haven Daily Morning Journal and Courier, April 28, 1877.
3. New York Times, May 19, 1877.
4. Press Clipping, "Louis Clarke Scrapbook," p. 8.
5. Watson, Birth and Babyhood, 25.

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selections. Watson would usually sing the scales and a number of songs from his limited repertoire.

By his own account, Thomas Watson was the most successful telephone singer, not because he had studied the art of singing, but because he had mastered the art of singing into a telephone. Towards the end of Bell's lecture tour, special arrangements were made to engage a professional singer for the more discriminating New York audiences. The trick in telephone singing was for the singer to put his lips into the mouthpiece as "tight as he could and sing for all he was worth." When Bell called for a song from the professional singer, Watson placed the instrument up to the singer's mouth and "chased him halfway across the room to keep his mouth close to it, but he backed away and wouldn't sing nearer than an inch." The result was that the audience could not hear a sound and so Watson was called upon to sing a song as usual.[1]

The lectures also included more elaborate musical performances. During the Boston-Providence lecture the operatic singer Signor Brignoli sang selections from the Barber of Seville to Boston from Providence over the telephone. One Boston paper reported: "From the mouthpiece . . . came a sound as if someone a mile away was being smothered; then it swelled; then faded almost away, and its end was uncertain as the line between daylight and darkness." The audience applauded because "it was a great thing, at least, to even hear Brignoli sing in Providence while they were sitting in the Boston Music Hall."[2] Apparently the poor transmission was due in part to the "facetious manner in which the Signor viewed the Telephone, for he seemed to doubt that it possessed sufficient intelligence to be worthy of

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1. Watson, "Pioneers," 217.

2. Boston Daily Advertiser, May 5, 1877.

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having a vocal effort directed at it."[1] A member of the Swedish Quartette was more successful on another occasion,[2] but the greatest singing successes were usually Watson's.

In addition to the organ, there were other musical instruments employed in demonstrating the telephone. Occasionally there was a brass band,[3] but the usual practice was to employ a cornetist of renown. The most spectacular of these cornet presentations occurred during the final lecture of the Boston series.

Thomas Watson and a cornetist were in the home of Charles Williams in Somerville; Bell was in Boston with two cornetists, D. W. Boardman and a Mr. Gordon; and Frederick A. Gower was in Manchester, New Hampshire, with the cornetist J. R. Lafricain.[4] Bell called for a tune from Somerville, and the cornetist responded with "Keller's American Hymn," "every note of which was wonderfully distinct." Conversation and vocalizations by Watson followed. Toward the end of the demonstration

> Mr. Boardman at Boston put his cornet to the mouth of the telephone and played for the benefit of Manchester. . . . The Manchester cornetist then played . . . and Mr. Gordon in Boston then played for his Manchester friends . . . Professor Watson was again called upon, and, the cornetist's "Last Rose of Summer" was distinctly audible.[5]

Bell concluded his lectures by describing his own telephonic experiments and giving a final series of tests which usually included an

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1. Providence Press, May 5, 1877.
2. Boston Journal, May 8, 1877.
3. Providence Press, April 6, 1877.
4. Boston Globe, May 9, 1877; Manchester Union, May 9, 1877.
5. Press Clipping, "Louis Clarke Scrapbook," p. 17.

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invitation to members of the audience to come on stage and inspect and use the telephones themselves. Such offers were enthusiastically received, and the guests pressed forward eagerly for "an opportunity of enjoying the novel sensation of hearing a stranger talk and sing in the distant town."[1] They filed past the instrument on stage, placing their ears close to the mouth of the receiver.[2]

Often Bell would call forward the community leaders in the audience to converse either with Watson or some friend at the other end. Not infrequently a clergyman was among those accorded this special honor. At the Providence lecture the Reverend Mr. Behrends interviewed Watson on the state of Boston's weather, the time, and whether he knew of the previous day's electoral results.[3] In New York Dr. Armitage wished to know if the telephone could be applied to his profession. He was assured that he would be able to preach from his sickbed or from his pulpit to his lazy parishioners with it.[4]

In New York Bell also called Cyrus W. Field to the telephone. He asked Watson the time, weather, and his idea of what Morse's opinion would be of the telephone were he present at the lecture.[5] One of Boston's "leading legal lights" could only "gasp out 'Rig-a-jig, jig, and away we go,'" when confronted with his opportunity to speak over the telephone.[6]

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1. New York Herald, May 18, 1877.
2. New York Times, May 18, 1877.
3. Press Clipping, "Louis Clarke Scrapbook," p. 6.
4. New York Times, May 12, 1877.
5. New York Herald, May 18, 1877.
6. Watson, "Pioneers," 216.

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On several of these occasions the audience was privileged to witness telephone dispatches to newspapers. The first telephone dispatch was sent after the first Essex Institute lecture. Bell hoped to have the hall to himself and the reporters, and so he tried to discourage the audience from remaining after the regular lecture by turning down the lights and disconnecting the instruments, but about twenty persisted in remaining[1] and saw Bell transmit the dispatch.

> I reported each sentence to Mr. Watson through the Telephone--and Mr. Watson repeated it to me by Telephone that I might be sure he understood it. A Globe reporter in Boston took it down from Mr. Watson's voice. There was no hitch from first to last . . . The despatch was sent . . . in much shorter time than could probably have been done with the Morse system--a shorthand reporter being fully occupied.[2]

Telephoning newspaper dispatches, when conditions permitted, was the last event of the evening. When this was completed the audience departed.

The audiences attending Bell's lectures varied in size but rarely in composition. They were composed of the best society,[3] including "a very fair proportion [of] ladies."[4] The Boston Sunday Times quaintly described Bell's audience as having "Boston . . . written all over its face."[5]

Bell's lectures conformed to this general format, but as time went on, they became more elaborate and innovations were introduced. A major innovation occurred with the New Haven-Hartford lecture on April 27, 1877.

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1. Mabel Hubbard to Robert H. McCurdy, February 18, 1877, NGS.

2. Alexander Graham Bell to Gardiner G. Hubbard, February 13, 1877, NGS.

3. Boston Globe, April 6, 1877, February 24, 1877, May 8, 1877.

4. Boston Sunday Times, May 6, 1877.

5. Ibid.

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Hitherto Bell had lectured before the main audience while his assistant Watson emitted his shouts, songs, and "thrillers"[1] in relative privacy from the laboratory. Bell and his instruments were the center of attraction.

On April 27, however, two major demonstrations were given simultaneously for two different cities. Alexander Graham Bell was on the stage at Skiff's Opera House in New Haven, and Frederick A. Gower was on stage in Robert's Opera House in Hartford. Watson was equidistant from both at Middletown, where he transmitted his shouts, songs, and conversation in seclusion.[2]

Frederick A. Gower had been on the staff of the Providence Evening Press and in that capacity had attended Bell's second Essex Institute lecture. During the course of the evening Bell called upon Gower to test the telephone, which he did by conversing with Watson.[3] It was a fortunate event, for Gower was not only a reporter but also chairman of the Lecture Course Committee of the Franklin Lyceum of Providence. He proposed, and Bell agreed, that a lecture should be given in Providence. Thus began Bell's association with the colorful Frederick Gower.[4]

It was Frederick Gower who conceived the scheme of dual telephone lectures.[5] Their format was essentially the same as Bell's single

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1. Watson, Birth and Babyhood, 25.

2. Press Clipping, "Louis Clarke Scrapbook," p. 12; New Haven Daily Morning Journal and Courier, April 28, 1877.

3. Providence Morning Star, February 26, 1877.

4. George Lewis Gower, "The Story of Frederick A. Gower" (unpublished MSS, 1930), AT&T, p. 11.

5. Watson, Birth and Babyhood, 31; "Recollections By Thomas A. Watson of Frederick Allen Gower," AT&T.

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performances. Gower, a "gentleman of affable manners and pleasing address,"[1] gave a brief introductory lecture and explained the principles of telephony. Depending on one's technical education and perhaps on one's eagerness to see the telephone rather than hear about it, Gower's lecture was "intelligent"[2] or it "did not explain the instrument as plainly as . . . [it] might."[3] Gower, like Bell, made good use of the prominent citizens who attended his lectures. He had them sit on stage[4] where they could be seen and during the demonstration could test the instruments themselves.[5]

At these simultaneous performances Bell lectured in the more important city while Gower "skirmished round about" to the lesser ones.[6] Watson was always somewhere in between with his "thrillers." Despite the added complications of demonstrating the telephone to several cities simultaneously, the lectures were no less successful technically. At the conclusion of the Boston lectures one newspaper commented: "The executive ability which made so unique a series of entertainments pass off so successfully deserves high praise."[7]

Further embellishments were added to Bell's lectures as he gained more experience and presented them to what he considered more important audiences. For the Boston lectures Bell ordered an "Electric Kaleidoscope"

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1. Mirror and American, May 9, 1877.
2. Ibid.
3. Press Clipping, "Louis Clarke Scrapbook," p. 12.
4. Ibid.
5. Manchester Union, May 9, 1877.
6. Alexander Graham Bell to Parents, May 5, 1877, NGS.
7. Press Clipping, "Louis Clarke Scrapbook," p. 17.

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which would make visible to large audiences a representation of the electrical vibrations essential to the operation of the telephone. He was convinced that it would produce startling effects.[1]

Bell also ordered a series of photo slides to clarify his discussion on the development of the telephone.[2] They did not always achieve their goal. One newspaper reporter found the figures "complex and not very intelligible."[3] Whatever their shortcomings, they now provided Bell with a pleasant method of ending his lectures. He flashed several "comic pictures" upon the screen and dismissed his laughing audience.[4]

In Boston and New York, where Bell gave a series of three lectures, he varied his subject matter slightly each night. On the first evening he lectured about the history of telephonic research and the place of his discoveries in relation to those of others; on the second he discussed multiple telegraphy; and during the final lecture he concentrated his attention on the telephone.[5]

At each of his lectures Bell set aside some time for a discussion of the uses and potential development of the telephone. He envisioned a central office system wherein telephones in various locations could be connected together by means of a "switch."[6] They would be especially useful to the business community, since businessmen could transact their

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1. Alexander Graham Bell to Mabel Hubbard, April 22, 1877, NGS.
2. Ibid.
3. New York Times, May 18, 1877.
4. Boston Daily Advertiser, May 5, 1877.
5. Alexander Graham Bell to Alexander Rice, April 21, 1877, NGS.
6. Press Clipping, "Louis Clarke Scrapbook," p. 6.

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business in less time than it required to correspond. Bell speculated that the telephone would be leased by the minute but that even so, its users would achieve more satisfaction in a few minutes of conversation than by conventional correspondence. Moreover, telephonic communication left no record--apparently an advantage in those days.[1]

Lest the audience conclude that the telephone was only a business tool, Bell also mentioned its domestic uses. He hypothesized that on days of inclement weather Mrs. Smith could call the central office, get connected with Mr. Jones the butcher and order her dinner without getting wet. She could then secure a connection with Mrs. Brown and the two could spend "an hour very enjoyably cutting up Mrs. Robinson."[2]

Bell related his belief that the possibilities of the telephone could be enlarged upon indefinitely.[3] He predicted that "in the future, telegraph wires and telephony would be in use generally in dwellings, just as gas and water are supplied--not luxuries but necessities."[4]

By early summer Bell and Watson were finished with their public lecturing, but that did not mean the end of telephone lectures. Indeed, Bell had not had the field of telephone lecturing entirely to himself. Elisha Gray, who was to claim priority in the invention of the telephone, had taken to the lecture platform to satisfy public curiosity about telephonic phenomena and demonstrate his own invention. Gray gave a lecture early in April in New York City, preceding Bell's by more than a month. The New

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1. Ibid.
2. New York Times, May 20, 1877.
3. Ibid.
4. New Haven Daily Morning Journal and Courier, April 28, 1877.

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York Times noted the public demand for such performances by commenting: "Mr. Strokosch has struck a 'bonanza.' The rush to Steinway Hall last evening was unparalleled."[1]

Alexander Graham Bell was among those who "rushed" to the lecture. Actually, Gray's appearance was more a concert than a lecture. His telephone exhibition was sandwiched in between two regular stage concerts. As a result Gray was unable to give a very lengthy explanation of his investigations and the principle of his telephone. At this early period, however, he did give Bell credit for inventing the instrument which transmitted the human voice.[2]

In some ways Gray's concerts were similar to Bell's. His transmissions originated from cities other than the one in which they were received. They were frequently marred by technical difficulties. Gray's concerts even included many of the same musical selections. But the similarity ended there, for Gray's telephone was only used to transmit music over the telegraph wire.[3] Gray's concerts were primarily concerned with the presentation of "Electric Music."[4] They did no more because Gray's telephone could not transmit articulation.

Thomas Edison also entered public lecturing with his version of the telephone. His efforts were closer to Bell's for he not only transmitted make-and-break music but cornet solos and singing.[5] Thus, Alexander Graham

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1. New York Times, April 3, 1877.
2. Ibid.
3. Ibid.
4. New York Times, April 10, 1877.
5. New York Times, July 19, 1877.

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Bell was challenged not only on the invention of the telephone, but also on his presentation of it.

The Bell interests did not allow its competitors in telephone lecturing to go unchallenged. Frederick Gower continued to represent it after Bell retired from that activity. He was qualified to be Bell's heir as telephone lecturer, having been entrusted with the management of the lectures when Bell concluded that previous arrangements were proving financially unsatisfactory.[1] Besides, Bell liked Gower personally.[2]

Gower's decision to carry on without Bell was badly timed, for by now summer had arrived and "indoor audiences were apt to be small."[3] He busied himself until the climate for telephone lectures improved by obtaining a general agency for the distribution of telephones in New England.[4] When he resumed lecturing, Gower adopted certain innovations and planned a national tour.[5]

During January 1878 Frederick Gower gave a number of telephone lectures in and around Boston. He used essentially the same format as when associated with Bell. He suspended telephones, expressly made for lecturing, in various locations among the audience and had singers and cornetists perform through them. The high point of the evening's performance was the demonstration of the "Telephone Harp," a novel device which was "generally admitted to be the most effective telephonic transmitter ever made."[6]

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1. Alexander Graham Bell to Parents, May 5, 1877, NGS.

2. Alexander Graham Bell to Mabel Hubbard, April 12, 1877, NGS.

3. Gower, "Story," 17-19.

4. Ibid.

5. Watson, Exploring Life, 123-124.

6. Broadside, "Lecture and Concert on the Telephone," January 16, 1878, AT&T, Box 1082.

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Gower's presentation of the "Telephone Harp" was most dramatic and effective. "The lights will be lowered and the Harp being played at Cambridgeport, the sound producing currents will be shown passing in the form of brilliant sparks from the wire to the telephone upon the platform."[1] For this "wholly novel" experiment Gower employed two hand telephones previously used by President Hayes.[2]

The purpose of this experiment was to enable the audience to see as well as hear the transmission of telephonic music. Like all good concert masters Gower entertained requests from his audience. He closed his performances by alluding

> to the bearing of the Telephone upon the dominant question of the day--the ultimate results of human thought and the outcome of human destiny--showing this, like other human achievements, to be in accordance with intelligent, creative purpose, and to have its due place among the products of creative mind.[3]

The demand for telephones for lecture purposes led the newly organized Bell Telephone Company to formulate a policy whereby it would lend telephones free or for a small rental. If a scientific gentleman wished them solely for scientific demonstration and made no profit from the lectures, he was to receive them free. Other lecturers were to be charged for the telephones loaned to them, the rental dependent upon their ability to do good for the Bell interests.[4]

Telephone lecturers resorted increasingly to more novel and elaborate presentations. One enterprising promoter arranged for a concert which was

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1. Ibid.

2. Ibid.

3. Ibid.

4. Gardiner G. Hubbard to Thomas A. Watson, November 16, 1877, AT&T, Box 1193.

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held simultaneously at seven different points and utilized forty-one telephones, "a greater number than has ever before been operated."[1]

It was not long before public interest in telephonic lectures and concerts was spent. Even though Frederick Gower possessed the exclusive right from the Bell interests to lecture on the telephone for the entire United States, he was forced to abandon the lecture platform for other telephonic pursuits.[2] Watson was partially correct when he boasted that telephone lecturing simply "wasn't remunerative after Bell and I gave it up."[3] No doubt the public was more interested in seeing Alexander Graham Bell, the inventor, lecture on the telephone than anyone else. But also, as telephones came into wider use they lost their novelty, and public interest in telephone lectures naturally waned.

The short-lived phenomenon of telephone lectures, and more particularly, Bell's success as a telephone lecturer proved to be significant in several ways. In trying to assess Bell's success it is necessary to consider technical achievements, audience reaction, and financial remuneration.

Bell's demonstrations were often marred by difficulties arising from the rudimentary nature of the telephone, the poor construction of the telegraph lines, and the inescapable human factor. Frequently reports observed that a cornet solo was "only faintly heard"[4] or that it was "hard to tell where the sound ceased and the silence began."[5] Sometimes articulation

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1. Press Clipping, "Louis Clarke Scrapbook," p. 26.
2. Watson, "Pioneers," 217.
3. Watson, Birth and Babyhood, 32.
4. Providence Press, April 6, 1877.
5. Boston Daily Advertiser, May 5, 1877.

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was so unsuccessful that the sounds emitted from the telephone were described as "a succession of sighs and wheezes that had no meaning for the general audience."[1] On such occasions the difficulties were ascribed to climatic or electrical interferences. During the multiple lectures these difficulties often resulted in better reception at one location than in another.[2]

Much of the electrical interference was created by telegraph transmissions traveling over lines parallel to that being used in the telephone demonstration. Watson even suggests that some of this interference was deliberately fostered:

> After the first lecture or two, the telegraph operators all along the line found out that their relays would hum, when I was sending the intermittent current from the organ; every station on the line would cut in its relay.[3]

It was because of such actions that Watson was unable to transmit a single sound during the Lawrence lecture and thus inspired "Waiting for Watson."[4]

Despite these and other technical difficulties, Bell's demonstrations were generally successful. The New York Tribune, after noting the telephone's deficiencies, declared "the success of the transmission is unquestionable."[5] Newspaper accounts attest to audience satisfaction by repeated reference to "hearty applause."[6] This applause was not only hearty but

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1. New York Times, May 19, 1877.
2. Springfield Republican, May 14, 1877.
3. Watson, "Pioneers," 217.
4. Ibid.; Watson, Birth and Babyhood, 29.
5. New York Tribune, May 12, 1877.
6. New York Herald, May 18, 1877.

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also frequently involuntary as the audience responded to the first strains of organ music.[1] The Mirror and American epitomized the press reaction to Bell's telephone lectures when it reported:

> The evening was unfavorable on account of the dampness, but if such results can be accomplished under adverse circumstances, in the infancy of the invention, what may be expected when it should be brought to perfection?[2]

The degree of Bell's financial success is less clear. From the very beginning, Bell was always optimistic about the money he expected to get from his lectures.[3] He correctly forecast that the success of the first Essex Institute lecture would lead to further lectures which he hoped would "bring me something."[4] His first paid lecture, the second Essex lecture, earned him $149 over expenses, and he soon began asking for $200 per lecture.[5]

While the New Haven-Hartford lecture proved to be a successful innovation, it also proved to be a "failure pecuniarily."[6] The promoter lost $184 because he was forced to make refunds for tickets in Hartford.[7] Apparently the Hartford audience either misunderstood or was misinformed about Bell's location--he was in New Haven, not Hartford.[8] In fact, the

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1. Press Clipping, "Louis Clarke Scrapbook," p. 12.
2. Mirror and American, May 9, 1877.
3. Alexander Graham Bell to Parents, May 26, 1876, NGS.
4. Alexander Graham Bell to Gardiner G. Hubbard, February 13, 1877, NGS.
5. Alexander Graham Bell to Parents, March 2, 1877, NGS.
6. Alexander Graham Bell to Parents, May 5, 1877, NGS.
7. George H. Coe to Alexander Graham Bell, March 18, 1913, NGS.
8. Press Clipping, "Louis Clarke Scrapbook," p. 12.

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audiences were frequently smaller at Gower's end.[1] Under Bell's new manager, Frederick Gower, this was to change, and it did--at least for the first Boston lecture, which Bell proclaimed a success financially and "in every other way."[2]

Bell's optimism proved to be premature, for the three Boston lectures only earned $150 over expenses.[3] This was far from the $1200 to $3000 he estimated in April he would receive from them.[4] In the face of such disappointment Bell negotiated with George Vanderlip, a New York promoter, for expenses, $200 per lecture and one-half of the remaining profits for a series in that city.[5]

Bell's agreement with Vanderlip was a good one, for the first New York lecture "was a failure in numbers," and three hundred tickets had to be given away for the second lecture. Gardiner Hubbard himself disposed of one hundred tickets to prominent individuals including the Postmaster, the Superintendent of Railway Mails, the President of the Union Pacific Railroad, the President of the Adams Express Company, and others.[6] The poor attendance may have resulted from the high admission price and defective business management as charged by the Journal of the Telegraph,[7] from Gower's inefficiency as a manager,[8] or because, as Mrs. Hubbard had written

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1. Providence Star, May 18, 1877; Manchester Union, May 9, 1877.
2. Alexander Graham Bell to Parents, May 5, 1877, NGS.
3. Alexander Graham Bell to Mabel Hubbard, May 11, 1877, NGS.
4. Alexander Graham Bell to Mother, April 19, 1877, NGS.
5. Agreement, Alexander Graham Bell and George Vanderlip, May 9, 1877, NGS.
6. Gardiner G. Hubbard to Mrs. Gardiner G. Hubbard, May 18, 1877, NGS.
7. Journal of the Telegraph, June 1, 1877.
8. "Recollections By Thomas A. Watson of Frederick Allen Gower," AT&T.

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from New York nearly a month earlier, "the interest has all died out . . . curiosity is satisfied."[1]

However much Alexander Graham Bell may have been disappointed by the financial returns of his lectures as measured against his optimistic expectations, they did bring in the first money he earned from the telephone. The lectures may also have influenced the Hubbards' decision not to delay the marriage of their daughter to Bell. In the midst of the Boston lectures they urged Bell to marry Mabel and take her on his lecture tours in order that she might look after him.[2] The sale of a portion of his English patent in June for $5000 made the marriage a reality.[3]

The telephone demonstrations and lectures with their attendant publicity helped to create an additional demand for telephones and telephone lines.[4] Conscious of this effect, Gardiner Hubbard urged Bell after the first Essex Institute lecture to wait a fortnight before repeating it lest he prematurely stimulate a demand for telephones which could not be satisfied at that time.[5] But the lectures did stir up a "great commercial demand," and Watson had to leave the lecture tour to speed up the manufacture of telephones.[6]

The lectures interfered with the laboratory work of Bell and Watson, but the use of the telephone in the lectures also created actual working

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1. Mrs. Gardiner G. Hubbard to Gardiner G. Hubbard, April 6, 1877, NGS.

2. Alexander G. Bell to Parents, May 5, 1877, NGS.

3. Alexander G. Bell to Sarah Fuller, June 25, 1877, NGS.

4. Watson, Birth and Babyhood, 31.

5. Gardiner G. Hubbard to Alexander Graham Bell, February 15, 1877, NGS.

6. Watson, Exploring Life, 123.

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conditions and thereby contributed to the telephone's development as a practical working instrument.[1]

One senses that during this period of his life Bell was, above all, seeking recognition. He was not only financially hard pressed but also overshadowed by the wealth and status of his prospective inlaws. The lectures, coming when they did, seem to have fulfilled an emotional need. Witness Bell's reversal of his judgment that the proudest and happiest day of his life was the occasion of the first telephone conversation in favor of the evening when he informed the American Academy of Arts and Sciences of this success and was applauded--"I'm the only lecturer that has ever been applauded."[2] He was also overjoyed when he learned of his election to that prestigious body. "Membership has been for the last two years the summit of my ambition."[3] The lectures made him enough of a celebrity so that he was "besieged" by autograph hunters.[4]

Of more critical significance than either the promotion of the telephone or the fulfillment of Bell's psychological needs was the effect which the lecture earnings had on his immediate financial needs and, in turn, on the development of the telephone business. The lectures and their profits enabled him to consider business propositions concerning the future of commercial telephony more carefully. The lecture profits provided him with an alternative source of funds, albeit a temporary one, when some "hitch" arose in these negotiations.[5]

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1. Watson, Exploring Life, 113.
2. Alexander Graham Bell to Parents, October 12, 1877, NGS.
3. Alexander Graham Bell to Parents, 1877, NGS.
4. Alexander Graham Bell to Mabel Hubbard, April 7, 1877, NGS.
5. Alexander Graham Bell to Mother, April 19, 1877, NGS.

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Moreover, the lecture money removed the pressure Mrs. Gardiner Hubbard was applying to Bell to sell telephones.

> Mrs. Hubbard favored Bell's suit for her daughter's hand and realizing that lack of money stood in the way of his marriage, was . . . earnestly advocating the plan of constructing telephones by the thousands, imperfect as they were, and selling them outright. . . . Had it not been for the lectures Mrs. Hubbard would undoubtedly have carried her point.[1]

Consequently, the policy of renting telephones, with all its attendant advantages, was available as an option later. This decision to lease rather than sell was of momentous importance for it resulted in the unity and universality of the telephone service.[2] The repercussions of Bell's decision to become a public lecturer were thus felt long after he ceased lecturing on his invention.

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1. Watson, Exploring Life, 110.

2. Watson, "Pioneers," 217.

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CHAPTER IV

COMMERCIAL BEGINNINGS

Commercial interest in the telephone developed as early as the latter part of 1876, even before Alexander Graham Bell had helped to publicize his invention by a lecture tour. In the midst of personal and financial woes, he was happily besieged by a large volume of mail which consisted of "letters from strangers--business letters--telephonic letters from all parts of the country--offers to buy [the] telephone--offers for the right to use them in certain parts of the country."[1]

Responding to the improving state of the telephone[2] and his own personal conditions, as well as to the mounting interest, Bell urged immediate commercial application of his invention.[3] After some reflection, he reconsidered and followed a more cautious policy. Although Bell believed the telephone was capable of being used with good results, he felt, nevertheless, that its existing condition was not the best to be placed before the paying public: "I think myself . . . it is best to go on quietly perfecting the best form of apparatus before doing anything practically with it."[4]

As the new year dawned, Bell continued to receive inquiries and offers for his telephone. No doubt some of these inquiries came from individuals curious about a novelty. Many, however, were from businessmen interested

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1. Alexander Graham Bell to Mother, December 1876, NGS.

2. Alexander Graham Bell to Mother, October 25, 1876, NGS.

3. Ibid.

4. Alexander Graham Bell to John Ponton, November 26, 1876, AT&T, Box 1124.

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in adopting the telephone for commercial use. Such were two gentlemen who traveled from Detroit to see Bell in Boston and then went on to see Gardiner Hubbard in Washington, D.C.[1] These two businessmen came on behalf of a district telegraph company, a business whose "principal feature . . . was to provide messengers on a request conveyed telegraphically."[2] Perhaps they appreciated the devastating impact which the telephone would have upon this class of telegraph business if it lived up to its reputation of being able to transmit articulate messages. If such were the case, their greatest fears (or hopes) must have been confirmed after they witnessed a successful demonstration of the telephone.[3]

Some of the earliest business propositions grew directly out of Bell's experiments and demonstrations. The superintendent of the Eastern Railroad's telegraphic department was impressed not only by the successful test in which he was a participant, but also because he was already receiving "quite a number of applications [for telephones]."[4]

In at least one instance, the desire to take up the telephone commercially induced interested parties to extend to Bell every facility for his electrical experiments.[5]

So numerous did the inquiries and offers become that Bell had a postal card printed referring all such interested persons to his partner Gardiner G. Hubbard.[6]

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1. Alexander Graham Bell to Mabel Hubbard, January 18, 1877, NGS.

2. J. E. Kingsbury, The Telephone and Telephone Exchanges (New York: Longmans, Green & Co., 1915), p. 90.

3. Alexander Graham Bell to Mabel Hubbard, January 19, 1877, NGS.

4. Alexander Graham Bell to Mabel Hubbard, January 21, 1877, NGS.

5. Alexander Graham Bell to Mabel Hubbard, November 10, 1877, NGS.

6. Alexander Graham Bell to Gardiner G. Hubbard, February 13, 1877, NGS.

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Gardiner Hubbard devoted increasing attention to the commercialization of the telephone, meeting prospective telephone agents and evaluating various propositions. Even Mrs. Hubbard helped by demonstrating the telephone to influential acquaintances, including the President of the Union Pacific Railroad.[1] In view of these developments, Gardiner Hubbard grew anxious to present the telephone commercially to the public. He asked for Watson's expert opinion on the technical status of the telephone, adding: "So much has been said about the telephone that it is exceedingly important that we have it ready as soon as possible that we may sail along with the current."[2]

Part of the delay came from Bell's continued desire to perfect the telephone more fully. In his opinion, the telephone would operate perfectly on short lines of forty or fifty miles and therefore could be available for immediate use, but "of course it would be better to test the instrument well in every possible way--before placing it in the hands of the public."[3]

By March 2, 1877, the decision had been finally made to introduce the telephone commercially.[4] Its first practical application occurred a month later with the opening of the first outdoor telephone line.[5] On April 4, a line three miles long was put into operation between the Boston office of Mr. Charles Williams, Jr., and his home in East Somerville.[6]

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1. Alexander Graham Bell to Mabel Hubbard, January 12, 1877, NGS.

2. Gardiner G. Hubbard to Thomas A. Watson, February 16, 1877, AT&T, Box 1070.

3. Alexander Graham Bell to John Ponton, January 27, 1877, AT&T, Box 1124.

4. Alexander Graham Bell to Parents, March 2, 1877, NGS.

5. Alexander Graham Bell to Mabel Hubbard, April 4, 1877, NGS.

6. Alexander Graham Bell to John Ponton, March [sic] 4, 1877, AT&T, Box 1124.

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The Williams line was not strictly a private commercial line because Williams never paid for the telephones connected on it,[1] although he did pay for the line's construction.[2] The chief purpose of this line was to demonstrate the telephone's practical utility and to encourage people to rent telephones by allowing them to test the instruments under actual working conditions.[3]

The opening of the Williams line proved a success from every standpoint. The instruments worked well and "articulation was perfect."[4] The event won favorable publicity. The Boston Globe not only confirmed the success of the instruments, but more importantly also noted: "The practical value of Professor Bell's invention is being newly proved every day."[5] The Williams line stimulated many applications for telephones and inquiries regarding the cost of constructing similar lines.[6] Public tests and demonstrations such as this not only helped to create demand for the telephone, but also contributed to the perfection of a "practical working instrument."[7]

About the same time that the Williams line was being successfully inaugurated, preparations were being made to place telephones on other lines. Some of these connections were merely to continue testing the

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1. "Deposition of Charles Williams, Jr.," March 11, 1881, J. J. Storrow, "Proofs," II, 281/95.

2. Ibid., 277/91 - 278/92.

3. "Deposition of Thomas A. Watson," J. J. Storrow, "Proofs," II, 408/278.

4. Alexander Graham Bell to Mabel Hubbard, April 11, 1877, NGS.

5. Boston Daily Globe, April 5, 1877.

6. "Deposition of Charles Williams, Jr.," Storrow, "Proofs," II, 280/94.

7. Watson, Exploring Life, 113.

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practicability of the telephone,[1] but others were definitely intended for commercial use.[2]

Among those about to receive such a connection was Roswell C. Downer, a junior member of the banking firm of Stone & Downer. Indeed, Downer enjoys the distinction of being the first commercial user of the telephone.[3] On or about May 1, two telephones were installed on a telegraph line connecting the company's State Street office in Boston to the Downer family home in Somerville.[4] These were the first telephones installed under an agreement to pay for their use.[5] The lease was signed on March 26, 1878, and predated to June 1, 1877, thus indicating that Downer enjoyed a month's free trial.[6] He also enjoyed a substantial discount on the rental inasmuch as the established rate was ten dollars per telephone per year and he paid only three dollars per instrument. Apparently Roswell Downer was given this consideration for his interest and enthusiasm in promoting the telephone.[7]

Roswell Downer's interest in the telephone, which seems to have been more enthusiastic than his younger brother Frank's and in marked contrast to his father's opposition, has been attributed to his youth, his aggressiveness, and his keen sense of business instinct.[8] His acquaintance with

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1. Alexander Graham Bell to John Ponton, March 4, 1877, AT&T, Box 1124.

2. Alexander Graham Bell to Mabel Hubbard, April 4, 1877, NGS.

3. H. V. Bicknell, "Leasing the First Telephones for Money" (MSS., February 1924), Introduction, AT&T, Box 1072.

4. "Deposition of Thomas A. Watson," Storrow, "Proofs," II, 404/278; Bicknell, "Leasing," p. 2.

5. Bicknell, "Leasing," p. 2.

6. Ibid., 12.

7. Ibid., 11.

8. Ibid., 21.

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fellow-churchman Charles Williams[1] surely must have reinforced Roswell's belief that the rental of two telephones would prove convenient as well as enabling him to show his friends an interesting device.[2] Roswell Downer's interest in the telephone was so great he may even have paid for the instruments out of his own funds.[3]

On May 14, the brothers Downer responded to an inquiry of Gardiner G. Hubbard. They noted the success of the instruments and expressed a decided preference for the telephone over the Morse system due to the former's speed and efficiency. They concluded: "We can certainly indorse the telephone as a success, and believe it can be used practically with many advantages over the old system of telegraphy."[4]

If Roswell Downer was the first person to take the telephone on a commercial basis, James Emery, Jr., was the first to make an actual cash payment for it.[5] The circumstances surrounding Emery's renting of the telephone were not unlike those of Roswell C. Downer. Emery already possessed a private telegraph line[6] and he also was interested in new things, especially those of an electrical or mechanical nature.[7]

About two weeks after Downer's telephones were connected, Emery connected his to a line between his home and his brother Freeman's.[8] He paid

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1. Ibid., 23.

2. Ibid., 2.

3. Ibid., 27.

4. "Deposition of Thomas A. Watson," Storrow, "Proofs," II, 404/278-406/280.

5. Bicknell, "Leasing," Introduction.

6. Ibid., 27.

7. Ibid.

8. Ibid., 26.

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one year's advance rental of twenty dollars for two instruments to Charles Williams, Jr., who acted as agent for the Bell interests. So unsettled was the nature of this new telephone business that Williams, not knowing what to do with the rental, did not enter the cash in his account books until June 8, after he had consulted with Gardiner Hubbard. Emery rented three more instruments at ten dollars, thus giving him a total of five instruments at an average price of six dollars each.[1] Like Downer, Emery received a discount on his telephones.

Emery used his telephones as a means of communicating with his relatives, business partners and associates, all of whom resided in the general vicinity of Charlestown.[2] Ultimately, the three Emery brothers and two other persons, four of whom comprised the members of two wholesale fish companies, were linked together telephonically.[3]

The third person to rent telephones was James R. Osgood, the senior member of a book publishing firm in Boston. His telephones, probably connected in May, linked his Boston office to University Press in Cambridge. Not surprisingly, Osgood, like his fellow pioneer telephone users, was known as a capable and foresighted businessman who kept an eye open for new developments that would advance his business. James Osgood looked upon the telephone as just such a development, which would save him time and energy in conducting his business between Boston and Cambridge.[4]

There were others, in addition to Downer, Emery and Osgood, who rented

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1. "Deposition of Charles Williams, Jr.," Storrow, "Proofs," II, 278/92-279/93.

2. Bicknell, "Leasing," p. 27.

3. Ibid.

4. Ibid., 31.

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telephones and established telephone lines during the final days of the Patent Association's existence. In fact, by the end of June 1877, a total of 234 telephones were in public use.[1] But these first three commercial users are worthy of being singled out for they seem to have been indicative of the type of individual who early adopted the telephone. These pioneer telephone users apparently were intelligent, inquisitive individuals and businessmen who valued the telephone primarily for its usefulness in the conduct of their businesses. These same traits characterized, to some extent, those individuals who took up the telephone as a business and investment enterprise.

Gardiner Hubbard was quick to capitalize upon the satisfaction of these first telephone users. He incorporated the Downers' statement into a circular, "The Telephone," printed for general distribution.[2] In addition, the circular contained statements by Sir William Thomson and the other judges of the Centennial, and George M. Whipple, Secretary of the Essex Institute, as well as newspaper accounts of two different private tests.[3]

This early advertisement described the telephone's advantages over the telegraph. It carefully explained that in using a telephone one could achieve communication faster (nearly a hundred times faster), more economically and without the intervention of a third person.[4]

The circular also outlined the method by which the Bell interests

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1. "Deposition of Thomas A. Watson," Storrow, "Proofs," II, 418/292.
2. Ibid., 406/280.
3. "The Telephone," May 1877, AT&T, Box 1097.
4. Ibid.

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proposed to make the telephone available to the public. The telephones were to be rented--not sold--at various rates according to their use: twenty dollars a year for "social purposes" and forty dollars a year for business purposes. Additional instruments placed on the same line where privacy was not required could be rented for ten dollars. The rental was to be paid semiannually in advance.[1]

The lessors affirmed that they would maintain the instruments in good working order without cost to the lessees, except in cases of carelessness.[2] This concern for the quality and condition of the instrument was further manifested in Hubbard's directive to Thomas Watson that all instruments be fully tested: "You will of course send out no instrument, until it has been thoroughly tested on a circuit long enough to try it . . . and none, under any circumstances to be delivered until you are satisfied that they will work."[3] Although the Bell Patentees were interested chiefly in renting telephones at this early date, they did advise that they would, if so desired, construct the necessary telegraph lines, but suggested that "any good mechanic can construct a line." All inquiries were to be referred to Thomas A. Watson, 109 Court Street, Boston.[4]

In addition to commencing the rental of telephones, the Patent Association began making formal arrangements for manufacture[5] and distribution.[6]

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1. Ibid.

2. Ibid.

3. Gardiner G. Hubbard to Thomas A. Watson, May 23, 1877, AT&T, Box 1070.

4. "The Telephone."

5. "Deposition of Charles Williams, Jr.," Storrow, "Proofs," II, 281/55.

6. "Deposition of Thomas A. Watson," Storrow, "Proofs," II, 410/284.

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Thus, as the Patent Association's existence drew to an end, its directing force, Gardiner Hubbard, was busily engaged in organizational and promotional work, assisted by Thomas Sanders. Alexander Graham Bell had very little to do with the management or financing of the telephone in the United States, for when his lecture tour ended he finally married Mabel Hubbard and the two of them went off to England.[1]

Among the most important policies formulated during this period of the Patent Association was the one to lease rather than sell telephones. This was made possible by the satisfactory results of Bell's lecture tour. Given the background of the individuals concerned and the existing state of telephony, renting telephones was a logical policy, thought not the only possible one.

Hubbard's influence was probably decisive in the adoption of this policy. He had been an attorney for the Gordon McKay Shoe Machinery Company,[2] which leased its shoe sewing machines to shoemakers, thus retaining title to the machines and receiving a royalty for every pair of shoes sewed with them.[3] Moreover, Chauncy Smith, "the first telephone counsel,"[4] had also been a lawyer for the Gordon McKay Shoe Machinery Company.[5] There seems little doubt, then, that the concept of leasing telephones drew its inspiration

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1. Alexander Graham Bell to Fred DeLand, September 25, 1905, AT&T, Box 1105; Alexander Graham Bell to The Executive Committee of the Bell Telephone Co., November 29, 1878, AT&T, Box 1104.

2. William Chauncy Langdon to Chauncy Smith, Jr., November 19, 1925, AT&T, Box 1141.

3. Langdon, "Early Corporate Development," 139.

4. Thomas A. Watson to Chauncy Smith, Jr., January 28, 1927, AT&T, Box 1141.

5. Charles Eustis Hubbard to William Chauncy Langdon, February 10, 1927, AT&T, Box 1141.

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from the Gordon McKay Company.[1] And even if Gardiner Hubbard, rather than Chauncy Smith,[2] originated the idea, as seems likely, Smith made his contribution by urging its adoption.[3]

Another influence for the rental plan during this formative period was John Ponton, a would-be financial backer. According to him, Bell's earliest "idea was to travel through the country and exhibit it [the telephone] and start agencies for selling it."[4] However mistaken Ponton might have been in believing he had originated the rental plan, his opinion that the Bell interests could earn more money by renting rather than selling telephones no doubt weighed on the side of the policy's final adoption.

The reasons which Ponton and Smith urged on behalf of the rental plan were remarkably similar and suggest independent appreciation of the early telephone's vulnerability. Smith, as recounted by his son, argued

> that owing to the comparatively simple nature of the telephone and the ease with which it could be manufactured, there would be in case the instruments were sold, no way of keeping track of instruments which might be illegally manufactured and sold, while, if no instruments were sold and a record was kept of the disposition of each one, the running down and conviction of infringers would be easy.[5]

Ponton recalled that he had urged the rental of telephones because:

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1. J. J. Storrow to -- Russell, January 12, 1884, AT&T, Box 1093.

2. Chauncy Smith, Jr., to William Chauncy Langdon, November 17, 1923; Chauncy Smith, Jr., to Thomas A. Watson, January 21, 1927, AT&T, Box 1141.

3. Charles Eustis Hubbard to Chauncy Smith, Jr., January 28, 1927, AT&T, Box 1141.

4. Undated statement by John Ponton, AT&T, Box 1123.

5. Chauncy Smith, Jr., to William Chauncy Langdon, November 17, 1923, AT&T, Box 1141.

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> What struck me most forcibly at that time was the extreme simplicity of your telephone and I kept turning over in my mind the impossibility of making any money on your patent by manufacturing and selling them, which led to the idea of renting them.[1]

The chief factors in the decision to rent telephones seem to have been the greater profitability and the element of control which such a policy provided. Due to the simple construction of the early model telephones, special care had to be taken against infringers. Moreover, by retaining title to the instruments, the Bell interests could effect the necessary repairs and modifications to maintain technical efficiency and provide satisfactory service.[2] The rental policy enabled the telephone promoters an opportunity to control their new industry from its very start. Ultimately, it insured that there would be standardization of equipment and procedures--that there would be a unitary telephone system.[3] As Watson explained: "Leasing the telephones kept them under our control, making it easier for us, later . . . to start telephone exchanges all over the country, from which have come the universal service of the present day."[4]

Charles Eustis Hubbard, brother of Gardiner and an officer and employee of the Bell Telephone Company, succinctly summed up the value of the rental policy and indicated his feelings on the issue of responsibility for its suggestion when he wrote: "Who originated the idea of renting a patented article I cannot say but our Company can bless the memory of the originator."[5]

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1. John Ponton to Alexander Graham Bell, June 15, 1898, AT&T, Box 1123.

2. U.S., Federal Communications Commission, Telephone Investigation: 1935. Exhibit 130, "AT&T Co.--License Contract Relations, Origin and Development of License Contract," pp. 1-2, citing G. V. Leverett, Legal Department, American Bell to F. P. Fish, November 8, 1902, Leverett's Letterbook, I, 8.

3. DeLand, "Notes," 439-440.

4. Watson, Exploring Life, 110.

5. Charles Eustis Hubbard to William Chauncy Langdon, February 10, 1927. AT&T. Box 1141.

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So highly regarded was the rental principle that it was rarely violated. A request to purchase a telephone "as a relic" was denied, lest in so doing a precedent might be set.[1] Not even in its relations with the federal government would the Bell interests openly violate the rental policy. Telephones were leased to the government for the life of the instrument or its patents at such a low price that the transaction was tantamount to a sale,[2] but the principle remained intact.

Among the most critical problems which the Patent Association faced was that of raising money. Perhaps the most interesting--certainly the most ironic--of the early attempts to raise money in connection with the telephone was an offer made to the Western Union Telegraph Company. The event probably occurred during the fall and winter of 1876-1877.[3]

Financially hard-pressed, Gardiner Hubbard sought the assistance of the country's leading communications company, Western Union. He offered to sell the whole telephone patent for $100,000.[4] President William Orton declined. A recent historian suggests a reasonable explanation for this decision:

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1. O. E. Madden to W. H. Hamilton, February 21, 1880, AT&T, General Manager's Letterbook (hereafter cited GMLB) 38.

2. Theodore N. Vail to George S. Ladd, May 29, 1880, AT&T, GMLB 48.

3. According to Watson's recollection, it occurred after he had become a partner in the Patent Association, September 1876 (Exploring Life, 107), and before Bell went on the lecture circuit (Scientific American, 216). Indeed, Watson suggests that the unsuccessful negotiations with Western Union may have further influenced Bell's decision to go on tour.

4. U.S. Senate, Committee on Education and Labor, Report of the Committee of the Senate upon the Relations between Labor and Capital, 48th Congress (Washington: Government Printing Office, 1885), I, 882.

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> Western Union acted with customary bureaucratic caution . . . The idea of making heavy investments in developing the new telephone and scrapping their present equipment was also repugnant . . . A powerful corporation, moreover, had many ways of getting control of a new product, once it was proved practicable: by imitation; by evasion or by lawsuits conducted at enormous costs, at the end of which . . . the invention might fall to the corporation.[1]

Orton's long-standing antipathy for Hubbard certainly must have influenced his decision, as previously, to reject Hubbard's proposition. Orton's enmity also hampered Hubbard's efforts to financially interest Chauncey Depew.[2]

Hubbard, acting in his capacity as an officer of the Congressional Commission for the Improvement of the Mails and Telegraph, had become acquainted with Chauncey Depew, who represented the New York Central and Hudson River Railroad in matters concerning transportation of the mails. According to Chauncey Depew, Gardiner Hubbard offered him a one-sixth interest in the patent rights of the telephone for $10,000. Depew agreed to consider the proposal and in so doing solicited the advice of his friend William Orton. Orton advised Depew that Bell's invention was not a practical one and also informed him that the Western Union controlled the Gray patents and therefore could "sweep it away."[3]

Depew informed Hubbard of his decision not to invest in the telephone, whereupon Hubbard persuaded Depew of his lack of wisdom and elicited his promise to withdraw the $10,000 from the bank the following day and place it in Hubbard's hands.[4]

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1. Matthew Josephson, Edison (New York: McGraw-Hill Book Company, 1959), pp. 141-142.

2. William Chauncy Langdon, "Gardiner G. Hubbard's Offer of An Interest in the Telephone to Chauncy Depew" (unpublished MS, 1928), AT&T.

3. Ibid.

4. Ibid.

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> 'Scarcely had we arisen from the evening meal that day when my friend Orton . . . dropped in. He said: After you left my office I began to worry for fear you would be foolish enough to let Bell have the $10,000. . . . I want to explain further to you why Bell could not succeed with his device, even if it worked. We would come along and take it away from him, and you would be out of pocket the $10,000.'[1]

Depew later believed that Orton's advice was actuated by his friendship, his sincere belief in the validity of Gray's claims, and his desire to prevent the Bell group from getting any money.[2] It is not possible to establish the precise date of Hubbard's offer to Depew, but it seems probable that the Western Union had already declined Hubbard's offer.[3] Perhaps it now began to suspect it had made a mistake and the "simplest way for Mr. Orton to look out for his company's interests was to prevent the Bell people from getting any money."[4]

The earliest efforts of Gardiner Hubbard to enlist money for the telephone, though highly interesting because they foreshadowed several important developments, never proceeded beyond the introductory stages. One which did get somewhat further was the proposition made to John Ponton, editor of the Titusville [Pennsylvania] Morning Herald.

Interestingly, John Ponton's background resembled Alexander Graham Bell's. He was a native of Edinburgh, though he had been born there five years earlier than Bell. Ponton inherited an interest in science from his father Mungo Ponton, who, like Alexander Melville Bell, was a member of the Scottish Society of Arts and had also received a silver medal for his

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1. New York Herald Tribune, August 1, 1926.
2. Langdon, "Hubbard's Offer."
3. Ibid.
4. Ibid.

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scientific work.[1] Indeed, during the course of their correspondence, John Ponton incorrectly recalled having been "an old playmate and schoolfellow" of Alexander Graham Bell's.[2]

Ponton initiated his acquaintance with Bell in the fall of 1876 after he read an account of the telephone.[3] During the course of their relationship, Ponton suggested that it might be worthwhile for Bell to conduct a telephone experiment on a line between Titusville and Boston. Bell was sympathetic to the idea.[4] Ponton also proposed a plan which would allow him the right to introduce the telephone into the Oil Regions of Pennsylvania. While Bell was also sympathetic to this idea, he declined to make any "independent arrangement," explaining that he had assigned his patent to "some gentlemen who have constituted themselves a company to develop and introduce" his inventions to the public. In this, as in all other offers, Bell referred Ponton to the man entrusted with the "practical management" of the patents, Gardiner G. Hubbard.[5] Indeed, Bell would not even send Ponton instruments to commence the Titusville-Boston tests without Hubbard's consent.[6]

Ponton's proposition to make Bell a "millionaire"[7] was pleasantly

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1. William Chauncy Langdon, "John Ponton" (unpublished MS, 1927), AT&T; Alexander Graham Bell to John Ponton, October 8, 1876, AT&T, Box 1124.

2. Alexander Graham Bell to John Ponton, October 8, 1876, AT&T, Box 1124.

3. Ponton's Statement.

4. Alexander Graham Bell to John Ponton, September 30, 1876, AT&T, Box 1124.

5. Alexander Graham Bell to John Ponton, November 3, 1876, AT&T, Box 1124.

6. Alexander Graham Bell to John Ponton, November 24, 1876, AT&T, Box 1124.

7. Alexander Graham Bell to Mabel Hubbard, December 8, 1876, NGS.

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disturbing to the struggling inventor. His offer to Bell of $10,000 for a half interest in the telephone patent was duly considered by Hubbard.[1] Hubbard indicated that he was currently in contact with parties from Providence and Boston who were negotiating for the organization of a large company for the purpose of introducing the telephone generally. However, due to Ponton's longstanding interest in the subject he would be given preference over other parties. Hubbard noted that these other negotiations need not interfere with proposed arrangements between Ponton and the Patent Association.[2] Moreover, since Ponton enjoyed Bell's "warm friendship," Bell desired that he be the "first to take the matter up."[3]

The Boston and Providence parties to whom Hubbard referred were E. S. Converse of the Boston Rubber Shoe Company and Henry Howard of Rhode Island. They were interested in developing Bell's foreign and American telephone patents.[4]

Howard's proposal called for the organization of a company composed of such notables as Secretary of State Fish and Henry Adams, and controlling a capital of several million dollars to develop the telephone all over the world. Gardiner Hubbard was to become President of this company, Alexander Graham Bell, Vice-President, and E. S. Converse, Treasurer. Bell was to be paid $5,000 for devoting his whole time to the perfection of the telephone. Howard's grand scheme was to be completed within three weeks.[5]

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1. Ponton's Statement.

2. Gardiner G. Hubbard to John Ponton, February 14, 1877, AT&T, Box 1123.

3. Alexander Graham Bell to John Ponton, February 19, 1877, AT&T, Box 1124.

4. Alexander Graham Bell to Gardiner G. Hubbard, February 13, 1877, NGS.

5. Ibid.

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Recognizing that the commercial results of the telephone were still "somewhat problematical," Howard suggested that the principal aim of the stockholders would be to secure an advantageous position to acquire more stock if it proved "a good thing." Therefore, each subscriber should be entitled to four additional shares for every one purchased, at an increasing price of ten percent at some later time. In organizing this company, $10,000 was to be raised immediately.[1]

Hubbard's negotiations with Howard ended in failure. Considering the still undemonstrated profitability of commercial telephony and the grandiose scheme which Howard proposed, it is understandable. Hubbard now concluded an agreement with John Ponton on March 8, 1877.[2]

The agreement provided that each member of the Patent Association surrender and pool one-tenth of his interest in the telephone patent. Nine-tenths of this was to be paid to Ponton upon his fulfillment of certain specified conditions. The remaining one-tenth would be held for the common benefit.

Bell and Watson were to go to Titusville and conduct such experiments as would satisfy Ponton's friends. If satisfied, the latter were to pay Bell $2,000 cash and $2,000 each month for four months until $10,000 had been paid up. Ponton's associates were also to set up a telegraph line and have its use free of charge for six months for their own private business. Thereafter the line was to be used by Bell for experimental purposes.

Ponton would receive his nine-tenths when the stated sum of $10,000 was paid in full. Upon perfection of the telephone for public use, a

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1. Henry Howard to Alexander Graham Bell, February 16, 1877, NGS.

2. Memorandum of Agreement, March 8, 1877, AT&T, Box 1123.

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corporation was to be organized and Ponton and his friends were then to pay $100,000 into its treasury. They were also to agree to increase that sum to $1,000,000 as required.

With the organization of the company a new division of interest in the telephone patent would be made. The Patent Association would convey the patent to the company in return for fifty percent of its stock. Bell, Sanders, Hubbard, Watson, and Ponton would divide this in the same proportion as they had previously held the patent. Twenty-five percent of the company's stock would be distributed to the parties subscribing the $100,000. The remaining twenty-five percent of stock was to be held by the treasurer of the company for the benefit of the corporators as might be deemed advisable.[1]

According to the terms of the agreement, then, John Ponton would become a partner in the ownership of the telephone patent only when he secured the payment of $10,000 to Bell. Ponton was obliged to assist in the organization of the new company, but his participation in the division of the patent was not dependent upon this activity. Should these efforts fail, the patentees would make new arrangements. In effect, Ponton's friends would receive no lasting benefit for their initial investment since the stock set aside for them would be retained and otherwise disposed.[2]

Hubbard contemplated the organization of a company on the basis of 40,000 shares of stock. Bell, Sanders, and Hubbard would each own 5,400 shares; Watson and Ponton, 1,800 each. Two hundred additional shares would be proportionately divided by the five partners. The "cash corporators" would receive 10,000 shares and the remaining 10,000 shares would be placed

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1. Ibid.

2. Gardiner G. Hubbard to John Ponton, March 9, 1877, AT&T, Box 1123.

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into the treasury.[1]

By the end of March, Bell was already becoming discouraged with the Ponton arrangements. Ponton regularly postponed the Titusville experiments and Bell concluded that nothing would result from the agreement.[2]

Ponton responded that he had encountered some obstacles in Titusville. He recommended that Bell accept all applications for lectures until he could call Bell to Titusville. Ponton explained that Bell's opponent, Elisha Gray, was causing him a great deal of trouble. Nevertheless, Ponton reassured Bell that if he could not raise the money one way, he could do it another.[3]

Ponton's delays prompted Bell to commence arrangements with Frederick Gower for a lecture tour in the United States and Canada.[4] Hubbard expressed surprise at learning of Ponton's failure to carry out his agreement. Hubbard was especially disturbed because he believed the telephone was ready to be introduced to the public and considered further delay injurious to all parties. Perhaps sensing the futility of his agreement, he reminded Ponton that unless their arrangement was soon fulfilled, he would be forced to make others.[5]

As Ponton indicated to Bell, his chief difficulty lay in raising the $10,000. Nearly twenty-five years later, Ponton explained the details of the problem. After signing the agreement in New York, Ponton returned to

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1. Ibid.
2. Gardiner G. Hubbard to John Ponton, March 31, 1877, AT&T, Box 1123.
3. John Ponton to Alexander Graham Bell, April 7, 1877, AT&T, Box 1123.
4. Alexander Graham Bell to Mother, April 19, 1877, NGS.
5. Gardiner G. Hubbard to John Ponton, April 28, 1877, AT&T, Box 1123.

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Titusville only to learn that one of the town's largest banks had failed. With this failure the leading investors, including the president of the bank, were unable to raise the necessary $10,000, and so Ponton approached another banker. This individual not only refused to believe Ponton's claims for the telephone, but also suggested in a sarcastic manner that Ponton take up residence in a nearby lunatic asylum.[1]

Ponton's account was probably accurate as far as it went. No doubt there were some, like Ponton's second banker, who considered the telephone a scientific curiosity or toy and failed to appreciate its value as a practical instrument of communication or as a good business investment. There were others, however, like Ponton's initial backers, who took the opposite view. Despite the persistent, romantic notion that the former view was characteristic of the reception given the telephone on its debut, the many serious inquiries and offers made to Bell in late 1876 and early 1877, and the eagerness of those who sought telephone agencies, seem to contradict this.

Ponton failed to raise the sum which would have made him a partner in the telephone not only because of a turn of events and a shortsighted individual, but also because the agreement was not entirely satisfactory to his potential backers. Writing in May 1877 Ponton noted: "The contract is too impractical for financial men to touch, as it requires too much of the monied interest who take the risk and gives them too little interest for the risk they run."[2]

Ponton suggested to Bell and his partners an alternate plan for organizing a company. Upon Bell's successfully demonstrating the telephone

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1. John Ponton to Alexander Graham Bell, June 15, 1898, AT&T, Box 1123.

2. John Ponton to Alexander Graham Bell, May 8, 1877, AT&T, Box 1123.

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free of charge in Titusville, a group of investors would form a company with the necessary paid-up capital. In consideration of this, Ponton would receive a share in the patent, which would be conveyed to the new company. The Patentees would receive fifty-one percent of the stock and the investors forty-nine percent. Further, the "monied interests" required the right to appoint the president, secretary, and treasurer for the first year. The board of directors would be composed of parties representing all stock. Ponton envisioned the company establishing a system of local telephony using rented instruments through a district central office where their use would be charged at the rate of one cent per minute.[1]

Hubbard rejected Ponton's proposal, pointing out that the state of telephony had already made great advances since the signing of the original agreement in March and that the Patentees would not now agree to such a proposition as they had then made. The Patent Association was receiving many orders for instruments and many would soon be in operation on private lines. Consequently, Hubbard wrote, "We shall probably keep the general control in our own hands, interesting different parties in different cities to introduce the patent in their locality."[2]

Thus ended John Ponton's hopes for becoming a partner in Bell's telephone patent. As consolation, Hubbard offered to make an arrangement with him for the introduction of the telephone in Titusville only.[3] Ponton later agreed.[4]

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1. Ibid.
2. Gardiner G. Hubbard to John Ponton, May 14, 1877, AT&T, Box 1123.
3. Ibid.
4. John Ponton to Gardiner Hubbard, May 23, 1877, AT&T, Box 1123.

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Clearly, the Patentees had made their search for capital more difficult by the requirement that they retain absolute control over the development of their valuable property. Buoyed, as they now were, by technical advances and increasing demand for instruments, they were strongly convinced that they could secure capital on more advantageous terms than those offered by John Ponton. Until such time as this was accomplished, their own personal resources combined with immediate telephone revenues would have to sustain their efforts. In this condition, then, the Patent Association organized the Bell Telephone Company for the further commercialization of the telephone.

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CHAPTER V

ORGANIZING THE BELL TELEPHONE COMPANY AND ESTABLISHING AGENCIES

Throughout the month of June 1877 Gardiner Hubbard and his partners were busily engaged preparing for the formal creation of a telephone company.[1] On July 9, 1877, the Bell Telephone Company came into existence with Hubbard's execution of a Declaration of Trust.[2]

Prior to the execution of the Declaration, patents 161,739, 174,465, 178,399, and 186,789 were assigned to Hubbard as Trustee "for his own use and behoof . . . to the full end of the term for which said letters [of patent] were granted.[3] Bell also assigned to the Trustee "any and all inventions and improvements which I may hereafter make in or relating to Telephony or Telephonic apparatus."[4] By virtue of these assignments, Hubbard, as Trustee, controlled all of Bell's telephonic patents and a claim on any he might secure in the future. In executing the Declaration of Trust, Gardiner Hubbard established the legal conditions under which he was to exercise his responsibilities as Trustee.

The Bell Telephone Company was described variously as an "association"[5] and a "voluntary association."[6] It was not a corporation and therefore did

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1. Letter from Gardiner G. Hubbard to Theodore N. Vail, May 13, 1878, AT&T, Box 1080.

2. Declaration of Trust, July 9, 1877, AT&T, Box 1008.

3. Patent Assignment, July 9, 1877, AT&T, Box 1001.

4. Patent Assignment, July 9, 1877, AT&T, Box 1001.

5. Declaration of Trust.

6. Memorandum, Bell Telephone Company and Theodore N. Vail, June 20, 1878, AT&T, Box 1113.

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not have any stated capital.[1] The patentees decided to pursue this form of organization since the merits of the patent and the exact nature of the future telephone business were so uncertain.[2] Moreover, the use of trustees as administrators of property and enterprise was a fairly common practice around Boston.[3]

According to the Declaration, the business of manufacturing telephones and licensing others to use them was to be conducted by the Trustee in accordance with the directions, rules, and regulations of a Board of Managers. All money and property coming into the control of the Trustee was to be held in trust until paid to the Association, the rights of which were divided into five thousand shares.

Each member of the Association was entitled to one vote for each share he owned and all money would be divided pro rata by the Board of Managers. No member of the Association possessed any right to control any property or money in the possession of the Trustee or Treasurer except through the Board of Managers. Further, no member of the Association or the Board of Managers had authority to bind or render liable the Association.

All the Association's business affairs and interests were wholly under the supervision and control of the Board of Managers, which was to consist of not less than three nor more than five persons including the Trustee. The Board members were to be elected by and from the owners and could act only as a board. The Board of Managers was to appoint the agents, clerks, and servants who were to do all the active business of the company.

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1. Gardiner G. Hubbard to C. E. Boyle, May 20, 1886, AT&T, Box 1113.

2. Gardiner G. Hubbard to Theodore N. Vail, May 13, 1878, AT&T, Box 1080.

3. Ralph E. Mooney, "Robert Devonshire's Letterbook," Bell Telephone Magazine (Summer 1949), 113.

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The Treasurer was ordered to keep a clear and accurate account, by double entry, of all business transactions. These records and those of the Trustee were to be available for inspection by the shareowners and the Board of Managers.

The Trustee was to act as a general agent unless the Board of Managers made other provisions. He could dispose of property held in trust only after being directed by a meeting of at least seven-eighths of the shareholders, held for that express purpose.

Unlike a general partnership, the death of any member of the Association did not automatically dissolve it. Further, an heir was not entitled to an accounting or to take any action in the courts to that end. Instead, he simply succeeded to the right of the deceased's certificate and the shares it represented, subject, of course, to the Declaration of Trust.

The Trustee enjoyed his tenure at the pleasure of the stockholders. He could be removed when three-fourths of the shareholders so decided in a special meeting.[1]

Gardiner G. Hubbard, as Trustee, was thus given the general supervision and operation of the Bell Telephone Company's business. The Declaration of Trust formalized the powers of executive leadership he had increasingly exercised during the Patent Association's existence. According to the Declaration, Hubbard did not enjoy unlimited power or tenure, but this was a mere formality as Thomas Sanders later complained.[2]

The certificates of ownership issued on August 1, 1877, were to the owners of the telephone patent, or their designees, roughly in proportion

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1. Declaration of Trust.

2. Thomas Sanders to Alexander Graham Bell, September 27, 1878, AT&T, Box 1003.

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to their original interest in it. Mabel G. Bell received 1497 shares, Alexander G. Bell 10 shares, Thomas Sanders 1497 shares, Gertrude McCurdy Hubbard 100 shares, Gardiner G. Hubbard 1387 shares and Charles Eustis Hubbard 10 shares.[1] The latter received his shares "in payment for professional services,"[2] which included drawing up the articles of association.[3]

By virtue of his own certificates (and his wife's) and the control he exercised over Mabel Bell's through her power of attorney, Gardiner Hubbard possessed a majority interest in the Bell Telephone Company.[4] Therefore, Hubbard's own consent would have been necessary for his removal as Trustee.

On August 1, 1877, at twelve o'clock noon, the first shareowners' meeting of the Bell Telephone Company occurred at No. 13 Sears Building in Boston. Gardiner Hubbard, Thomas Sanders, Alexander G. Bell, Thomas A. Watson and Charles Eustis Hubbard were present and they cast all votes for themselves for the Board of Managers. They unanimously elected Thomas Sanders treasurer, and Charles Eustis Hubbard clerk. The owners also voted a set of by-laws which specified the duties of the company's officers and Board of Managers.

The Board was ordered to appoint an electrician and a superintendent, as well as such other employees as were necessary. The Board was also authorized to fix the salaries of the Trustee, officers, and agents of the company.

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1. Certificates of Ownership, August 1, 1877, AT&T, 1002.

2. Gardiner G. Hubbard to C. E. Boyle, May 20, 1886, AT&T, Box 1113.

3. Statement of Charles E. Hubbard in newsclipping, Telephone Topics, September 1928, AT&T, Box 1115.

4. Thomas Sanders to Alexander Graham Bell, September 27, 1878, AT&T, Box 1003.

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The by-laws reaffirmed the Trustee's duty of overseeing the business, empowered him to sign all leases upon the Board's approval, and required him to make a report, in writing, at each quarterly meeting of the Board.

The Treasurer was placed in charge of all the company's funds but not authorized to contract any liabilities without the Board's consent. In view of later developments, it is important to note that the Treasurer was to have charge of all leases signed by the Trustee. The Treasurer was also required to present quarterly reports on money received and disbursed.

The Superintendent was placed in charge of the manufacture of telephones and related equipment. The clerk would perform duties "usually appertaining to such an office."[1]

Upon the adjournment of the shareowners' meeting, the Board of Managers immediately convened. The Board unanimously elected Alexander Graham Bell Electrician, and Thomas Watson Superintendent. The Trustee presented a report on the company's condition and submitted the draft of a lease to be used when renting telephones. With the adoption of the lease, the Board of Managers adjourned. The records indicate they never met formally again.[2]

By August 1877, then, the organization which for the next eleven months would press for the commercial development of the telephone was completed. Trustee Hubbard was at its head, and Thomas Sanders was second in command. Alexander Graham Bell, as Electrician, was appointed to perfect his telephone. In fact, however, Bell and his wife presently moved to England where he remained for the next eighteen months and was largely

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1. Minutes of Shareowners' Meeting, August 1, 1877 (AT&T, Secretary's Office).

2. Minutes of Board of Managers' Meeting, August 1, 1877 (AT&T, Secretary's Office).

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out of touch with American telephonic developments.[1]

Thomas Watson, up to now a general factotum, was to supervise the development and manufacture of telephones and auxiliary equipment. On August 10,[2] he was relieved of his bookkeeping duties[3] when Robert W. Devonshire was hired for that purpose. Devonshire thus became the "First Employee of the Telephone."[4] And finally, Charles Hubbard was elected to act as the company's clerk. The core organization of the Bell Telephone Company was complete.

The decision to appoint Gardiner G. Hubbard Trustee was a logical one. Not only had he already evidenced excellent judgment in several key decisions, but he also possessed the personality and qualities necessary for promoting the telephone. It was precisely these qualities which had helped influence Thomas Sanders in 1874 to allow Hubbard to become an equal partner with him and Bell.[5] Moreover, Hubbard was especially suited in his role as member of the Special Commission on Railway Mail Transportation to bring the telephone to the attention of many interested parties.

During his tours of inspection with the Commission, Hubbard carried a pair of telephones for purposes of experimentation and demonstration to interested persons.[6] In a period of tight finances, the Commission provided

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1. Alexander Graham Bell to The Executive Committee of the Bell Telephone Company, November 29, 1878, AT&T, Box 1104.

2. Chronological List of Officers and Employees of the American Bell Telephone Company and Its Predecessors Before May 1902, AT&T, Box 1008.

3. Watson, Exploring Life, 137.

4. William Chauncy Langdon, "Robert W. Devonshire" (unpublished MS), AT&T.

5. Bruce, "Allies and Adversaries," p. 6.

6. Albert B. Paine, Theodore N. Vail (New York: Harper & Brothers, 1921), p. 107.

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a means by which promotional trips could be undertaken at little or no cost to the Bell Telephone Company. As Watson recounted:

> The trip on which we tried the telephone for the first time in a mine was ostensibly one made by the U. S. Railway Mail Commission of which Mr. Hubbard was chairman. Really its sole purpose was the test of the telephone.[1]

In effect, Hubbard became a travelling agent for the telephone. In June 1877 he distributed telephones to prospective agents in Cleveland, Chicago, and Pittsburgh.[2]

The inability of the Bell interests to raise capital on acceptable terms strongly influenced the program which the Bell Telephone Company followed in promoting the telephone. The decision was made to encourage local interests to develop the telephone business, using local capital and local people, the Bell Company retaining general authority.[3]

By August 1, 1877, when Trustee Hubbard reported to the Board of Managers, ten agents had already been appointed to commercialize the telephone locally, and negotiations were being conducted with others.[4] An analysis of these and other agencies established while Hubbard was Trustee indicates a number of significant developments.

Some of the agents began their relationship with the telephone through contact with Gardiner Hubbard, as in the cases of the Ohio and Indiana agency and the Wisconsin Telephone Company. The instruments which Hubbard

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1. Thomas A. Watson to William Chauncy Langdon, February 2, 1923, Thomas A. Watson Collection (Boston Public Library), Volume 10, Folder 99.

2. "Deposition of Gardiner G. Hubbard, June 26, 1879," Storrow, "Proofs," 98/964-99/965.

3. DeLand, "Notes," The Popular Science Monthly, 69 (November 1906), 439-440.

4. Trustee's Report to the Board of Managers, August 1, 1877, AT&T, Box 1001.

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left during these occasions were publicly tested and exhibited.[1] These tests and demonstrations sometimes resulted in immediate orders for telephones.

> Since your departure we have made a number of tests with the telephone and it has come out triumphant. On Saturday we tried it on a Morse line . . . it was a very severe test and a satisfactory one, resulting in an order for three instruments. Can you not send me at once a dozen or more insts.[2]

A number of the agents received their introduction to the telephone business as assistants to Bell during some of his early experiments and lectures. Stearns and George, agents for Boston, had helped in the construction of a test line for Bell[3] while George W. Coy, who would later establish the first commercial telephone exchange, constructed the necessary lines for Bell's New Haven lecture[4] and generally assisted him there.[5]

It seems, however, that the greatest number of agents became connected with telephony through their own inquiries to the owners of the Bell patent. Some of these, such as John Ponton of Titusville, William A. Jackson of Michigan, and George S. Ladd of California, first learned of the telephone through newspaper articles.[6] William Jackson explained:

> During the summer of 1877 my attention was attracted by a newspaper article giving an account of the operation of the telephone. I applied to Mr. Bell

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1. C. H. Haskins to Theodore N. Vail, February 14, 1884, AT&T, Box 1141; G. W. Stockly to Gardiner G. Hubbard, June 23, 1877, AT&T, Box 1170.

2. G. W. Stockly to Gardiner G. Hubbard, June 23, 1877, AT&T, Box 1170.

3. Alexander Graham Bell to Mabel Hubbard, November 10, 1876, NGS.

4. Morris F. Tyler to Theodore N. Vail, February 8, 1884, AT&T, Box 1141.

5. Walsh, Pioneers, 24.

6. Ponton's Statement, AT&T, Box 1123; Statement of William A. Jackson, August 28, 1883, AT&T, Box 1132; George S. Ladd to Alexander Graham Bell, May 1, 1877, AT&T, Box 1173.

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> for the agency of the Bell Telephone for the state of Michigan, was referred to Mr. Gardiner G. Hubbard, and after some correspondence and delay, in the month of October, 1877, I assumed the general agency for Michigan.[1]

Many of those who inquired about the telephone were engaged in the manufacture or supply of electrical equipment. Stearns and George were electricians and manufacturers of electrical apparatus; G. W. Stockly was Vice-President and Treasurer of the Telegraph Supply Company of Cleveland;[2] while Western Electric[3] and Davis and Watts[4] were primarily manufacturers and dealers of electrical goods.

Significantly, a large number of prospective agents were already connected with some form of electrical communications. E. T. Holmes conducted a burglar alarm system in Boston;[5] William H. Bofinger was President of the American District Telegraph Company (New Orleans) and the New Orleans Local Telegraph Company;[6] C. H. Sewall was a member of the American District Telegraph Company of Albany;[7] T. B. A. David was a member of the Central District and Printing Telegraph Company of Pittsburgh;[8] while B. F. Blackall

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1. Statement of William A. Jackson, August 28, 1883, AT&T, Box 1132.

2. G. W. Stockly to Gardiner G. Hubbard, June 23, 1877, AT&T, Box 1170.

3. Anson Stager to Gardiner G. Hubbard, July 15, 1877, AT&T, Box 1151.

4. Davis and Watts to Gardiner G. Hubbard, July 2, 1877, AT&T, Box 1033.

5. Edwin T. Holmes, A Wonderful Fifty Years (Privately published, 1917), p. 54.

6. William H. Bofinger to Alexander Graham Bell, September 7, 1877, AT&T, Box 1149.

7. C. H. Sewall to Gardiner G. Hubbard, June 11, 1877, AT&T, Box 1164.

8. T. B. A. Davis to Gardiner G. Hubbard, July 2, 1877, AT&T, Box 1175.

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was Superintendent of the Fire and Telegraph and Water Works Line of Rochester[1] and H. R. Rhoads was Superintendent of telegraph lines on the Pennsylvania Railroad.[2]

Some of these individuals appealed to the Bell Telephone Company for an agency because they were already receiving local inquiries and orders for telephones.[3] Others believed that their skill and experience in maintaining and operating various types of telegraph systems would enable them to successfully establish a telephone agency.[4] Thus, C. H. Sewall of the American District Telegraph Company of Albany cited his company's advantages should it be awarded an agency: "Our company have no agency for any kind of instrument except a burglar alarm and do nothing with that. We have a first class line man and a good organization for working up a business like yours."[5]

Of the various electrically oriented companies which inquired about the telephone, local American District Telegraph Companies were the most numerous. The telephone was a natural adjunct, and ultimately successor, to instruments already in use on those systems.[6]

After a prospective agent established preliminary contact with the Bell Telephone Company, he sought a number of instruments to examine, test,

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1. B. F. Blackall to Gardiner G. Hubbard, September 14, 1877, AT&T, Box 1166.

2. H. R. Rhoads to ---, December 21, 1877, AT&T, Box 1174.

3. Ibid.; Anson Stager to Gardiner G. Hubbard, July 15, 1877, AT&T, Box 1151.

4. Henry W. Cozzens to Frederick A. Gower, June 23, 1877, AT&T, Box 1181.

5. C. H. Sewall to Gardiner G. Hubbard, June 11, 1877, AT&T, Box 1164.

6. Walsh, Pioneers, 26; Kingsbury, Telephone, 97.

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and exhibit. A certain amount of skepticism was natural, for it seemed impossible to believe all the claims made for the telephone. One interested party wrote:

> Our remote location prevented us from obtaining exact information concerning the efficiency of the system. We know only what has been published in newspapers, and the press is rarely correct in such matters. . . send me, by express, instruments for two stations, together with instructions. We will pay for them or return them in good order . . . as you may prefer. This will enable us to test them thoroughly and satisfy ourselves as to what can be done with them in our market.[1]

Final terms of the agency contract frequently remained unsettled for a long period of time. Hubbard gave his prospective agents general authority to commence the leasing of telephones but left details unspecified or ambiguously stated.[2] George W. Moore, Secretary and Superintendent of the American District Telegraph Company (Erie, Pennsylvania) opened negotiations with Gardiner Hubbard on July 16, 1877, requesting terms for renting telephones.[3] Three months later, after having received authority to start a telephone agency, he wrote to Thomas Sanders: "I have as yet been unable to get any statement as to how large or small part of the rentals go to you or how much to the agents."[4] As late as February 6, 1878, Moore was still complaining:

> Prospects are good . . . but I shall do nothing more until I know something positive as to my territory and percentage. Have twice been driven from other agents'

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1. George S. Ladd to Gardiner G. Hubbard, May 22, 1877, AT&T, Box 1173.

2. W. H. Bofinger to Thomas Sanders, October 6, 1877, AT&T, Box 1149.

3. G. W. Moore to Gardiner G. Hubbard, July 6, 1877, AT&T, Box 1174.

4. G. W. Moore to Thomas Sanders, October 7, 1877, AT&T, Box 1174.

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> territory and have no surety that mine extends ten feet out of my office.[1]

Thomas Watson, on a general tour of inspection, acknowledged the validity of Moore's complaints. Watson regretted that the that the company had not taken better notice of Moore earlier, for he would have been "among our best agents now."[2]

This condition resulted from the method by which the contracts were negotiated. Hubbard was responsible for the negotiations, but he could not give them his full attention. His time was divided between the telephone company and the postal commission. Messrs. Richardson and Barnard, seeking clarification of their contract, explained to Sanders how it had been negotiated:

> We enclose a copy of the only letter we have on the subject of terms, or commissions, and the appointment was so vague that we concluded not to accept the agency on those conditions. We called by appointment three times on you and Mr. Hubbard and three times he failed to meet us. We were at last informed by your Mr. Watson that he would hear us, and report after consulting with Mr. H. . . . We asked to have this [the price of call bells] in the form of a letter and Mr. W. said we should have it, but for us to "go straight ahead and it would be all right."[3]

One agent actually advertised and operated his agency without having received a contract.[4]

The geographical extent of the agencies varied greatly. Those of Charles Williams (Boston), Roosevelt and Cheever (New York), Stearns and

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1. G. W. Moore to Bell Telephone Company, February 6, 1878, AT&T, Box 1174.

2. Thomas A. Watson, Notebook, February 28, 1878, AT&T, Box 1069.

3. Richardson and Barnard to Thomas Sanders, October 10, 1877, AT&T, Box 1148.

4. G. W. Stockly to Gardiner G. Hubbard, September 14, 1877, AT&T, Box 1170.

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George (Boston), Thomas Cornish (Philadelphia), and R. A. Shipman (Louisville) covered important cities while others were for an entire state or a series of states. Frederick Gower's agency covered the New England states, excluding areas previously assigned; G. W. Stockly's included Indiana and Ohio, and Richardson and Barnard's Southern Agency took in parts of South Carolina, Georgia, and Florida.[1]

Agents who secured large blocks of territory subdivided them among sub-agents who were charged with working up the telephone business in their districts. The relationship of the sub-agent to the general agent was similar to that of the general agent to the Bell Telephone Company.[2]

Hubbard also appointed agents with traveling commissions such as Elisha Wilson who held a commission for Syracuse and the towns west on the line of the New York Central Railroad.[3] The task of Wilson and other traveling agents was to

> establish agencies in different cities, renting instruments and building lines from business houses to other points of business, and from homes to their manufacturing places, getting people used to using the telephone.[4]

Not only did the geographical extent of agencies vary, but also the terms and conditions which regulated them. Each contract differed in detail, but there were major similarities. Agents were usually remunerated by a commission of forty percent on the first year's rental and a twenty

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1. Trustee's Report to the Board of Managers, August 1, 1877, AT&T, Box 1001.

2. Local Agent's Commission for Springfield, Massachusetts, August 1877, AT&T, Box 1185.

3. Trustee's Report, August 1, 1877.

4. John Norcross Culbertson, "Reminiscences of Early Telephone Work, 1878-1913" (unpublished MS, 1926), AT&T, Box 1128.

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percent commission yearly thereafter.[1] Some agents were able to secure a higher initial commission as did G. W. Stockly[2] and H. R. Rhoads.[3] The higher commissions reflected, in part, the company's belief that larger commissions should be awarded to agents who, it was calculated, would receive only a small portion of their profits from the construction of lines. Thus, Stearns and George of Boston at first received no commission, for they were to receive their pay from the construction of lines.[4] The terms for traveling agents varied also. Elisha Wilson received a fifty percent commission[5] while James Hamblet, agent for Missouri, was hired by the Bell Telphone Company at $2,500 per year.[6]

The duration of agency contracts was usually indefinite. No specific time limit was fixed for the agencies of Charles Williams, Stearns and George, and Frederick Gower, but it was understood that they would continue as long as the agents gave satisfaction or until a Bell Telephone Company for New England was organized.[7] If the latter occurred within two years, which Hubbard anticipated in mid-1877, then these agents would receive an interest in the New England company in proportion to the value of their agency business.[8] For those agents outside of New England, the Bell

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1. Trustee's Report, August 1, 1877.

2. Ibid.

3. Letter from H. R. Rhoads to Theodore N. Vail, April 22, 1879, AT&T, Box 1174.

4. Gardiner G. Hubbard to Thomas E. Cornish, March 25, 1878, AT&T, Box 1054.

5. Trustee's Report, August 1, 1877.

6. James Hamblet to Gardiner G. Hubbard, March 30, 1878, AT&T, Box 1161.

7. Trustee's Report, August 1, 1877.

8. Gardiner G. Hubbard to E. T. Holmes, July 30, 1877, AT&T, Box 1057.

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Company's satisfaction with their performance was an important element in the duration of their agencies. Thus, Elisha Wilson's traveling commission was initially limited to three months, subject to extension for good service. John Ponton's contract ran for a single year, renewable at the company's discretion.[1]

The contracts fixed the terms upon which the agents were to rent telephones and auxiliary equipment. The terms varied from ten dollars a year per telephone (Williams, Stearns and George, and Gower) to thirty dollars a year for a set of two or four instruments (Sewall), to forty dollars per year for a set of four telephones (Stockly). A set of telephones usually consisted of one small instrument, used as a receiver, and one large instrument, used as a transmitter. John Ponton was specially authorized to make leases upon such terms as he deemed expedient.[2]

These prices resulted in different reactions from the public. C. H. Sewall found the public reluctant to rent the telephone at thirty dollars a set per year.

> The telephone is a very meritorious instrument. But I spend a great deal of time arguing for the price. No other objection has been made to the instrument and lots of people evidently want them and feel afraid only of the expense.[3]

However, G. W. Stockly noted that:

> No one who is <u>using</u> the telephone . . . considers that it is dear at $40 per year and as soon as the public understand that it can be had <u>only</u> upon these terms it will come to recognize the <u>fact</u> that it is by far the cheapest method of telegraphy yet brought out.[4]

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1. Trustee's Report, August 1, 1877.

2. <u>Ibid</u>.

3. C. H. Sewall to Gardiner G. Hubbard, July 10, 1877, AT&T, Box 1164.

4. G. W. Stockly to Gardiner G. Hubbard, October 26, 1877, AT&T, Box 1170.

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Despite Stockly's experience, there was public hesitation in renting telephones at existing prices. Stockly himself concluded that this condition resulted from the lack of uniform prices. Some individuals delayed renting telephones in the expectation that they might be later offered lower prices.[1]

This lack of uniformity in prices reflected, in part, the Bell Company's recognition of each agency's special problems in the form of concessions and special prices. The complaints and confusion arising from this policy, however, elicited an acknowledgement from Gardiner Hubbard: "Our prices for telephones has [sic] varied in different agencies, this is wrong, even if I am partially responsible for it. We shall at an early date fix upon a uniform rate."[2]

On November 15, 1877, the Bell Telephone Company, in its Instructions to Agents, No. 1, formally announced its policy of uniform rentals. Henceforth, each telephone was to be rented for ten dollars payable in advance; not less than a pair of instruments was to be used at each station. Agents could now sell call bells for fifteen dollars each or they could continue to rent them at five dollars per annum.[3]

The decision requiring parties to use two telephones at each station stirred up some public indignation and in Sanders' view contributed to a "paralysis" of the company's business.[4] In the face of Western Union competitive practices, the Bell Company was forced to reconsider its policy

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1. Ibid.

2. Gardiner G. Hubbard to W. H. Bofinger, October 14, 1877, AT&T, GMLB 11.

3. Instructions to Agents, No. 1, November 15, 1877, AT&T, Box 1001.

4. Thomas Sanders to Gardiner G. Hubbard, January 21, 1878, AT&T, Box 1193.

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and permit the rental of single instruments.[1]

The price of telephones was not the only problem agents faced as they established their agencies. Initially, they had to introduce the telephone to the people in their territory and stimulate a demand for it. Each agent developed his own strategy for obtaining customers. Some attempted to mold public opinion by arranging lectures and demonstrations much in the same style that Bell had pioneered. James Hamblet of Missouri utilized fairs and expositions, exhibiting the telephone at the St. Joseph Exposition for one week and then going on to another at Kansas City.[2] Such a technique required vigor and stamina. He explained:

> I have passed through a hard siege here at these fairs, and I am holding exhibitions evenings, here at this house over a mile of wire to the telegraph office, and expect to make a test tomorrow evening over twenty miles, to a neighboring town.[3]

Not every introduction fired up public imagination and demand. Agents frequently attributed a less than enthusiastic reaction to the peculiar traits of their customers. Thomas Cornish cautioned Gardiner Hubbard not to expect too much from Philadelphia and its inhabitants:

> You must not expect a very great business to start in Phila. without work--time--patience--a slow queer people--but good natured, very friendly and reliable not impulsive like New York businessmen, desire to see and know for themselves. I feel satisfied.[4]

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1. Gardiner G. Hubbard to Thomas Sanders, March 11, 1878, AT&T, Box 1193.

2. James Hamblet to Bell Telephone Company, September 15, 1877, AT&T, Box 1161.

3. James Hamblet to Bell Telephone Company, September 24, 1877, AT&T, Box 1161.

4. Thomas E. Cornish to Gardiner G. Hubbard, November 25, 1877, AT&T, Box 1176.

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Likewise C. P. E. Burgoyne of Virginia believed his difficulties due to the conservative nature of southerners, but found hope in the fact that "when a custom or invention is once introduced it will remain in vogue a long time."[1]

Several agents attempted to influence public opinion by gaining the support of the local government. The satisfaction of a mayor, chief of police or superintendent of the gas or water works would be a strong testimonial to the usefulness of the telephone. Thus some agents made their earliest telephone demonstrations to the political and administrative leaders of cities and towns.[2]

Like Professor Bell before them, the agents enjoyed varying degrees of success with their lectures and demonstrations. Not infrequently the tests were inconclusive or failures because of the rudimentary state of the instruments,[3] telegraphic interference[4] or local climatic conditions.

> This interference . . . varies greatly with the weather. On a dry, windy day it is much greater than at other times, and we have a good deal of that kind of weather in Chicago. Some days the crackling of the hand instrument is so loud, simply from this interference, that we can hear it several feet away from the instrument.[5]

While results such as these helped confirm skeptics' ideas about the

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1. C. P. E. Burgoyne to Thomas A. Watson, January 28, 1878, AT&T, Box 1178.

2. C. P. E. Burgoyne to Gardiner G. Hubbard, February 28, 1878, AT&T, Box 1178; George D. Bancroft to Frederick A. Gower, June 29, 1877, AT&T, Box 1181.

3. T. B. A. David to Gardiner G. Hubbard, October 8, 1877, AT&T, Box 1175.

4. T. B. A. David to Gardiner G. Hubbard, July 14, 1877, AT&T, Box 1175.

5. E. M. Barton to Anson Stager, October 20, 1877, AT&T, Box 1151.

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imutility of the telephone and necessitated further tests, successful demonstrations achieved their intended purpose and paved the way for renting telephones. One agent wrote: "It affords me no little satisfaction to write to you that I am meeting with the most encouraging success in my efforts to introduce the telephone."[1]

The telephone was primarily adopted for business purposes at first. Therefore agents made special efforts to dispel the business community's ignorance and skepticism in regard to the telephone's application. In retrospect some of the businessman's objections seem strange, if not absurd, but it must be remembered that he was conditioned to the use and techniques of telegraphy.

The President of the Metropolitan Horse Rail Road was skeptical about the telephone's usefulness to his company because so many different people would be using the instrument that it would be impossible to teach them all.[2] Others objected to the telephone on the grounds that there was a danger of inaccuracy in transmission, which would be a fatal defect.[3] Some simply refused to abandon the dial telegraph instruments which were proving successful.[4]

A simple explanation or demonstration was not always sufficient to dispel such incredulity and skepticism. J. N. George was able to close a

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1. George D. Bancroft to Frederick A. Gower, June 29, 1877, AT&T, Box 1151.

2. J. N. George to Thomas A. Watson, January 8, 1879, AT&T, Box 1104.

3. George C. Maynard to Theodore N. Vail, February 28, 1878, AT&T, Box 1178.

4. C. P. E. Burgoyne to Gardiner G. Hubbard, February 28, 1878, AT&T, Box 1178.

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contract with the President of the Metropolitan Horse Rail Road only after persistent effort and a concession that his firm would guarantee telephones "to be practical and satisfactory" and agree to forfeit its claims for wires and instruments should they be otherwise.[1]

The usual recourse, however, was to connect telephones on a trial basis. This policy was initiated early in 1877 when the first telephone was rented.[2]

> In endeavoring to overcome . . . objections and to get them [telephones] introduced for business purposes, I not only kept them on exhibition in places where persons could see and experiment with them at any time, but I made special efforts to get persons to try them in their own offices and houses wherever there was existing lines, or wherever I could, without too much expense put them up for such purposes. . . . I always found it necessary . . . to spend a good deal of time in practicing the telephone with persons whom I wished to become familiar with them.[3]

The policy of putting out telephones on trial continued until January 1, 1878, when the Bell Telephone Company issued Instructions to Agents, No. 2. The company noted that "the telephone has ceased to be a novelty" and therefore the necessity of furnishing telephones for trial has passed away. Henceforth, rentals were to be paid in advance and agents would be held responsible for rentals not collected within thirty days.[4]

Agents were beset with other difficulties as they developed their agencies. W. H. Bofinger's progress in renting telephones was hindered

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1. J. N. George to Thomas A. Watson, June 8, 1879, AT&T, Box 1114.

2. "Deposition of Thomas A. Watson, March 11, 1881," Storrow, "Proofs," I, 431/305.

3. George C. Maynard to Theodore N. Vail, May 20, 1884, AT&T, Box 1221.

4. Instructions to Agents, No. 2, January 1, 1878, AT&T, Box 1001.

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by a fever epidemic which caused four thousand deaths in New Orleans. The business of the city was quarantined and many citizens fled leaving their bills unpaid, including Bofinger's. The result was a crippling material loss to the Louisiana Agency.[1]

John Ponton's hopes for his telephone agency in Titusville were dampened by a "great depression of trade." He explained: "The price of oil has depreciated to about $1,30 per barrel against $2.90 this time last year, making a dead loss to the region of about $67,000 per day. I have been working against heavy odds."[2]

Geographic location proved to be an important factor in an agent's success. This was especially true of agencies located west of the Mississippi. The number of potential customers in the West was believed to be less than in the East.[3] According to George Ladd's analysis, the territory in the Pacific was a smaller field for telephonic development than in the East because there were fewer manufacturing establishments or other businesses involving communications between an office and the place where the work was actually being conducted. Ladd concluded:

> San Francisco with a population of 300,000 and Virginia City with its mines and mills present the principal fields--the remainder will be scattered throughout various small towns. Altogether perhaps as much of a field as an Atlantic City of half a million population.[4]

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1. W. H. Bofinger to Thomas Sanders, November 25, 1878, AT&T, Box 1001.

2. John Ponton to Thomas A. Watson, April 16, 1878, AT&T, Box 1176.

3. G. W. Stockly to Gardiner G. Hubbard, March 21, 1878, AT&T, Box 1170.

4. George S. Ladd to Gardiner G. Hubbard, May 22, 1877, AT&T, Box 1173; S. Hubbard to Gardiner G. Hubbard, June 6, 1878, AT&T, Box 1173.

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The West proved a difficult area for telephonic development not only because of its relatively sparse population, but also because of its distance from the Bell Telephone Company in Boston. It took over thirty days for instruments shipped from Boston to arrive in San Francisco. In consequence, the agent was forced to order more instruments than his immediate needs.[1] This meant a special burden for him and other similarly located agents, for advances were required by the Bell Company on all instruments it shipped. Moreover, the freight charges were added to the agent's costs.[2]

The problem of supplying distant agencies prompted several agents at various times to suggest the establishment of a western depot from which agents could be more efficiently supplied.[3] Pending a solution, one agent began to manufacture his own call bells.[4]

Some agencies, by virtue of their location, enjoyed special advantages. Philadelphia and its adjacent territory, which included two-thirds of the state's anthracite coal mines, offered a larger field for the telephone than other districts of comparable extent. This was due to a law requiring each of the five hundred mines in the district to have some means of oral communication between the interior and the surface.[5] On the other hand, some

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1. S. Hubbard to Gardiner G. Hubbard, December 21, 1877, AT&T, Box 1173.

2. S. Hubbard to Gardiner G. Hubbard, January 24, 1878, AT&T, Box 1173.

3. G. W. Stockly to Bell Telephone Company, October 18, 1877, AT&T, Box 1170; James Hamblet to Thomas Sanders [November 2, 1877], AT&T, Box 1161; H. H. Eldred to Gardiner G. Hubbard, April 2, 1878, AT&T, Box 1161.

4. G. W. Stockly to Bell Telephone Company, October 18, 1877, AT&T, Box 1170.

5. Gardiner G. Hubbard to Thomas E. Cornish, October 16, 1877, AT&T, Box 1053.

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specially located agencies were faced with unique problems. Agent George C. Maynard of Washington, D.C. was forced to rent telephones without the regular written contracts and had to wait for remittances longer than usual because a major share of his business was with the federal government and according to law government officers were prohibited from making contracts or expending money beyond the current fiscal year.[1]

Agents were faced with numerous problems stemming from their relations with the parent company in Boston. The Bell Telephone Company's failure to explain its policy decisions fully, as well as the distances involved, helped to create a poor system of communications. At times agents found it difficult to obtain replies to inquiries they sent or simply to be kept posted on the current state of affairs.[2] At other times company statements lacked clarity.[3] Agent Bofinger wrote: "Your favor of the 11th recd--I admit I do not understand your Electro-printed letter . . . I have not been fully advised of your plans etc."[4]

In addition to complaints about high rentals[5] and occasional criticisms of the company's policy of renting rather than selling instruments,[6] the policy which agents had to defend most frequently was the clause inserted

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1. G. C. Maynard to Thomas Sanders, January 18, 1878, AT&T, Box 1178.

2. G. W. Stockly to Bell Telephone Company, October 15, 1877, AT&T, Box 1170; S. Hubbard to Gardiner G. Hubbard, January 4, 1878, AT&T, Box 1173.

3. S. Hubbard to Gardiner G. Hubbard, March 25, 1878, AT&T, Box 1173.

4. W. H. Bofinger to Thomas Sanders, November 17, 1877, AT&T, Box 1149.

5. Elisha Wilson to Thomas A. Watson, July 31, 1877, AT&T, Box 1167.

6. James Hamblet to Gardiner G. Hubbard, December 4, 1877, AT&T, Box 1161.

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in telephone leases requiring subscribers to acknowledge liability to the sum of fifty dollars per instrument should they be damaged or lost. Subscribers either considered the clause unjust[1] or the valuation placed on telephones excessively high[2] and therefore hesitated or refused to adopt the telephone and sign the required leases. Stearns and George reported: "Some parties have objected to it on the ground of its being exorbitant to take advantage of their misfortune to be burned out, to charge so much for such an inexpensive instrument."[3] G. W. Stockly criticized this policy arguing that the public "knew as well as I do that it will only cost about $10 at the outside to make the loss good."[4]

Sanders' explanation for this unpopular provision was that in case of attempted fraud the company could bring legal action under a statute affecting cases of $50 or more and thus compel the accused to pay costs. In cases where subscribers' resistance was very great, Sanders instructed Frederick Gower: "You can indorse on the back of the lease (In case of loss by fire a sum not exceeding Five ($5) on each telephone & Ten ($10) on each bell will be charged.) where parties require such an indorsement."[5]

If the agents were not seeking some clarification about a discrepancy between their accounts and those of the Boston company, they were complaining

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1. G. W. Moore to Bell Telephone Company, April 19, 1878, AT&T, Box 1174.

2. C. H. Sewall to Gardiner G. Hubbard, April 3, 1878, AT&T, Box 1164.

3. Stearns and George to Bell Telephone Company, December 4, 1877, AT&T, Box 1185.

4. G. W. Stockly to Thomas Sanders, November 5, 1877, AT&T, Box 1170.

5. Thomas Sanders to Frederick A. Gower, December 7, 1877, AT&T, Box 1200.

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about the policy requiring advance payments on telephones received from Boston.[1] One agent considered this requirement as a reproach upon his character: "The advance business is a good deal of humbug . . . If I am not honest enough to handle your stock without paying in advance I think I am too dishonest to act as your agent."[2]

The most serious complaint of the telephone agents, aside from the increasingly serious Western Union threat, was the lack of sufficient instruments and their poor quality, especially the call bells. These complaints and criticisms persisted well beyond the Bell Telephone Company's existence as a "voluntary association."

The agents suffered from shortages of all kinds. Work in one agency came to a standstill because for several weeks an order for insulated wire remained unfilled.[3] The most pressing shortages, however, were of telephones and call bells.

Telephone installations ceased as agents awaited shipments of telephones--or at least word of when orders would be filled.[4] Desperate agents inquired calmly, then pleaded, and sometimes cajoled: "If you don't send telephones there will be a big funeral in Boston. Duplicate my order."[5] Boston received reports from all areas that existing stocks of instruments had been depleted and more telephones might have been rented if agents were

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1. J. N. Culbertson to Bell Telephone Company, June 4, 1878, AT&T, Box 1164.

2. G. W. Moore to Thomas Sanders, June 10, 1878, AT&T, Box 1174.

3. C. P. E. Burgoyne to Gardiner G. Hubbard, January 8, 1878, AT&T, Box 1178.

4. C. H. Sewall to Bell Telephone Company, December 1, 1877, AT&T, Box 1164.

5. Thomas E. Cornish to Gardiner G. Hubbard, October 23, 1877, AT&T, Box 1176.

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only supplied faster.[1]

> If we could get plenty of telephones we could rush things very satisfactorily. All the instruments we have are in use and giving the very best satisfaction, and we ought to have at least one hundred large and the same number of small instruments at the earliest day practicable, if we are going to answer the calls that are now commencing to come in unsolicited. . . . Delays are dangerous.[2]

As a temporary solution, G. W. Stockly requested permission to manufacture a limited number himself.[3]

No less important than the shortage of telephones was that of call bells, without which the telephone itself had very little practical application. Throughout 1877 the Bell Telephone Company was besieged with orders and requests for call bells. Agents complained that they were unable to canvass their districts thoroughly[4] and that orders were being lost due to their inability to supply instruments.[5] Recently constructed telephone lines remained idle for want of call bells with which to operate telephones.[6]

What was even more frustrating to the agents was their inability to obtain information from the company regarding future shipments.

On September 28, 1877, agent Hamblet wrote to the Bell Telephone

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1. E. M. Barton to Gardiner G. Hubbard, December 22, 1877, AT&T, Box 1151.

2. G. W. Stockly to Gardiner G. Hubbard, July 31, 1877, AT&T, Box 1170.

3. Ibid.

4. Elisha Wilson to Thomas Sanders, October 4, 1877, AT&T, Box 1167.

5. Thomas E. Cornish to Thomas A. Watson, December 11, 1877, AT&T, Box 1176.

6. G. C. Moore to Bell Telephone Company, October 13, 1877, AT&T, Box 1178; Richardson and Barnard to Bell Telephone Company, October 4, 1877, AT&T, Box 1148.

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Company requesting an answer to a telegram he had sent asking about a shipment of bells.[1] On October 20, Hamblet remarked, "the days come and go and no Bells yet," and noted that he had still not received an answer to a recent telegram.[2] Finally, eleven days later, in desperation, Hamblet wrote:

> My people tell me that we are losing customers by this delay. Parties ordering soon get tired of waiting and say they will countermand orders, if you have not sent them on receipt of this. Let me beseech you to write or telegraph me something that I can show to the anxious thousands that are waiting. You can have no idea of the pressure I undergo and the questions I have to answer and the stories I have to fabricate. And why is it all thusly? You can, and you must tell me. I beg you to take pity on this suffering community.[3]

In assessing the reasons for his later failure, James Hamblet concluded that in addition to bad weather, muddy roads and a universal depression of business, the fact that he had not been furnished instruments for the first three months of his agency was also an important consideration.[4]

When agents were so fortunate as to receive shipments of call bells, the bells were frequently imperfect. Despite improvements in design and manufacture, the bells continued to be "balky" and required a great deal of attention and adjustment.[5] Agents were not only forced to expend valuable

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1. James Hamblet to Bell Telephone Company, September 28, 1877, AT&T, Box 1161.

2. James Hamblet to Bell Telephone Company, October 20, 1877, AT&T, Box 1161.

3. James Hamblet to Bell Telephone Company, October 31, 1877, AT&T, Box 1161.

4. James Hamblet to Gardiner G. Hubbard, February 28, 1878, AT&T, Box 1161.

5. Elisha Wilson to Thomas A. Watson, November 30, 1877, AT&T, Box 1161.

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time adjusting them, but they also found it difficult to collect rentals from customers who were burdened with inferior bells.[1]

The agents occasionally suggested possible methods of dealing with these delays. Hamblet half-seriously asked that he be given the management of the manufacturing department. He promised to seek out other companies which could produce the instruments as cheaply as Boston.[2] When the Bell Company abandoned its policy of renting bells and permitted agents to sell them instead, one agent indicated he would look to other electrical manufacturers who could supply superior bells.[3]

Whatever the consequences, and no matter how many suggestions agents offered, the problem of supplying sufficient quantities of good instruments was one which only the parent company could and would solve. This was a problem which the Bell Telephone Company would have to work out in its general manufacturing arrangements with Charles Williams, Jr., of Boston.

The first agencies created by Hubbard and the Bell Telephone Company were primarily to furnish telephones for private lines constructed by the agents.[4] However, the idea of connecting speakers on separate lines was soon conceived, and the function of agencies began to change.

The concept of a central exchange system which would permit the interconnection of telephone users on separate lines, was one of Alexander

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1. G. W. Stockly to Thomas Sanders, September 21, 1877, AT&T, Box 1170; James Hamblet to Thomas Sanders, November 1, 1877, AT&T, Box 1161.

2. James Hamblet to Gardiner G. Hubbard, November 28, 1877, AT&T, Box 1161.

3. G. W. Moore to Thomas Sanders, June 10, 1878, AT&T, Box 1174.

4. "Deposition of Thomas A. Watson," Storrow, "Proofs," I, 410/284-411/285.

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Graham Bell's earliest ideas on the possible use of his invention.[1] He regularly set aside some time during his lectures for a discussion of the telephone's future. He foresaw a time when Mrs. Smith would spend an hour with Mrs. Brown "very enjoyably in cutting up Mrs. Robinson" by means of a central switching office.[2]

Bell predicted that telephone and telegraph wires would be generally used in dwellings just as gas and water currently were--as necessities, not luxuries.[3] He saw, in fact, a strong similarity between such a telephone system and the existing network of gas and water mains:

> At the present time [March 1878] we have a perfect network of gas-pipes throughout our large cities. We have main pipes laid under the streets communicating by side pipes with various dwellings, enabling the members to draw their supplies of gas and water from a common source.
>
> In similar manner, it is conceivable that cables of telephone wires could be laid underground, or suspended overhead, communicating by branch wires with private dwellings, country houses, shops, manufactures, &c, &c, uniting them through the main cable with a central office where the wires could be connected as desired, establishing direct communication between any two places in the city.[4]

While municipal gas and water systems influenced Bell's ideas about a central exchange system, more pertinent examples already existed. As early as 1851 Francois Marcelin Aristide Dumont, of Paris, had suggested a plan for telegraphic intercommunication.[5] In 1867 a system of connecting

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1. DeLand, "Notes," The Popular Science Monthly, 69 (November 1906), 439-440.

2. New York Times, May 20, 1877.

3. New Haven Daily Journal and Courier, April 28, 1877, quoted in Walsh, Connecticut Pioneers, 19-24.

4. "Alexander Graham Bell to the Capitalists of the Electric Telephone Company, March 25, 1878," quoted in Kingsbury, Telephone, 90.

5. Kingsbury, Telephone, 77-79.

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private Morse telegraph wires through a central office was established in Philadelphia. By 1870 its originator was able to provide intercommunication for some twenty bankers.[1] The Gold and Stock Telegraph Company had evolved a system of intercommunication for subscribing banks by 1871.[2] And in 1874 the best of these interconnecting telegraph systems was organized by the Law Telegraph Company of New York.[3] According to its inventor William A. Childs:

> We adopted the dial instrument similar to Wheatstone's ABC . . . There was one central office with a single wire to each subscriber [lawyer] and an individual annunciator was a bell. The number was indicated by the strokes on the bell of the subscriber giving the call . . . [then] we coupled the two subscribers together.[4]

The complexities of the various telegraphic systems and the skill needed to communicate with them made extensive use of the exchange system unlikely. However, the simplicity of operating the telephone enhanced the exchange's chances for wider use.[5]

Bell recognized the possibility of others having independently developed the concept of telephone switching, in view of these existing telegraphic systems. He also conceded that the transition from a telegraphic to a telephonic exchange was a natural consequence. But by irrefutable logic, Bell claimed priority in having conceived of the telephone exchange. He claimed his conception antedated that of all others "because it goes back

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1. Ibid., 85.
2. Ibid., 84-85.
3. Walsh, Connecticut Pioneers, 36.
4. William A. Childs quoted in Kingsbury, Telephone, 86.
5. Kingsbury, Telephone, 88.

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to the very inception of the telephone itself."[1] Thus did Bell dispose of the claims of others, including John Ponton[2] and his widow,[3] that they were the originators of the telephone exchange idea.

Although the concept may have been Bell's, its execution fell to others. Indeed, while addressing a group of investors in England on the potential profitability of an exchange system, Bell conceded it was impractical just then. The address was made in March 1878 at a time when several experimental systems had already been attempted and a commercial exchange was in actual operation in the United States. Apparently Bell was ignorant of this phase of American telephonic development as he was of others during his sojourn in England.

The first public telephonic interconnection occurred on May 17, 1877, in the Boston office of E. T. Holmes.[4] Holmes operated a burglar alarm system and accordingly had a number of banks connected to his office by wire. He offered to demonstrate Bell's telephone to the Boston public in conjunction with his alarm system. Hubbard inquired how he could do this and Holmes explained:

> I can ring a bell in a bank from my office and the bank can in return ring one in my office by using switches and giving a pre-arranged signal to the Exchange Bank, both of us could throw a switch which would put the telephones in circuit and we could talk together: if you will send me three instruments I could put them in the Hyde and Leather Bank, and after I had gotten Mr. Benzon at the Exchange Bank I could

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1. Alexander Graham Bell to Fred DeLand, September 25, 1905, AT&T, Box 1105.

2. Ponton's Statement, AT&T, Box 1123.

3. Note on John Ponton's copy of Service Contract, AT&T, Box 1124.

4. Statement of E. T. Holmes, AT&T, Box 1132; Facsimile letter from T. D. Lockwood to E. T. Holmes, August 5, 1884, Holmes, A Wonderful Fifty Years, 106-107.

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> call Mr. Ripley at the Hyde and Leather Bank and tell him Mr. Benzon wished to talk with him, and with the third telephone in circuit at my office, I could hear that their conversation was successful.[1]

The first test only connected three parties over two lines. Afterwards, Holmes connected three more, thus using the small switchboard which Charles Williams, Jr., had manufactured to its full capacity.[2] Although the system was largely of an experimental nature, it was a telephone exchange just as truly as if there had been "a thousand participants instead of half a dozen."[3]

Despite the success of his exchange system, Holmes did not immediately develop its commercial application. He judged there would be more pecuniary gain from the establishment of an express service by which a subscriber requiring an express agent would telephone Holmes' central office, which in turn would telephonically relay the message to a general express office.[4] In organizing the Telephone Despatch Company, so named because Holmes wished to distinguish his express service from his burglar alarm service, and also because he felt things done by telephone "were going to be despatched very rapidly,"[5] Holmes missed his opportunity for establishing the world's first commercial telephone exchange.

In addition to E. T. Holmes, there were several others who experimented with systems of telephonic interconnection. In June 1877, Thomas B.

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1. Holmes, A Wonderful Fifty Years, 54-56.

2. Statement of E. T. Holmes, AT&T, Box 1132.

3. Thomas D. Lockwood, "Early Central Office Systems and Their Relations to the Coy Patents," Volume I (unpublished MS), AT&T, p. 62.

4. Kingsbury, Telephone, 71; T. D. Lockwood, "Early Central Office Systems," V. I, 62.

5. Holmes, A Wonderful Fifty Years, 54.

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Doolittle temporarily connected four telephones to the lines of the Bridgeport Social Telegraph Company, which he had largely built himself. The Social Telegraph Company utilized a switchboard to connect its subscribers. With the substitution of telephones for telegraph instruments, Doolittle created a "telephone system pure and simple, with circuits capable of being, and were, switched one to the other."[1] A preoccupation with his regular telephone agency business[2] and a delay by Charles Williams in the construction of an improved switchboard prevented Doolittle from opening a regular commercial exchange until July 1878.[3]

The last of the important precursors of the commercial telephone exchange was the "mutual system" instituted during the summer of 1877 by Hartford druggist Isaac Smith.[4] Smith had already devised a signal bell system with several physicians when he applied the telephone to it. Ultimately, he modified and enlarged the system so that a large number of the city's physicians and druggists enjoyed telephonic interconnection through a central station, Smith's drugstore. Smith's system demonstrated its usefulness when it was employed in summoning Hartford's medical community to a nearby train disaster in January 1878.[5]

Since Smith's system was exclusively for the use of physicians and druggists it has not been generally accorded the distinction of having been the world's first commercial telephone exchange.[6] Nevertheless, commentators

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1. T. B. Doolittle to Frederick P. Fish, January 12, 1905, AT&T, Box 1057.

2. Ibid.

3. Walsh, Connecticut Pioneers, 37-39.

4. Ibid.

5. T. D. Lockwood, "Early Central Office Systems," V. I, 70-71; Walsh, Connecticut Pioneers, 43-44.

6. Walsh, Connecticut Pioneers, 49.

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both friendly[1] and unfriendly[2] to Smith's exchange claim that his pioneering work deserves great credit.

The world's first commercial telephone exchange, giving interconnection to any and all subscribers, was opened in New Haven on January 25, 1878, by George W. Coy.[3] Coy had gained his experience in helping to construct a district telegraph system[4] and assisting Professor Bell during the New Haven lecture where Bell alluded to the similarity of gas and water systems to telephony.[5] Shortly after Coy's, the world's second commercial exchange opened in Meriden, Connecticut, on January 31, 1878. It incorporated a copy of the switchboard thatCoy had perfected.[6] Henceforth, the telephone exchange increasingly became the chief feature of telephony.

Although George Coy succeeded in opening the first commercial telephone exchange, John Ponton was the first person to propose such a scheme to the owners of the Bell patent. He was the first person with whom a contract was made to commence the exchange system.[7] According to Watson, Ponton "was so enthusiastic about it and the ease with which he could raise the money needed to establish exchanges that he made me, at least, think the profits were about to roll in."[8]

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1. T. D. Lockwood, "Early Central Office Systems," V. I, 72.
2. Walsh, Connecticut Pioneers, 44.
3. Ibid., 49.
4. H. P. Frost to Theodore N. Vail, February 8, 1885, AT&T, Box 1141.
5. Walsh, Connecticut Pioneers, 24.
6. Ibid., 58.
7. Thomas A. Watson to Fred DeLand, November 29, 1907, AT&T, Box 1124.
8. Ibid.

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As early as December 1876 Ponton was discussing with Bell a plan for the interconnection of telephone circuits. Bell concluded that the plan was "the most feasible method of bringing in an immediate return."[1] No doubt it was because of this early involvement with the exchange system that Ponton later believed himself to have been the inventor of the exchange system.[2]

In accepting a telephone agency, upon his failure to become a partner in the Bell patent, Ponton indicated that he was prepared to introduce the exchange system on a local basis. He proposed to share half the profits derived from such a system in return for the patentees' agreement to sell him telephones at cost and their conveyance to him of the exclusive right to establish the system wherever he deemed practicable. He concluded: "I think at the rate of one cent per minute for using the instrument that the patentees would derive a more enormous dividend than from any other system."[3]

Hubbard rejected this proposition but did conclude an arrangement with Ponton, who set about to establish a central exchange system in Pennsylvania.[4] In October 1877 Ponton issued an elaborate four page prospectus describing the operation of the Titusville Branch of Ponton's Telephone Central Service.[5] It claimed that Ponton's Central Service would annihilate distance and enable patrons to converse with their friends, order goods from any store, send a telegram or letter to any part of the world, summon the family physician, or call a policeman, a carriage, a message boy and do a hundred things

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1. Alexander Graham Bell to Mabel Hubbard, December 8, 1876, NGS.

2. Ponton's Statement, AT&T, Box 1123.

3. John Ponton to Gardiner G. Hubbard, May 23, 1877, AT&T, Box 1123.

4. Gardiner G. Hubbard to John Ponton, August 11, 1877, AT&T, Box 1123.

5. "Ponton's Telephone Central Service," October 27, 1877, AT&T, Box 1124.

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"momentarily required in business or domestic life."[1]

The exchange system so grandly described was to commence operations as soon as Ponton obtained the names of twenty-five subscribers.[2] In spite of his sanguine expectations and preliminary reports to Gardiner Hubbard, Ponton was eventually forced to admit his inability to start the central system. He attributed this to a "great depression of trade" in his area,[3] but his lack of electrical knowledge or mechanical skill,[4] notwithstanding the facility with which he described the organization and operation of his "extremely simple" system, was probably a determining factor. Still, he hoped soon to commence the "nucleus" of the system.[5] Nothing whatever came of Ponton's talk and promises about the central exchange system.[6] In Watson's words, "Ponton had a wonderful capacity for generating high pressure gas but his receptacle was too thin to hold it. It busted early in the game."[7]

Bell's associates, especially Gardiner Hubbard, were receptive to the exchange concept and its commercial application.[8] Hubbard assumed charge of its development, discussing it with practical men including E. T.

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1. Ibid.

2. Ibid.

3. John Ponton to Thomas A. Watson, April 16, 1878, AT&T, Box 1176.

4. Thomas A. Watson, Notebook, February 27, 1878, AT&T, Box 1069.

5. John Ponton to Thomas A. Watson, April 16, 1878, AT&T, Box 1176.

6. Thomas A. Watson to Fred DeLand, November 28, 1907, AT&T, Box 1124.

7. Thomas A. Watson to William Chauncy Langdon, February 3, 1926, AT&T, Box 1124.

8. Alexander Graham Bell to Fred DeLand, September 25, 1905, AT&T, Box 1105.

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Holmes.[1] Although a commercial exchange was in operation by January 1878 and at least twelve more would be established by the end of the trust period,[2] the chief emphasis, initially, was on the development of a variant of the central system known as the district system. Even E. T. Holmes who had achieved the first interconnection of telephone users did not immediately develop a true exchange system.

Holmes' agreement with Hubbard covered two forms of central systems. One consisted of running a single and exclusive wire from a subscriber's residence or business to the central office for the purpose of putting the subscriber in "direct speaking communication" with central office subscribers. The other, more properly a district system, contemplated the placing of a number of subscribers on the same circuit and having them telephone the central office for a messenger, hack, police, fire, etc. The subscriber could also call or send a message through the central office to any express office, railroad, telegraph or any other public point if there were a demand for such connections.[3] Subscription to a district system would also mean that telephone users could establish communication with one another on the same line by signaling the appropriate party.

In effect, Holmes' agreement with the Bell Telephone Company encompassed all forms of central office system:

> As far as I understand it, I am to have use of the telephone for all Central Office purposes, which we may now have in mind, or which may in the future show themselves to us, through the experience and acquaintance which we may gather from the constant

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1. Kingsbury, Telephone, 75-76.

2. "Early Telephone Exchanges," AT&T, Box 1109.

3. E. T. Holmes to Gardiner G. Hubbard, July 19, 1877, AT&T, Box 1057.

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> use of the telephone in the business we now propose to work up.[1]

Thus, as he conducted his Telephone Despatch Company, Holmes made preparations for the organization of a true exchange system which he intended to operate along with it.[2]

Many of the telephone district and exchange companies had their origins in private line agencies. It was a natural step from the construction of telephone lines and the rental of telephones to the creation of district systems. It was especially logical for district telegraph companies which were already involved in telephony as agents to adopt this new development also.

In establishing a district system whereby subscribers on the same line could speak to each other or call a central office for a messenger or other related service, a district telegraph company had only to substitute telephones for its signal devices.[3] While such a policy might be logical, it was not always obvious or readily adopted.

The district telegraph interests in upstate New York opposed the general use of telephones in order to continue to monopolize business in their own way.[4] Some district officials were unable to see the telephone's applicability to existing telegraph systems.[5] Another factor which inhibited

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1. Ibid.; Gardiner G. Hubbard to E. T. Holmes, August 10, 1877, AT&T, Box 1057.

2. Holmes, A Wonderful Fifty Years, 74.

3. H. H. Eldred to Thomas Sanders, February 28, 1878, AT&T, Box 1161.

4. Elisha Wilson to Gardiner G. Hubbard, September 20, 1877, AT&T, Box 1167.

5. G. F. Durant to Gardiner G. Hubbard, November 19, 1877, AT&T, Box 1161; G. F. Durant to Gardiner G. Hubbard, January 16, 1878, AT&T, Box 1161.

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the conversion of district telegraph systems from signal boxes or printers to telephones was the reluctance of some officials to make what amounted to a radical change:

> Is it impossible for us to offer the citizens either?--that is the box or the telephones? I am strongly attached to this box system but . . . if the telephone is going to combine all the excellence of the boxes with its other advantages then we want to be your agents . . . and take out our boxes; if, however, both can be used I would prefer this.[1]

G. W. Moore, Superintendent of the Erie, Pennsylvania, American District Telegraph Company, interpreted his superior's hesitancy in converting to telephones as resulting from the fact that it seemed like a waste to scrap the A.D.T. boxes.[2] Occasionally the Bell Telephone Company formally recognized this reluctance to abandon signal boxes. In its contract with W. H. Bofinger it agreed that telephones should gradually displace signal boxes and be installed on all new circuits after current stocks of boxes were used up.[3]

The higher price of telephones also proved an inhibiting factor in the substitution of telephones for signal boxes. The American District Telegraph Company of Missouri discontinued renting signal boxes at twelve dollars per year, for telephones at twenty dollars per year.[4] Some rates were increased as much as one hundred percent.[5] A district telegraph company might try to maintain its telephone at the old signal box rates,[6]

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1. J. C. Spencer to Thomas Sanders, July 4, 1878, AT&T, Box 1174.
2. G. W. Moore to Thomas A. Watson, July 4, 1878, AT&T, Box 1174.
3. Gardiner G. Hubbard to W. H. Bofinger, July 11, 1878, Box 1149.
4. H. H. Eldred to Gardiner G. Hubbard, March 2, 1878, AT&T, Box 1161.
5. J. Hamblet to Gardiner G. Hubbard, February 13, 1878, AT&T, Box 1161.
6. G. W. Moore to Bell Telephone Company, March 13, 1878, AT&T, Box 1174.

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but such a policy could not continue indefinitely. Inevitably, then, rates increased and the Bell Telephone Company came under pressure to decrease the price of telephones to district telegraph companies.[1]

The spread of district telephone systems did not only result from the evolution of district telegraph companies, but also through the direct exertions of the Bell Telephone Company. Appreciating the value of central exchange systems, the company early in 1878 began to direct its agents to urge district telegraph companies to adopt the telephone. If unsuccessful, agents were to try to organize their own district telephone system.[2] In exhorting its agents to action, the Bell Telephone Company noted that among the telephone's advantage over the district telegraph system:

> The message is sent through the telephone to the office, its receipt acknowledged, thus saving much time and expense, and making it useful for many purposes, instead of for two or three calls [i.e., types of messages possible on district telegraph apparatus].[3]

Among his many other duties, Thomas Watson early in 1878 undertook the first of several tours of inspection of the company's agencies. He was not only to inspect the operation of the agencies and the condition of the telephone, but also to explain and further urge the establishment of district systems.[4] As Superintendent of the Bell Telephone Company, he was well suited to explain and instruct about the construction and operation of the district system.

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1. James Hamblet to Gardiner G. Hubbard, February 13, 1878, AT&T, Box 1161.

2. Instructions to Agents, No. 3, February 1, 1878, AT&T, Box 1001.

3. Ibid.

4. Watson, Exploring Life, 136.

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> Found he [G. W. Stockly in Cleveland] was not aware the District Telephone System had ever been started. He had not tried to introduce in his Dist. Co. but on my explaining how to form the circuits and how much had already been done in this direction in NE he warmed up and promised to run up an experimental circuit at once.[1]

With the development of the district system a new kind of agency came into being. Agents who organized district systems were granted exclusive territorial licenses.[2] In order to make district systems more attractive, the Bell Telephone Company also awarded agents the right to construct private lines and rent instruments for them within their district territory.[3] Occasionally, agents already possessing these rights had them curtailed or discontinued so as to give a proposed district company a clearer field and a greater opportunity for financial success.[4]

The territories assigned to the district systems were cities or towns whose limits were defined as a radius of varying lengths, from some prominent point. George Maynard's contract covered the District of Columbia within a ten mile radius of the Capitol and also the territory of the Fifth Lighthouse District.[5] Davis and Watts had for their agency Maryland, excepting a belt within a ten mile radius of the District of Columbia. In their contract they were specifically enjoined to organize a district company immediately in Baltimore.[6]

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1. Thomas A. Watson, Notebook, March 1, 1878, AT&T, Box 1069; Statement of William A. Jackson, August 28, 1883, AT&T, Box 1132.

2. Gardiner G. Hubbard to W. H. Bofinger, July 11, 1878, AT&T, Box 1149; C. H. Sewall to Gardiner G. Hubbard, March 7, 1878, AT&T, Box 1164.

3. Thomas Sanders to G. W. Moore, July 1, 1878, AT&T, GMLB 14.

4. James Hamblet to Gardiner G. Hubbard, January 12, 1878, AT&T, Box 1161.

5. Contract, Gardiner G. Hubbard and G. C. Maynard, April 22, 1878, AT&T, Box 1033.

6. Contract, Bell Telephone Company and Davis and Watts, March 29, 1878, AT&T, Box 1033.

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The Bell Telephone Company supplied telephones to the agents at varying prices and discounts. Telephones used for district purposes carried a higher discount, usually fifty percent, than those to be used for other purposes.[1]

The duration of the district system contracts varied. Some were for six years,[2] others for three years.[3] The average duration, however, was five years.[4]

The contracts tended to be personal agreements with specific agents and could not be transferred or assigned without the consent of the Bell Telephone Company.[5] The Bell Telephone Company further exercised a controlling influence over the district system business by retaining an option to take over a company's plant at cost upon the expiration of its contract. The district company would continue to enjoy its commission from the full term of the leases.[6] In its contract with E. T. Holmes, the Bell Telephone Company agreed not only to purchase the district company's lines at cost, but also its good will at a sum not exceeding $5000.[7] According to Holmes,

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Abstract of Baltimore Contract, March 29, 1878, AT&T, George L. Bradley's Miscellaneous Letterbook 1 (hereafter cited MB); Abstract, St. Louis Contract, March 8, 1878, MB1; Abstract, Albany Contract, MB1.

2. Contract, Gardiner G. Hubbard and G. C. Maynard, April 22, 1878, AT&T, Box 1033.

3. Abstract, St. Louis Contract, March 8, 1878, MB1.

4. Abstract, Baltimore Contract, March 29, 1878, MB1; Abstract, Albany Contract, MB1; Gardiner G. Hubbard to W. H. Bofinger, July 11, 1878, AT&T, GMLB 14.

5. Contract, Gardiner G. Hubbard and G. C. Maynard, April 22, 1878, AT&T, Box 1033; Contract, Bell Telephone Company and Davis and Watts, March 29, 1878, AT&T, Box 1033.

6. Gardiner G. Hubbard to W. H. Bofinger, July 11, 1878, AT&T, GMLB 14.

7. Gardiner G. Hubbard to E. T. Holmes, August 10, 1877, AT&T, Box 1057.

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Gardiner Hubbard explained that the reason for the purchase option in this instance was to enable the parent company to own everything in Boston, the birthplace of the telephone.[1] A more reasonable explanation for the general application of this principle is that it was intended to permit the parent company to control this aspect of the business after it was developed.[2]

In urging its agents to organize district companies, the Bell Telephone Company suggested that the cost ordinarily should not exceed one hundred dollars per mile. Of the stock issued, the Bell Company was to receive "an equal amount" for the telephones which it would furnish.[3] This was in keeping with the patentees' practice of retaining a major share of capital stock in those companies which it helped to organize. "We have adopted as our system the organization of dist. tel. cos. in which the Bell Co. will retain a part of the stock--expecting to derive a considerable revenue from the dividends in addition to the rentals."[4] In New York City, for example, the Bell interests retained fifty percent of the Telephone Company of New York.[5] In urging the organization of a telephone company for Philadelphia, the Bell patentees sought three-fifths of the stock.[6] Thus the parent company was not only engaging in the creation of district

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1. Holmes, A Wonderful Fifty Years, 84-85.

2. U.S., Federal Communications Commission, Telephone Investigation; 1935, Exhibit 130, "AT&T Co.--License Contract Relations, Origin and Development of License Contract," pp. 5-7, citing T. N. Vail.

3. "Instructions to Agents, No. 3," February 1, 1878, AT&T, Box 1001.

4. Gardiner G. Hubbard to E. M. Barton, June 10, 1878, AT&T, Box 1151.

5. Contract, Gardiner G. Hubbard and Telephone Company of New York, October 18, 1877, AT&T, Box 1024.

6. Memorandum, 1877, AT&T, Box 1054.

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companies but was also acquiring a stock interest which would be of special significance in the later evolution and development of exchange systems. Moreover, it was commencing to develop another source of income, in addition to the telephone rentals, based on the dividends it would receive from its stock holdings in the district and exchange companies.[1]

Agents who specialized in developing district systems faced the same types of problems as their predecessors and colleagues in the private line agencies. District companies suffered from shortages of instruments, poor communications with the parent company, and the growing Western Union competition. But they tenaciously clung to life.

By September 1878 Gardiner Hubbard was advising an interested party to establish his telephonic system as an exchange, rather than as a district system. He explained that an exchange system met the public demand without necessarily coming into conflict with district telegraph systems. Hubbard further noted that "The messenger business [a chief feature of district telegraph and telephone systems] is of little value in connection with the Telephone, and even private lines fall into the general system."[2]

Thus during the first year when the telephone had been in commercial use it had acquired a new use in connection with the district system. But even as this development was occurring, a shift in emphasis from the district system to the central exchange was also taking place. It was the natural result of the evolution of the district system. By the end of the trust period there were a number of telephone exchanges in operation across

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1. Letter from J. J. Storrow to -- Russell, January 12, 1884, AT&T, Box 1093.

2. Gardiner G. Hubbard to A. G. Davis, September 14, 1878, AT&T, Box 1131.

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the country, from New Haven to San Francisco.[1] Increasingly the exchange was becoming the chief feature of the telephone business. Many of the parent company's later policies concerning central exchanges evolved from its policies concerning district companies.

1. Early Telephone Exchanges, AT&T, Box 1109.

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CHAPTER VI

MANUFACTURING A MORE PERFECT INSTRUMENT

By January 1877, telephony had "approached a grand crisis," and so by the terms of the September contract Thomas Watson was required to devote all of his time to telephony.[1] Not only did he help Alexander Graham Bell improve the telephone, but he also assisted in lectures and demonstrations until the growing demand for instruments necessitated his return to the shop.[2]

The demand for telephones was so great, however, that Watson could no longer fill it by himself, and so the task of manufacturing the instruments was turned over to the electrical shop of Charles Williams, Jr., in Boston. Up to this time Watson had constructed all of the instruments used for experimental and lecturing purposes. Henceforth, his chief responsibility was to supervise the construction of telephones and auxiliary equipment and to make the crude instruments work better.[3]

Watson knew well the Williams' shop, having worked there before joining the Bell interests.[4] It was one of the largest and best equipped electrical shops in the country[5] and it had quickly established a reputation for quality workmanship, numbering among its inventor-clients young Thomas Edison.[6] It was natural, therefore, that the Williams shop should receive the first orders for the manufacture of telephones.

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1. Alexander Graham Bell to Gardiner G. Hubbard, January 28, 1877, NGS.
2. Watson, Birth and Babyhood, 31-32.
3. Watson, Exploring Life, 127.
4. Watson, Birth and Babyhood, 6.
5. Watson, Birth and Babyhood, 7.
6. Josephson, Edison, 62.

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Williams got his first order for telephones verbally from Bell and Hubbard[1] in March 1877. Under this arrangement Williams charged for labor and materials, plus a percentage of the latter.[2]

In May 1877 Williams first recorded an order for twelve box telephones from Thomas Watson, the instruments to be made according to specification.[3] On August 21, Williams rendered his first bill to the Bell interests. It was for $6,309.83, and covered about eight hundred telephones manufactured up to August 1.[4] Then Williams signed a contract with the newly organized Bell Telephone Company, giving him a commission on each instrument he manufactured.[5] He was also appointed as agent for Boston and the surrounding area within a ten mile radius.[6]

Williams began delivering telephones to agents on June 10, 1877, and by August 1 he had sent out six hundred and fifty hand and box telephones. With the proliferation of agencies, demand continued to grow, and in order to meet it Williams agreed to increase production from twenty-five to fifty telephones per day if he could secure a cash advance from the Bell Telephone Company.[7] Demand, however, continued to surpass Williams' ability to produce and therefore the Bell Company's ability to supply telephones.

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1. "Deposition of Charles Williams, Jr.," Storrow, "Proofs," II, 279/93.

2. "Deposition of Charles Williams, Jr.," Storrow, "Profs," 281/95.

3. Ibid., 279/93-280/95.

4. Ibid., 280/94.

5. Ibid., 281/95; "Deposition of Thomas A. Watson," Storrow, "Proofs," 402/276-403/277.

6. Trustee's Report to the Board of Managers, August 1, 1877, AT&T, Box 1001.

7. Ibid.

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In consequence of agents' continual pleas for instruments, Gardiner Hubbard investigated Watson's efforts to fill orders and concluded: "There seems to be neither order nor system . . . I think you will agree with me that we cannot do business that way. . . . Please see if things cannot be made more systematic."[1] An obvious system would have been to fill requests in their order of arrival, but Watson received so many urgent requests that he felt obliged to ration his telephones among them. He explained: "I am so far behind that I have found it impossible to stick to any system except division of each days product among the most urgent of the agents."[2]

Watson largely ignored Hubbard's suggestions about systematizing procedure. He was sensitive to the pleas of agents like E. T. Holmes, who claimed favored treatment because of his special position in Boston.[3] Hubbard complained to Watson that Boston orders were filled on the same day they were received while other orders remained unfilled for over a month.[4] Finally Hubbard "requested" that Watson henceforth fill orders systematically, "without any deviation" except by company order.

> It will not answer any longer to divide the days product among the most urgent, but to follow the rules of the company . . . Judging from the past, there is no reason to think that you will 'catch up to your orders in about two weeks' as the orders received are daily growing upon the orders filled.[5]

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1. Gardiner G. Hubbard to Thomas A. Watson, November 17, 1877, AT&T, Box 1193.

2. Thomas A. Watson to Gardiner G. Hubbard, November 19, 1877, AT&T, GMLB 11.

3. E. T. Holmes to Gardiner G. Hubbard, November 22, 1877, AT&T, Box 1057.

4. Gardiner G. Hubbard to Thomas A. Watson, November 19, 1877, AT&T, Box 1193.

5. Gardiner G. Hubbard to Thomas A. Watson, November 21, 1877, AT&T, Box 1193.

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The newly enforced policy elicited an expectable response from agents previously receiving favorable treatment. E. T. Holmes asked that Watson be allowed discretion, especially in his case.[1] But Hubbard was firm. He even told Watson to fill the orders of Sam Hubbard (Gardiner's brother) on the basis of first come first served, unless the order was "extra-urgently" large and then Watson was only to fill a portion.[2]

Watson strictly enforced Hubbard's rule and drew a comment from agent Thomas Cornish of Philadelphia: "You have a first class man in Mr. Watson. . . . I tried hard to have him fill my orders Saturday he was inflexible having received positive orders from you to fill them in rotation."[3]

Williams' agreement to increase daily production contingent upon the advance of $1000 from the Bell Telephone Company[4] showed the close relationship between the parties. More frequently, Williams extended credit to the hard-pressed company. These obligations were a major liability of the Bell Company.

> I have advanced Mr. Williams $2500 out of my own pocket [wrote Sanders]. . . and he must have $2500 more next Tuesday. Will you send me a check for that amount, as even after the money is paid in by the new company [New England Telephone Company] we shall not have enough to pay Mr. Williams what we shall owe him as his expenses increase daily.[5]

Sanders met Williams' demands as best he could, but still Williams

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1. E. T. Holmes to Gardiner G. Hubbard, November 22, 1877, AT&T, Box 1057.

2. Gardiner G. Hubbard to Thomas A. Watson, November 28, 1877, AT&T, Box 1193.

3. Thomas E. Cornish to Gardiner G. Hubbard, December 3, 1877, AT&T, Box 1176.

4. Trustee's Report.

5. Thomas Sanders to Gardiner G. Hubbard, January 3, 1878, AT&T, Box 1193.

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"hungered" for more,[1] explaining that he had no surplus of his own to pay obligations that were falling due. He had used whatever spare sums he possessed, plus a large portion of his telephone profits, to expand his manufacturing facilities. He further explained what the Bell Telephone Company had at stake:

> I have studiously endeavored to keep up the credit of the company and when pressed for bills, instead of intimating that I could not get the money of the Telephone Company I have made other excuses, and none of my creditors have had the least idea of the amount due me from the Co.[2]

In view of this, Williams saw injustice in Hubbard's suggestion that some New York parties might be induced to pay the company's debts in return for manufacturing rights in New York. Williams argued:

> I have taken additional rooms, put in additional machinery, made changes & increased my running expenses expressly for your work. Furthermore I can do the manufacturing to better advantage and cheaper than any establishment can.[3]

Not only was Hubbard suggesting an end to Williams' exclusive manufacturing relationship with the Bell Telephone Company, but he was also beginning to question Williams' method of pricing his telephones. Until mid-March, Williams continued to charge the Bell Company for materials at cost plus a five percent commission. In regard to labor, he charged "a certain amount in advance of what I pay the men per day." This amount varied from 65¢ to $1 above each worker's wages. The sum was used to cover

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1. Thomas Sanders to Gardiner G. Hubbard, January 28, 1878, AT&T, Box 1193.

2. Charles A. Williams, Jr., to Gardiner G. Hubbard, March 7, 1878, AT&T, Box 1204.

3. Charles A. Williams, Jr., to Gardiner G. Hubbard, March 7, 1878, AT&T, Box 1204.

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Williams' overhead in the slack season (agents could not string lines in winter).[1] Williams did not reject the Bell Company's proposal that he charge for labor and stock at actual cost plus 20 or 25 percent, but he noted that manufacturers usually added 33 to 50 percent.[2]

The Williams electrical shop not only produced telephones but also much of the necessary auxiliary equipment. The Bell Company transmitted the telephones to its agents but referred their orders for magneto and district call bells to Williams. Agents were to obtain non-specialized electrical goods from whoever gave them the best terms and prices.[3] The Bell Telephone Company ultimately agreed to use its influence in having agents secure unpatented instruments from Williams so long as he was able to furnish articles of acceptable quality and without delay.[4]

Despite the company's irritation at Williams' constant demands for money and its occasional inability to compel him to render exact accounts,[5] it seemed generally satisfied with the quality of work performed at the Williams shop.

From June 1877 to August 1878 the Bell Telephone Company shipped to its agents 12,484 telephones manufactured in the Williams shop. Of these, 932, or a little less than 7½ percent, were returned because of major technical defects.[6] Whether this figure was low or not is difficult to judge

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1. Charles A. Williams, Jr., to Gardiner G. Hubbard, March 13, 1878, AT&T, Box 1204.

2. Ibid.

3. Theodore N. Vail to E. A. Woelk, March 15, 1878, AT&T, Box 1001.

4. Thomas Sanders to E. C. Armstrong, August 12, 1878, AT&T, GMLB 15.

5. Thomas Sanders to Gardiner G. Hubbard, March 19, 1878, AT&T, Box 1193.

6. "Instruments Shipped to & Returned by Agents and Exchanges in the United States," AT&T, Box 1004.

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due to the lack of comparable statistics for other types of electrical instruments, and also because agents were required by contract to provide "all ordinary repairs" at their own expense.[1]

Nevertheless, it was as a result of his workmanship that Williams retained his contract to manufacture telephones for the Bell Telephone Company when the latter was reorganized as a corporation and its main offices were moved to New York City. During the period of reorganization, one of the investors suggested to Thomas Sanders that an analysis of the cost of manufacturing telephones might indicate that the Bell Company was paying from 25 to 50 percent more for its instruments than the new company might be willing to pay. He therefore urged that no future commitment be made to Williams.[2]

Sanders responded that the company was under no special obligation to Williams, since he depended upon Sanders personally for payment of his bills. Besides, Williams received a handsome profit from his manufacture of telephones. However, Sanders did not understand "why such a point should be made of contemplated removal. The workmen here seem to understand the manufacture of telephones better than anywhere else in the world."[3] Indeed, Sanders considered the superiority of the telephones manufactured in the Williams shop, where at least $30,000 was invested, as a major factor in the Bell Telephone Company's success against increasing competition.[4]

Even Alexander Graham Bell, "with all the workshops of England at

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1. Davis and Watts Contract, March 29, 1878, AT&T, Box 1037.

2. A. O. Morgan to Thomas Sanders [undated], AT&T, Box 1193.

3. Thomas Sanders to A. O. Morgan, June 15, 1878, AT&T, Box 1193.

4. Thomas Sanders to Gardiner G. Hubbard, June 18, 1878, AT&T, Box 1193.

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his command,"[1] was compelled to recognize and rely upon the superior workmanship of the Williams shop. Instructed by the directors of the English Telephone Company (Ltd.), Bell wrote to Gardiner Hubbard requesting samples of instruments, an estimate of the lowest terms upon which the American company would supply telephones in large quantities, and the dates by which it would be prepared to supply them.[2]

Bell even relied upon Williams' workmen to repair the telephones he had presented to Queen Victoria: "I give you carte-blanche to do what you like only send me back instruments for the queen that will not disgrace the telephone cause."[3] Even using American-made telephones as models, English workmen were not very successful in constructing telephones. An official of the English company was forced to ask that American engineers examine the English copies in order to discover the source of their defects.[4]

No doubt as a result of the efficiency and skill of Williams' workmen and shop, Hubbard was able to report to Thomas Sanders in April 1878 that the average cost of instruments was down, thus enabling the Bell Telephone Company to earn a larger profit, especially in its sale of call bells.[5]

Despite the efficiency of Williams' shop, it continued to fall "sadly behind" in its orders, thus causing serious hardship to the Bell agents.

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1. Ibid.

2. Alexander Graham Bell to Gardiner G. Hubbard, July 25, 1878, AT&T, Box 1103.

3. [Copy] Alexander Graham Bell to Thomas A. Watson [undated], New York Public Library, Manuscript Division.

4. Charlton Wollaston to Gardiner G. Hubbard, September 20, 1878, AT&T, Box 1103.

5. Gardiner G. Hubbard to Thomas Sanders, April 10, 1878, AT&T, Box 1003.

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Hubbard asked Sanders to see that the orders were filled promptly,[1] but there was little Sanders could do. Throughout much of the Bell-Williams relationship, demand would exceed telephone production and Sanders would write to Hubbard of Williams' heavy financial demands: "Williams is tormenting me for money . . . Pay day has come and his capital will not carry him another inch."[2]

Although Sanders was unable or unwilling to recognize any special obligation of the Bell Telephone Company to Charles Williams, probably as a result of his worries and Williams' contribution thereto, Thomas Watson evidenced a clearer appreciation of Williams' contribution when he wrote:

> Mr. Williams' faith in us . . . was so great that he strained his resources and credit to the limit not only by enlarging his shop to meet the demands of our growing business, but also when our treasurer was hard up, by giving us plenty of time to pay our bills.[3]

Research and Development

Research and development was an important element in the production of telephones. During the earliest phase, nearly all of it was done by two men, Alexander Graham Bell and Thomas A. Watson.[4]

Their method was primitive, although an attempt was made at systematizing. Working in their Exeter Place laboratory, Bell and Watson sought to improve the telephone through trial and error by varying each component. This approach was possible largely because of the telephone's simple construction. In seeking the best material for the telephone's diaphragm, for

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1. Gardiner G. Hubbard to Thomas Sanders, June 3, 1878, AT&T, Box 1193.
2. Thomas Sanders to Gardiner G. Hubbard, May 21, 1878, AT&T, GMLB 14.
3. Watson, Exploring Life, 160-161.
4. Newsclipping, Thomas Watson, AT&T, Box 1068.

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example, Bell and Watson tested all kinds of materials including a piece of boiler plate and parts of a human ear.[1]

In November 1876 the developers of the telephone reached an impasse. The telephone was not "talking distinctly enough for practical use," and according to Watson both he and Bell had exhausted their ideas on the subject. After spending some time in the public library, Watson sought the help of a medium. The information she dispensed was "rubbish," and so Watson turned again to a more orthodox source, the library, where he found the key to his problem.[2]

With the commercial introduction of the telephone in mid-1877, and Bell's departure for England, the task of supervising the manufacture, testing and shipping of telephones fell to General Superintendent Watson and a clerk, Robert W. Devonshire.[3] The commercial introduction of the telephone did not, of course, end its technical development, for it was still quite crude. Moreover, increasing competition necessitated further research and improvement.

From the very beginning of commercial telephony the Bell interests were determined that only the best telephones should be made available to the public.[4] This determination was demonstrated not only in the Bell Company's continuing and thorough testing of its instruments,[5] but also in its policy of making extraordinary repairs or replacing useless instruments

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1. Watson, Exploring Life, 89-90.

2. Ibid., 99-101.

3. William Chauncy Langdon, "Robert W. Devonshire, First Employee of the Telephone" (unpublished MS), AT&T, Box 1067.

4. Gardiner G. Hubbard to Thomas A. Watson, May 23, 1877, Box 1070.

5. Ibid.

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and exchanging older models for improved ones at a fair price.[1]

Watson carried the major burden of perfecting the telephone until September 1878 when other electricians and inventors were hired to share it.[2] Early in 1878 Watson made several inspection trips to the Bell agencies. These not only provided information about the operation of the company's agencies, but also gave Watson an opportunity to evaluate the telephone's performance under actual field conditions. He also was able to instruct agents on the care and maintenance of their instruments. This was especially necessary for those agents who lacked an electrical background. On one occasion Watson jotted down in his notebook: "Dissected all 3 instruments and tried to explain adjustment to Ponton. Know he didn't understand a word I said. He does not seem to have the least mechanical skill and knows nothing about electricity."[3]

Watson usually returned to Boston with new problems to solve, sometimes managing to correct them, sometimes not.[4]

In supervising production at Williams' factory, Watson was urged by Hubbard to adopt the latest industrial techniques, for the sake not only of production but also of quality. "Every part of each instrument," Hubbard wrote, "or the same series should be in the same pattern & interchangeable like part of every other instrument. This is the way they do it at the Waltham Watch factory, & if it can be done with watches, it can be done

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1. Contract, Bell Telephone Company and Davis and Watts, March 29, 1878, AT&T, Box 1033; "Deposition of Thomas A. Watson," Storrow, "Proofs," II, 430/304-432/306.

2. Watson, Exploring Life, 149.

3. Thomas A. Watson, Notebook, February 27, 1878, AT&T, Box 1069.

4. Watson, Exploring Life, 138-139.

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with telephones."[1]

Given the weak financial state of the early Bell companies, the decision to have Watson spend much of his time and effort experimenting and perfecting telephonic equipment showed courage. "I am always experimenting and this takes about all one man's time and is quite an item of expense that is included in the cost of manufacture."[2] But it got results. Watson succeeded in making many useful improvements and new devices.[3] Between September 1877 and April 1881 he received 40 American patents on telephonic inventions.[4]

Watson's patents covered auxiliary equipment as well as improvements in the telephone itself. One of his earliest modifications of the telephone was his reduction of the box telephone to about one-quarter of its original size. "It simplified the instrument so much that Williams could turn them out more rapidly and at less cost."[5]

The reduction in the size of the box telephone was the last major improvement of that style of instrument[6] before it was replaced. By the spring of 1878, the Western Union was clearly established as a telephone competitor, and Watson's attention now turned to the construction of a carbon telephone which could successfully challenge the Western Union's model.[7]

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1. Gardiner G. Hubbard to Thomas A. Watson, April 16, 1878, AT&T, Box 1193.

2. Thomas A. Watson to Gardiner G. Hubbard, April 12, 1878, AT&T, Box 1205.

3. Watson, Exploring Life, 138-139.

4. R. B. Hill, "Thomas A. Watson, Maker of Telephones," Bell Laboratories Record, XXVI (April 1948), 167.

5. Watson, Exploring Life, 132.

6. Ibid.

7. Ibid., 140-141.

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Later in the year the Bell Company would secure its own version of this telephone, but it would be the result of other inventors employed by the company.

Any discussion of research and development must recognize the contributions of independent researchers to the Bell telephone. In a later period their efforts would be a major source of new telephone technology, but even during the telephone's infancy they helped improve it.

Of special interest is a group of academicians and scientists, loosely called "the Experimenters" or "the Providence Experimenters," who did much of their telephone research at the physical laboratory of Brown University.[1] The Experimenters included Eli Whitney Blake, Professor of Physics, described by Bell as "an amateur telephonist who is just as splendid as can be";[2] Professor John Pierce, a wealthy bachelor who spent his wealth and time in scientific researches and helping others to do likewise;[3] William F. Channing, M.D., son of the famous Unitarian divine and collaborator in developing the Fire Alarm Telegraph;[4] and several other lesser figures.

These Providence Experimenters conducted their tests and modifications of the telephone simultaneously with, and independent of, the work of Bell and Watson in Boston. When Bell learned of their activities he warned them to desist, apparently misunderstanding their intent. When it became clear, however, that Blake was experimenting with a crude telephone in connection with his duties as a physics professor,[5] that the group was working solely

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1. Walter Lee Munro, "'The Experimenters' at Brown University and Their Share in the Invention of the Telephone," Brown Alumni Monthly, XXIX (May 1939), 279-282.

2. Alexander Graham Bell to Mabel Hubbard, April 7, 1877, NGS.

3. Ibid.

4. Munro, "'The Experimenters,'" 279

5. Newsclipping, Brown Alumni Monthly, May 6, 1928, AT&T, Box 1105.

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in the interests of science and not personal gain, and that the Experimenters acknowledged the validity of Bell's basic telephone patent, Bell changed his attitude and ultimately encouraged their efforts.[1]

Although the Providence Experimenters functioned harmoniously as a team, several individual members did achieve some notoriety for their individual achievements. Dr. Channing was credited with changing the arrangement of the box telephone and thus constructing the "first hand receiver worthy of the name," although it was still too large to be grasped by a woman or a child.[2]

Professor Pierce was credited with having demonstrated the feasibility of using a small magnet in the telephone, and having invented the mouthpiece used in hand telephones. According to Bell's arrangement, the cover and projecting mouthpiece were separate and distinct components whereas Pierce combined the cover and mouthpiece into a "more convenient shape."[3] Channing claimed that Pierce's innovation corrected the telephone's blubbering and perfected its articulation.[4]

Another major telephone modification attributed to the Providence Experimenters was the substitution of a unipolar magnet for a horseshoe magnet, thus permitting the construction of a truly hand telephone, commonly known as the "butterstamp" receiver for its similarity in shape to the kitchen implement.[5]

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1. Munro, "'The Experimenters,'" 279; 280.

2. Ibid., 281.

3. Alexander Graham Bell to John Pierce, March 18, 1878, AT&T, Box 1105.

4. W. F. Channing to G. A. Barthol, April 30, 1882, AT&T, Box 1105.

5. "The Future of the Telephone," Frank Leslie's, September 29, 1877.

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The precise contribution of the Experimenters to the art of telephony has been a continuing source of disagreement. Frank Leslie's reported that Pierce's modification of the mouthpiece "made the telephone a practical success."[1] The writer of Channing's obituary claimed that Channing's arrangement of the telephone's magnet overcame an important impasse in the commercial development of the telephone, and consequently "the honor of the achievement of a successful telephone is due no less to him than to Prof. Bell himself."[2] Even some of the Experimenters themselves were disturbed at Bell's treatment of their contributions.[3]

Originally, all of the Experimenters acknowledged the validity of Bell's telephone patent. At a meeting of the Franklin Society where Dr. Channing exhibited Bell's telephone and the Experimenters' modifications thereof, a newspaper account quoted him as saying "emphatically that 'the invention of the telephone came unique and complete from Prof. Bell.'"[4] However, reacting to what he perceived as Bell's ingratitude and injustice, Channing in 1882 gave a critical account of Alexander Graham Bell's efforts to invent the telephone. Strongly resembling the Western Union's point of view, Channing intimated that Elisha Gray had invented the telephone first, in 1875, and Bell's success in obtaining a patent for his telephone was the result of "most extraordinary circumstances."[5]

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1. Ibid.

2. "William F. Channing, 1820-1901," University of Pennsylvania Alumni Register, V (April 1901), 242.

3. Alexander Graham Bell to John Pierce, March 18, 1878, AT&T, Box 1105.

4. Newsclipping, Circa October 1877, Clarke Scrapbook, p. 29, AT&T, Box 1105.

5. W. Channing to G. A. Barthol, April 30, 1882, AT&T, Box 1105.

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The contemporary and later[1] criticisms of Bell's treatment of the Providence Experimenters seem unjustified. In a lecture before the Society of Telegraph Engineers in London, late in 1877, Alexander Graham Bell expressed his indebtedness to Professors Pierce and Blake, Dr. Channing, Louis Clarke and Edson Jones, all of Rhode Island, "who have been carrying on together experiments seeking to perfect the form of apparatus required." Bell also pointed out, however, that "many of their discoveries had been anticipated" by his own, including the construction of the "butterstamp" telephone. He did single out Pierce for special praise for his work in reducing the size of telephone magnets and inventing the combine mouthpiece.[2]

The Providence Press lauded Bell for his recognition of the Experimenters' contributions to telephony, and through them the contributions of the scientific community of Providence. "It is . . . greatly to the credit of Mr. Bell that he recognizes the work of our Providence scientists in no unstinted manner."[3]

The Experimenters, and their advocates, were most disturbed at what they considered Bell's usurpation of their proper credit for the creation of the hand telephone. When the Providence Journal in May 1877 carried an illustrated account of Bell's new hand telephone, an eye-witness recalled that:

> Prof. Blake came into the lecture-room in a state of great excitement, a copy of the paper in his hand and addressed the class substantially as follows: "Gentlemen, you have seen the announcement of Professor Bell's telephone in this morning's paper. You are all familiar with the instrument; some of you have yourselves made them.

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1. Articles and letters of Walter Lee Munro, AT&T, Box 1105.
2. Providence Journal, February 11, 1878.
3. Providence Press, February 11, 1878.

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> 'I want to tell you that some time ago Prof. Bell came down from Boston to compare notes with Prof. Pierce, Dr. Channing and myself. He told us that he had mastered the principle of the telephone but had been unable to devise a receiver which was not too cumbrous for use. We showed him our receiver with which you are all familiar. I ask you to compare that with Prof. Bell's as pictured in the paper today.' The eye-witness concluded: 'It was Professor Blake's hour of triumph, for he knew whereof he spoke.'[1]

With the publication of Bell's English lecture, Pierce communicated to Bell the Experimenters' dissatisfaction with his treatment of them. Bell assured Pierce that he was anxious to give him and the other Providence Experimenters credit "not only for all that is novel in your researches but all that you claim even though I, also may have invented the same."[2] Bell explained what he perceived to be the cause of their misunderstanding over the use of the unipolar magnet in the hand telephone. He believed the confusion resulted from the Experimenters' lack of familiarity with Bell's patent specifications and also from the fact that the first Bell hand telephone which the Experimenters saw tested in Providence contained a horseshoe magnet rather than a previously tested straight magnet. These circumstances, especially the latter, persuaded the Providence Experimenters, in Bell's view, that they had preceded Bell in incorporating the unipolar magnet in the hand telephone.[3]

Whatever his later grievances, Channing in November 1877 suggested to the Bell Company that it might be advisable to patent Pierce's mouthpiece in order to neutralize certain Western Union telephone advantages,[4] and in

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1. Munro, "'The Experimenters,'" 281.

2. Alexander Graham Bell to John Pierce, March 18, 1878, AT&T, Box 1105.

3. Ibid.

4. W. F. Channing to Gardiner G. Hubbard, November 10, 1877, AT&T, Box 1105.

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April 1878 Blake requested the loan of some Bell telephones for experimental purposes by which he hoped "to get hold of something new and useful to the company."[1]

In appreciation of the Experimenters' scientific efforts and their irreproachable conduct during the recent Western Union contest, Alexander Graham Bell proposed in 1880 that Thomas Sanders, Gardiner Hubbard, Thomas Watson and himself each contribute some of their shares of stock in the Continental Telephone Company to them. In making this suggestion Bell felt that he was correcting an injustic which succeeding Bell Companies had committed in not recognizing the Providence Experimenters' efforts on behalf of the Bell telephone interests. He recognized that the Experimenters carried on their work with the object of assisting in the commercial perfection of the telephone. Bell suggested:

> Had it not been that my own researches had anticipated many of the points thus communicated, we would have been indebted to them for some of the most valuable features, that have since made the telephone a success.[2]

Regardless whether or not the Experimenters contributed significantly to the successful commercialization of the Bell telephone, they were representative to a degree of the method by which the Bell Company acquired telephonic improvements and inventions, that is, through the efforts of independent scientists, inventors and electricians. The Bell Telephone Company was ever on the lookout for such individuals and their inventions. Accordingly, Hubbard instructed the Bell agent in Philadelphia to investigate a telephone patent issued to a citizen of Pennsylvania:

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1. Eli W. Blake to George L. Bradley, April 9, 1878, AT&T, Box 1105.

2. Alexander Graham Bell to Thomas Sanders, Gardiner G. Hubbard and Thomas A. Watson, March 2, 1880, AT&T, Box 1105.

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> I think you had better ascertain what he has got, what he is doing and what he proposes to do. If he has anything really in advance of our telephone we want it--if it is merely an infringement we want to know it.[1]

A further source of telephone technology came from the Bell Company's agents and licensees who were thrown upon their own resources to devise much of their equipment and apparatus in connection with the evolving exchange system.[2] These agents, together with Thomas Watson, independent inventors, and later, Bell Company scientists and inventors, in part stimulated by the Western Union competition, combined to make Alexander Graham Bell's telephone an improved and constantly improving instrument of communication.

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1. Gardiner G. Hubbard to Thomas E. Cornish, December 7, 1877, AT&T, Box 1053.

2. DeLand, "Notes," Popular Science, 70 (January 1907), 48.

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CHAPTER VII

TELEPHONES, TEMPERAMENTS AND TROUBLES

Almost from the beginning the Bell Telephone Company faced the ironic situation that as its telephones became more popular, its financial condition became more precarious. As the demand for telephones increased, the Bell Company had to invest more money in their manufacture, but the patentees found it hard to get more and more capital.

As early as July 4, 1877, Gardiner Hubbard informed Attorney Anthony Pollok that the telephone was doing very well, there being about one hundred instruments in operation in many different places, and future prospects seemed bright indeed since arrangements were being made for renting 2000 telephones to a New York City agency.[1] Hubbard's exertions, and those of his agents, awakened remarkable public interest and helpted to create this demand for the telephone.[2] So did such favorable notices as that of the Scientific American which declared, "The Telephone has advanced considerably beyond the status of a 'beautiful scientific toy,' which many hastily pronounced it."[3]

By October 10, 1877, after only about six months' operation, the Bell Telephone Company had 2000 instruments in use,[4] and by the end of the year

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1. Gardiner G. Hubbard to Anthony Pollok, July 4, 1877, NGS.

2. Frederick A. Gower to Gardiner G. Hubbard, October 3, 1877, AT&T, Box 1181.

3. Scientific American, October 6, 1877.

4. Bell Telephone Company to A. Davis, October 10, 1877, AT&T, GMLB 11.

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it had shipped to its agents 5319 telephones.[1] The company's balance sheet for the six months ending on December 31, 1877, showed rental payments of $8,656.93, and total net earnings of $1,707.56.[2] A subsequent report, presumably containing fuller information, figured gross rentals at $10,164.88, which meant that net rental earnings were higher also.[3] By January 1, 1878, the Bell Telephone Company was able to announce to its agents that it had manufactured and delivered to them 5491 telephones. This indicated to the company that the telephone had ceased to be a novelty, and therefor it was discontinuing its policy of putting out telephones on trial.[4]

To meet such a rapidly increasing demand Charles Williams agreed to double the capacity of his factory if the Bell Telephone Company would assist by advancing him part of the necessary funds.[5] But where were these and other funds to come from? In rejecting John Ponton's last offer to supply capital, Hubbard had decided to operate the company on its current revenue, paying expenses out of daily receipts. But expenses could, and did, run ahead of revenue. An obvious solution would be to form a company with investors who could provide the necessary funds. This was not immediately possible, however, for the Trustee rejected any such proposal:

> I have never realized the necessity of a company with a large capital, although I know it would in many ways be a great benefit, besides making your labors [Sanders' treasureship] much easier. The benefits

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1. General Manager's Report to the President of The National Bell Telephone Company, March 10, 1880, AT&T, Box 1004.

2. Bell Telephone Association, Balance Sheet, December 31, 1877, AT&T, Box 1001.

3. Report, March 15, 1878, AT&T, GMLB 13.

4. Instructions to Agents, Number 2, January 1, 1878, AT&T, Box 1001.

5. Trustee's Report to the Board of Managers, August 1, 1877, Box 1001.

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> have not seemed to me at all commensurate to the great loss [of control] to Messrs. Bell, Sanders & Hubbard.[1]

Pending the time, then, when current revenue would match expenses, or when Hubbard would see the necessity of organizing a company with capital, the Bell Telephone Company was forced to rely upon the financial resources of two of its chief members, Hubbard and Sanders, as well as current revenue. Unfortunately, Hubbard was not in a position to lend much financial assistance. Even as he was describing the telephone's successful status on July 4, 1877, he was requesting that Attorney Pollok not press for the payment of his legal fees. Although Hubbard was a man of means and social position, he simply was unable to supply the money. He wrote Pollok:

> My money matters are as you know entirely deranged by the adverse circumstances of the last few years, and with a very large amount of property I am more in need of money than if I owned nothing for I do owe some debts and have large sums to pay for taxes and have no income from property.[2]

Despite Hubbard's later assertion that both he and Sanders contributed $50,000 for the start of the telephone business,[3] he never could make good on his promise of contributions. Gardiner Hubbard was prone to join risky business schemes and promotions, just as he had done with the telephone. He was hard-pressed financially as a result of one of these ventures, toward the spring of 1878. Along with several others, Hubbard had invested in the Caledonia Coal Mining Company and the East Cambridge Land Company, and as a result of reverses, the investors jointly owed $100,000.[4] Hubbard had to

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1. Gardiner G. Hubbard to Thomas Sanders, April 10, 1878, AT&T, Box 1003.

2. Gardiner G. Hubbard to Anthony Pollok, July 4, 1877, NGS.

3. Gardiner G. Hubbard to C. E. Boyle, May 20, 1886, AT&T, Box 1113.

4. Gardiner G. Hubbard to Thomas Sanders [undated], AT&T, Box 1126.

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appeal for help from his partner Thomas Sanders[1] and his son-in-law Alexander Graham Bell.[2]

One can only wonder how such business reverses influenced his decisions as Trustee of the telephone company. His financially depressed condition certainly colored his relationship with Sanders.

> [I] fear that I may have used language which seemed to do you great injustice and which was to criticism [sic]. If so I do trust you will excuse & remember that for the past three or four months I have been under a very great strain: that I have been constantly overworked & have suffered more than you can imagine. From being worth I suppose nearly $300,000 I find all my property gone, and that without fault of mine.[3]

Almost from the start of the company's difficulties, he made excuses about his inability to supply funds. On one occasion he explained to Watson that he had been unable to collect some money due Watson, but if Watson needed the money he could call upon E. S. Converse and ask him to lend it on Hubbard's account.[4]

Not only was Hubbard unable to supply the company his money, but he was also unable to lend his credit to it. According to Sanders, Hubbard had no credit. Once Hubbard sent Sanders a note for $7000 to liquidate some indebtedness, and instructed Sanders to bring it to J. M. Converse to cash it. Converse insisted that Sanders indorse it and thus assume the liability. As a further illustration of Hubbard's poor financial standing, Sanders

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1. Ibid.

2. Alexander Graham Bell to Gardiner G. Hubbard, May 15, 1878, AT&T, Box 1103.

3. Gardiner G. Hubbard to Thomas Sanders, April 20, 1878, AT&T, Box 1003.

4. Gardiner G. Hubbard to Thomas A. Watson, September 18, 1877, AT&T, Box 1193.

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recounted that,

> Together with the whole stock of the Bell Telephone Association, I had pledged to the Bank some of his notes. . . . A new reign in the Bank compelled me to take up not only this stock, but Mr. H's notes, saying that he had no financial standing and the President would not allow the Comptroller 'to find such stuff in his bank' as he tersely expressed it.[1]

Such a condition, to say the least, was disappointing to Thomas Sanders. One of his reasons for accepting Hubbard as an equal partner with him in Bell's inventions was that Hubbard had been "represented . . . as a gentleman of wealth whose position was an influential one and who would be of great assistance to us in making the best use of our property."[2] By the time the preliminary stages of the telephone's development had passed, only Sanders had supplied funds,[3] yet he continued to stand by with his credit and money to meet financial obligations until such time as he could be relieved. Having undergone the rigors of administering the company's finances with a nearly empty treasury, he regretted his initial decision. He wrote to Bell: "Had I known at the start that he [Hubbard] was utterly unable to pay any of the expenses of the business, I should have at once stopped the whole business which I would have done by refusing to pay the bills."[4]

Sanders' own credit was better than Hubbard's, but as time went on it became more difficult for him not only to raise funds but also to devote them to the use of the Bell Telephone Company. To a large degree, Sanders'

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1. Thomas Sanders to Fred DeLand, June 10, 1908, AT&T, Box 1126.

2. Thomas Sanders to C. S. Bradley, A. Cochrane et al., March 13, 1878, AT&T, Box 1003.

3. William Chauncy Langdon, "Critique of J. Warren Stehman's The Financial History of the American Telephone and Telegraph Company," AT&T.

4. Thomas Sanders to Alexander Graham Bell, September 27, 1878, AT&T, Box 1003.

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credit was based upon his leather business in Haverhill, Massachusetts, but just as it enabled him to raise money it also required funds. Thus, even as Sanders was advancing $2500 out of his "own pocket" to Charles Williams, he was informing Hubbard that his leather business would require all of his ready cash that same month.[1]

Sanders was discouraged about the chances of receiving a loan from his bank. He despaired of making the request since it required a great deal of explanation about "a new thing [the telephone] to a conservative body of gentlemen."[2] While the bank's officers indicated their belief that the telephone was a good thing, and that the company would make money out of it, they were unwilling to lend any money using the patent as security.[3] The bankers did not look upon the patent as good security "in the face and eyes of the constant reiteration by our enemies of the statement that the 'Western Union will speedily sweep us out of existence Patent and all.'"[4]

The bank was ready to lend Sanders between ten and twenty thousand dollars on his "single name business paper." Sanders could utilize these funds in any manner he chose, but the bank did not consider the telephone paper in its present stage as strengthening his credit.[5]

By February 1878, the threat of Western Union competition was not only

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1. Thomas Sanders to Gardiner G. Hubbard, January 3, 1878, AT&T, Box 1193.

2. Thomas Sanders to Gardiner G. Hubbard, January 19, 1878, AT&T, Box 1193.

3. Thomas Sanders to Gardiner G. Hubbard, January 28, 1878, AT&T, Box 1193.

4. Thomas Sanders to Gardiner G. Hubbard, January 19, 1878, AT&T, Box 1193.

5. Thomas Sanders to Gardiner G. Hubbard, January 28, 1878, AT&T, Box 1193.

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making it difficult to attract potential investors, and to conduct the telephone business, but it was also beginning to undermine Sanders' credit.

> My business [Sanders wrote] has suffered, that is, my notes have been thrust onto the market at a high rate from the feeling that I am largely interested in a shaky concern, and it will require all the money I have advanced to the Bell Co to take care of the business to which it justly belongs.[1]

Sanders did finally secure a loan, on his own note, but felt compelled to remind Hubbard that he could not afford to turn it over to the telephone company but instead needed it for his own business.[2] Once again Sanders called upon Hubbard for his assistance: "Can you procure a renewal of our $2500 note coming due . . . I had to take $4000 of the $12,000 I have [sic] advanced to buy my notes with & must have more to sustain my business."[3]

In response to Sanders' constant complaints and proposals to raise money, Hubbard suggested that Sanders close his business, place the proceeds into telephony, and make that his life's work. If Sanders did this he would receive a salary and interest on his money equal to the sum he was receiving from his leather business. If Sanders were unwilling, then, Hubbard suggested it might be wise to look for a new treasurer who could furnish the necessary funds.[4] In a postscript he added: "It seems to me that the business has already assumed such proportions that it should have the entire attention of a competent treasurer."[5] Hubbard's criticisms were unjust in

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1. Thomas Sanders to Gardiner G. Hubbard, February 22, 1878, AT&T, Box 1193.

2. Thomas Sanders to Gardiner G. Hubbard, January28, 1878, AT&T, Box 1193.

3. Thomas Sanders to Gardiner G. Hubbard, February 20, 1878, AT&T, Box 1006.

4. Gardiner G. Hubbard to Thomas Sanders, March 15, 1878, AT&T, Box 1003.

5. Ibid.

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view of Sanders' sacrifices on behalf of the Bell Telephone Company.

By May 1878, Sanders had taken Hubbard's advice to heart, made arrangements to close his leather business, and pledged whatever credit and ability he possessed to the company.[1]

Hubbard's refusal to heed Sanders' proposals to organize a new company with capital was predicated on the theory that the company's income would furnish all the funds required and the patentees need not sacrifice any portion of their interest in the company.[2] But as Sanders noted: "Theoretically this was true, practically, I have been obliged to furnish the equivalent of $30,000."[3]

Actually the theory was unworkable since recovery of the cost of producing the telephones would occur only over an extended period of time due to the policy of renting rather than selling instruments. However, Hubbard incorrectly believed his theory would work since demand was increasing for telephones and rental revenue was increasing accordingly. The Bell Telephone Company's receipts increased from $383 in August 1877 to $4682 in January 1878. During this six month period, rentals doubled from $1626.48 in October to $3272.57 in November.[4] Thus, as Hubbard assessed the Bell Company's condition, he concluded:

> We are growing stronger every day & should soon be in a position to meet our enemies provided our friends help instead of hindering us. As I make it out, we can now collect enough to pay our daily expenses (or nearly enough) provided we insist on prepayment on every Telephone & Bell Call.[5]

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1. Thomas Sanders to Gardiner G. Hubbard, May 8, 1878, AT&T, GMLB 14.

2. Thomas Sanders to C. S. Bradley, A. Cochrane et al., March 13, 1878, AT&T, Box 1003.

3. Ibid.

4. Report, March 15, 1878, AT&T, GMLB 13.

5. Gardiner G. Hubbard to Thomas Sanders, December 4, 1877, AT&T, Box 1193.

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While the demand for instruments grew faster than even the optimistic Hubbard had hoped,[1] the increase was not uniform. The number of instruments shipped to agents (presumably to some extent reflecting demand) fluctuated from month to month. In December 1877, a total of 1536 instruments was shipped: in January the number dropped to 1013, only to rise to 1235 in February and 1231 in March and then drop off again to 839 in April and 731 in May. The number of telephones shipped rose temporarily to 1202 in June and then dropped to 914 in July, the last month of the Bell Telephone Company's active existence as a "voluntary association."[2] As the number of new installations declined, so too did the company's rentals. For example, from a six month high figure of $4682.17 in January, receipts dropped to $1804.97 in February.[3]

This condition may have reflected the effect of increasing Western Union competition, but more probably the fact that interest in, and demand for, the telephone was decling in contrast to the extraordinary interest and demand of the earlier period. Agents now had to work harder to rent their telephones.[4] Responding to this state of affairs, Sanders was forced to reduce the work force. On January 18, 1878, he dismissed twelve men, complaining that he was receiving little money from agents and "no orders to speak of since Jan. 1."[5] When the condition persisted, he predicted:

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1. Gardiner G. Hubbard to Thomas A. Watson, February 11, 1878, AT&T, Box 1193.

2. "Instruments Shipped to & Returned by Agents & Exchanges in the U.S.," AT&T, Box 1004.

3. Report, March 15, 1878, AT&T, GMLB 13.

4. G. W. Stockly to Gardiner G. Hubbard, March 21, 1878, AT&T, Box 1170.

5. Thomas Sanders to Gardiner G. Hubbard, January 19, 1878, AT&T, Box 1193.

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> Absolute bankruptcy of the whole concern must result if we do not procure money from some source. Our agents are paralyzed all over the country, there seems to be no possibility of getting any money from them. Williams calls daily for thousands, and if in addition we have to pay lawyers [a reference to the possibility of commencing a legal suit against the Western Union] where will the money come from? But not to borrow money for the future, with what shall I pay Williams and myself today? I must stop the manufacture of telephones if some arrangement is not made by which we can pay them.[1]

Given his optimistic nature, Hubbard responded as one might expect him to. Where Sanders saw cause to be depressed, Hubbard found reason to be hopeful. He noted that the company possessed ten thousand instruments which, although they could now be duplicated for a lower price than their original cost, represented valuable experience. Neither the Western Union nor any other company could reproduce such instruments for anything less than their original cost because they lacked the experience. The Bell Telephone Company possessed a net annual telephone rental of $36,000, together with other valuable assets. In Hubbard's estimation, all of this success had been achieved in less than a year, and he doubted that any similar instance of success could be found in the entire country for a similar period.

Where Sanders claimed the company's agents were "paralyzed" and in a state of "hopeless stagnation," Hubbard argued the company was doing better business than it had ever done. He claimed that the orders for February were larger than any other month since the company had been in business. These were not orders in anticipation, but represented a regular demand from agents who knew they must pay the advance before they could receive the instruments. Hubbard predicted that the demand for March and April would be larger than for February, noting also that the threat of Western

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1. Thomas Sanders to Gardiner G. Hubbard, February 22, 1878, AT&T, Box 1193.

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Union competition had actually stirred the Bell agents to action.

While recognizing Sanders' contributions to the company, Hubbard, nevertheless, regretted Sanders' decision to take the company's treasurership because, he wrote,

> I think . . . that the chief difficulty is with yourself, arising from the fact that the company owes some money and has no cash.
> You think the company is a "shaky concern" and I know you must impress the same feeling upon parties with whom you talk, consequently they believe it is a shaky concern because you do, and therefore, your credit and and that of the company is impaired. . . . I cannot but feel that it might all have been avoided, that the company might have been kept comparatively easy, and its credit A No. 1--if a different course had been pursued.[1]

Hubbard's optimistic predictions were not wholly justified. The demand for March and April, as reflected in the number of telephones shipped to Bell agents, was not greater than February's. In fact, the total number of instruments shipped in April was four hundred less than that shipped in February.[2] Hubbard's criticism of Sanders' ability to obtain credit for the company seems strange, if not unjust, coming as it did from a man whose own credit rating was less than desirable and whose own brother would write of it:

> I have done all in my power to get your paper discounted for you for several years and you will never know what it has been for me to do it . . . I do trust that you will raise enough to pay off your liabilities and live on your earnings--and if anything comes out of the telephone lay it by to clean off your mortgages.[3]

The Bell Company was unable to use its current receipts to pay off its obligations not only because demand and rentals declined, but also

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1. Gardiner G. Hubbard to Thomas Sanders, February 27, 1878, AT&T, Box 1193.

2. "Instruments Shipped to & Returned by Agencies & Exchanges in the U.S.," AT&T, Box 1004.

3. C. E. Hubbard to Gardiner G. Hubbard, March 16, 1878, AT&T, Box 1003.

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because the system that was supposed to make this possible did not function efficiently. Sanders was indeed correct when he noted a difference between the theory and its application.

According to the company's policies, each agent was required to remit a partial advance payment on all telephones and magneto call bells received.[1] By its Instructions to Agents No. 2, the Bell Telephone Company also ordered its agents to pay rentals in advance. Hereafter, every agent was to be held personally liable for all rentals not collected within thirty days after the telephones had been received by the lessee. Each agent was also required to keep a sufficient number of instruments on hand to supply customers without delay. This was an interesting requirement when one considers that a chief complaint of the agents during this period was their inability to have their orders filled promptly, but its intent becomes clear when one also recalls that an agent had to pay an advance of $2 on each telephone and $3 on each bell call. By Instruction No. 2, the Bell Telephone Company explained that it could not consider as a suitable person to act as agent or sub-agent anyone who could not pay the advance required for a sufficient number of instruments to fill orders without delay.[2]

In theory this was a very ingenious system, carried even to the point where the Bell Company sent a draft for the advance, payable three days after sight, along with each invoice of instruments sent to agents.[3] But there was considerable confusion and opposition among agents. For example, in listing the Bell Company's assets, Sanders was uncertain how he should treat a particular agency because,

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1. Circular Letter of Thomas Sanders, December 7, 1877, AT&T, Box 1003.
2. Instructions to Agents, No. 2, January 1, 1878, AT&T, Box 1001.
3. Ibid.

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> there is some doubt about all the agents, they may at any time refuse to pay the advance or rental and say that the instruments have come into such common use from other sources that they do not care to continue the agency.[1]

There was another reason for the failure of Hubbard's scheme, one which Sanders considered paramount. He naturally disagreed with Hubbard's analysis that the company's financial difficulties were due to his conduct as treasurer. In Sanders' estimation the problem of collecting money from agents arose from the fact that he was frequently ordered by Hubbard to act contrary to his own judgment, that is, Hubbard frequently overruled Sanders and ordered him to send instruments, the express on which Sanders had to advance from his own funds, to agents whom Sanders considered unworthy. Sanders argued:

> I should not be made responsible for the financial management of a company when I have control of only one side of it. . . . Do you not see the unfairness of making me responsible for what I cannot possibly help unless I refuse to execute your orders--The thing for us to do now is not to look back, not to charge either with mismanagement, but to look fairly at the position in which we are placed and take the best means in our power to get out of it.[2]

Hubbard acknowledged that if the agents were not complying with the company's policy concerning advances and rentals, and if expenses exceeded current income, "we can only blame ourselves."[3] But he continued to interfere with Sanders' administration of the treasury. Sanders wrote to Hubbard:

> I cannot compel settlements when parties all feel that the final appeal is to you. . . . You do not give agents to understand what my powers are. Much money could be collected if you would issue a

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1. Thomas Sanders to Gardiner G. Hubbard, March 19, 1878, AT&T, Box 1193.

2. Thomas Sanders to Gardiner G. Hubbard, March 1, 1878, AT&T, Box 1193.

3. Gardiner G. Hubbard to Thomas Sanders, March 19, 1878, AT&T, Box 1193.

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> circular especially informing all the agents that the financial management is in my hands subject to contracts and that my call for money must be heeded.[1]

Sanders' financial relations with the agents were burdensome to be sure, but occasionally they proved quite beneficial, as with Thomas Cornish of Philadelphia. Soon after his appointment as agent, Cornish pledged to do all he could to assist the Bell Company financially.[2] He remitted his payments on time and even advanced substantial amounts of money to the company.[3] "I have now sent you $2000 . . . If you are still short let me know. You can count on me on everything in my power for you & the Telephone."[4] Rarely was Thomas Sanders able to express himself as he did when he wrote to Cornish: "I am very much indebted to you for the liberality of your advances to the old co and if it were not for a few such cases I should have been put to much greater personal inconvenience. Accept my gratitude."[5]

Hubbard's interference with Sanders' authority and responsibilities seems to have been a pervasive habit. It added not only to Sanders' difficulties, but also contributed to the agents confusion, especially in regard to contracts, terms, and so forth.

According to the by-laws of the Bell Telephone Company, the Trustee was given the general management and oversight of all business, and was empowered to execute all contracts subject to the Board of Managers. Sanders,

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1. Thomas Sanders to Gardiner G. Hubbard, May 23, 1878, AT&T, GMLB 14.

2. Thomas E. Cornish to Thomas Sanders, November 10, 1877, AT&T, Box 1176.

3. Thomas E. Cornish to Thomas A. Watson, December 10, 1877, AT&T, Box 1176.

4. Thomas E. Cornish to Thomas Sanders, December 19, 1877, AT&T, Box 1176.

5. Thomas Sanders to Thomas E. Cornish, July 29, 1878, AT&T, Box 1054.

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as treasurer, was to have oversight and enforcement of all such contracts and leases.[1] However, Hubbard was in the practice of simply presenting Sanders with completed contracts and demanding quick implementation of orders.[2] He carried out his own plans first and then consulted Sanders afterward.[3] Hubbard even ignored the company's requirement that he place copies of executed contracts on file with Treasurer Sanders. Thus Sanders complained:

> It would not be asking too much if you would at least send us a copy of each contract after signing it . . . We must have some concert of action and it seems right that in our compliance with our by-laws such important matters should be deliberated upon us all.[4]

Hubbard concurred with Sanders' criticism and promised to try to submit proposed contracts to him before their execution. He wrote, "You should be consulted, for your rights and interests are the same as mine. The general contracts I have executed without submitting to you because I supposed we had generally agreed."[5]

In fairness to Gardiner Hubbard it should be noted that at least on one major occasion Sanders was guilty of not consulting him. Late in December 1877, while negotiating with the organizers of the New England Telephone Company, Sanders changed some important contract provisions on

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1. Shareholders' Meeting, August 1, 1877, Minutes of the Bell Telephone Company, AT&T.

2. Thomas Sanders to Gardiner G. Hubbard, April 12, 1878, AT&T, Box 1193.

3. A. O. Morgan to Thomas Sanders, May 18, 1878, AT&T, Box 1080.

4. Thomas Sanders to Gardiner G. Hubbard, April 12, 1878, AT&T, Box 1193.

5. Gardiner G. Hubbard to Thomas Sanders, April 28, 1878, AT&T, Box 1193.

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his own authority without notifying Hubbard. Presented with an accomplished fact, and also motivated by other considerations, Hubbard agreed to the changes. In so doing he explained:

> I trust hereafter that such a conflict may not arise & that neither of us will interfere with the Dept. of the other. I understand that Mr. Watson attends to the Manufacturing Dept., you the financial & that I make all the contracts with agents, companies and others relating to the general interest of the patentees. Each communicating with the other before making any important contract.[1]

Sanders acknowledged the justice of Hubbard's rebuke but defended his action saying that his "one aim has been the advancement of our united interests."[2]

While this incident caused Hubbard to retain a lingering suspicion about the organization of the New England Telephone Company,[3] Sanders does not seem to have acted regularly without Hubbard's knowledge or consent in matters of official business. Hubbard, on the other hand, was inclined to act independently. He explained his reason to Bell: "As Trustee of the Bell Tel Co. prior to the 1st of July, I representd two-thirds of the stock of the co. & did not consult with Sanders as fully as I should have done."[4]

A number of the Bell patentees' policies resulted from their financial shortcomings. The advances which agents were required to pay were necessary to meet the daily costs of manufacturing and other expenses.[5] The utilization

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1. Gardiner G. Hubbard to Thomas Sanders, December 26, 1877, AT&T, Box 1001.

2. Thomas Sanders to Gardiner G. Hubbard, December 26, 1877, AT&T, Box 1001.

3. Gardiner G. Hubbard to Thomas Sanders, March 15, 1878, AT&T, Box 1003.

4. Gardiner G. Hubbard to Alexander Graham Bell, February 28, 1879, AT&T, Box 1003.

5. Thomas Sanders to G. W. Moore, June 12, 1878, AT&T, GMLB 14.

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of local agents on commission was in part also motivated by the patentees' scarcity of funds. The agents could take up the telephone as an additional occupation or in connection with other matters and the patentees would not be responsible for their expenses.[1] Since the Bell Telephone Company did not possess sufficient funds, it licensed others to construct and operate even the valuable exchange systems.[2] To a very great degree, then, many of the policies inaugurated and pursued by the Bell Telephone Company were in response to its financial limitations.

Sanders was especially sensitive about divulging any information about the company's financial condition. However, once he had persuaded Hubbard to agree to reorganizing the company with new capital, it became necessary to provide potential investors with some information. Naturally, Sanders tried to portray the company's finances in the most favorable light possible, even to the extent of manipulating the figures.[3]

> The bald figures look so badly, that was one of the reasons I thought it better to have your parties come on here [Boston] where these matters might be explained and perhaps the necessity of showing them avoided until matters progressed further.[4]

His reluctance to be candid resulted from his belief that too much information in the wrong hands might further endanger the Bell Telephone Company and his whole fortune and credit along with it.[5]

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1. Thomas Sanders to Gardiner G. Hubbard, January 23, 1878, AT&T, GMLB 12.

2. J. J. Storrow to -- Russell, January 12, 1884, AT&T, Box 1093.

3. Thomas Sanders to Gardiner G. Hubbard, March 16, 1878, AT&T, Box 1003.

4. Ibid.

5. Thomas Sanders to Gardiner G. Hubbard, March 13, 1878, AT&T, Box 1003.

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Hubbard and Sanders were disposed to see the company's condition differently at any given moment because of their opposite personalities and temperaments. Sanders' views were conditioned to a very large degree by his financial stake in the telephone while Hubbard's outlook was to a very great degree "colored by . . . [his] sanguine spirit."[1] Thus, in May 1878, when Sanders complained that Hubbard had no idea of the "wretched condition" of the business,[2] Hubbard responded: "I do not see that our finances are in a particularly wretched state."[3]

Even when the two partners examined the same records they arrived at opposite conclusions. When Hubbard contradicted Sanders' appraisal of the company's business for February and March, he was convinced that the accounts clearly demonstrated the inaccuracy of Sanders' conclusion that business was paralyzed.[4] Sanders rebutted:

> You can draw such inferences from the figures as you choose of course and paint such rose-colored pictures as your fancy suggests, nevertheless the stubborn fact remains as I have always stated it, that we owe from $20,000 to $25,000 with no <u>certain</u> assets.[5]

Sanders' pessimism forced him, at times, to make financial statements which he believed to be untrue:

> Mr. Cheever is I think sufficiently aware of our financial weakness not to make it desirable to any further enlighten him. I therefore went out of my

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1. George L. Bradley to Gardiner G. Hubbard, May 7, 1878, AT&T, Box 1003.

2. Thomas Sanders to Gardiner G. Hubbard, May 21, 1878, AT&T, Box 1080.

3. Gardiner G. Hubbard to Thomas Sanders, May 29, 1878, AT&T, Box 1193.

4. Gardiner G. Hubbard to Thomas Sanders, April 10, 1878, AT&T, Box 1003.

5. Thomas Sanders to Gardiner G. Hubbard, April 12, 1878, AT&T, Box 1003.

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> way and told him a lie that he might not think we were bankrupt. I hope I shall be pardoned for the number of highly colored statements I have been constantly obliged to make to keep up the semblance of solidity.[1]

Hubbard did not concur. An examination of the company's accounts did, in fact, agree with Sanders' statement to Cheever that rentals came in fast enough to meet current expenses. Therefore, Sanders had not lied![2]

No small part of the agents' difficulties resulted from the fact that they were unable, at times, to receive clear and current information from their parent company in Boston. The Bell Telephone Company was responsible for this partly because its management was overburdened and divided.

Thomas Watson was the mainstay of the Bell Company's management. As Superintendent he was primarily responsible for overseeing the manufacture of instruments and perfecting telephonic equipment. He was assisted in these duties by Edward Wilson, probably an employee of Charles Williams.[3] Watson's duties were not confined solely to the technical aspects of telephony. As a partner of the Bell Telephone Company, other managerial duties devolved upon him. Until August 1877, he was in charge of the company's bookkeeping. Then, Robert W. Devonshire was hired to take charge of that part of the company's affairs.[4]

Much of the company's daily management continued to be Watson's responsibility, now shared with Devonshire. The reason for Watson's heavy burden was that the company's chief managers were geographically divided.

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1. Thomas Sanders to Gardiner G. Hubbard, March 5, 1878, AT&T, GMLB 13.

2. Gardiner G. Hubbard to Thomas Sanders, April 10, 1878, AT&T, Box 1003.

3. Watson, Exploring Life, 149.

4. Ibid., 137.

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Its chief executive, Gardiner Hubbard, was primarily stationed in Washington, D.C., when not away on one of his trips of inspection for the Railway Mail Commission or for the telephone company. Hubbard came to Boston only occasionally. The chief financial officer, Thomas Sanders, was partially occupied with his leather business in Haverhill, where he resided. He commuted frequently to Boston. Consequently, since Watson was in Boston daily, except for his occasional inspection tours, he became the obvious partner to perform daily management tasks.

> So it fell to him [Watson] and to me to look after the manufacture, the testing, and shipment of telephones and magneto bells, accounting, correspondence, and anything else that came along. All letters for information on telephones and call bells were addressed to the General Superintendent, and as we had no stenographer, typewriter or tabulating machine, we were forced to the expediency of writing our letters, reports, statements etc. in long hand.[1]

This geographical division naturally complicated the operation and management of the telephone business. For example, an agent was instructed to keep a sharp watch for infringers and to report any to the company in Boston and Hubbard in Washington.[2] Such a procedure was hardly calculated to promote speed and efficiency. Watson, carrying out his many duties, expressed the wish that he and Hubbard could have a talk every day. "It would give me great satisfaction and I think we would make more progress."[3] Even the vital matter of reorganizing the Bell Telephone Company into a corporation was delayed and complicated by the geographical separation of

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1. Quoting Robert W. Devonshire in William Chauncy Langdon, "Robert W. Devonshire, First Employee of the Telephone" (unpublished MS, July 1927), AT&T, Box 1067.

2. Bell Telephone Company to G. A. Cary, January 24, 1878, AT&T, GMLB 12.

3. Thomas A. Watson to Gardiner G. Hubbard, April 17, 1878, AT&T, Box 1205.

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the company's chief executives.[1] Charles Eustis Hubbard succinctly described this state of affairs when he wrote:

> "It is perfectly absurd to attempt to run such a business with you in Washington, attending to other matters and Mr. Sanders with his own business in addition to this. It ought to have two strong men devoting their whole time, one to finances, the other to general management."[2]

It became clear as the company's business increased that a business manager was needed. When Watson informed Hubbard that "the Watson generator was overworked," Hubbard responded that he knew just the man to assume the company's general management, "a thousand horsepower steam engine wasting his abilities in the United States Railway Mail Service."[3] Hubbard was referring to Theodore N. Vail, Superintendent of the Railway Mail Service, whom he had come to know quite well in his capacity as a member of the Congressional Committee investigating the Railway Mail Service. Watson on one of his inspection tours stopped off in Washington, evaluated Vail, and wired back to Boston his approval and recommendation that Vail should be hired.[4]

The decision to hire Vail to superintend the general management of the Bell Telephone Company provides a further example of the different personalities and managerial styles of Gardiner Hubbard and Thomas Sanders.

Vail's reluctance to quit government service was overcome when Congress felt it necessary to debate the merits of his $5 per diem allowance.

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1. C. E. Hubbard to Gardiner G. Hubbard, April 5, 1878, AT&T, Box 1003.

2. C. E. Hubbard to Gardiner G. Hubbard, January 7, 1878, AT&T, Box 1001.

3. Watson, Birth and Babyhood, 38-39.

4. Ibid.; Watson, Exploring Life, 142.

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Although the Congress did not decide to reduce it, Vail apparently concluded there was little hope for his advancement where politics was concerned.[1]

Hubbard offered Vail a position with the Bell Telephone Company at the same time negotiations were being conducted to reorganize the company and secure the funds of interested capitalists. Vail hesitated to join the Bell interests at this moment,[2] fearing as he did that an agreement with the current organization might not contain adequate guarantees should the new company arrange a settlement with the Western Union.[3] Vail was not unlike many of the Bell Company's agents who were expressing fears about their future should a settlement be made with Western Union.[4] Hubbard deemed it unwise to await the company's reorganization since much valuable time would be lost.[5] He therefore urged Vail's immediate acceptance of his offer, and in so doing may have acted without Sanders' consent, since Sanders had previously urged delay in hiring Vail.[6]

Hubbard described the terms of Vail's employment in a letter to Sanders which the latter was to forward to Vail if he approved.[7] In this letter, Hubbard first discussed the Bell Telephone Company's financial history and

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1. A. B. Paine, Theodore N. Vail (New York: Harper & Bros., 1921), pp. 110-111.

2. Gardiner G. Hubbard to Thomas Sanders, May 24, 1878, AT&T, Box 1080.

3. Theodore N. Vail to Thomas Sanders, May 24, 1878, AT&T, Box 1080.

4. Gardiner G. Hubbard to Thomas Sanders, May 29, 1878, AT&T, Box 1193.

5. Gardiner G. Hubbard to Thomas Sanders, May 17, 1878, AT&T, Box 1080.

6. Thomas Sanders to Gardiner G. Hubbard, March 23, 1878, AT&T, Box 1003.

7. Gardiner G. Hubbard to Theodore N. Vail, May 13, 1878, AT&T, Box 1080.

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its recent arrangements with the New England Telephone Company. Then he offered to hire Vail as a General Superintendent at a starting salary of $3500 a year, plus a traveling allowance and the understanding that if the telephone business continued to prosper Vail's salary would be increased to $5000.[1]

Sanders found Hubbard's letter unacceptable and drafted his own version. He omitted those matters which he felt certain Hubbard would agree did not belong in a business contract. Sanders' sensitivity regarding Hubbard's financial disclosures again became evident:

> It is putting ourselves too much in his hands I think, and although I would not propose to conceal anything from him which it was proper for him to know I think it unnecessary to lay before him a statement of our condition or to enter into details which do not immediately concern him.[2]

Therefore, in his draft to Vail, Sanders omitted all reference to the Bell Company's financial condition and arrangements.[3]

Sanders was also disturbed over the terms of Hubbard's salary offer. In his draft, Sanders offered Vail a salary of $2500 a year plus traveling expenses not exceeding $5 per day, and the understanding that when the business warranted it, Vail's salary would be increased to $5000. In a postscript he added: "If the duties of your office are satisfactorily performed we agree to pay you the sum of $1000--additional to the above at the end of the first year."[4]

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1. Ibid.

2. Thomas Sanders to Gardiner G. Hubbard, May 16, 1878, AT&T, Box 1080.

3. Thomas Sanders to Theodore N. Vail, May 16, 1878, AT&T, Box 1080.

4. Thomas Sanders to Theodore N. Vail, May 16, 1878, AT&T, GMLB 14; compare original with pencilled additions, Thomas Sanders to Theodore N. Vail, May 16, 1878, AT&T, Box 1080.

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Sanders explained to Hubbard that he restated the terms of Vail's salary in this manner because it seemed "rather undignified to lay before him inducements to urge him to accept an increase of $1000, a year in his salary."[1] Sanders believed Vail was currently receiving a salary of $2500 and $5 per day from the government.[2]

Hubbard acknowledged that these were, indeed, the terms of Vail's government salary as he had previously informed him, but in fact, Vail grossed $4325, spent about $800 on expenses, and thus received a net salary of $3500. Obviously, Vail would not consider accepting a telephone position for less than his current salary and the promise of an increase to $5000 should the business warrant it.[3] No doubt, also, the Bell Company's offer had to be generous enough to offset the Postmaster General's offer to give Vail a six month's leave of absence and to send him to Europe on a tour of inspection.[4] Hubbard wrote:

> The postscript to your letter would wound his feelings as it implies distrust and fear that we may not be satisfied with his services. Were it myself, I should at once decline the position and I have no doubt he would.[5]

Hubbard's view was probably correct, since Vail's decision to quit the postal service was the result of what he believed to have been unjust treatment accorded to him by the Congress.

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1. Thomas Sanders to Gardiner G. Hubbard, May 16, 1878, AT&T, Box 1080.

2. Ibid.

3. Gardiner G. Hubbard to Thomas Sanders, May 17, 1878, AT&T, Box 1080.

4. A. O. Morgan to Thomas Sanders, May 18, 1878, AT&T, Box 1080.

5. Gardiner G. Hubbard to Thomas Sanders, May 17, 1878, AT&T, Box 1080.

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Sanders' salary offer reflected the fact that the company was "hard up for money."[1] In effect, he was trying to offer Vail as little as possible. After the terms of Vail's salary had been settled according to Hubbard's suggestions, Sanders wrote:

> I am as anxious as you are to secure Mr. Vail's services, but I did not want him to think we were so entirely dependent upon him. I am satisfied that the salary is small enough, but, as to where it is coming from I am not so clear.[2]

In accepting the Bell Company's offer, Vail changed the terms, subject to the company's agreement, so that his salary would be "$3500 the first year and $5000 the next year if the business warranted it instead of $5000 when the business warranted it."[3] He explained that the $3500 was actually less than his present salary, but his faith in the success of the telephone enterprise was such that he was willing to trust it. "If the business will not warrant that salary [in] another year it never will."[4] Vail's trust notwithstanding, he requested a guarantee providing him two years' service in order to cover the contingency of consolidation with rival companies, which he felt would surely occur if the Bell Company was successful.[5]

The ever-cautious Sanders agreed that Vail's salary modification was reasonable, but owing to the fact that the company was about to be reorganized

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1. Thomas Sanders to Gardiner G. Hubbard, May 18, 1878, AT&T, Box 1080.

2. Thomas Sanders to Gardiner G. Hubbard, May 21, 1878, AT&T, Box 1080.

3. Theodore N. Vail to Thomas Sanders, May 24, 1878, AT&T, Box 1080.

4. Ibid.

5. Ibid.

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he felt the necessity of consulting with Hubbard.[1] When Hubbard informed Sanders that in consequence of this delay Vail felt he was being trifled with and the whole matter might be thrown open again,[2] Sanders quickly approved of the new contract. He explained:

> I merely desired to point out to you that the whole thing was entirely dependent upon the success of the Company, and that although legally I was responsible personally for the debts of the Company, I did not wish to give anyone an assurance that, under all circumstances, I would see that the contract was carried out--I simply defined my position in the Co.[3]

Consequently, all of Vail's changes were incorporated by Hubbard and Sanders into a memorandum of agreement, dated June 20, 1878.[4] On July 20, at the first directors' meeting of the newly organized Bell Telephone Company, Theodore N. Vail was duly elected General Manager,[5] although he had already commenced his new duties.[6]

However much Sanders and Hubbard had disagreed over the details of Vail's employment, both were anxious to secure his talents for the development of the telephone business.[7] Both were eager to have him devote his skills to organizing efficient agencies and district telephone systems in

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1. Thomas Sanders to Theodore N. Vail, May 27, 1878, AT&T, GMLB 14.

2. Gardiner G. Hubbard to Thomas Sanders, May 30, 1878, AT&T, Box 1080.

3. Thomas Sanders to Theodore N. Vail, May 31, 1878, AT&T, Box 1080.

4. Memorandum of Agreement, June 20, 1878, AT&T, Box 1080.

5. Minutes of Directors' Meeting, July 20, 1878, Bell Telephone Company, AT&T.

6. Paine, Theodore N. Vail, 116.

7. Gardiner G. Hubbard to Thomas Sanders, May 17, 1878, AT&T, Box 1080; Thomas Sanders to Gardiner G. Hubbard, May 21, 1878, AT&T, Box 1080.

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the country's principal cities.[1] Hubbard told Vail, "We rely upon your executive ability, your fidelity & unremitting zeal, in great degree, for the success of our undertaking."[2]

And so began the long and distinguished career of Theodore N. Vail, who was expected to bring unity and direction to the management of the Bell Telephone Company.[3] Vail's contributions to the Bell interests were varied and numerous, but none was greater than his efforts in helping to mold the company's organization.[4] Indeed, so important were Vail's contributions to the Bell interests that one company historian considered Hubbard's greatest contribution was in securing Vail's services for the telephone.[5]

The circumstances surrounding the hiring of Vail epitomized the clash of personalities and temperaments between Thomas Sanders and Gardiner G. Hubbard, and to a large degree, also characterized the operation of the Bell Telephone Company under their management.

In later years, Watson praised Thomas Sanders as a man of "pluck and optimism,"[6] and believed that all those connected with the telephone were fortunate that Sanders had not been a conservative man, for if he had, he would never have risked his fortune in its behalf.[7] If one accepts Sanders'

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1. Gardiner G. Hubbard to Theodore N. Vail, May 13, 1878, AT&T, Box 1080; Thomas Sanders to Theodore N. Vail, May 16, 1878, AT&T, Box 1080.

2. Gardiner G. Hubbard to Theodore N. Vail, May 13, 1878, AT&T, Box 1080.

3. Thomas Sanders to Theodore N. Vail, July 16, 1878, AT&T, Box 1080.

4. William Chauncy Langdon, "The Beginnings of Long Distance," Bell Telephone Quarterly, X (October 1931), 246.

5. William Chauncy Langdon, "Two Founders of the Bell System," Bell Telephone Quarterly, II (October 1923), 280.

6. Watson, Birth and Babyhood, 37.

7. Watson, Exploring Life, 159.

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own account of his financial liberality, then business philosophy had nothing to do with it. Having made his financial commitment to the telephone, he could not withdraw, but instead was compelled to continue his assistance in order to protect his investment.[1] Watson's later recollection of Sanders was that of a cheerful, encouraging individual: "Jovial Tom Sanders! How everybody loved him! No matter how discouraging the outlook was, the skies cleared when he came into the shop. I can hear his ringing laugh now!"[2]

Watson's recollection belied Sanders' true feelings as indicated by Sanders' correspondence to Hubbard. His recollection, however, does tend to confirm Sanders' denial that he conveyed his sense of despair and gloom to the people with whom he came into contact, and therefore was responsible for the company's poor financial outlook.

> In answer to what you [Hubbard] say as to my gloomy views affecting those of businessmen, I can only beg you to believe me when I say that I have given no outsider reason to think I considered the present or future of the B. T. Co. otherwise than brilliant.[3]

Watson remembered Hubbard as a man who was calm and cool in times of crisis. Hubbard exuded such great confidence that Watson believed him capable of taking care of the business.[4] Hubbard's confidence and optimism truly contrasted with Sanders' insecurity and sense of impending failure. Watson's characterization of Hubbard agrees with the recollection of A. W. Rose, an employee of the Telephone Company of New York.

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1. Thomas Sanders to Alexander Graham Bell, September 27, 1878, AT&T, Box 1003.

2. Watson, Exploring Life, 37.

3. Thomas Sanders to Gardiner G. Hubbard, March 1, 1878, AT&T, Box 1193.

4. Watson, Exploring Life, 159-160.

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> He [Sanders] and Hubbard used to have little spats. I heard Sanders tell him once to mind his own business . . . He didn't say anything back. He was always dignified. He never lost his temper . . . they were spatting lots of times.[1]

Despite the differences of temperament, despite the mutual criticisms of each other's conduct of office, that is, Hubbard's regret that Sanders had assumed the position of treasurer,[2] and Sanders' assertion that Hubbard was not a businessman and did not pretend to be,[3] both men remained on friendly terms. Both called for an end to mutual recriminations, and a fresh look at their problems and possible solutions.[4] A gesture of reconciliation seemed to appear whenever differences became too great. Hubbard wrote to Sanders: "Your letters have been frank and manly and it is absolutely necessary for our success and comfort that we should at all times be in perfect harmony and all our relations be open and frank."[5]

And Sanders could write of Hubbard, "he cherished no malice,"[6] a judgment which conformed to an earlier assessment that he generally found Hubbard "fair and honorable."[7]

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1. Allen W. Rose, "Early Telephone Reminiscences" (unpublished MS, 1927), AT&T, Box 1119.

2. Gardiner G. Hubbard to Thomas Sanders, February 27, 1878, AT&T, Box 1193.

3. Thomas Sanders to Alexander Graham Bell, March 20, 1878, AT&T, Box 1003.

4. Thomas Sanders to Gardiner G. Hubbard, March 1, 1878, AT&T, Box 1193.

5. Gardiner G. Hubbard to Thomas Sanders, April 20, 1878, AT&T, Box 1003.

6. Thomas Sanders to Fred DeLand, January 10, 1908, AT&T, Box 1126.

7. Thomas Sanders to C. S. Bradley, A. Cochrane et al., March 13, 1878, AT&T, Box 1003.

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In the midst of their criticisms, Sanders and Hubbard claimed to appreciate the other's sacrifices and contributions.[1] One must question to what degree Hubbard appreciated Sanders' contributions while ascribing the company's financial problems to Sanders and commenting: "Mr. Sanders is a man of small means, and has only been able to pay for our actual expenses by some fortunate speculations he has made in the line of business."[2]

The Bell interests were fortunate that Sanders was a man of no smaller means for he had to provide about $85,293.48 from January 12, 1878, to July 29, 1878.[3] Altogether Sanders advanced $110,000 for the experimental work leading to the telephone's invention, development and commercial application.[4] "He [Sanders] sank $110,000 in the telephone . . . twice as much as his promise had required, twenty times as much as he had originally thought of doing--before he got a dollar back.[5]

If Hubbard did not truly appreciate Sanders' full contribution, Sanders apparently recognized Hubbard's although he did not forgive him for his financial misrepresentations. Sanders advocated that Hubbard be made president of the newly reorganized Bell Telephone Company, even though he was a man of no "financial standing." Sanders recognized the shortcomings of such a decision, but suggested Hubbard's efficiency, knowledge of men all over the country, and experience would more than counterbalance the liability.[6]

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1. Gardiner G. Hubbard to Thomas Sanders, February27, 1878, AT&T, Box 1193; Thomas Sanders to C. S. Bradley, A. Cochrane et al., March 13, 1878, AT&T, Box 1003.

2. Gardiner G. Hubbard to Anthony Pollok, July 4, 1877, NGS.

3. Cancelled Checks of Thomas Sanders, AT&T, Box 1126.

4. Langdon, "Critique."

5. Langdon, "Two Founders," 275-276.

6. Thomas Sanders to C. S. Bradley, A. Cochrane et al., March 13, 1878, AT&T, Box 1003.

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"He [Hubbard] is entitled to great credit and receives my unbounded admiration for the energetic and audacious and skillful manner in which he established agencies & organized the inception of the business."[1]

Even with all of its difficulties and financial crises, the Bell Telephone Company, with Gardiner G. Hubbard as Trustee, and Thomas Sanders as Treasurer, ended its active existence as a "voluntary association" on August 1, 1878, with a net profit of $25,000[2] and 12,484 telephones rented to its agents and exchanges.[3] Perhaps a more important fact was that the financial problems which had plagued Sanders seemed about to be resolved with the corporate organization of the Bell Telephone Company.

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1. Watson, Exploring Life, 159-160.

2. Memorandum to the Stockholders of the Bell Telephone Company, 1879, AT&T, Box 1003.

3. "Instruments Shipped to & Returned by Agents & Exchanges in the U.S.," AT&T, Box 1004.

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CHAPTER VIII

NEW ENGLAND AND NEW YORK ALLIES

Desperately needing funds in February 1878, the Bell Telephone Company agreed to the organizing of the New England Telephone Company to conduct the telephone business in the New England states.[1] The new company thereby supplanted what had been the general agency under Frederick A. Gower. This change called for both pressure and diplomacy.

Gower had been awarded the general agency for New England, exclusive of Boston and a circle within a ten mile radius of the city. He was allowed a forty percent royalty on the first year's rentals and twenty-five percent on each subsequent year. Agent Gower was expected to keep enough instruments on hand to replace defective ones at any moment without delay. He also had to keep regular accounts, make semiannual reports to the patentees, advertise the telephone, make all reasonable exertions in introducing the telephone and keep a careful watch for patent infringers. Like other agents' contracts, Gower's included the provision:

> The proprietors of Bell's Telephone will reserve the right to change any agent without assigning any cause. . . . It is neither the intention nor for the interest of the proprietors to make changes in their agencies and every agent may rely upon the honor of the proprietors that no change will be made when the business is thoroughly and energetically carried on by the agent.[2]

Under these conditions Gower had begun to appoint sub-agents for his extensive territory. Like other agents, Gower found his customers unwilling

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1. Thomas Sanders to Alexander Graham Bell, September 27, 1878, AT&T, Box 1003.

2. Unsigned draft from Gardiner G. Hubbard to Frederick A. Gower, June 13, 1877, AT&T, Box 1181.

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to accept the $50 liability for the telephones they rented.[1] Like them also, he was unable to secure the quantity and quality of instruments he desired, especially call bells.[2] And so his pleas to the Bell Company echoed those of other agents:

> The demand for bells grows louder daily and I do not see how the company can, in justice to its agents, fail to take some measures to meet this pressing need. The present delays in filling orders forces agents into a state of inaction which tends to discourage them and impair their value to us.[3]

Nevertheless Gower made progress. In September 1877 he earned a commission of $90 and paid the company approximately $140.[4] The next month Gower's commission more than doubled to $194 and he paid $364.35 to the Bell Company.[5] November's rentals declined,[6] but in December they rose again.[7] In January Gower's commission totaled $674.20, and he forwarded $1383.05 to the parent company.[8]

Meanwhile Gower continued his work on the Telephonic Harp.[9] In doing so he aroused the anger of the Bell patentees, who believed he was unjustly

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1. Frederick A. Gower to Bell Telephone Company, December 1877, AT&T, Box 1181.

2. Frederick A. Gower to Thomas A. Watson, September 13, 1877, AT&T, Box 1181; Frederick A. Gower to Bell Telephone Company, November 17, 1877, AT&T, Box 1181.

3. Frederick A. Gower to Bell Telephone Company, November 12, 1877, AT&T, Box 1181.

4. New England Agency Report, September 1877, AT&T, Box 1181.

5. New England Agency Report, October 12, 1877, AT&T, Box 1181.

6. New England Agency Report, November 13, 1877, AT&T, Box 1181.

7. New England Agency Report, December 6, 1877, AT&T, Box 1181.

8. New England Agency Report, January 17, 1878, AT&T, Box 1181; New England General Agency Report, January 28, 1878, AT&T, Box 1181.

9. Frederick A. Gower to Gardiner G. Hubbard, November 13, 1877, AT&T, Box 1181.

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claiming credit for its invention. Watson felt that even if Gower had invented it, he "should sink his individuality in anything that relates to the telephone into the company."[1] Gower argued that Gardiner Hubbard's criticism was unfair. In perfecting the harp, he explained, his purpose was to use it in lectures for advertising the telephone and strengthening Bell's claim.[2]

Perhaps the patentees' expression of irritation with Gower's lecture interests was prompted by the facts that by October 1877 they had begun to consider plans for the organization of the New England Telephone Company, and that Gower was requesting a share in the division of the new company's stock. Originally Gower believed Sanders, Watson and Bradley supported his claims. He wrote to Hubbard:

> In view of our understanding, you do not, as I readily understand, propose that my position shall be impaired, but I respectfully submit, that the easiest and surest way of guarding against this result is to allow me to participate in the division of stock at the outset of the new organization. This would at little or no cost to the Telephone Co. place me in a position to feel that my efforts in founding the business had been fully recognized, and enable me to engage as promptly and heartily as I wish to do, in forming and assisting the new company.[3]

When Gower's request for a division of stock was denied he naturally became critical of the Bell Company: "The New England business is getting on its legs where it can pay its expenses, and so Mr. Hubbard entertains a proposition from Mr. George L. Bradley to form a company in New England."[4]

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1. Thomas A. Watson to Gardiner G. Hubbard, December 1, 1877, AT&T, Box 1193.

2. Frederick A. Gower to Gardiner G. Hubbard, December 5, 1877, AT&T, Box 1181.

3. Frederick A. Gower to Gardiner G. Hubbard, October 31, 1877, AT&T, Box 1181.

4. Frederick A. Gower to William H. Reynolds, November 26, 1877, AT&T, Box 1001.

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He concluded that the proposition was made to compensate Sanders' cousin for some "alleged suffering" in developing Bell's foreign patents.[1]

Against continuing criticism,[2] Gower defended his work on the harp and also argued that he was pushing his agency as far as the limited supply of instruments would allow. His orders were "averaging three weeks ahead of the company's ability to fill them." Gower explained that he concentrated his attention on those areas where he believed competition or infringement would commence.[3]

The explanation was considered unsatisfactory. After carefully examining Gower's work for the Bell Telephone Company, Hubbard expressed disappointment:

> It seems to me [that] nearly as much would have been accomplished if we had no General Agent. Taking out the telephones leased by the Boston agents, Messrs. Clark & Hayward, both of whom were employed at my instance there remains very little to show for your labor. I do not think that you have sufficient business experience as shown by your work . . . to make a good and efficient agent or do either justice to us or to your own abilities.[4]

Consequently, as of January 1, 1878, Gower's relations as general agent were severed by the Bell Telephone Company.

It is difficult to say whether Hubbard's stated reasons for removing Gower were the true ones. Gower's receipts had been steadily increasing, and in October Sanders had admittedly been cheered by the news that Gower had returned from a trip among his sub-agents with a "pocketful of money,"

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1. Ibid.

2. Frederick A. Gower to Gardiner G. Hubbard, December 24, 1877, AT&T, Box 1181.

3. Ibid.

4. [Gardiner G. Hubbard] to Frederick A. Gower, December 31, 1877, AT&T, Box 1097.

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a portion of which would be used to pay Charles Williams.[1] Such a reaction, and the agency's improving condition as indicated by its monthly reports, strongly tend to contradict Watson's claim many years later that "Gower spent so much of his time yachting that he accomplished very little leasing of telephones."[2] Perhaps the Bell Company had unrealistically high expectations of returns from the New England Territory. When Gower's successor, the New England Telephone Company, had been in operation approximately two months, Hubbard also criticized it saying: "They [the NET Co.] have not given an order for a single telephone which would have been received if the New England Co had not been organized."[3]

When the patentees decided to terminate Gower's services they must have been strongly influenced by the financial relief they anticipated in the organization of the New England Company.

To facilitate Gower's removal, Hubbard urged him to take up telephone lecturing again, pointing out that a Mr. Johnson had been more or less successful in lecturing with the Edison instrument. Hubbard suggested that Gower could be of service to Bell and the telephone company if he were to resume his lecture career. Besides, he could realize a handsome profit by using the telephone harp as an accessory to a series of lectures. "With your superior abilities as a lecturer and vastly better instruments," Hubbard argued, "greater success would attend your labors."[4]

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1. Thomas Sanders to Frederick A. Gower, October 12, 1877, AT&T, GMLB 11.

2. Thomas A. Watson to Dr. Berthold, September 22, 1924, AT&T.

3. Gardiner G. Hubbard to Thomas Sanders, February 27, 1878, AT&T, Box 1193.

4. [Gardiner G. Hubbard] to Frederick A. Gower, December 31, 1877, AT&T, Box 1097.

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Gower agreed to terminate his contract without objection. He considered Hubbard's willingness to pay whatever was "just and equitable" as a form of settlement recognized under their agreement. In submitting to Hubbard's decision, however, Gower wished it clearly understood that he did not admit the justice of Hubbard's views regarding his conduct of the New England agency. He reiterated his argument that he had placed all the bells and telephones which the company had furnished, had collected and remitted rentals as fast as practicable and therefore was unable to see what more he could have done. He concluded with an implied reproach:

> Thanks for your kind reference to my lecturing. It has been growing plainer to me for some weeks past that I could and should do better service to Mr. Bell, myself and the company than by 'peddling' telephones with an inadequate supply.[1]

Sanders, eager for the funds in prospect from organization of the New England Telephone Company, was ecstatic over Gower's decision: "What a lovely boy he is!!!"[2] Writing in later years, the unfriendly Thomas Watson concluded:

> Gower did little or nothing in his magnificent territory in the way of business and, [was] vastly more interested in following Bell's footsteps in the lecture field . . . Fortunately his interest in lecturing made it very easy for Mr. Hubbard, who was then entirely disgruntled with Gower, to get him to exchange his business contract for the lecture contract . . . Gower's readiness to make the change is sufficient indication of his love for appearing on the public platform.[3]

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1. Frederick A. Gower to Gardiner G. Hubbard, January 2, 1878, AT&T, Box 1181.

2. Thomas Sanders to Gardiner G. Hubbard, January 3, 1878, AT&T, Box 1193.

3. Thomas A. Watson, "Recollections of Frederick A. Gower" (unpublished MS, 1929), AT&T.

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Early in January Gower drafted a letter, under the instructions of the Bell Telephone Company, informing his sub-agents that in consequence of the increase of telephone business it was now deemed expedient to organize a company to assume charge of it in New England. Therefore, his agency was to be closed immediately. But the positions of prompt and efficient agents would not be impaired.[1]

On March 13, 1878, Gower submitted his final accounting to the Bell Telephone Company.[2] While the settlement of accounts did not proceed without some disagreement, it was conducted amicably. Gower continued to collect rentals until the New England Telephone Company commenced its activities in February.[3] In this and other matters during the final phase of the Gower-Bell Company relationship, Gower acted upon the view that, "at a time when his [Bell's] rights are called in question, a perfectly solid front should be presented by the friends of Mr. Bell.[4] Thus, Frederick Gower ended his career as general agent of New England. He left without public expression of bitterness and acknowledging the uniform courtesy he had received from Thomas Sanders.[5]

Sanders had initially pledged his money and credit to the development of the telephone believing that his obligations would soon be taken over by

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1. Draft letter, Frederick A. Gower to Agents, January 4, 1878, AT&T, Box 1181.

2. Frederick A. Gower to Thomas Sanders, March 13, 1878; AT&T, Box 1181.

3. Frederick A. Gower to Gardiner G. Hubbard, February 11, 1878, AT&T, Box 1181.

4. Frederick A. Gower to Gardiner G. Hubbard, February 25, 1878, AT&T, Box 1181.

5. Frederick A. Gower to Thomas Sanders, March 13, 1878, AT&T, Box 1181.

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a well-capitalized stock company.[1] Consequently, he took immediate steps to organize one and in September 1877 indicated to Hubbard that he had located interested investors.

Sanders' prospective investors proposed a national organization of the Bell interests, but Hubbard rejected the concept. He was convinced that rentals would cover expenses.[2] Hubbard refused to consider anything but a New England company, contending that local companies were the best way to manage the patentees' interests.[3] Sanders had to yield and so introduced his cousin George L. Bradley[4] as prepared to raise $50,000 for a new New England company. "This I looked upon and it proved to be our only salvation from bankruptcy and ruin," Sanders wrote.[5]

George Lathrop Bradley had been born in Providence. His family originally came from Massachusetts. His father Charles S. Bradley, who also became involved in financing the development of the telephone, had been Chief Justice of the Supreme Court of Rhode Island.[6]

On October 12, 1877, Gardiner Hubbard began to negotiate the terms for

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1. Thomas Sanders to Alexander Graham Bell, September 27, 1878, AT&T, Box 1003.

2. Ibid.

3. Thomas Sanders to Gardiner G. Hubbard, April 7, 1878, AT&T, Box 1003.

4. Ibid.; Frederick A. Gower to W. H. Reynolds, November 26, 1877, AT&T, Box 1181; Gardiner G. Hubbard to Thomas Sanders, December 26, 1877, AT&T, Box 1001.

5. Thomas Sanders to Alexander Graham Bell, September 27, 1878, Box 1003.

6. Facts Compiled on George L. Bradley by William Chauncy Langdon, AT&T, Box 1059.

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the New England Telephone Company's organization and its relationship to the Bell Telephone Company. Originally, the Bell Company proposed the organization of a company capitalized at $200,000 with the exclusive right of renting telephones in New England and constructing and maintaining lines there.

Ninety thousand dollars of the stock was to be paid to the Bell patentees and $50,000 of stock was to be sold by George Bradley at its par value, payable in three installments over the next year beginning on January 1, 1878. Bradley was to receive $10,000 worth of stock for his organizational efforts, and $50,000 was to be held in reserve and sold for cash, as required, to the stockholders in proportion to their respective interests.[1]

Twelve days later a second proposal was made to Bradley.[2] It was this proposal which was ultimately adopted and became the basis of the New England Telephone Company.[3] This proposition was similar to that of October 12, except that $100,000 in stock was to be paid to the patentees and Bradley was to sell $100,000 in stock for $50,000 cash before December 15.[4] In effect, 900 shares of stock, at a par value of $100 each, were to be sold at $55.55½ in order to raise a working capital of $50,000, and 100 shares were to be set aside for promoting and starting the company.[5]

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1. Gardiner G. Hubbard to George L. Bradley, October 12, 1877, AT&T, GMLB 11.

2. Gardiner G. Hubbard to George L. Bradley, October 24, 1877, AT&T, Box 1001.

3. Minutes of Directors' Meeting, February 6, 1878, New England Telephone Company, AT&T.

4. Gardiner G. Hubbard to George L. Bradley, October 24, 1877, AT&T, Box 1001.

5. Draft, 1878 [sic], AT&T, Box 1001.

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In making his propositions to Bradley, Hubbard pointed out that as of October 1, 1877, the Bell Telephone Company had rented 2000 telephones, and that demand was increasing, especially as the number of uses to which the telephone could be put expanded. Hubbard was satisfied, on the basis of experience, that in order to achieve the best results in New England it was necessary to have sufficient capital to construct, maintain and lease telephones and also to construct telephone lines for parties unable to do so for themselves.[1]

The Bell Company offered to furnish the telephones for $3 and call bells presently on hand for $12--those produced after January 1, at $10.[2]

Hubbard's proposal drew a very optimistic picture of future business and predicted "handsome profits." He noted the current rental of 800 telephones in New England at an average rental of $7.74 each, and the belief that 1200 additional instruments could be rented within the next twelve to eighteen months, requiring 300 or 400 lines as a result. Hubbard calculated a net surplus of $20,388 for the first year of operation and a rise to $28,320 the next year as business expanded. "As the business grows the commissions and expenses will not increase at a corresponding rate and therefore the percentage of profits must steadily increase."[3] This was a very rosy picture, but then Hubbard was trying to enlist new investors and to sell the Bell Company's property in New England.

The most immediate problem which Bradley faced was securing subscribers

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1. Gardiner G. Hubbard to George L. Bradley, October 24, 1878, AT&T, Box 1001.

2. Ibid.

3. Ibid., also, Gardiner G. Hubbard to George L. Bradley, October 24, 1877, AT&T, Box 1001.

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for the stock. Although he approached only a few parties and only such "as I have reason to believe will sustain the matter favorably,"[1] he had secured pledges for the full amount of working capital by December 6, 1877.[2]

A more serious problem was Bradley's disagreement with Hubbard over the representation of the Bell Telephone Company's interest in the New England Telephone Company. Hubbard's desire to retain control over the telephone business did not dispose him to look upon the organization of the New England company with any great enthusiasm. He co-operated with Sanders and Bradley largely as a result of the company's financial needs and Sanders' insistence that something be done soon.

An indication of Hubbard's true feelings can be deduced from his instructions to Watson not to surrender some important documents to Bradley: "If Mr. Bradley is unable to organize the company without this information I shall be very glad, as we shall be better off without his aid."[3] Hubbard's opposition to the New England Company was made clearer in his accusation that Bradley, by the terms of his stock subscription, was trying to wrest control of the company and run it independently of the general interest of the Bell Telephone Company. He wrote Bradley:

> I supposed that the Bell Telephone Company would continue the management, under the name of the new company, and that you would be our agent. That was my distinct understanding of the agreement, and if there was any other purpose on your part I have been deceived. . . . If these plans for the management of the company

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1. George L. Bradley to Gardiner G. Hubbard, November 2, 1877, AT&T, Box 1001.

2. George L. Bradley to Gardiner G. Hubbard, December 6, 1877, AT&T, Box 1001.

3. Gardiner G. Hubbard to Thomas A. Watson, November 15, 1877, AT&T, Box 1105.

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> are not satisfactory, then it will be wise to abandon the understanding.[1]

Hubbard reminded Bradley that he had already declined one proposal which would have given him, Bradley, control. It was precisely for this reason that one half of the company's stock was to be placed in Hubbard's name. Under these arrangements nothing prejudicial could be done to the Bell interests.[2]

Sanders explained to Hubbard that Bradley's subscribers had taken the stock understanding it to be in a new and independent company. It was also their understanding that the officers of the Bell Company as individual trustees were to hold stock rather than the company itself, and unite with them in forming the new company.

Thomas Sanders could see no point in pressing the issue. He knew almost all of the gentlemen involved in the venture, and he knew them to be men of character and influence who would deal fairly with the Bell Company. Sanders urged Hubbard not to delay the New England Company's organization over this issue:

> With this 50,000 dollars [apparently this was the valuation Sanders placed on $100,000 of New England Telephone stock] to our hand in our hour of need, I do trust that no technical difficulties will intervene. I know you have always considered it a small sum, but money is very hard to raise especially in this time of business depression, and the ready money that we thus secure is worth four times as much as at a later day.[3]

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1. Gardiner G. Hubbard to George L. Bradley, December 15, 1877, AT&T, Box 1001.

2. Ibid.

3. Thomas Sanders to Gardiner G. Hubbard, December 16, 1877, AT&T, Box 1001.

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George Bradley also denied Hubbard's interpretation of the Bell Company's relation to the New England Company. He argued that those who acquired one half of the New England Company's stock by purchase had just as much right to determine company policies as those who acquired the remaining half for patent rights. Furthermore, it seemed strange to Bradley that if Gardiner Hubbard intended the Bell Telephone Company to control the New England Company he had never expressed a desire to retain a majority of the stock. Denying Hubbard's charge that he was trying to gain control of the New England Telephone Company, Bradley reiterated his belief that the new company's stock should be issued to and held individually in trust by the officers of the Bell Telephone Company.[1]

Hubbard agreed to have the stock issued to the patentees individually, provided they would place the stock in a pool so that it would be held as a unit. In this way he believed he was fulfilling the terms of Bradley's agreement.[2] Hubbard explained that the contract with Bradley was contrary to his best judgment but made solely to meet Sanders' wishes and give the latter's cousin a position. Hubbard believed that he could have made a better arrangement with other investors, but he had agreed to the organization of the New England Company because it was the quickest way to meet the Bell Company's debt to Charles Williams.[3]

Gardiner Hubbard indicated his readiness to rely upon the word of Sanders and Watson not to part with their New England stock without the

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1. George L. Bradley to Gardiner G. Hubbard, December 18, 1877, AT&T, Box 1001.

2. Gardiner G. Hubbard to Thomas Sanders, December 21, 1877, AT&T, Box 1001.

3. Gardiner G. Hubbard to Thomas Sanders, December 26, 1877, AT&T, Box 1001.

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consent of the others and to vote as a unit for policies in the interest of the Bell Company; but, he pointed out, "death or other causes might easily arise, putting it out of your power to carry out an honorary [sic] understanding."[1] He therefore required that certain phases of the telephone business be entirely managed and controlled by the Bell Telephone Company and that the New England Telephone Company pay its share of expenses in maintaining the telephone patent.[2]

Sanders characteristically did not agree with Hubbard's understanding of the situation. He appreciated Hubbard's consideration of his wishes, and Hubbard's consent to the proposition, but he questioned whether a better arrangement could have been procured elsewhere, pointing out that a similar arrangement had already been refused by their New York friends. Sanders concluded: "I do not like to have you take so gloomy a view of what seems the stepping stone to future success."[3]

Sanders had good reason to be pleased at Hubbard's consent to the organization of the New England Company since he calculated that the Bell Company owed him nearly all the money it would receive from the new company.[4]

Just when it seemed as if all opposition to the New England Company had been overcome, Chauncy Smith sounded a discordant note. Smith, the Bell Company's patent attorney, who would be charged with the preparation of the New England Company's contract, advised against the creation of a separate

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1. Ibid.

2. Ibid.

3. Thomas Sanders to Gardiner G. Hubbard, December 26, 1877, AT&T, Box 1001.

4. Thomas Sanders to Gardiner G. Hubbard, January 3, 1878, AT&T, Box 1193.

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company. He argued:

> You are fated to have a controversy immediately with the most powerful opponent in this country [Western Union] and you can't afford to take a step which will place the control of the invention in separate companies.[1]

Smith advised the Bell Company to increase its stock and sell it in place of trading New England rights for the New England Company's stock. Hubbard approved of the suggestion.[2]

Charles Eustis Hubbard, Gardiner's brother, also disagreed with the idea of selling the New England rights. He believed Sanders wanted money so badly that he was yielding "anything and everything for the sake of getting a small portion of that $50,000." Therefore, C. E. Hubbard counseled delay in transferring patent rights to the New England Telephone Company investors. In the meantime, Sanders would collect enough rental receipts to fill immediate needs, whereupon Gardiner could stand firm on his original proposition to Bradley. If Bradley refused, the arrangement could be cancelled and Gardiner could proceed otherwise.[3]

Sanders saw the wisdom of uniting the telephone interests and hoped that it could be accomplished. After all, he had originally suggested such an arrangement only to be turned down by Gardiner Hubbard. Judge C. S. Bradley also looked with favor upon the consolidation of interests if a satisfactory agreement could be reached.[4]

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1. Chauncy Smith to Gardiner G. Hubbard, January 4, 1878, AT&T, Box 1001.

2. Gardiner G. Hubbard to Thomas A. Watson, January 6, 1878, AT&T, Box 1001.

3. C. E. Hubbard to Gardiner G. Hubbard, January 7, 1878, AT&T, Box 1001.

4. Thomas Sanders to Gardiner G. Hubbard, January 8, 1878, AT&T, Box 1001.

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Sanders believed it would be necessary to make the New England Company investors a better proposition than the one they had already accepted:

> So far as I am concerned, I shall be inclined to give them very liberal terms for the sake of forming one company for the whole country organized on the same principle as the NE Co requiring the subscribers to raise more money and giving them a substantial interest in the Bell Telephone Company.[1]

In the meantime, Sanders reminded Hubbard that money was sorely needed.[2]

According to Thomas Sanders, the proposal to organize a national company with the New England Telephone Company investors ended in failure when the investors refused to place their funds under Hubbard's management and control. Hubbard, in turn, refused to accept a national company on any other terms. He rejected a plan which Sanders proposed and the investors supported, and so the organization of the New England Company was completed as scheduled.[3]

Acting in accordance with the provisions of the Declaration of Trust, Thomas Sanders and Thomas A. Watson, representing a one-third interest in the Bell Telephone Company, requested clerk C. E. Hubbard to call a special meeting of the shareholders to consider "whether the Trustee shall grant a license to manufacture telephones to be used only in New England," to the proposed New England Telephone Company.[4] Accordingly, C. E. Hubbard notified the shareholders that a special meeting would convene on February 1, 1878.[5]

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1. Ibid.

2. Ibid.

3. Thomas Sanders to Alexander Graham Bell, September 27, 1878, AT&T, Box 1003.

4. Thomas Sanders and Thomas A. Watson to C. E. Hubbard, January 17, 1878, AT&T, Box 1001.

5. C. E. Hubbard to Shareholders in the Bell Telephone Company, January 17, 1878, AT&T, Box 1001.

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Due to a "violent snowstorm," the meeting was adjourned to the next day when 4990 out of 5000 shares were represented in person or by proxy. (Alexander Graham Bell's ten shares were not represented.) The shareholders unanimously voted that the Trustee be authorized to execute the agreement with the New England Telephone Company.[1]

The authorization was voted in consideration of the Bell Telephone Company's receipt of 1000 shares of fully paid up stock, that is, one half of the New England Company's stock. Acting as trustees for the Bell Telephone Company, Gardiner Hubbard, Thomas Sanders and Thomas Watson were assigned 600, 300, and 100 shares of stock respectively. Each trustee was empowered to vote his portion of the stock as he saw fit and none was required to convey the stock in his name without a three-fourths vote of the Bell Telephone Company shareholders.[2]

According to the agreement signed by Gardiner Hubbard and C. S. Bradley, the Trustee conveyed to the New England Telephone Company the "full, free and exclusive license" to use patents 161,739, 174,465, 178,399, and 186,787 in the New England states. Further, the Bell Company agreed to convey to the New England Telephone Company the New England license to whatever future rights it might acquire, upon payment by the New England Company of a just and proportionate part of the cost made to acquire such new rights and interests. Reciprocally, the Bell Telephone Company was entitled to similar patent rights outside of New England as acquired by the New England Telephone Company, after it had paid its just and proportionate part of the cost.

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1. Minutes of Shareholders' Meeting, February 2, 1878, Bell Telephone Company, AT&T.

2. Ibid.

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The Trustee sold and assigned all existing telephones, magnetic calls, and contracts covering them which he owned or controlled in New England at the rate of $3 per telephone and $12 per magnetic call.

In return, the New England Telephone Company agreed to employ exclusively the Trustee of the Bell Telephone Company to construct the "machines" to be used in New England, which were not to be sold to other parties. It also agreed to pay $3 for all telephones and $10 for magneto calls. If the cost of manufacturing should be reduced or increased in the future, the price of instruments was to be varied to equal the cost of labor and material plus fifteen percent for general expenses. No change in price was to be made unless there was a change of at least ten percent in the cost. If the Bell Company left orders unfilled for an unreasonable time, then the New England Telephone Company could develop temporary means to supply its deficiency.

The New England Telephone and Bell Telephone Companies were to guard against their instruments' being used in each other's territory. Since both had a common interest in the Bell telephone, they agreed that the future expense of patent interferences and patent suits involving the validity of the patents should be shared, the New England Company contributing one-fourth and other parties three-fourths. Thus, Chauncy Smith's fears about separate organizations were, in part, overcome by this provision.

Finally, the contracting parties agreed to co-operate in the establishment and joint operation of connecting lines. Expenses and profits were to be divided on a pro rata basis or some other equally fair and equitable basis.[1]

On February 2, 1878, the same day the New England contract was ratified,

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1. Contract, February 2, 1878, Minutes of Shareholders' Meeting, February 2, 1878, Bell Telephone Company, AT&T.

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the subscribers to the agreement of association met for the purposes of organizing a corporation, the New England Telephone Company. Hubbard was requested to act as chairman. The members were presented with a code of by-laws for the corporation, which they debated and unanimously adopted.

The by-laws were fairly routine and as might be expected were quite similar to those of the Bell Telephone Company. They provided for annual and special meetings, election of officers, delegation of authority and the keeping of records. In contrast to the by-laws of the Bell Telephone Company, the Treasurer of the New England Telephone Company was required to post a bond for $20,000 for the faithful performance of his duties. Eight directors were elected including Gardiner G. Hubbard, Thomas Sanders, Thomas A. Watson and Charles E. Hubbard. Thomas Sanders was also unanimously elected Treasurer.[1]

At the Directors' meeting, held immediately after the stockholders' meeting, Gardiner Hubbard was unanimously elected President and George L. Bradley, General Agent at a salary of $3000 per year. In effect, the chief officers of the New England Telephone Company were the same as those of the Bell Telephone Company. Charles Bradley and C. E. Hubbard were ordered by the Directors to obtain the necessary charter for the new company.[2]

On February 6, Charles Hubbard reported to the Board of Directors that the Commissioner of Corporations expressed a willingness to approve a charter for the New England Company at a valuation of $150,000 in a capital of $200,000, the remaining $50,000 to be paid in cash. Therefore,

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1. Minutes of Shareholders' Meeting, February 2, 1878, New England Telephone Company, AT&T.

2. Minutes of Directors' Meeting, February 2, 1878, New England Telephone Company, AT&T.

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the Directors voted to instruct the Treasurer and George L. Bradley to call in the $50,000.[1]

Apparently some of the subscribers had second thoughts about their purchases of stock, for H. Saltonstall sent his check to Sanders instructing him not to use it until the total subscription had been paid in. "My object is not to delay the drawing of the check but to consider my subscription to shares as not binding until the whole cash capital of $50,000 is actually received, and thereby personal liability is avoided."[2]

The Commonwealth of Massachusetts issued a certificate of incorporation on February 12, 1878, to the New England Telephone Company.[3] Five weeks later, the Commissioner of Corporations issued a certificate of payment of capital[4] indicating that the subscribers had paid in their $50,000. Thus, the New England Telephone Company, a corporation of $200,000 capital stock and eleven stockholders,[5] was created for the purpose of "carrying on the business of manufacturing and renting telephones and constructing telegraph

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1. Minutes of Directors' Meeting, February 6, 1878, New England Telephone Company, AT&T. There appears to be some confusion on this point, for although the directors acted upon Hubbard's report and a certificate of incorporation was issued six days later, thus implying that the Bell Company received $150,000 in stock for its patent rights, and George Bradley reported to the New England Company stockholders that $150,000 of the Company's capital stock represented the exclusive right to be licensed under the Bell patents (George L. Bradley to the stockholders of the New England Telephone Company, January 27, 1879, AT&T, Box 1001), the license contract of February 2, 1879, clearly states that rights were granted by the Bell Company to the New England Telephone Company for 1,000 shares (Minutes of Shareholders' Meeting, February 2, 1878, AT&T).

2. H. Saltonstall to Thomas Sanders, February 9, 1878, AT&T, Box 1001.

3. Certificate of Incorporation, Number 767, February 12, 1878, AT&T, Box 1001.

4. Certificate of Commissioner of Corporations, March 19, 1878, AT&T, Box 1001.

5. Ibid.

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lines therfor, in the New England states."[1]

With the organization of the New England Telephone Company, Sanders' financial burdens as Treasurer of the Bell Telephone Company were eased, but only temporarily. By February 20, he had drawn all the funds the New England Company owed, much to the indignation of some of its directors,[2] and he was still short of funds to pay one of Williams' notes coming due the next day.[3] Even so, Sanders was hopeful because orders from New England were coming in faster than from any other section of the country. Besides, "all the energies of a really powerful corporation are now given to this little section."[4]

Hubbard disagreed with Sanders' analysis that the progress being made in New England was the result of the New England Telephone Company's financial activities. But in rebutting Sanders' contention that the Bell Company's financial condition was not good, Hubbard acknowledged the value of the New England Telephone Company. As he noted, the Bell Telephone Company included among its assets $100,000 stock in the New England Company on which $25,000 cash had been paid and which he believed could be easily sold for sixty to seventy percent on the dollar. Moreover, Sanders could use some of the stock as collateral for a loan.[5]

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1. Ibid.

2. Thomas Sanders to Gardiner G. Hubbard, February 22, 1878, AT&T, Box 1193.

3. Thomas Sanders to Gardiner G. Hubbard, February 20, 1878, AT&T, Box 1006.

4. Thomas Sanders to Gardiner G. Hubbard, February 22, 1878, AT&T, Box 1193.

5. Gardiner G. Hubbard to Thomas Sanders, February 27, 1878, AT&T, Box 1193.

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Sanders later acknowledged that the New England Company money was not only the first to be advanced by anyone to forward Bell's invention,[1] but also that the organization of the New England Telephone Company saved "us from absolute ruin, and [provided] the only foundation on which to build our future prosperity."[2]

Whatever its historical significance, the organization of the New England Company did not solve the Bell Company's long-range financial needs. Consequently, discussions were resumed concerning the reorganization of the Bell Company, looking toward the possible inclusion of the New England Company investors.[3] Hubbard disagreed with Sanders' suggestions,[4] and during the course of negotiations restated his hostility toward the New England Company and its backers.[5] Eventually the New England investors did come to the aid of the Bell Company.

The New England Telephone Company functioned in a manner similar to that of the Bell Company. It did not function as an operating company, but instead leased instruments to agents and sub-agents.[6] The New England Company was to telephony in New England what the Bell Telephone Company was to telephony in the rest of the country.

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1. Thomas Sanders to Alexander Graham Bell, March 20, 1878, AT&T, Box 1003.

2. Thomas Sanders to Gardiner G. Hubbard, April 7, 1878, AT&T, Box 1003.

3. Thomas Sanders to Gardiner G. Hubbard, March 1, 1878, AT&T, Box 1193.

4. Gardiner G. Hubbard to Thomas Sanders, March 9, 1878, AT&T, Box 1193.

5. Gardiner G. Hubbard to Thomas Sanders, March 15, 1878, AT&T, Box 1003.

6. U.S. Federal Communications Commission, Telephone Investigation: 1935. Exhibit 1360-A Vol. I, "AT&T Co.--Corporate and Financial History," p. 18.

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The New England Company appointed agents for its territory on terms quite similar to those granted by the Bell Company to its agents. It granted exclusive territories, exhorted agents to make their best effort to advertise and introduce the telephone, required them to keep exact accounts and make regular reports. The New England Company enjoined its agents to watch for infringements and report any, and admonished them not to depart from policies set by it. New England Company agents were compensated by commissions on telephone and bell rentals. And, as in Bell Company contracts, the continuance of agencies depended "upon the energy and success with which you prosecute the business of your company."[1]

The New England Company's policy regarding the establishment of district telephone systems was also quite similar to its parent company's. Among the important provisions which the New England Company adopted was that permitting it to purchase a district company's wires and equipment at any time at their actual cost and a percentage for the company's goodwill.[2] Like the Bell Company, the New England Telephone Company encouraged the organization of district companies in the large towns of New England.[3] Its rentals varied depending on the use to which the telephones were put, and agents were required to pay advances on instruments as soon as orders were filled.[4]

The New England Telephone Company, in turn, helped influence Bell

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1. Draft Appointment for Agents, MBl.

2. New England Telephone Company to W. Hayward, February 18, 1878, AT&T, MBl; George L. Bradley to Charles A. Cheever, February 25, 1878, AT&T, MBl.

3. George L. Bradley to L. W. Clarke, February 8, 1878, AT&T, MBl.

4. George L. Bradley to R. W. Hyde, February 9, 1878, AT&T, MBl.

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Telephone Company policies. It was the New England Company which helped convince Hubbard that the rental of single instruments should be permitted. Initially, George Bradley suggested to Hubbard that more money could be made by not enforcing the policy of requiring two telephones (one used as a transmitter and one used as a receiver) at each station.[1] Hubbard agreed with the theory, but indicated that such a policy might embroil the Bell Company in further difficulties with the Western Union and, therefore, be more harmful than useful.[2]

However, a "rather impromptu meeting" of the Directors of the New England Telephone Company met on February 18, 1878, Charles E. Hubbard, Thomas Sanders, Thomas Watson and C. S. Bradley being present. They voted to instruct their agents to allow the use of one telephone at a station and merely recommend that two be used instead of one.[3] Hubbard expressed surprise at the New England Company's action in view of his stated opposition to the policy and especially since the vote was passed without consulting him. He therefore requested that his written protest be entered on the company's books.[4]

Hubbard had been anticipating something like this when he insisted on voting the Bell Company's stock as a block. It was this kind of conduct that disposed him to be mistrustful of Sanders and the New England Company

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1. George L. Bradley to Gardiner G. Hubbard, February 12, 1878, AT&T, Box 1182.

2. Gardiner G. Hubbard to George L. Bradley, February 15, 1878, AT&T, Box 1182.

3. George L. Bradley to Gardiner G. Hubbard, February 18, 1878, AT&T, Box 1182; Minutes of Directors' Meeting, February 18, 1878, New England Telephone Company, AT&T.

4. Gardiner G. Hubbard to George L. Bradley, February 18, 1878, AT&T, Box 1182.

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investors and made further reorganization of the Bell Company more difficult. Ultimately the Bell Company adopted the single instrument policy, but Hubbard attributed the change to the fact that the competition consented to pursue a similar policy.[1] No doubt the New England Telephone Company's action also helped facilitate Hubbard's change of heart.

During its relationship with the Bell Telephone Company the New England Company seems to have prospered. Commencing operations with an average daily order for twenty telephones, Bradley predicted greater things for the future if let alone.[2] Watson concurred: "Had he [Bradley] been in the position where he is now three months ago we would be doing a fine business in N.E."[3]

By the end of February, the New England Telephone Company had sent its agents 342 telephones and 54 bell calls, and Bradley could see the prospect of large orders in the future.[4] In April, however, Hubbard complained that the New England Company's business was falling off. He cited as proof the fact that the New England Company had only ordered 200 telephones in March while the remainder of the Bell Company's business had increased.[5] Hubbard persisted in his belief that the organization of the New England Telephone Company had been unnecessary and that Sanders' espousal of its cause a mistake.[6]

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1. Gardiner G. Hubbard to George L. Bradley, February 25, 1878, AT&T, Box 1182; George L. Bradley to Gardiner G. Hubbard, February 23, 1878, MBl.

2. George L. Bradley to Gardiner G. Hubbard, February 12, 1878, AT&T, Box 1182.

3. Thomas A. Watson to Gardiner G. Hubbard, February 12, 1878, AT&T, Box 1193.

4. George L. Bradley to Gardiner G. Hubbard, February 27, 1878, AT&T, Box 1182.

5. Gardiner G. Hubbard to Thomas Sanders, April 10, 1878, AT&T, Box 1003.

6. Ibid.

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Notwithstanding Hubbard's dissatisfaction, Bradley continued to be optimistic. In May, he predicted that as of June 1 nearly 2200 telephones would be leased out of the company's total stock of 3000. He declared the company was earning a net profit of $14,000 per annum, or 7 percent on the value of its stock. "All things considered this seems to me a very satisfactory showing."[1]

Perhaps Hubbard's criticism was unduly influenced by an emerging controversy with the New England Telephone Company. In urging the reorganization of the Bell Telephone Company, Sanders pointed out that the instruments sold to the New England Company were of no lasting benefit to the Bell Company since every instrument sold was for the actual cost of material and labor plus 15 percent. Apparently the Bell Company overcame this condition by selling its instruments at inflated prices. He explained, however:

> Nothing but my personal entreaties prevent the new company from doing its duty in investigating the matter of cost, no part of current expenses in advance of 15% on cost of material and labor will be met by the NE Co and we shall be called upon sooner or later to refund every cent in excess of that amount which we shall have taken since Jan. 25.[2]

Indeed, by April 12, Bradley was quoting those provisions of the contract relating to the price of instruments charged by the Bell Company and venturing the opinion that if the $3 price was more than the Bell Telephone Company was entitled to receive, then the company ought to change its prices accordingly.[3] Responding to stockholder pressure, the Bell Company adjusted its price on telephones. It allowed the New England Telephone Company a

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1. George L. Bradley to Gardiner G. Hubbard, May 31, 1878, AT&T, MBl.

2. Thomas Sanders to Gardiner G. Hubbard, March 15, 1878, AT&T, Box 1193.

3. George L. Bradley to Gardiner G. Hubbard, April 12, 1878, AT&T, MBl.

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rebate of $1.25 on every hand telephone delivered since February 2. As of May 31, the price was fixed at $1.75 on hand telephones, $3 on box telephones and $10 on bells. Sanders concluded about the new prices: "I think in the future if we are compelled to manufacture at these prices, we had better abandon the manufacture for NE and allow them to manufacture their own."[1]

Another point which irritated the New England Telephone Company was the fact that the Bell Telephone Company did not accord it a most-favored agency status in regard to prices for call bells.[2] Hubbard claimed that he knew no reason why the Bell Company should sell bells to the New England Company at special prices granted to selected agencies. He defended his company's actions by saying that certain agencies were encountering very heavy competition and therefore required special prices.[3]

On July 27, 1878, having received the consent of the Bell Telephone Company,[4] the Directors of the New England Telephone Company voted that their company would hereafter buy its bells directly from Charles Williams or such other party as might be agreed upon.[5] The Bell Company also agreed to sell to the New England Company telephones at cost price, providing the New England Telephone Company contributed a reasonable portion of Thomas

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1. Thomas Sanders to Gardiner G. Hubbard, May 31, 1878, Thomas Sanders' Letterbook, AT&T, Box 1002.

2. George L. Bradley to Gardiner G. Hubbard, May 18, 1878, AT&T, MBl.

3. Gardiner G. Hubbard to George L. Bradley, May 21, 1878, AT&T, Box 1182.

4. Affidavit of C. E. Hubbard, Circuit Court of U.S. for Western District of Pennsylvania, American Bell vs. Western Pennsylvania Telegraph and Telephone Company, AT&T, Box 1008.

5. Minutes of Directors' Meeting, July 27, 1878, New England Telephone Company, AT&T.

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Watson's salary.[1]

The New England Telephone Company continued its active existence until March 1879 during which time it faced many problems similar to those of other agencies and the parent company. Although its organization afforded only a temporary respite to Thomas Sanders, and despite the fact that it was the cause of some friction and misunderstanding between Sanders and Hubbard, the organization of the New England Telephone Company foreshadowed the regional organization of the "associated" companies of the later Bell System.[2]

Moreover, through Sanders' efforts in organizing the New England Company, the Bell Company was later able to ally itself with powerful financial elements in Boston.[3]

Bell Interests in New York City

The Bell Telephone Company numbered among its assets its contract with the New York City agency. What makes this agency of particular interest in this period is not only that its contractual relations with the Bell Company were unique, and that it served as agent for the New England Company in several counties in Massachusetts and Connecticut,[4] but also that Hubbard considered the New York arrangements a more satisfactory alternative for raising funds than Sanders' proposals for organizing the New England Telephone Company.[5]

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1. Affidavit of C. E. Hubbard.

2. F.C.C., Exhibit 1360-A-Vol. I, p. 16; Langdon, "Early Corporate Development," 140.

3. Langdon, "Two Founders," 279.

4. George L. Bradley to Gardiner G. Hubbard, February 20, 1878, AT&T, Box 1182.

5. Gardiner G. Hubbard to Thomas Sanders, December 26, 1877, AT&T, Box 1001.

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Hubbard's hopes for the New York agency were of long standing duration. The two chief figures in the New York business were Hilborne Roosevelt, a cousin of Theodore Roosevelt's father, and considered one of the most respected men in New York;[1] and Charles Cheever, a cripple since birth, and also a member of a prominent New York family.[2] Roosevelt's affiliation with the telephone was the result of his attendance at one of Bell's lectures.[3] Cheever gained his connection through an introduction from Anthony Pollok to Gardiner Hubbard and Alexander Graham Bell.[4] Together, Cheever and Roosevelt negotiated for and obtained exclusive agency rights for New York City and parts of New Jersey.

They planned for an orderly and systematic introduction of the telephone culminating in the establishment of a central exchange system in their territory.[5] The terms which the New York agency secured were unusual in several ways. The Bell Company fixed the commission and prices for its telephones. However, since Cheever and Roosevelt believed they could rent telephones at higher prices than normal, it was agreed that they would receive a forty percent commission on telephones rented at $20 and fifty percent of any sum in excess of that. Further, the Bell Telephone Company agreed to share the losses resulting from unusual discounts made on telephones rented in quantity.[6]

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1. Rose, "Early Telephone Reminiscences," 22-23.

2. Ibid.

3. Hilborne Roosevelt to Thomas A. Watson, February 4, 1881, AT&T, Box 1024.

4. Charles A. Cheever to William H. Forbes, February 14, 1881, AT&T, Box 1024.

5. Proposal, Charles A. Cheever and Hilborne Roosevelt, June 1, 1877, AT&T, Box 1024; Contract, October 8, 1877, AT&T, Box 1024.

6. Ibid.

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The New York agency was not to share any cost whatsoever in the defense of the validity of the Bell patents as the New England Telephone Company was later required to do. The most peculiar feature of the New York contract was the provision by which the agents guaranteed that at the end of two years they would pay the Trustee a sum equal to the rental of 2000 telephones or forfeit their contract.[1]

Several propositions were considered for the organization of a New York company. One envisioned the formation of a company with $150,000 capital,[2] and another a company with $300,000.[3] According to the Articles of Incorporation, however, the Telephone Company of New York was organized with a capital of only $20,000. It was to commence its operations on August 1, 1877, and end them on August 31, 1927.[4]

Initially, Hubbard believed the Bell patentees would receive a controlling interest in the New York Company,[5] but as finally incorporated, the patentees received only one-half of the company's capital of $10,000 worth of stock.[6] Cheever and Roosevelt were appointed agents for the Telephone Company of New York and assumed responsibility for the leasing of 2000 instruments within two years.[7]

The Bell Company's contract with the New York Company reflected the feeling that New York represented a lucrative area for developing the

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1. Ibid.
2. Proposal, June 14, 1877, AT&T, Box 1024.
3. Memorandum of Contract, July 2, 1877, AT&T, Box 1024.
4. Certificate of Incorporation, August 29, 1877, AT&T, Box 1024.
5. Gardiner G. Hubbard to G. S. Ladd, July 17, 1877, AT&T, Box 1173.
6. Contract, October 18, 1877, AT&T, Box 1024.
7. Contract, October 18, 1877, AT&T, Box 1024.

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telephone business. Hubbard, as usual, was very optimistic for the future and very generous in his praise: "The business at New York is worth far more than that of all our other agencies put together."[1] While Hubbard heaped praise on the New York agents, Sanders requested them to forward a remittance to cover some 400 instruments which had already been shipped.[2] Even so, Hubbard prided himself on the selection of his New York agents: "The more I see and know of Mr. Cheever the better I am satisfied with his agency and doubt if we could have found anyone who would have given us as good satisfaction."[3]

Roosevelt and Cheever encountered the usual problems in conducting their agency. They argued that their discounts should be larger,[4] they were dissatisfied with their bell calls,[5] and they complained that their orders were not filled promptly.[6]

Whatever the expectations for the New York agency, it soon became evident that they were not about to be fulfilled under the existing arrangements. In November 1877 Cheever proposed the organization of a new company to manage telephony in the entire state of New York. The proposal resembled the one being considered for the organization of the New England Telephone Company

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1. Gardiner G. Hubbard to Thomas A. Watson, September 18, 1877, AT&T, Box 1193.

2. Thomas Sanders to Charles A. Cheever, October 12, 1877, AT&T, GMLB 12.

3. Gardiner G. Hubbard to Thomas Sanders, November 15, 1877, AT&T, Box 1024.

4. Charles A. Cheever to Gardiner G. Hubbard, October 18, 1877, AT&T, Box 1024.

5. M. K. Applebaugh to Thomas A. Watson, October 15, 1877, AT&T, Box 1168.

6. Charles A. Cheever to Gardiner G. Hubbard, November 28, 1877, AT&T, Box 1168.

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By the terms of Cheever's proposal, the New York company was to be reorganized with a capital of $400,000, one-half going to the patentees and one-half to those who would supply a cash capital of $110,000. Fifteen thousand dollars was to be advanced immediately to the Bell Company for instruments.[1]

While the plan was not entirely acceptable to Hubbard, he did think it beneficial because it would furnish much needed money and credit.[2] Negotiations between Hubbard and Cheever continued and Hubbard even drafted an agreement which detailed the terms of Cheever's proposition.[3] Significantly, opposition to Cheever's plan came from Thomas Sanders:

> Mr. Cheever is exceedingly ingenious in devising a plan for a company, but so far as I can get his proposition through my head it contemplates placing Messrs. Cheever and Roosevelt on a much better footing than by the old arrangement and at the expense of the Bell Tel Co.[4]

Sanders was especially disturbed with the provision which required the Bell Company to furnish telephones until rentals amounted to $20,000 for its share of the reorganized company's stock.[5] Given the Bell Company's theory of operation and its limited financial resources, a proposition which did not result in immediate revenue could hardly be acceptable to Sanders. He was willing, however, to reconsider if the New York Company would agree to pay $3 for every telephone and $10 for every bell as did the New England

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1. Gardiner G. Hubbard to Thomas Sanders, November 5, 1877, AT&T, Box 1024.

2. Ibid.

3. Draft Agreement, January 1, 1878, AT&T, Box 1024.

4. Thomas Sanders to Gardiner G. Hubbard, January 30, 1878, AT&T, Box 1024.

5. Ibid.

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Telephone Company.[1]

Negotiations continued until March 1878. Cheever urged reorganization of the Telephone Company of New York on the grounds that it was necessary to secure additional capital. Cheever and Roosevelt were unwilling to contribute any further money to the telephone enterprise. By their estimates, they had already advanced $18,000. Cheever concluded that unless something was done soon, he would have to advise one of the New York Company's largest creditors to look to the Bell Telephone Company for payment.[2]

By April, it became clear to Hubbard that the Bell Telephone Company would have to take Cheever's business into its "hands."[3] On April 23, Cheever and Roosevelt informed Hubbard that they wished to be relieved of their responsibilities and offered to sell their interest in the company for $30,000. They suggested,

> very likely the New England Telephone Company would like to acquire possession of our field of operations and as they seem to have much more pluck than we have and show a readiness to invest in the enterprise in their own locality . . . perhaps they would like to buy us out.[4]

Hubbard now instructed Sanders to inform the New York Company's largest creditor to forward their bills to the Bell Telephone Company.[5] Here was a new drain on the already over-burdened resources of the parent company.

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1. Thomas Sanders to Gardiner G. Hubbard, February 6, 1878, AT&T, Box 1024.

2. Charles A. Cheever to Gardiner G. Hubbard, March 22, 1878, AT&T, Box 1168.

3. Gardiner G. Hubbard to Thomas E. Cornish, April 20, 1878, AT&T, Box 1054.

4. Charles A. Cheever to Gardiner G. Hubbard, April 23, 1878, AT&T, Box 1024.

5. Gardiner G. Hubbard to Thomas Sanders, April 26, 1878, AT&T, Box 1168.

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The New York agency failed for a number of reasons. Despite his earlier optimistic appraisal, Hubbard was finally forced to conclude that Cheever was "unwell and unfit" to take charge of his own business.[1] In addition, Hubbard believed Cheever did not have a "good set of men about him." This together with the fact that Cheever tried to do too much himself explained to a large degree, at least to Hubbard, the failure of the Telephone Company of New York.[2]

Sanders' analysis was probably more correct. He believed the New York Company had invested too heavily in the construction and rental of lines rather than concentrating on the leasing of lines in concert with some of the city's district telegraph companies.[3] An analysis of Cheever's financial statement shows further that the New York Company had more of its instruments in stock, loaned out for trial and in the hands of its agents (508) than it had leased (374).[4]

According to the final terms of the settlement, the Bell Telephone Company agreed to take the New York property and pay Cheever and Roosevelt $14,000, leaving a disputed balance of $14,000 which was to be settled by a referee.[5] The Bell Company paid the New York Company $2012.12 cash and three notes for $4666.67 each plus interest.[6] Hubbard proposed that the Bell Company

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1. Ibid.

2. Gardiner G. Hubbard to Thomas Sanders, May 1, 1878, AT&T, Box 1205.

3. Thomas Sanders to Gardiner G. Hubbard, April 29, 1878, AT&T, Box 1024.

4. Memorandum, May 21, 1878, AT&T, Box 1168.

5. Gardiner G. Hubbard to The Executive Committee of the Bell Telephone Company, July 30, 1878, AT&T, Box 1024.

6. Charles A. Cheever to George L. Bradley, July 24, 1878, AT&T, Box 1024.

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pay $8000 on the disputed sum and Cheever and Roosevelt absorb the remainder of the loss.[1]

On July 30, 1878, the documents transferring the property of the Telephone Company of New York to the Bell Telephone Company of Boston were formally executed. In consideration of the property assigned, the Bell Telephone Company agreed to assume all obligations of the Telephone Company of New York.[2] According to Hubbard's reckoning, the Bell Company was receiving property worth $18,553.80. Thus, the company sustained a loss of over $6000.[3]

As the Bell Telephone Company began its operations as a corporation in July 1878, it was faced with the unsettled conditions in New York City and the financial obligations resulting from them. Fortunately it now commanded the services of Theodore N. Vail who was entrusted with the responsibility of extricating the Bell Company from its New York entanglement by organizing a new company there and securing other financial backers.

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1. Gardiner G. Hubbard to Charles A. Cheever, July 30, 1878, AT&T, Box 1024.

2. Assignment of Leases, July 30, 1878, AT&T, Box 1024.

3. Gardiner G. Hubbard to The Executive Committee of the Bell Telephone Company, July 30, 1878, AT&T, Box 1024.

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CHAPTER IX

A GIANT THREATENS

The construction of Bell's telephone was comparatively simple, however complex the scientific principles underlying it, as Chauncy Smith and John Ponton had pointed out. Consequently, there arose a number of companies which, from time to time, attempted to fill the demand for telephones by supplying components and instructions so an individual could make his own working model.

As early as 1877, C. E. Jones & Brother of Cincinnati, manufacturers and dealers in electrical and telegraphic equipment, advertised how to construct telephones, and offered a complete set of parts for $5. The company did acknowledge its debt to Alexander Graham Bell: "The principle of the telephone is very old, but the application of it was first invented and patented by Mr. A. G. Bell of Boston."[1] Nevertheless, Hubbard filed a bill of complaint in November 1878 and the case was finally settled on behalf of the Bell interests in early 1879.[2]

Another early infringement was that of L. G. Tillotson & Co. of New York. Unlike the Jones case, the Tillotson infringement case was settled relatively quickly and out of court. Tillotson offered components in the exact shape of those in the Bell models and described the method of assembling them, even using a Bell Company illustration.[3] Charles Cheever urged legal

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1. Advertisement, C. E. Jones & Brother, Cincinnati, 1877, AT&T, Box 1003.

2. Charles H. Swan, "Narrative History of the Litigation on the Bell Patents, 1878-1896" (unpublished MS; Boston, 1903), AT&T, 136-137.

3. Charles A. Cheever to Gardiner G. Hubbard, February 25, 1878, AT&T, Box 1001.

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action on the ground that "every day's delay shakes public confidence as to our strength and makes us new enemies."[1]

Tillotson's behavior apparently was the result of some misunderstanding, for upon notification and explanation of Bell's rights he ceased his infringing activities. He claimed he had no intention of doing wrong and expressed his regret "innumerable times."[2] Under the guidance of the Bell Company's legal counsel, Tillotson and Company wrote a letter of public apology. In it the company announced it had already ceased the sale of components and requested its customers to return the telephones previously sold and receive a refund. Tillotson offered to do whatever it could to compensate the Bell Company.[3]

Unfortunately not all such competitors could be handled so swiftly and efficiently. Others required time, patience and money. Of these the most important was Western Union, which posed the greatest competitive threat to the Bell interests.

The Western Union Telegraph Company first became alerted to the possibilities of a telephonic invention in connection with its investigations of harmonic telegraphy. In July 1875 President William Orton presented Thomas Edison with an abstract of a report on Philip Reis's invention, a precursor of the telephone.[4] By the spring of 1876, the Western Union was paying Edison a $500 monthly retainer to do research on the "speaking telegraph."[5]

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1. Ibid.

2. Charles A. Cheever to Gardiner G. Hubbard, March 16, 1878, AT&T, Box 1001.

3. Tillotson and Company to Gardiner G. Hubbard, March 23, 1878, AT&T, Box 1001.

4. Josephson, Edison, 139-140.

5. Ibid., 134.

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When the details of Bell's telephone were made public, Edison returned to one of his own models and discovered that it was also capable of transmitting sound, although only very faintly.[1] Edison believed his poor hearing had prevented him from hearing its indistinct sounds. He later wrote: "When Bell first worked out his telephone idea I tried it and the sound which came in through the instrument was so weak I couldn't hear it."[2]

According to Matthew Josephson, Edison's biographer, Edison acknowledged himself fairly beaten and went on to improve the telephone, thus making his own unique contribution.[3] Indeed, Edison's telephonic improvements were to prove a very serious threat to the Bell Company.

The Western Union decision to engage in telephonic business brought a formidable opponent to the field. The Western Union Telegraph Company possessed great power and wealth. In 1876, the year of the Bell Patent Association's organization, the Western Union was capitalized at $41,073,410. Its gross receipts for fiscal 1876 were $10,034,983.66 and its net profits were $3,399,509.97.[4] In the following year, when Western Union became concerned with the possible effects of telephony, its net profits were slightly less, reflecting a reduction in the average rate for transmission. They amounted to $3,140,127.67.[5] Nevertheless, the Western Union possessed great financial resources, compared to the struggling Bell interests.

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1. Ibid., 141.

2. Dagobert D. Runes (ed.), The Diary and Sundry Observations of Thomas Alva Edison (New York: Philosophical Library, 1948), pp. 53-54.

3. Josephson, Edison, 141.

4. Annual Report of the President of the Western Union Telegraph Company to the Stockholders, October 11, 1876, pp. 5-7.

5. Annual Report, October 10, 1877, 4-13.

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Western Union formally entered the telephone business in November 1877 with the signing of a memorandum of agreement between the Harmonic Telegraph Company and the Gold and Stock Company for the development and introduction of the telephone.[1] The Harmonic Telegraph Company had been organized in May 1876 to develop and exploit Elisha Gray's inventions.[2] The Gold and Stock Company operated a telegraph system which telegraphed a variety of financial information from the Clearing House in New York City to subscribing banks and financial institutions.[3] The Gold and Stock Company was capitalized at $2,500,000, almost half of its stock being owned by the Western Union.[4] In reality the Gold and Stock Company was a subsidiary of Western Union.

By the memorandum's terms, which were carried over to the formal Articles of Agreement, December 22, 1877,[5] the Harmonic Telegraph Company and the Gold and Stock Company agreed to organize the American Speaking Telephone Company with a capital of $300,000, two-thirds of whose stock was to be issued to the Gold and Stock and one-third to the Harmonic Telegraph Company.[6]

The Harmonic Telegraph Company assigned Elisha Gray's telephonic inventions to the American Speaking Telephone Company.[7] These amounted to

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1. Memorandum of Agreement, November 17, 1877, AT&T, Box 1111.

2. "Testimony of Elisha Gray, April 4, 1879," Storrow, "Proofs," II, 437/129.

3. Kingsbury, Telephone, 75; 85.

4. Annual Report of the President of the Western Union Telegraph Company to the Stockholders, October 9, 1878, pp. 11-12.

5. Articles of Agreement, December 22, 1877, AT&T, Box 1118.

6. Memorandum, November 17, 1877; Articles of Agreement, December 22, 1877.

7. Memorandum, November 17, 1877.

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ten letters of patent ranging in date from July 20, 1875, to August 28, 1877,[1] and included a "Transmitter (also Receiver) for Electro-Harmonic Telegraph" and an "Automatic Circuit Breaker for Electro-Harmonic Printing Telegraphs."[2]

The Gold and Stock Company assigned to the American Speaking Telephone Company all of its present and future telephonic inventions, chiefly those it had acquired from Amos Dolbear.[3] Dolbear, claiming priority of invention, agreed in September 1877 to apply for patents on his telephonic inventions and to assign them to the Gold and Stock Company, which was to bear the legal costs and expenses of obtaining said patents.[4] Both the Gold and Stock and the Harmonic Telegraph Companies agreed that any future telephonic inventions they might acquire were also to be assigned to the American Company.[5]

The American Speaking Telephone Company, in turn, assigned to the Gold and Stock Company the "sole and exclusive right to manufacture, use, sell, rent or license others to manufacture and use" the telephonic inventions previously acquired. The terms were to be fixed by the American Company. The Gold and Stock Company thus became the sole and exclusive agent for the American Speaking Telephone Company.

The Gold and Stock was required to advance the money and provide the means and facilities for carrying out its duties. It was expected to

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1. Articles of Agreement, December 22, 1877.

2. List of Patents Owned by the Western Union Company, AT&T, Box 1217.

3. Memorandum, November 17, 1877.

4. Agreement, September 6, 1877, cited in Storrow, "Proofs," II, 510/314-514/318.

5. Articles of Agreement, December 22, 1877.

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advance money for procuring patents and for prosecuting and defending suits deemed necessary, the the directors of the American Company, for the protection and advancement of the business.[1]

The Gold and Stock's duties were confined to the manufacture, sale, rental and licensing to manufacture and sell telephonic instruments. They did not include the construction, rental, sale or maintenance of telegraph lines upon which such instruments were to be placed.[2]

Significantly, the Articles of Agreement contained a provision by which it was understood and agreed that whenever telephones were attached to an existing line owned by the Gold and Stock Company, the rental of the line was not to be increased beyond the rental fixed by the American Company for the telephone. When new lines were erected for telephones only, the rental of the line was not to be greater than similar lines upon which only telegraphic instruments were attached.[3] This provision seems to have been intended to insure parity of telephone prices with the Gold and Stock's telegraph prices.

Both the Memorandum and the Articles of Agreement concluded with the provision that the subscribers would admit the owners of the Bell Telephone patents. The Bell patentees could acquire a one-quarter interest in the American Speaking Telephone Company. Naturally they would have to agree to the same stipulations as the other subscribers, and in doing so, they would surrender their right to engage in the telephone business directly, since the Gold and Stock was the sole and exclusive agent of the AST Co.

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1. Memorandum, November 17, 1877; Articles of Agreement, December 22, 1877.

2. Ibid.

3. Articles of Agreement, December 22, 1877.

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The Articles of Agreement were to remain in force for twenty years.[1] The Western Union was not a signatory to either the Memorandum or the Articles of Agreement, and thus, technically, was not involved. Of course it was clear from the outset to all concerned that the Western Union had a stake in the success of the American Company, and was in fact a directing force in its activities through the Gold and Stock Company.

Edison's progress in perfecting the telephone improved the Bell Company's competitors' chances of success. By March 1877 Edison had secured additional funds from the Western Union, and he now envisioned the use of a battery-operated transmitter utilizing some of the principles of the microphone. A month later he applied for his first telephone patent.[2]

Thus the American Speaking Telephone Company, and through it the Western Union, was prepared to confront the Bell Telephone Company in a struggle for supremacy in the field of telephony. Not only did the AST Company possess legal title to a variety of inventors' claims of priority, but it also had one of America's foremost inventors working with it on telephony. Above all, the AST Company was solidly backed by the resources of the Gold & Stock-Western Union interest.

The Bell patentees' efforts to resolve conflicting patent claims began as early as January 1877 when Hubbard indicated that he was willing to compromise with Elisha Gray on the harmonic telegraph interferences. According to Gray's attorney, W. D. Baldwin, Hubbard proposed uniting Bell's theory and Gray's practical skill.[3] Nothing came of Hubbard's suggestion, and the dispute over the harmonic telegraph inventions continued to be an item of

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1. Ibid.

2. Josephson, Edison, 143-144.

3. W. D. Baldwin to S. S. White, January 11, 1877, AT&T, Box 1110.

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concern to the Bell patentees--increasingly so, as it became connected with the Western Union struggle.

Prior to the organization of the AST Company, and while he was also negotiating with the Western Union, Elisha Gray was proposing a compromise with the Bell interests. Using Charles A. Cheever as his primary contact, Gray suggested that the Bell patentees exchange their claims to the harmonic telegraph for Gray's claims to the telephone. To enhance his bargaining position, Gray added his opinion that his telephonic claims covered Edison's.[1]

While Gray was negotiating with the Bell patentees, the Western Union was also seeking some kind of arrangement with them. It desired either to organize a large company which would control various competing interests or to conduct the telephone business in partnership with the Bell interests.[2]

Ultimately Gray would join the Western Union in creating the AST Company, but until then he carried on separate negotiations with Gardiner G. Hubbard. Cheever informed Gray of Hubbard's willingness to "make a sacrifice" and trusted that Gray would be similarly disposed. Subject to Alexander Graham Bell's approval, Hubbard agreed to swap Bell's harmonic claims for Gray's telephonic claims. In addition, he desired protection for Bell's autographic telegraphic process. Hubbard wished it clearly understood that the foregoing arrangement was only made

> on the understanding that you [Gray] have in the Patent Office, or otherwise, prior claims covering Edison's claims to the invention of a telephone as now made by him, and of course, covering all similar claims which are now or in the future may be attempted in a similar manner by anyone.[3]

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1. Charles A. Cheever to Gardiner G. Hubbard, September 22, 1877, AT&T, Box 1006.

2. Gardiner G. Hubbard to Thomas A. Watson, September 18, 1877, AT&T, Box 1193.

3. Charles A. Cheever to Elisha Gray, September 26, 1877, AT&T, Box 1006.

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By September 1877 Gray had authorized President Orton of the Western Union to negotiate on his behalf. George Walker, a vice-president of the Gold and Stock Company, conveyed this information, as well as the fact that the Western Union also controlled the Edison and Dolbear inventions, to Charles Cheever. Still, Walker was willing to compromise with the Bell Company if its instruments worked satisfactorily since it was "the policy of the G&S to have no rival in the field worthy of being considered a rival."[1]

While both sides were calling for compromise, Bell patent counsel Anthony Pollok argued that the Bell patents were strong enough to stand alone and, therefore, he was not inclined to advise a compromise which involved any great sacrifice of the Bell interests. He urged legal action against any infringer as soon as there was tangible evidence to justify it.[2]

Pollok heartily approved of the company's hiring of the prominent attorney Edward N. Dickerson whose opinion, he believed, would carry much weight with the Western Union.[3] The Bell patentees seemed to place great trust in securing the services of key legal personnel who might influence the Western Union. In August, Hubbard had tried to hire W. D. Baldwin, Gray's lawyer, to represent the Bell interests against parties other than Gray.[4]

While the American Speaking Telephone Company was being organized, President Orton, acting through a second party, offered to organize a company with a quarter interest each for Bell and Gray and a half interest

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1. Charles A. Cheever to Gardiner G. Hubbard, September 26, 1877, AT&T, Box 1006.

2. Charles A. Cheever to Gardiner G. Hubbard, October 1, 1877, AT&T, Box 1006.

3. Ibid.

4. W. D. Baldwin to S. S. White, August 29, 1877, AT&T, Box 1110.

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for the Western Union as the representative of Edison and others. The Western Union proposed to furnish all the necessary capital and offered its facilities for the more extended introduction of telephones and the proper protection of the business.[1]

Cheever replied to Orton's emissary that any arrangement for the "Speaking Telephone" would have to include the "Harmonic," since it possessed features which covered Edison's claims and those of other present and future infringers.[2]

Cheever urged Hubbard to compromise if the Western Union made a "fair" arrangement. He appreciated the fact that litigation would reduce the number of instruments which could be rented and would thus result in a smaller rental, a highly undesirable condition during a competitive struggle.[3]

While Orton was making his offer to the Bell Company, Hubbard was contemplating a consolidation of interests with the American District Telegraph Company and Elisha Gray. The Bell patentees would receive three-quarters interest and Gray one-quarter in the articulate telephone while Gray would receive three-quarters interest and Bell one-quarter in the Harmonic instruments.[4]

On November 21, four days after the Memorandum creating the American Speaking Telephone Company had been executed, Elisha Gray sought a conference with the Bell Company in order to definitely settle the question of an alliance or a fight. Claiming that he had not yet made an arrangement with the

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1. Charles A. Cheever to Gardiner G. Hubbard, November 17, 1877, AT&T, Box 1006.

2. Ibid.

3. Ibid.

4. Charles A. Cheever to Gardiner G. Hubbard, November 20, 1877, AT&T, Box 1006

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Western Union, he agreed to embrace some arrangement, "for the sake of peace," which covered both the harmonic telegraph and the telephone. When Cheever suggested a compromise which excluded the Western Union, Gray refused.[1]

Gray informed Cheever in December of the completion of the organization of the American Speaking Telephone Company. He reiterated the offer of a quarter interest to the Bell patentees. The Western Union was to put up all the money, and the Gold and Stock was to do all the work and assume the direction of the telephone business, subject to the American Company. Gray indicated his willingness to consider some arrangement with the Bell Company for harmonic inventions,[2] but whatever real chance existed for a separate compromise ended with the organization of the American Company.

In retrospect it seems that Gray was not entirely honest in his dealings with the Bell Company. He portrayed himself as having made no arrangement with the Western Union when in fact he had.[3] Further support for this view comes from a statement made by Gray in October 1877:

> I have a proposition in my pocket from the Bell party to buy me off of the speaking telephone and at the same time giving up all claims to the multiple telegraph feature. There has been a great amount of blowing as to priority &c by different parties. They have been pulling at the horns and tail while I have been quietly milking the cow. [Gray previously noted that he was very busy equipping telegraph lines with telephones.] I knew she was mine and so long as I had possession of her it mattered not how much others quarreled.[4]

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1. Charles A. Cheever to Gardiner G. Hubbard, November 21, 1877, AT&T, Box 1006.

2. Charles A. Cheever to Gardiner G. Hubbard, December 21, 1877, AT&T, Box 1006.

3. Charles A. Cheever to Gardiner G. Hubbard, November 21, 1877, AT&T, Box 1006.

4. Elisha Gray to George F. Barker, October 3, 1877, George F. Barker MSS, University of Pennsylvania.

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Although Charles Cheever continued to urge a peaceful compromise, Hubbard toward the end of 1877 began to resist the idea. He believed the Bell Company was getting stronger every day and would soon be in a position to defeat its enemies. He conceded that he tended to be "oversanguine," but added: "I do not believe the WU Tel Co have an organization that can accomplish very much; money is by no means the most important thing, it wants judgment, push and enterprise."[1]

Hubbard was supported by Thomas Watson who considered the organization of the American Speaking Telephone Company, and its offer to the Bell Company, as just another step in the Western Union's "bulldozing policy." He did not believe the Bell patents would acquire any greater value if joined with the Western Union. In fact, Watson was certain that if the Western Union had been in control of the patents from the first, there would not be one-tenth as many telephones in current use. Watson concluded: "I don't know where we are going to raise money to fight with but I am willing to sacrifice my prospects of making any money out of the telephone rather than submit to such imposition."[2]

In contrast, Thomas Sanders was of the opinion that "it is of the utmost importance that we should take every measure to avoid a lawsuit which we can, consistently with the maintenance of our rights."[3] Sanders' more cautious attitude reflected his heavy investment in the Bell Company. Watson stood to lose less and therefore could afford to be more daring.

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1. Gardiner G. Hubbard to Thomas Sanders, December 4, 1877, AT&T, Box 1193.

2. Thomas A. Watson to Gardiner G. Hubbard, December 4, 1877, AT&T, GMLB 11.

3. Thomas Sanders to Gardiner G. Hubbard, December 5, 1877, AT&T, Box 1006.

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Although Sanders considered the proposition for a quarter interest in the American Company an unfair one, he believed the Western Union was prepared to make a more favorable one. The Bell claims were the strongest, to be sure, but he was unwilling to enter an endless lawsuit with a powerful corporation. To do so would probably destroy all the Bell Telephone Company's profits, perhaps even preventing all rental receipts for five or six years, thus causing the company to exhaust all its resources before receiving its rights, if it did at all. Sanders therefore urged the company to make the best terms it could with "this powerful corporation."[1]

Sanders proposed that the Western Union form a company of $2,000,000 of which the Bell Company would receive a quarter or more stock, and upon which the Western Union would guarantee a minimum dividend of seven percent. The Bell Company, he believed, was entitled to the full benefit of all that it had already accomplished, and the new company, which would also be called the Bell Company, should hire all of the present agents recommended by the Bell interests. Finally, Sanders urged that some arrangement be made with Elisha Gray by which the Bell Company would become half owner of the Harmonic patents. Sanders reminded Hubbard:

> I hope you will see the advantage of a compromise on some terms, as I think it would be advisable even if they had a weaker case, as a fight is ruinous, if they are determined to have one and it seems they are.[2]

Sanders was cheered several days later when George L. Bradley reported he had secured the $50,000 pledged for the financing of the New England Telephone Company. Moreover, the Bell lawyers counseled that the opposition could not interfere with the company's rental of telephones and thereby stop

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1. Ibid.

2. Ibid.

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the Bell Company's income. Sanders now supported a fight if the company could be sure of being supplied with the "sinews of war," but urged delaying the fight as long as possible.[1]

No doubt Hubbard, Sanders and others were encouraged in their belief in the Bell Company's supremacy by the fact that there was a degree of anti-Western Union sentiment in business circles. A representative of the Pennsylvania Railroad indicated his company's desire to see the Bell Company triumph in its telephonic contest with the Western Union.[2]

During this stage of negotiations, each company tried to portray the other as being readier to compromise. Thomas Cornish informed Hubbard that the Western Union was circulating the story that the Bell Telephone Company was anxious to join with it but the Western Union would not permit it. The Western Union also boasted that the Bell Company's instruments would shortly be a thing of the past.[3] Hubbard, in turn, asserted that it was the Western Union which was desirous of uniting with the Bell Telephone Company and it was the Bell Company which "declined the invitation."[4]

The Bell lawyers remained firm in their belief that the Bell patents and claims were invincible. Both Pollok and Dickerson agreed that the Bell Company had little to fear from a lawsuit with the Western Union. It would be neither long nor expensive.[5]

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1. Thomas Sanders to Gardiner G. Hubbard, December 7, 1877, AT&T, Box 1001.

2. D. Brooks to Gardiner G. Hubbard, December 12, 1877, AT&T, Box 1199.

3. Thomas E. Cornish to Gardiner G. Hubbard, December 13, 1877, AT&T, Box 1176.

4. Gardiner G. Hubbard to Thomas E. Cornish, December 16, 1877, AT&T, Box 1053.

5. Gardiner G. Hubbard to Thomas Sanders, December 1877, AT&T, Box 1193.

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A new stage of negotiations developed by mid-January 1878, characterized by a greater willingness by the Bell interests to make a court fight. When Elisha Gray called on Charles Cheever, Gray was informed that in view of the steps taken by his backers, the Bell Company was now in a position from which it was impossible to make any proposition. Still, the Bell Company was interested in a settlement provided it was a fair one and it came from the proper authority in a definite shape. The Bell Company would not consider any new proposals. Western Union understood the Bell patentees' general ideas and an offer based on them would be considered acceptable. The Bell Company rejected any arrangement based on a quarter interest in the AST Company.[1]

About this same time, Cheever began to report, on the basis of discussions with William Orton and Norvin Green, the Western Union's president and vice-president, that the opposition seemed more willing to arrange a settlement.[2] He was impressed by Western Union's plans for greatly expanding the introduction of the telephone.[3] "Their ideas of the use of the Telephone and the number which will be introduced are by their own account far in excess of the limit reached in our fondest dreams."[4] (Perhaps Cheever was so impressed that he only imagined a greater willingness by the Western Union to compromise.) Both Orton and Green had "a great deal to say" about the expense of litigation,[5] and both were impressed by Dickerson's decision to

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1. Charles A. Cheever to Gardiner G. Hubbard, January 22, 1878, AT&T, Box 1006.

2. Charles A. Cheever to Gardiner G. Hubbard, January 23, 1878; Charles A. Cheever to Gardiner G. Hubbard, January 24, 1878, AT&T, Box 1006.

3. Ibid.

4. Charles A. Cheever to Gardiner G. Hubbard, January 24, 1878, AT&T, Box 1006.

5. Ibid.

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join the Bell Telephone Company.[1] Cheever concluded: "In a word the whole situation is much more exaggerated in every particular as seen by them than as we view it."[2]

Both sides exaggerated claims of their own strength. Orton told Cheever that the Western Union was planning to put a sample set of working telephones in every WU Telegraph office [7600] and that the company was thinking of establishing sub-offices in country stores and post offices and connecting them with Western Union's main offices by means of telephones.[3] Cheever informed Green that the Bell Telephone Company was prepared to give away several hundred thousand telephones which would not cost more than a dollar and a half to two dollars a piece.[4]

Cheever concluded from his negotiations that despite Western Union's objections, it would guarantee a dividend, even seven percent, upon stock issued to the Bell Telephone Company. "Taking into consideration the undoubted fact of the size and number of guns which they [WU] have in their ability to fire and the ruinous opposition which they can undoubtedly bring to bear in the fight," Cheever proposed the organization of a company capitalized at $3,000,000, which would be divided among the various telephone interests.[5] Such a company was to pay the Bell patentees a royalty of one dollar per annum on each telephone rented and guarantee at the end of one

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1. Charles A. Cheever to Gardiner G. Hubbard, January 23, 1878; Charles A. Cheever to Gardiner G. Hubbard, January 24, 1878, AT&T, Box 1006.

2. Charles A. Cheever to Gardiner G. Hubbard, January 24, 1878, AT&T, Box 1006.

3. Charles A. Cheever to Gardiner G. Hubbard, January 23, 1878, AT&T, Box 1006.

4. Charles A. Cheever to Gardiner G. Hubbard, January 24, 1878, AT&T, Box 1006.

5. Ibid.

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year a royalty on at least twenty-five thousand telephones. In addition, Cheever requested an iron-clad guarantee that the Bell interests would be granted a fixed representation on the Board of Directors, which, through the company's by-laws, would have the power to veto any proposal.[1]

Since the Western Union provided for the possible inclusion of the Bell Company in its consolidated telephone company, and also because the Western Union had not yet rented any telephones, Sanders believed that the Western Union did not want to fight but was actually prepared to offer the Bell patentees all that they could reasonably ask. He therefore insisted upon the proposal which provided for the issuance of a block of stock that would immediately possess a market value due to a Western Union guaranteed dividend. Sanders interpreted Hubbard's opposition to this approach as a result of their different temperaments:

> I am afraid this does not have enough weight with you as "a bird in the hand is worth two in the bush" does not seem to be one of your maxims--provided the indefinite future is bright the present seems to be of little account to you. You have a certain blissful disregard of money. An enviable trait to possess, but scarcely a desirable one in a business partner. Therefore I feel justified in keeping you reminded of it that you may realise the importance of securing something solid at once, allowing the future to take care of itself.[2]

In securing something solid Sanders did not mean that the patentees should sacrifice their future prospects, but rather that they should be willing to allow a handsome profit to those who placed them upon this basis.[3] Thus Sanders argued against litigation or a competitive fight.

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1. Charles A. Cheever, Proposal, January 25, 1878, AT&T, Box 1006.

2. Thomas Sanders to Gardiner G. Hubbard, January 28, 1878, AT&T, Box 1193.

3. Ibid.

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He concluded it would be impossible for the Bell Company to compromise satisfactorily with the Western Union. Consequently there were two alternatives: either sell out entirely to the Western Union (protecting Bell agents as far as possible) or sell the exclusive right to use the telephone for certain specified purposes to the Western Union. Sanders believed that the Bell patentees could not act in concert with the Western Union, for to do so would mean the end of the Bell Telephone Company. He suggested there was a "nice business" outside of the Western Union's interest and perhaps the Bell Company could make a trade in which it reserved the private line telephone business which would not interfere with the Western Union.[1]

In its Instructions to Agents No. 3, February 1, 1878, the Bell Telephone Company informed its agents that eminent counsel had been retained and suits would be prosecuted against all infringers. The Bell Company took it for granted that the courts would authorize injunctions, whereupon infringers would be forced to pay rentals to it.[2]

Despite this announcement, Cheever restated the Bell Company's proposition to the Western Union. The proposal was essentially the same as his plan of January 25, except that it now called for the organization of a $2,000,000 company, half of whose stock was to go to the Bell Company, and the guarantee for the first year was raised to 30,000 instruments and 60,000 for the second year.[3]

In part, this more aggressive proposition reflected Chauncy Smith's advice that the Bell Telephone Company assume the position that it was the

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1. Thomas Sanders to Gardiner G. Hubbard, January 30, 1878, AT&T, GMLB 12.

2. Instructions to Agents, No. 3, February 1, 1878, AT&T, Box 1001.

3. Charles A. Cheever to Gardiner G. Hubbard, February 4, 1878, AT&T, Box 1006.

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only company which possessed anything of value and all that it desired from the Western Union was its friendship rather than its opposition. He also recommended letting the Western Union propose what they wished and how much they were going to offer for it. If a consolidation were proposed, the Western Union was to show what it possessed and was to permit Smith the right of inspection. In general Smith advised the Bell Company "to hold back and let them talk and show their hand--Not for a moment concede that they have anything of value . . . except their friendship."[1]

After consulting with Gardiner Hubbard, Cheever, on February 4, dispatched a formal proposal to Norvin Green for amalgamating the conflicting telephone interests.[2] Cheever reasserted that Bell was the original inventor of the telephone, and that all others manufacturing telephones were infringers who almost certainly would be so viewed by the courts. He recognized that Western Union did not agree with this interpretation but attributed this to the fact that the Western Union counsel did not have all the facts in the case.

Cheever expressed a willingness to enter into an arrangement because the Bell Company recognized the great facilities at the Western Union's disposal and appreciated the great expense which litigation necessarily involved, coupled with the demoralizing effect it might have upon the Bell customers.

Accordingly, Cheever proposed a one dollar guarantee on 30,000 telephones. This figure was based upon the fact that the telephones manufactured and rented within the last five months were earning a net yearly rental of $30,000. In turning over its business to the Western Union, the Bell

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1. C. E. Hubbard to Gardiner G. Hubbard, January 29, 1878, AT&T, Box 1006.

2. Charles A. Cheever to Norvin Green, February 4, 187, AT&T, Box 1006.

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Telephone Company expected to receive a sum at least equal to what it would earn if it retained that business. Cheever urged quick action, pointing out that Hubbard was negotiating for $50,000 in order to commence suits.[1]

After drafting these proposals, Cheever added several provisions on instructions from Gardiner Hubbard. These provisions stressed that the Bell Telephone Company possessed the only patents for a telephone, and if the Western Union rented telephones before receiving patents it must of necessity appear as an infringer unwilling to wait for a decision from the Patent Office to which it had appealed. Furthermore, a decision against the Bell patents would merely prevent the Bell Company from realizing anticipated profits while a decision against the Western Union would cripple its private line and district telegraph business.

Hubbard, through Cheever, threatened to make an arrangement with other telegraph companies throughout the country unless a settlement was reached. Cheever further urged a settlement by pointing out that the Bell Company possessed three years of valuable experience and it was unlikely that Western Union could acquire the same experience in a shorter time.[2] He explained:

> We have the business experience, the patents, the net income and the funds for maintaining our patents. The Western Union have their lines, their capital and undeveloped machines based on unsubstantiated claims against our patent.[3]

Hubbard's instructions to Cheever called for a guarantee on not less than 15,000 instruments the first year and 30,000 the second year.[4] Cheever

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1. Ibid.

2. Ibid.; Gardiner G. Hubbard to Charles A. Cheever, February 4, 1878, AT&T, Box 1006.

3. Charles A. Cheever to Norvin Green, February 4, 1878, AT&T, Box 1006.

4. Gardiner G. Hubbard to Charles A. Cheever, February 4, 1878, AT&T, Box 1006.

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ignored Hubbard's figures so as to make them high enough to be talked down if necessary.[1] Hubbard requested not less than two Bell representatives be placed on the Executive Council and that he be given the presidency if the Western Union controlled the finances.[2]

Sanders responded favorably to Hubbard's latest proposition, although he did not approve of telling the Western Union how much money the Bell Company could raise. He believed it better to make a show of unlimited resources rather than reveal any information and give rise to a possible disclosure of how poor the company actually was. Fifty thousand dollars "would seem a flea bite" to the Western Union. Sanders strenuously urged trying to obtain a half million dollars worth of stock guaranteed at seven percent.[3] He approved of Hubbard's bid for the presidency, noting:

> In view of what you have done your claims are certainly entitled to consideration and you may rely upon me to enforce them to the extent of my ability. Of course, however, I do not suppose you mean to make a point of the office.[4]

Cheever favored requesting a royalty on the figures he proposed instead of a seven percent guarantee because he felt the Western Union would concede more in that form. If a royalty were granted on the basis of the February 4 proposal to Green, the Bell Company would be receiving more than on the basis of seven percent on $500,000 worth of stock. Conceding he would have to

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1. Charles A. Cheever to Thomas Sanders, February 7, 1878, AT&T, Box 1006.

2. Gardiner G. Hubbard to Charles A. Cheever, February 4, 1878, AT&T, Box 1006.

3. Thomas Sanders to Charles A. Cheever, February 6, 1878, AT&T, GMLB 12; Thomas Sanders to Gardiner G. Hubbard, February 6, 1878, AT&T, Box 1024.

4. Thomas Sanders to Gardiner G. Hubbard, February 6, 1878, AT&T, Box 1024.

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reduce his claims a little, Cheever considered his proposal reasonable in light of the number of telephones the Bell Company was renting with its slight facilities.[1]

After due consideration, committees of the Gold and Stock and the American Speaking Telephone Companies unanimously declared that there was not one item in Cheever's February 4 proposal which could be accepted without essential modification. They considered that the proposition rendered any further effort at accommodation a waste of time. However, Green kept alive the hope of negotiations by stating his willingness to meet with Cheever.[2]

Cheever expressed shock at Green's rejection of his proposition. Cheever had hoped that the opposition would carefully consider each item separately and give him its objection to each. Such a procedure, he argued, would facilitate the harmonizing of opposing ideas.[3] In fact, however, Cheever was trying to stall for time until the absent Orton returned to New York and could resume charge of the negotiations. Cheever believed that Orton was much more liberal and would make a better arrangement than Vice-President Green because Orton was more familiar with the situation and better understood the strength of the Bell Company's position.[4] Cheever either ignored or was unaware of the ill-feeling between Orton and Hubbard.

Orton treated Cheever's proposition less contemptuously but still

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1. Charles A. Cheever to Thomas Sanders, February 6, 1878, AT&T, Box 1006.

2. Norvin Green to Charles A. Cheever, February 9, 1878, AT&T, Box 1006.

3. Charles A. Cheever to Norvin Green, February 11, 1878, AT&T, Box 1006.

4. Charles A. Cheever to Gardiner G. Hubbard, February 11, 1878, AT&T, Box 1006.

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rejected it. Cheever was not discouraged because he still believed Orton could be persuaded.[1]

Sanders became infuriated when he learned of the substance of Orton's interview with Cheever. According to Sanders, the grounds on which Orton based the Western Union claims were so feeble that Sanders felt less disposed than ever to consider them. But Sanders was even less confident that the opposition would favorably consider Bell's claims. Sanders was especially upset over Orton's manner: "I cannot help feeling disgusted with a man who pretends to treat a case with supreme fairness, when he knows that he misrepresents."[2]

Aware of his own and Hubbard's hostility toward Orton, Sanders judged that Charles Cheever should continue to look after the Bell Company's interests during the preliminary stages of negotiations. Moreover, Cheever was eminently fitted for the task, seeing that he was located in New York City, headquarters of the Western Union, and that he possessed Orton's confidence.[3]

With each passing day Sanders believed the opposition was gaining a more accurate understanding of the Bell Company's strength, and therefore he was anxious to reach some agreement with the Western Union. Sanders was also upset by what he believed was the "disaffection" or "indifference" of Anthony Pollok and Chauncy Smith.[4]

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1. Charles A. Cheever to Gardiner G. Hubbard, February 15, 1878, AT&T, Box 1006.

2. Thomas Sanders to Gardiner G. Hubbard, February 17, 1878, AT&T, Box 1006.

3. Ibid.

4. Ibid.

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The weakness of the Bell Company's condition, as Sanders understood it, was due to the "want of a sound, solid cash capital," which could not be secured except by the sacrifice of a large portion of the patentee's interest. Consequently, Sanders wondered whether or not it was better to share a part of the permanent business with the Bell Company's only opponents rather than share an interest with parties who would only contribute a small sum of money for litigation whose result was doubtful.

In view of Hubbard's reluctance to relinquish an interest in the patents to outsiders, Sanders felt sure Hubbard agreed with him. However, Sanders did not believe there was agreement concerning the speediest consummation of this point. He wrote: "If we are compelled to strike one blow we shall reveal our weakness fatally, and if after our threats we neglect to strike the blow we shall certainly not gain ground.[1]

Fearing that the Bell Company had overdone its part in making exorbitant demands, Sanders now believed that it ought to be satisfied with $500,000 worth of guaranteed stock and whatever else it could get. He urged promptness and stressed that the patentees "indulge in no haggling."[2]

Although Sanders' fears made him willing to abandon "exorbitant demands," the opposition was less willing to compromise. After meeting with Orton and Green, Cheever concluded the Bell Company would have to fight a little before any reasonable settlement could be reached. He discerned a "decidedly retrograde movement," for now the Western Union would offer no more than a quarter stock interest for the Bell patents and a guarantee of not more than $20,000. Even the guarantee was not very desirable in the

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1. Ibid.

2. Ibid.

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form presented. The Western Union would make the guarantee only in the name of the American Speaking Telephone Company, "an irresponsible party whose guarantee is good for nothing." According to Cheever's analysis, the guarantee was nothing more than a preferred dividend of four percent on $500,000 worth of stock.[1]

Hubbard himself was now unwilling to compromise. In order to render the Bell Company free to fight, he instructed Cheever to notify the Western Union of the Bell Company's desire to withdraw from negotiations if it could not make a better proposition.[2] Cheever did so, claiming there was little use in continuing negotiations in view of the wide differences existing between the two companies.[3]

Apparently Sanders was unaware of this new development in the negotiations, for he wrote to Hubbard inquiring what compensation they were asking of the Western Union. He was also concerned about Gray's claims and suggested the Bell Company should know exactly how the case stood in Washington before commencing suits. He observed:

> A network is being woven around us by the immense force of the opposition who leave no stone unturned to reduce us to a position in which our claims will be worth less than they now are before they make the final offer . . . I am afraid their policy is to delay, and reach everyone that is remotely in any way tributory to us by bribery or any other means at their hands, that will divert them from us.[4]

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1. Charles A. Cheever to Thomas Sanders, February 20, 1878, AT&T, Box 1006.

2. Ibid.

3. Charles A. Cheever to William Orton, February 20, 1878, AT&T, Box 1006.

4. William Orton to Charles A. Cheever, February 21, 1878, AT&T, Box 1006.

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In response to Cheever's notice, Orton considered negotiations at an end. However, because of Western Union's "very large experience" in connection with legal proceedings, the company was hesitant about entering them until absolutely necessary. Nevertheless, Orton informed Cheever, the Western Union was prepared for any proceedings which might be instituted and it did not have the slightest apprehension concerning the result. If only the parties concerned could realize how expensive and time consuming such activities were they might utilize their resources more effectively.[1]

Western Union's final proposal was made by Norvin Green on February 21, 1878, the same day on which Orton acknowledged the end to formal negotiations. Green made his offer hoping that if he and Cheever agreed, they could probably get their associates to agree. Green suggested that they "split the difference" which existed at their last interview and offered a guarantee of five percent on $500,000 of stock. This was as far as Green could get the Gold and Stock Company to go and he believed he would have difficulty in persuading the Gray interest to accept it. Green argued that if the undivided telephone business should prove up to expectations, then disagreements about the guarantee would amount to nothing since "we shall all get more than that rate."[2]

Cheever informed Green that he did not believe the patentees would accept these terms and he could not advise them to do so.[3] Cheever also offered Orton more time, if he wished it, before terminating all negotiations.[4]

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1. Ibid.

2. Norvin Green to Charles A. Cheever, February 21, 1878, AT&T, Box 1006.

3. Charles A. Cheever to Norvin Green, February 25, 1878, AT&T, Box 1006.

4. Charles A. Cheever to William Orton, February 25, 1878, AT&T, Box 1006.

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With this, negotiations and communications apparently ended.

The Bell Company now made plans to fight to secure its hold on the telephone business. Sanders was unhappy with the prospect. Given the already weak condition of the company, he wondered where funds would be obtained in order to meet the financial demands of litigation. He suggested that the Western Union, or anyone else, would have given more for one half of the Bell Telephone Company possessing adequate capital and efficiently organized than for a whole concern which they considered as being without stability or power.[1] Thus Sanders implied that much of the Bell Company's problem was due to Hubbard's refusal to provide for these necessary factors through a reorganization of the company with new investors.

However Sanders disliked the prospect, the Bell Company now made its preparations for a bitter struggle. Fortunately it was able to receive some assistance from the newly organized New England Telephone Company.[2] Urged on by all sides, Hubbard took steps to initiate immediate legal action.[3]

By February 1878, Western Union's prospects for victory were greatly improved. It had an operational telephone. After thoroughly inspecting and dissecting it, Watson concluded:

> It works better than anybody has yet given it credit for. It is a nice piece of work and must cost 4 times what ours. [sic] It is of course a Bell telephone pure and simple and works about as well as our hand insts--no better.[4]

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1. Thomas Sanders to Gardiner G. Hubbard, February 22, 1878, AT&T, Box 1193.

2. Thomas Sanders to Gardiner G. Hubbard, February 23, 1878, AT&T, Box 1193.

3. Gardiner G. Hubbard to Thomas Sanders, February 25, 1878, AT&T, Box 1006; Gardiner G. Hubbard to George L. Bradley, February 26, 1878, AT&T, Box 1205.

4. Thomas A. Watson to Thomas Sanders, February 22, 1878, AT&T, Box 1193.

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Moreover, by now Edison had applied for his second telephone patent. His telephone utilized a carbon lampblack button which, used on the variable-resistance principle in conjunction with a battery, produced strong transmission currents. These features together with an induction coil promised to extend the useful length of the telephone by several hundred miles over Bell's magneto instruments.[1]

Certainly another factor in the Western Union's hardened attitude was the residual effect of the Orton-Hubbard feud. Given Orton's feelings toward Hubbard, one can only wonder how predisposed Orton was toward settling old grievances. A comment made by Amos Dolbear and related by Thomas Watson tends to support this suspicion: "Mr. Hubbard has caused the WU . . . [illegible] of trouble and they were determined to sit down on him this time."[2] These factors, together with its obvious advantages, no doubt, caused the Western Union to reject what it surely must have considered unjustified and highly exaggerated demands by the Bell Telephone Company.

On the other hand, the Bell Company had its own reasons for putting forth what it considered justifiable claims, and for its increasing unwillingness to compromise. The company was strengthened by the conviction that it did possess the basic telephone patent, and that as long as it did, it alone was legally entitled to conduct the telephone business. This belief was reinforced by the company's legal counsel, who consistently argued that the Bell Company's case was very strong.

Despite the Bell Company's precarious financial condition, Hubbard was convinced that the company was strong enough to engage the Western Union

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1. Josephson, Edison, 146.

2. Thomas A. Watson to Gardiner G. Hubbard, December 4, 1877, AT&T, GMLB 11.

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in a fight. He tended to overestimate the company's actual and potential advantages. For example, Hubbard placed great faith in the Bell Company's telephonic experiences as offsetting the opposition's advantages.[1] He seemed to believe it would be relatively simple to create an organization as a rival to the Western Union by using existing district telegraph companies.[2] In addition to his unbounded, sometimes unjustified, confidence, Hubbard was also influenced by his longstanding hostility toward Orton and the Western Union. Consequently, as the Bell Company's condition seemed to improve he was less willing to compromise.

By February 1878, both the Western Union and the Bell Telephone Company felt that they could be victorious in a competitive struggle, and insofar as they were convinced of their superiority, were unwilling to make any concessions which might result in a compromise.

Competition at the Local Level

During this first stage of negotiations the Bell agencies functioned without much real Western Union opposition in the field. Indeed, during early 1877 many managers of eastern Western Union offices solicited and received Bell telephone agencies.[3] Such individuals could be especially useful as Bell sub-agents and solicitors. Richardson and Barnard, agents for the South, explained that there were many areas in the South where conditions did not justify sending out agents to build short lines, but Western Union men were in the area and were ready to act for the Bell agency.

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1. Gardiner G. Hubbard to Thomas Sanders, February 27, 1878, AT&T, Box 1193; Gardiner G. Hubbard to Charles A. Cheever, February 4, 1878, AT&T, Box 1006.

2. Gardiner G. Hubbard to Charles A. Cheever, February 4, 1878, AT&T, Box 1006.

3. Walsh, Connecticut Pioneers, 28.

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Richardson and Barnard were careful to utilize these men for their own gain and in such a fashion that the Western Union would derive no advantage.[1]

In November 1877, Hubbard instructed Richardson and Barnard to remove all Western Union employees.[2] This order reflected the Bell Company's growing discomfort at using Western Union personnel in its telephone business. The Western Union was also unhappy about its indirect relationship with the Bell Company.

General Agent Frederick Gower reported in October that J. M. Fairchild, a Western Union manager and Bell sub-agent, had resigned his telephone commission in response to a sharp rebuke received from Western Union headquarters. Fairchild had been willing to continue his telephone work if Gower would guarantee him a $1500 salary. Gower concluded he could get good men on better terms, and let Fairchild go.[3]

The reason Fairchild felt obliged to "clear his skirts" of the Bell interests,[4] and the reason the Western Union sub-agents in Hartford and Springfield also resigned, was that they were convinced the Western Union would ultimately gain control of the telephone business. Obviously, a connection formed under Gower's auspices would not protect them from Western Union's displeasure once the Bell interests had been eliminated. Hence, Fairchild's request for at least one year's guaranteed salary.[5]

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1. Richardson and Barnard to Gardiner G. Hubbard, October 20, 1877, AT&T, Box 1148.

2. Richardson and Barnard to Gardiner G. Hubbard, November 16, 1877, AT&T, Box 1148.

3. Frederick A. Gower to Gardiner G. Hubbard, October 3, 1877, AT&T, Box 1181.

4. Ibid.

5. Frederick A. Gower to Gardiner G. Hubbard, October 4, 1877, AT&T, Box 1181.

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Thus, as the two companies began maneuvering for position in anticipation of their struggle, each sought to secure the absolute loyalty of its employees. It was only natural for the Bell Company to be suspicious of a Western Union sub-agent in its employ who had not rented a single telephone in a town of 80,000.[1] Consequently, the Bell Company began to order the removal of Western Union employees from all its operations[2] while the Western Union began to restrain its employees from acting for the Bell Company.[3]

The Western Union apparently refrained from renting its own instruments up to January 1878 and thus posed no serious threat to the Bell Telephone Company or its agents.[4] And so Gardiner Hubbard could write in October 1877 with some accuracy: "The Bell Telephone Company have at the present time the only telephone in the market."[5]

Sanders interpreted this situation as an indication of the Western Union's desire to make a reasonable settlement rather than fight.[6] Perhaps this was true, but an equally important reason why the Western Union delayed in renting telephones was that it was unprepared to do so. Orton explained to Cheever that the Western Union was experiencing a delay in manufacturing, and those instruments which were produced were being sent to different places

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1. Telephone Company of New York to Gardiner G. Hubbard, November 22, 1877, AT&T, Box 1178.

2. Richardson and Barnard to Gardiner G. Hubbard, November 16, 1877, AT&T, Box 1148.

3. E. Wilson to Gardiner G. Hubbard, November 19, 1877, AT&T, Box 1167.

4. Charles A. Cheever to Gardiner G. Hubbard, January 23, 1878, AT&T, Box 1006; Thomas Sanders to Gardiner G. Hubbard, January 28, 1878, AT&T, Box 1193.

5. Gardiner G. Hubbard to -- Richards, October 13, 1877, AT&T, GMLB 11.

6. Thomas Sanders to Gardiner G. Hubbard, January 28, 1878, AT&T, Box 1193.

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as sample or exhibition telephones.[1] Moreover, the Western Union did not have a satisfactory telephone for public use.

Although Edison had applied for a telephone patent in April 1877, it was not yet perfected. In July 1877, after visiting Edison and testing his telephone, Bell agent Elisha Wilson reported that some of the sounds and words were not audible, but the words shot out rapidly and with great force. While recognizing that Edison would be able to "talk in thundertones" over any distance if he perfected the articulation, Wilson concluded:

> This telephone will doubtless get a place but I do not think it at all comparable to the Bell in fact nothing to it for speech. So far I look upon it as a poor makeshift although it may be used as an imitation of sounds to represent words.[2]

Although the Western Union was not renting telephones, it was making a show of opposition.[3] It advertised its entrance into telephony in the daily newspapers[4] and boasted of the superiority of its instruments, hoping to discourage individuals from leasing Bell instruments.[5]

These tactics slowed the progress being made by some Bell agents. Some subscribers, expecting cheaper of better instruments to result from the impending competition, postponed their subscription for Bell telephones.[6]

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1. Charles A. Cheever to Gardiner G. Hubbard, January 23, 1878, AT&T, Box 1006.

2. Elisha Wilson to Gardiner G. Hubbard, July 16, 1877, AT&T, Box 1167.

3. G. W. Stockly to Gardiner G. Hubbard, January 14, 1878, AT&T, Box 1170.

4. Charles A. Cheever to Gardiner G. Hubbard, December 28, 1877, AT&T, Box 1006.

5. Elisha Wilson to Gardiner G. Hubbard, January 10, 1878, AT&T, Box 1167.

6. Elisha Wilson to Gardiner G. Hubbard, December 14, 1877, AT&T, Box 1167.

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One Bell agency wrote: "Our Charleston agents say that a party who had partially arranged with them for telephones is holding back now expecting to lease from the Western Union."[1]

The Western Union did not restrict itself to verbal attacks. In some places it raided Bell employees. For example, Elisha Wilson was forced to stop construction on a line when a Gold and Stock official hired away his skilled workers.[2] These and other tactics intensified as the competition became more serious.

In the meantime, Bell agents struggled on as best as they could. Financially unable to respond in kind to Western Union's newspaper advertisements, Charles Cheever of New York proposed having made and strung across Broadway, near the Western Union headquarters, a banner which proclaimed in bold letters the primacy of the Bell patents.[3]

Agents saw the importance of getting a foothold in strategic locations before the Western Union appeared.[4] A shortage of instruments did not improve the agents' chances of triumphing over the opposition.[5] This shortage plus the Western Union threat stirred Frederick Gower to adopt an ingenious strategy. He pushed his business in selected areas:

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1. Richardson and Barnard to Gardiner G. Hubbard, January 25, 1878, AT&T, Box 1148.

2. Elisha Wilson to Gardiner G. Hubbard, December 14, 1877, AT&T, Box 1167.

3. Charles A. Cheever to Gardiner G. Hubbard, December 28, 1877, AT&T, Box 1006.

4. James Hamblet to Gardiner G. Hubbard, December 18, 1877, AT&T, Box 1161; G. W. Stockly to Gardiner G. Hubbard, December 21, 1877, AT&T, Box 1170.

5. G. W. Stockly to Bell Telephone Company, December 5, 1877, AT&T, Box 1170; James Hamblet to Gardiner G. Hubbard, December 18, 1877, AT&T, Box 1161.

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> When I saw how inadequate was the supply of instruments, I concentrated on the points where competition might be feared or infringement might be begun. A very little inquiry showed these points to be great manufacturing centers, and these I am pushing at the present expense of the remoter districts and even to the apparent neglect of them.[1]

At this stage of the competition, agent Thomas Cornish was able to write:

> I can say in the language of the Great Daniel Webster 'I still live' and every day that I do live I get angry with the thought of those men who have not brains enough to invent, but enough to steal. Every day we feel their influence. Still we work harder and still we flourish.[2]

By the time the Western Union was about to introduce its telephones, an understanding was reached between it and the Bell Company. George Walker, Vice-President of the Gold and Stock Company, instructed his agents to fix their prices in accordance with the Bell prices. He believed it would be a good idea to keep prices as nearly as uniform as possible in view of a future combination of telephone interests.[3] Even as the chances for a negotiated settlement diminished, Hubbard urged co-operation with Walker and compliance with the rate understanding.[4] It was for this reason that Hubbard argued against the policy of using a single instrument until the Gold and Stock adopted the policy itself.[5]

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1. Frederick A. Gower to Gardiner G. Hubbard, December 24, 1877, AT&T, Box 1181.

2. Thomas E. Cornish to Gardiner G. Hubbard, January 5, 1878, AT&T, Box 1176.

3. George Walker to Gardiner G. Hubbard, January 30, 1878, AT&T, Box 1176.

4. Gardiner G. Hubbard to George L. Bradley, February 15, 1878, AT&T, Box 1182.

5. Ibid.; Gardiner G. Hubbard to George L. Bradley, February 25, 1878, AT&T, Box 1182.

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As the chances for a compromise diminished and the Western Union began actually to offer its telephones, the agreement was selectively ignored. As early as February 5, 1878, G. W. Stockly complained of Western Union competition in the form of rate cutting,[1] yet in the West Sam Hubbard reported that the opposition had agreed to charge the same rates as he for the erection of lines.[2]

Despite the increased intensity of the Western Union competition, the Bell Company continued to believe it enjoyed special advantages. In addition to experience and an operational telephone business,[3] Hubbard considered the better quality of Bell telephones and call bells a definite advantage over the Western Union. He predicted that Western Union instruments would soon give out, causing great inconvenience to customers and throwing discredit upon their whole operation.[4] Most Bell agents agreed with Hubbard that the Western Union instruments were inferior.

Thomas Cornish of Philadelphia, after removing a set of "Bogus Telephones," judged them not to be worth "two cents apiece, not much better than a tomato can."[5] Sam Hubbard confirmed Gardiner's prediction that Western Union instruments would not last three months. In fact, Sam reported the time had come sooner than expected, for Western Union subscribers were already becoming disgusted with their instruments and were talking about

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1. G. W. Stockly to Thomas Sanders, February 5, 1878, AT&T, Box 1170.

2. S. Hubbard to Gardiner G. Hubbard, February 28, 1878, AT&T, Box 1173.

3. Gardiner G. Hubbard to Thomas E. Cornish, February 26, 1878, AT&T, Box 1173.

4. Ibid.

5. Thomas E. Cornish to Thomas A. Watson, February 27, 1878, AT&T, Box 1176.

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changing them.[1] So poor were these instruments that a WU solicitor joined forces with Sam Hubbard rather than face his customers.[2]

Not all Bell agents were able to report as did Sam Hubbard. C. P. E. Burgoyne suggested that Gardiner Hubbard was underestimating the distinctness of the Western Union's Phelps telephone. In Burgoyne's estimation, the Phelps instrument worked almost as well as Bell's.[3] Watson agreed with this verdict: "Our inst was a little the loudest but the other was more distinct and the articulation was characterized by entire absence of the nasal quality and sounded well."[4]

Despite reports such as this, Gardiner Hubbard persisted in asserting that the opposition did not presently have any telephones which were successful, and therefore the Western Union could not be very strong competitors.[5] But Hubbard was also quick to point out that the Western Union was trying to remedy the situation by seeking control of Edison's telephone, which they claimed was better than any other.[6]

Hubbard himself was interested in acquiring the rights to Edison's telephone. At this time Hubbard was associated with Thomas Edison as a result of having purchased, along with George L. Bradley, Charles A. Cheever, Hilborne Roosevelt and Uriah S. Painter, the Edison phonograph.[7] Ironically, at the

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1. S. Hubbard to Gardiner G. Hubbard, March 26, 1878, AT&T, Box 1173.

2. S. Hubbard to Gardiner G. Hubbard, April 4, 1878, AT&T, Box 1173.

3. C. P. E. Burgoyne to Gardiner G. Hubbard, March 29, 1878, AT&T, Box 1178.

4. Thomas A. Watson, Notebook, February 21, 1878, AT&T, Box 1069.

5. Gardiner G. Hubbard to George L. Bradley, March 27, 1878, AT&T, Box 1182.

6. Ibid.

7. Charles A. Cheever to Gardiner G. Hubbard, March 15, 1878, AT&T, Box 1205.

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very moment when some of the Bell investors were having difficulty raising money for their respective telephone interests, those investors were diverting their funds and energies to the formation of the Edison Speaking Phonograph Company.[1]

Although the Phonograph Company was formed to capitalize on the widespread public interest in Edison's "talking machine" by licensing public lecturers and demonstrations, and also by leasing the instruments,[2] there is some evidence that it was to be used to promote the Bell Telephone.[3] The Phonograph Company certainly contemplated using Bell agents to exhibit and rent the instruments.[4] There is even a suggestion that the Bell investors might have backed the phonograph in order to divert Edison's attention from his telephonic research.[5] Watson definitely appreciated this possibility:

> It would be well to divert Edison's attention from the Telephone if possible.
>
> Perhaps it could be done by telling him how much more interest the Phonograph and Aurophone is exciting throughout the world than the Telephone did etc. etc.
>
> I believe he will work hardest on the one that gives him the most fame.[6]

In any case, Hubbard was close enough to Edison to receive a report on

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1. Ibid.

2. Charles A. Cheever to Gardiner G. Hubbard, March 14, 1878, AT&T, Box 1205.

3. Ibid.; John Ponton to Thomas A. Watson, April 16, 1878, AT&T, Box 1176.

4. H. L. Roosevelt to Gardiner G. Hubbard, April 11, 1878, AT&T, Box 1205.

5. Gardiner G. Hubbard to George L. Bradley, March 22, 1878, AT&T, Box 1205.

6. Thomas A. Watson to Gardiner G. Hubbard, April 20, 1878, AT&T, Box 1205.

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the new carbon telephone from E. H. Johnson, Edison's assistant. Johnson described the principle of Edison's success and explained that the Edison carbon telephone achieved absolute clearness of articulation, increased current and an overpowering of induction noises. He concluded: "It will convey a whisper many miles or will receive & convey clearly words whispered at the transmitter when 6 feet removed from the mouth."[1]

Hubbard responded to Johnson's report by indicating his wish to purchase the carbon telephone if the Western Union did not. He believed the Bell interests could afford to pay more than any other party because of their command of the telephone business. Therefore he wrote: "I am prepared to offer him [Edison] twelve thousand dollars a year & a royalty on every telephone made under his patents or an interest in our company."[2]

Hubbard visited Menlo Park to learn if he could acquire the Edison carbon telephone for the Bell Telephone Company. After examining it, he concluded the instrument was an infringement but recognized that it might be a valuable improvement. He sought Watson's expert technical opinion.[3] Watson's initial response was unfavorable, but by April 20, he had changed his verdict, a circumstance which Hubbard cited as his reason for failing to secure Edison's instrument.[4]

Chauncy Smith advised Hubbard that he should instruct Watson to modify Edison's telephone and then lose no time in applying for a patent on it as

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1. E. H. Johnson to Gardiner G. Hubbard, March 18, 1878, AT&T, Box 1198.

2. Draft letter [Gardiner G. Hubbard] to E. H. Johnson [no date], AT&T, Box 1198.

3. Gardiner G. Hubbard to Thomas Sanders, March 25, 1878, AT&T, Box 1193.

4. Gardiner G. Hubbard to Thomas Sanders, April 20, 1878, AT&T, Box 1193.

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an improvement and not as an original invention. Hubbard explained: "Mr. Smith . . . says . . . that Edison cannot use his telephone without infringing ours nor we his provided he gets a patent."[1]

Since Watson now approved of Edison's telephone, Sanders agreed that the Bell Telephone Company should try to obtain it on "reasonable terms" if possible.[2] Apparently Edison and the Bell Company were unable to agree on terms, for Edison later assigned his telephone to the Western Union for $6000 a year and the Western Union assumed the risk of obtaining a patent.[3] This was substantially less than the sum Hubbard indicated he was willing to offer Edison.

Perhaps herein lies the true reason for the Bell Company's failure to secure the rights to Edison's telephone. Sanders found Edison's terms unacceptable:

> I should say that Mr. Edison's demands were unreasonable, in the present condition of the business. I do not know where we could use one [Edison telephone] to advantage today and I think his annuity should be made contingent.[4]

Hubbard disagreed with his partner's evaluation. He appreciated the innovation's value in fulfilling the Western Union's need for an instrument since it did not possess one which answered a "good purpose." Hubbard also realized that the Edison instrument, with its ability to overcome induction,

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1. Gardiner G. Hubbard to Thomas A. Watson, April 15, 1878, AT&T, Box 1193.

2. Thomas Sanders to Gardiner G. Hubbard, April 18, 1878, AT&T, Box 1193.

3. Gardiner G. Hubbard to Thomas Sanders, April 20, 1878, AT&T, Box 1193.

4. Thomas Sanders to Gardiner G. Hubbard, April 22, 1878, AT&T, Box 1193.

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could be used on lines two or three hundred miles long which would enable the Bell Company to connect district companies in different cities.[1] He insisted that an Edison telephone could be used immediately on the Pennsylvania Railroad line between New York and Philadelphia.[2]

Since the Bell Telephone Company failed to obtain the rights to Edison's telephone, it was forced to seek alternative means to overcome Edison's success. It eventually secured the assistance of rival inventors whose claims for an improved telephone antedated Edison's.[3]

The Bell Telephone Company felt its organization was another advantage in its struggle against the Western Union. Hubbard believed that Bell agents were more active and energetic because they received a twenty-five percent commission while Western Union agents received only ten percent.[4] In Bell agent James Hamblet's opinion, the Western Union offered little inducement to their employees to push the business.[5] Sam Hubbard secured the services of a Western Union employee partly because of his unhappiness at the way he had been treated.[6] Thomas Watson, touring the agencies and observing the Western Union threat firsthand, agreed with Hubbard:

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1. Gardiner G. Hubbard to Thomas A. Watson, April 20, 1878, AT&T, Box 1193.

2. Gardiner G. Hubbard to Thomas Sanders, April 24, 1878, AT&T, Box 1193.

3. Thomas A. Watson to Gardiner G. Hubbard, June 3, 1878, AT&T, Box 1193.

4. Gardiner G. Hubbard to Thomas E. Cornish, February 26, 1878, AT&T, Box 1054.

5. James Hamblet to Gardiner G. Hubbard, January 21, 1878, AT&T, Box 1161.

6. S. Hubbard to Gardiner G. Hubbard, April 4, 1878, AT&T, Box 1173.

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> I do not see any reason thus far for fearing the WU if we have smart and respectable agents who thoroughly understand the business and have confidence in us as a Co but where ever we have an ineffectual agent then the WU will surely get ahead of us.[1]

Hubbard believed the Western Union was handicapped because it was acting through the Gold and Stock Company, which was in opposition to various district telegraph companies. For this reason the Bell Company was offering generous terms to the district companies to induce them to become Bell agents.[2] Hubbard summed up what he considered a chief advantage of his company:

> The Gold and Stock are . . . our competitors. All they pay is a comn, not half as large as ours, and to balance this the WU Co have recently reduced the operators' wages 10 pct. On the other side--We have for our purposes, a better organization, pay a comn more than twice as large & give our agents all the profits from the construction of the lines. Which of the two, in the long run will succeed, you can judge as well as I.[3]

Western Union's advantages, however, soon became apparent to Hubbard and the Bell Company. It offered instruments at reduced rates. G. W. Stockly reported that a Western Union official followed his agents and offered customers reduced prices and generally did anything to win his customers away.[4] Western Union rate cutting was especially hard on Bell agents because they could not respond in kind. Rates and discounts for Bell telephones were fixed by contract and so agents had no authority to change them.

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1. Thomas A. Watson, Notebook, February 25, 1878, AT&T, Box 1069.

2. Gardiner G. Hubbard to George L. Bradley, March 27, 1878, AT&T, Box 1182.

3. Ibid.

4. G. W. Stockly to Thomas Sanders, February 5, 1878, AT&T, Box 1170; G. W. Stockly to Gardiner G. Hubbard, March 21, 1878, AT&T, Box 1170.

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Instructions to Agents, No. 3, clearly reminded them that "No agent of this company has any authority to reduce rentals, or allow discounts."[1]

All that Bell agents could do in the face of price competition was to plead with the parent company that they be given authority to lower rates. It was argued that once the enemy was cleared from the field, price reductions could be made up by the increased volume of rentals.[2] As one agent wrote:

> Now I wish you would give me the privilege of competing with the WU in price. I want to beat them on every corner & as I now stand cannot do so. What I want to be able to do is to say I will put up instruments as cheap as the W. Union.[3]

The greatest advantage which the Western Union possessed was its system of telegraph lines, which could be readily adapted for use by telephones. One Bell agent explained:

> Col. Talcott the Supt. of Danville Rr. says he would prefer using the Bell instruments but the WU offer him a line already built and of course it is cheaper for him to use their telephone with their facility for wires etc.[4]

If the Bell Company considered itself fortunate because of its experience in telephony, then how much more fortunate was the Western Union with its long experience and organization for constructing electrical lines. Bell agents tried to keep pace with Western Union agents in constructing lines, but eventually they conceded they were no match for the efficient Western Union organization.[5] The Western Union could offer its customers not only

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1. Instructions to Agents, No. 3, February 1, 1878, AT&T, Box 1001.

2. C. P. E. Burgoyne to Gardiner G. Hubbard, February 28, 1878, AT&T, Box 1178.

3. J. N. Culbertson to Gardiner G. Hubbard, May 30, 1878, AT&T, Box 1164.

4. C. P. E. Burgoyne to Gardiner G. Hubbard, February 15, 1878, AT&T, Box 1176.

5. C. P. E. Burgoyne to Gardiner G. Hubbard, June 16, 1878, AT&T, Box 1178.

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telephones at reduced rates, but also lines almost free of charge.[1] As one Bell agent complained: "The WU Co furnish lines free of charge to get them [AST Co. telephone] in. I cannot do that."[2]

In trying to capture subscribers, the Western Union supplied electrical cords free of charge thus forcing the Bell Company to consider doing the same.[3] The Western Union not only offered low prices, but also easy terms for payment. In some areas it allowed subscribers to rent lines by the month, whereas the Bell Company required yearly rentals paid in advance. One agent recognized that if the Western Union continued to rent telephones, then the Bell Company would have to modify its terms, since subscribers would not continue to rent lines on such hard terms when the Western Union was offering easier ones.[4]

The Western Union competed for exchange subscriptions as well as private line subscriptions. It applied many of the same tactics used against private line agencies. In some instances the Western Union offered to connect subscribers to a central exchange system free of charge for one year.[5] Usually, however, the Western Union exchanges offered lower rates than Bell exchanges. One Bell agent complained:

> The WU Co. are soliciting subscriptions to an opposition Telephone Exchange at $50 per year on the same plan as ours. It is of no consequence to subscribers whether that Co. has not the right to use the telephone but it threatens (at present at least) to very

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1. G. W. Stockly to Gardiner G. Hubbard, March 21, 1878, AT&T, Box 1170.

2. G. W. Moore to Gardiner G. Hubbard, April 20, 1878, AT&T, Box 1174.

3. Thomas A. Watson, Notebook, February 25, 1878, AT&T, Box 1069.

4. H. H. Eldred to Gardiner G. Hubbard, February 20, 1878, AT&T, Box 1161.

5. S. Hubbard to Bell Telephone Company, March 13, 1878, AT&T, Box 1173.

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> seriously interfere with our subscriptions. We based our subscriptions on a fair profit only and unless the telephones are furnished to the WU gratis there can be no profit in any such scheme. Their motive is evident.[1]

Although the exchanges set their own rates to subscribers, these rates were largely determined by the cost of their instruments. Therefore, exchange agents frequently requested a reduction in the cost of their instruments so that they could meet the opposition and maintain their enterprise without loss.[2] In those places where the Western Union established a true central exchange system and the Bell Company had none or simply a district system where calls went only "one way," the Western Union greatly injured the Bell Company's chances for success.[3]

Contrary to Hubbard's views, the Western Union enjoyed a more advantageous position precisely because of its experience and organization. It was powerful and efficient. Sam Hubbard reported that people were afraid to join his central exchange because the opposition "have been in the business so long that it will be hard to get any advantage over them."[4]

The Western Union possessed an extended system of agents which it could employ in renting telephones.[5] Consequently, when the Bell agent was removed from New York State and his successor was delayed in arriving,

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1. G. F. Durant to Gardiner G. Hubbard, April 4, 1878, AT&T, Box 1161.

2. G. F. Durant to Gardiner G. Hubbard, April 8, 1878, AT&T, Box 1161.

3. S. Hubbard to Gardiner G. Hubbard, March 11, 1878, AT&T, Box 1173.

4. S. Hubbard to Gardiner G. Hubbard, April 24, 1878, AT&T, Box 1173.

5. G. W. Stockly to Gardiner G. Hubbard, January 21, 1878, AT&T, Box 1170.

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the Western Union was able to capitalize on the situation. It reported that the Bell Telephone Company had withdrawn from the field. When the new Bell agent finally arrived, he discovered that the Western Union had rented many instruments.[1]

When all other tactics failed, the Western Union could call upon its extensive influence. Although Hubbard believed he could mobilize district companies against the Western Union, it was in fact the Western Union which exercised a strong influence over them. These private telegraph companies were perforce linked with the country's largest telegraph company, the Western Union. Whenever necessary it used these connections to dissuade district companies from joining the Bell forces.

One American District Telegraph Company using Bell telephones was informed that President Orton had decided it could no longer enjoy a working connection with the Western Union as long as it was affiliated with the Bell Telephone Company.[2] This district company not only was forced to sever its connection with the Western Union, but also to forfeit the cheap rent and other benefits it enjoyed in sharing quarters with a Western Union controlled telegraph company.[3] The Bell agent wrote:

> To make this contract with you we shall sacrifice our cheap rent in this office so well located. The great expense we save by having A&P employes see to our business nights, Sundays etc. . . . My own salary will be considerably damaged by the change. All this we sacrifice only relying on our faith in the absolute clearness of your title.[4]

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1. J. N. Culbertson to Gardiner G. Hubbard, May 30, 1878, AT&T, Box 1164.

2. C. H. Sewall to Gardiner G. Hubbard, February 22, 1878, AT&T, Box 1164.

3. C. H. Sewall to Gardiner G. Hubbard, March 20, 1878, AT&T, Box 1164.

4. Ibid.

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One district company, seeking to be free of its Western Union connection, undertook the ambitious program of removing its lines from Western Union poles.[1]

Western Union influence did not extend only to district telegraph companies. When a railroad employee inquired about constructing a line which would connect several steamship companies and railroads he was forced to reject a Bell agent's bid even though it was exactly the same as Western Union's. The Bell agent explained:

> There was no difference in the cost to account to anything. The Western Union 'bulldozed' the steamboat men and said they would refuse them certain privileges if they did not take their telephones and finally they adopted Western Union instruments . . . People do not seem to care for the right or justice of the thing so long as they will suffer no pecuniary loss.[2]

If all else failed, Western Union agents occasionally resorted to force pure and simple. In this extreme their favorite tactic was cutting down Bell telephone lines and destroying and disrupting circuits.[3] One Bell employee later recalled:

> We [Telephone Company of New York] had a very large structure on the roof of the Sherman House . . . One day several of our circuits attached to the structure ceased to work. I despatched linemen to look for the trouble. The lineman reported to me that they had been deliverately cut. I had a deep-rooted conviction as to the man who did this, as he was a former Western Union lineman then with the Edison company, and we had some previous cases where our wires had been crossed. They were not the only sinners by any means . . . Some of our boy operators would hear messages going over their wires and would order carriages sent to their subscribers which created a great deal of satisfaction.[4]

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1. G. W. Moore to Thomas A. Watson, May 2, 1878, AT&T, Box 1174.

2. C. P. E. Burgoyne to Gardiner G. Hubbard, April 13, 1878, AT&T, Box 1178.

3. H. H. Eldred to Thomas A. Watson, July 10, 1878, AT&T, Box 1178.

4. Lillie, "Reminiscences," 27.

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In competing against Western Union agents, Bell officials argued the morality of their own case. Agent Burgoyne told a subscriber that if he used a Western Union instrument it would be like receiving stolen goods.[1] Watson, trying to dissuade a subscriber from replacing a Bell instrument with that of the Gold and Stock Company, portrayed Western Union as a powerful corporation trying to crush a smaller company, albeit a "healthy child." "Putting aside the question of lawsuits etc., I told him that he as an honorable businessman should not encourage fraud by using the Western Union telephone."[2]

In both instances subscribers replied that the Western Union offered to protect them and other users from legal action[3] and pay all costs if they were sued.[4]

Western Union's lower prices and legal guarantees rendered Bell agents' threats to sue infringers, their chief weapon, ineffective[5] and sometimes resulted in "laughter and derision."[6] Occasionally the prospect of legal action was enough to frighten Western Union subscribers into regretting their decision,[7] but more typical was the result described by one Bell agent:

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1. C. P. E. Burgoyne to Gardiner G. Hubbard, March 29, 1878, AT&T, Box 1176.

2. Thomas A. Watson, Notebook, February 25, 1878, AT&T, Box 1069.

3. Ibid.

4. C. P. E. Burgoyne to Gardiner G. Hubbard, March 29, 1878, AT&T, Box 1178.

5. G. W. Stockly to Gardiner G. Hubbard, April 13, 1878, AT&T, Box 1170.

6. Thomas A. Watson to Gardiner G. Hubbard, June 13, 1878, AT&T, Box 1193.

7. H. H. Eldred to Gardiner G. Hubbard, February 14, 1878, AT&T, Box 1161.

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"Plentiful and persistent servings of notices don't seem to intimidate the customers with WU. The latter offer a written guarantee against liability. They also talk as if consolidation were not far off."[1]

Western Union's talk about consolidation frightened Bell agents, as it was meant to do. Even after efforts at negotiating a settlement had been halted, the Western Union continued to speak as if consolidation would occur shortly.[2] When not discussing consolidation, the Western Union boasted of annihilating the Bell Telephone Company.[3]

As a result of these claims, Bell agents sought reassurance from the Bell Company that their interests would be protected in case of consolidation with Western Union, so that they could push their business earnestly.[4] Many believed the Western Union would be vindictive.[5] One agent wrote: "My own experience of all alliances with the Western Union is, that their employees invariably supplant those of the other contracting party. I have found myself in that box three times already."[6]

Even the Bell Company's promise of protection in case of a consolidation was not enough for everyone.[7] Some agents and employees sought contracts

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1. G. W. Stockly to Gardiner G. Hubbard, March 4, 1878, AT&T, Box 1170.

2. G. F. Durant to Gardiner G. Hubbard, May 18, 1878, AT&T, Box 1161.

3. G. W. Moore to Gardiner G. Hubbard, May 2, 1878, AT&T, Box 1174.

4. G. F. Durant to Gardiner G. Hubbard, April 4, 1878, AT&T, Box 1161; G. W. Stockly to Gardiner G. Hubbard, March 4, 1878, AT&T, Box 1170.

5. C. P. E. Burgoyne to Gardiner G. Hubbard, June 16, 1878, AT&T, Box 1178.

6. C. H. Sewall to Gardiner G. Hubbard, February 22, 1878, AT&T, Box 1164.

7. G. W. Stockly to Gardiner G. Hubbard, June 21, 1878, AT&T, Box 1170.

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guaranteeing their positions if a settlement were reached with the Western Union.[1]

Agents' fears were reinforced by the Bell Company's slowness to institute legal action:

> We are entirely in the dark here as to the action of the Bell Co. in protecting their rights, and compelled to meet such unwholesome competition in prices that the entire aspect is changed. While I do not believe that the Bell Co. will make any arrangement with the WU that will sacrifice their agents, it does seem strange that these innovators are allowed to peddle their wares with such apparent impunity.[2]

By the terms of its contracts the Bell Telephone Company was obliged to protect its agents against legal challenges. The Bell Company was required to pay all legal expenses in protecting its patents but possessed full control over any suits.[3] Agents, in turn, were obliged to notify the parent company of any infringements in their territory.

Invoking their rights[4] and relying upon the Bell Company's assurance that it would commence suits "forthwith,"[5] agents began demanding action. When it was not immediately forthcoming, agents and subscribers attributed the Bell Company's delay to an inability to protect its rights.[6] Agents

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1. C. H. Sewall to Gardiner G. Hubbard, February 22, 1878, AT&T, Box 1164; Gardiner G. Hubbard to Thomas Sanders, May 29, 1878, AT&T, Box 1193.

2. G. F. Durant to Gardiner G. Hubbard, May 18, 1878, AT&T, Box 1161.

3. Contract, Bell Telephone Company and Davis and Watts, March 29, 1878, AT&T, Box 1033; Abstract Contract, Bell Telephone Company and Detroit Company, October 24, 1877, AT&T, MB1.

4. G. C. Maynard to Bell Telephone Company, July 17, 1878, AT&T, Box 1178.

5. Gardiner G. Hubbard to Thomas E. Cornish, December 7, 1877, AT&T, Box 1053.

6. C. P. E. Burgoyne to Gardiner G. Hubbard, April 18, 1878, AT&T, Box 1178; T. B. A. David to Gardiner G. Hubbard, April 10, 1878, AT&T, Box 1175.

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strongly urged action lest without it, they believed, the Bell Company would greatly diminish its chances for success.[1]

Not only would the Bell Company have an "army to fight,"[2] if it did not act decisively, but the basis of its strength would be weakened. Agents would be unlikely to push their businesses if the Western Union were not at least challenged.[3] Further,

> Unless some publicity is given to the fact that the Bell Co. control the Telephone patents, are determined to protect their rights, and have already taken legal steps against the Western Union Co . . . you cannot expect to enlist capital in new District Telephone Companies, if at the outset they are met by the enemy in full feather.[4]

Both Hubbard and Sanders appreciated the necessity of commencing legal action soon.[5] Sanders explained to one agent that the company was delaying so as not to make any mistakes in the preliminary steps.[6] By early March, however, Sanders was urging Hubbard not to commence the suits under the company's present circumstances. Since negotiations were under way for the reorganization of the Bell Telephone Company with capital, the lawsuits now would only create inconvenience and misunderstanding.[7]

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1. G. W. Stockly to Gardiner G. Hubbard, January 21, 1878, AT&T, Box 1170; S. Hubbard to Gardiner G. Hubbard, February 15, 1878, AT&T, Box 1173; G. W. Stockly to Gardiner G. Hubbard, March 21, 1878, AT&T, Box 1170.

2. G. W. Stockly to Gardiner G. Hubbard, April 13, 1878, AT&T, Box 1170.

3. C. H. Sewall to Bell Telephone Company, May 25, 1878, AT&T, Box 1170.

4. G. F. Durant to Gardiner G. Hubbard, May 20, 1878, AT&T, Box 1161.

5. Gardiner G. Hubbard to C. E. Bradley, February 26, 1878, AT&T, Box 1205; Thomas Sanders to G. W. Stockly, February 26, 1878, AT&T, GMLB 12.

6. Thomas Sanders to G. W. Stockly, February 26, 1878, AT&T, GMLB 12.

7. Thomas Sanders to Gardiner G. Hubbard, March 5, 1878, AT&T, Box 1193.

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Judge C. S. Bradley, an important figure in the reorganization, also doubted the expediency of launching into litigation which might be long and expensive without having the "sinews of war," especially in view of his understanding that the Bell Company was not financially strong.[1] Sanders, believing the Bell Company enjoyed special advantages even in view of the intensified Western Union threat, continued to urge delay in pressing the legal case:

> The Sympathy of the people is with us against the WU . . . Our agents devote themselves entirely to the business in hand, viz. the leasing of telephones, whereas the WU has divided and diverse interests and no "esprit de corps." Here lies our strength until the lawsuits are decided.[2]

Hubbard disagreed with Sanders. He urged legal action soon because a certain amount of time would have to elapse before the new Bell Company could be organized, and it would be injudicious to wait.[3] Sanders agreed with Hubbard that the Bell Company had "thrown stones long enough," but as befitted his temperament he urged caution:

> I suppose there is no doubt as to the formation of the National Company but until we are in possession I should be afraid to take active steps in a lawsuit. I do thoroughly approve of the notice which you send for publication, but as we do not want to make any more empty threats, ought we not wait until we have money to defend our suits with before we issue it.[4]

About the time when Hubbard and Sanders were debating the advisability of immediate lawsuits, an event occurred which led many Bell officials

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1. George L. Bradley to Gardiner G. Hubbard, March 22, 1878, AT&T, MBl.

2. Thomas Sanders to C. E. Hubbard, April 3, 1878, AT&T, GMLB 13.

3. Gardiner G. Hubbard to George L. Bradley, April 6, 1878, AT&T, Box 1182.

4. Thomas Sanders to Gardiner G. Hubbard, April 26, 1878, AT&T, Box 1193.

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to hope that litigation might be unnecessary: on April 22, 1878, President William Orton of the Western Union died.[1] Agent Cornish commented:

> I have not heard whether it [Orton's death] was a natural death or 'remorse.' Surely his movement with 'our' telephone has not helped him to a better seat in Heaven--a sad lesson to all 'who may do wrong.'[2]

Hubbard considered the Bell Company strengthened in proportion to the weakening of the Western Union by Orton's death.[3] He believed the Western Union would not soon find a leader equal to Orton in ability, knowledge or appreciation of the telephone.[4] But Sanders may have had an even clearer appreciation of the gain from Orton's death when he wrote:

> I do not like to rejoice at such an event but it seems to me it will make our path smoother. A powerful man in his position with his animus toward Mr. Hubbard I am convinced has worked us a great injury. He never meant that GGH should make one dollar if he could help it.[5]

Anson Stager, President of the Western Electric Company, now renewed efforts to work out a compromise between the Western Union and the Bell But the Bell Company was daily growing stronger, negotiations were under way to bring in new capital and so Hubbard rejected Stager's offer.[6]

By May 1, even Sanders was sounding an optimistic note: "Everything

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1. C. E. Hubbard to Gardiner G. Hubbard, April 22, 1878, AT&T, Box 1003.

2. Thomas E. Cornish to Gardiner G. Hubbard, April 22, 1878, AT&T, Box 1176.

3. Gardiner G. Hubbard to Thomas E. Cornish, April 23, 1878, AT&T, Box 1054.

4. Gardiner G. Hubbard to Thomas Sanders, April 23, 1878, AT&T, Box 1193.

5. Thomas Sanders to Charles A. Cheever, April 23, 1878, AT&T, GMLB 13.

6. Gardiner G. Hubbard to Thomas Sanders, April 28, 1878, AT&T, Box 1193.

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looks bright except the inevitable delay which will set us back in our lawsuits."[1] While both Sanders and Hubbard were anxious to institute legal proceedings against the Western Union,[2] they continued to disagree over the appropriate moment. Citing the company's "wretched state" of finances, Sanders insisted it was desirable to wait until the new Bell Company was formed: "I must protest against incurring new obligations until we can meet our old ones."[3] Hubbard argued to the contrary that it was necessary to commence suits in order to get money to pay for them, lest the company lose its agents and rentals. He denied the company's finances were in a wretched state:

> I have had but one mind in regard to the expediency of commencing suits for the last four months & have urged that they should be commenced ever since that time & know you would be much richer than you are today if my advice had been followed, the suits commenced and expenses paid. We cannot pay our old obligations without incurring new ones.[4]

Although Hubbard was firm in his convictions, Sanders' point of view prevailed. He was supported by C. E. Hubbard[5] and Chauncy Smith.[6] The Dowd suit, the Bell Company's major legal attack against the Western Union, was not commenced until after the reorganization of the Bell Telephone Company into a corporation.

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1. Thomas Sanders to Gardiner G. Hubbard, May 1, 1878, AT&T, Box 1193.

2. Ibid.; Gardiner G. Hubbard to Thomas Sanders, May 3, 1878, AT&T, Box 1193.

3. Thomas Sanders to Gardiner G. Hubbard, May 25, 1878, AT&T, Box 1193.

4. Gardiner G. Hubbard to Thomas Sanders, May 29, 1878, AT&T, Box 1193.

5. C. E. Hubbard to Gardiner G. Hubbard, March 16, 1878, AT&T, Box 1003.

6. Thomas Sanders to Gardiner G. Hubbard, March 15, 1878, AT&T, Box 1193.

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The threat of competition during 1877 seems to have been greater than its reality. Although Bell agents complained of Western Union activity and increased rentals of infringing telephones, it appears that because of the demand for telephones and the Bell Company's inability to supply it that the Western Union did not really impair the Bell Company's business. To be sure, the Bell Telephone Company and its agents did not have the clear field which they expected due to Bell's patent, but the loss of business they suffered seems minimal.

The Bell Company's business did decrease at the beginning of 1878 when the Western Union began in earnest to seriously offer its own instruments. The number of instruments the Bell Company shipped to its agents declined considerably in April, May and July,[1] and this may have resulted from increased Western Union activity, although it may also have reflected a readjustment of the company's business. One Bell agent explained:

> I am aware that we are not securing as many orders in our territory as we did a few months ago but it does not necessarily follow that we are not taking care of the business. We did what we thought was the wisest thing to do, at the outset, we rushed the business while it was a new thing and before opposition sprang up, putting up telephones on trial wherever there was a possibility of their being kept or used, and one result is that we have leased a large number and filled all the prominent demands, and of course there follows a quiet spell and customers are fewer and harder to secure.[2]

Indeed, Western Union's activity might actually have been beneficial to the Bell Telephone Company. Returning from a tour of inspection, Watson reported in May 1878 that the Western Union opposition was a "fraud" and he

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1. "Instruments Shipped & Returned by Agents and Exchanges in the U.S., 1878," AT&T, Box 1004.

2. G. W. Stockly to Gardiner G. Hubbard, March 21, 1878, AT&T, Box 1170.

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believed that it served to "act as a stimulant in almost every place I have been in."[1] This view was another reason for delaying legal proceedings against the Western Union. The Bell Company explained:

> There is very little but bluster on the part of our enemies, our agents are doing all the business. As long as the efficiency of our agents enables us to hold the field we can take our time and place for bringing suits.[2]

Nevertheless, agents and officers alike clearly were frightened by the Western Union presence in telephony, and the parent company responded by preparing to institute legal proceedings and to confront the opposition head on. A direct confrontation of lasting importance occurred in Chicago where the Bell Telephone Company felt the stakes were very high.

The Chicago agency originated quite like other private line agencies. The Western Electric Company, a major supplier of electrical goods, applied to Gardiner G. Hubbard for permission to lease telephones. Like many other prospective agents it had already received applications for telephones.[3]

The Chicago agency's development, under the Western Electric Company, was also quite similar to that of other agencies. It faced an inadequate supply of instruments,[4] customer dissatisfaction with the idea of renting rather than buying telephones, electrical interference,[5] and insufficient information from the Bell Telephone Company.[6]

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1. Thomas A. Watson to Thomas Sanders, May 31, 1878, AT&T, Box 1193.

2. Bell Telephone Company to -- Gleason, June 4, 1878, AT&T, GMLB 14.

3. Anson Stager to Gardiner G. Hubbard, July 15, 1877, AT&T, Box 1151.

4. E. N. Barton to Bell Telephone Company, October 30, 1877, AT&T, Box 1151.

5. E. N. Barton to Gardiner G. Hubbard, October 20, 1877, AT&T, Box 1151.

6. E. N. Barton to Bell Telephone Company, December 6, 1877, AT&T, Box 1151.

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Late in 1877 Hubbard began to express the fear that the Western Electric Company was not pushing agency business as hard as it might. This fear, and his desire to send his own telephone solicitor to Chicago,[1] may have resulted from his suspicions about the close connection of the agency with Western Union, since Western Electric was affiliated with the latter. The Bell Company was already preparing to sever such relationships in other agencies.

Western Electric defended itself against Hubbard's criticisms by asserting that its agency business was unsuccessful due to the special electrical problems one encountered in using a telephone in the city of Chicago.[2] Although the Western Electric agency was not discontinued, Hubbard still favored the idea of sending someone to Chicago to work up the business and share the proceeds with Western Electric.[3] His suspicions about the connection between Western Electric's poor performance and its relationship to Western Union were reinforced when he learned that the company was constructing telephones for Western Union. Agent Stockly of Cleveland wrote Hubbard:

> I am yet more certain that the WE Co will not push the Bell Tel or in fact do anything about it and it strikes me that so important a point should be occupied at once. If you choose to revoke the agency . . . give us a chance there.[4]

Enos Barton, Secretary of the Western Electric Company, at the end of December suggested that since his company was about to actively manufacture

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1. E. N. Barton to Gardiner G. Hubbard, October 20, 1877, AT&T, Box 1151.

2. Ibid.

3. E. N. Barton to Gardiner G. Hubbard, December 8, 1877, AT&T, Box 1151.

4. G. W. Stockly to Gardiner G. Hubbard, December 21, 1877, AT&T, Box 1170.

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telephones for the Gold and Stock Company it would be a good idea to discontinue the Bell agency. He denied having previously entered into any business arrangements which would have prevented Western Electric from doing all it could for the Bell Company and noted that it had rented all of the instruments it had been able to obtain.[1]

President Anson Stager, however, indicated that his secretary had acted without authority in expressing the desire to discontinue the agency. Stager explained that the Western Electric Company had been manufacturing Elisha Gray's apparatus since 1874 but had done nothing more and was bound to continue manufacturing Gray's instruments until notified it was infringing on other parties.

Stager reassured Hubbard that the Western Electric Company had no direct interest in the advancement of any telephone besides the Bell telephone and was using its best efforts to promote it. He reasserted that his agency had been loyal to the Bell Company, but added that if Hubbard continued to propose sending his own agent to Chicago, the Western Electric Company would consider this a reflection upon its business capacity and integrity and would "prefer to throw up the business."[2]

Thus matters remained. When Watson visited the Chicago agency in March 1878, he found the Western Electric situation still unsatisfactory. He considered Barton's explanations for not having done more as mere excuses. During a meeting with Stager each side tried to bluff the other, Stager suggesting that the Western Union was ready to keep the patent issue in the

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1. E. N. Barton to Gardiner G. Hubbard, December 22, 1877, AT&T, Box 1151.

2. Anson Stager to Gardiner G. Hubbard, December 28, 1877, AT&T, Box 1151.

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courts for five years, while Watson argued that the telephone would replace district boxes within three years.

Watson toured the Western Electric shop where he saw Gray and Phelps instruments in abundance. He judged Stager's account of a fight with the Gold and Stock Company a "downright falsehood," and concluded that the Western Electric Company was doing all it could to injure the Bell interests. He noted in his diary:

> It makes me mad to see the condition of our business in Chicago and I wish our Co was wealthy enough to give the WE a good shaking up. I left for the hotel mad and disgusted although I tried not to show it before them. [Western Electric officials] A set of men capable of almost any sharp game.[1]

As Watson continued his tour he received fresh evidence of Western Electric's intimate connection with the Gold and Stock Company.[2]

The situation in Chicago remained unchanged until mid-May when Hubbard learned that the American District Telegraph Company was going to organize a telephonic exchange there in connection with the Western Union. He therefore ordered H. H. Eldred, general agent for Missouri, to leave for Chicago and begin canvassing subscribers for a Bell Telephone Exchange. Eldred was instructed to call upon the Western Electric to see if he could count on them for help. He was to draw on Sanders for funds if necessary. Hubbard explained to Sanders: "This is an unexpected immergency [sic] & it requires prompt & efficient action on our part. If the Western Union should get ahead of us with this Tel Exchange, we shall have great difficulty in regaining the ground."[3]

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1. Thomas A. Watson, Notebook, March 2, 1878, AT&T, Box 1069.
2. Ibid., March 4, 1878.
3. Gardiner G. Hubbard to Thomas Sanders, May 22, 1878, AT&T, Box 1152.

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Claiming afterward that he had not had sufficient time, Hubbard had dispatched Eldred to Chicago without consulting Sanders.[1] Hubbard's hasty action initiated a telephone exchange that would be a serious drain on the Bell Telephone Company and its successor organizations.

Almost immediately Hubbard's decision to confront the opposition in Chicago began to cost the Bell Company money. Eldred requested Sanders to stop drawing on him for advances on Missouri rentals until it could be determined how much money would be needed for Chicago.[2] Eldred anticipated he would have a hard time, since Hubbard had waited too long before acting. He also predicted a rupture between the Bell interests and the Western Electric if they refused to aid his efforts or placed obstacles in his way. In such an event, he was to work for the Bell Company directly.[3]

Immediately upon arriving in Chicago Eldred sent out a canvasser seeking subscribers to a proposed Bell telephone exchange.[4] He did this without Barton's knowledge.[5] During his first meeting with Barton, Eldred found him evasive about assisting in the organization of the Bell exchange. Barton repeated his company's willingness to surrender its agency if Hubbard desired it. Eldred concluded: "This morning I called on Barton. I did not get a very good impression of him from my call this morning, don't think he is very sincere in what he says, and inclined to be tricky."[6]

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1. Ibid.
2. H. H. Eldred to Gardiner G. Hubbard, May 27, 1878, AT&T, Box 1152.
3. Ibid.
4. H. H. Eldred to Gardiner G. Hubbard, May 28, 1878, AT&T, Box 1152.
5. H. H. Eldred to Gardiner G. Hubbard, May 31, 1878, AT&T, Box 1152.
6. H. H. Eldred to Gardiner G. Hubbard, May 29, 1878, AT&T, Box 1152.

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After consulting with Watson, Eldred set the price for Bell telephones at $3 per month in order to offset the gains made by the opposition.[1] This action prompted the manager of the American District Telegraph Company to visit Eldred and urge some kind of arrangement lest neither company make any money. He proposed a compromise whereby a royalty would be paid to one or the other company if its instruments were not used by the ADT. Eldred appreciated the need for caution:

> I can see now some of your [Hubbard] reasons for wishing to let Chicago alone for the present. If we go ahead will be necessary to open an office and have enough cash in hand to push business with all speed possible. . . . To continue is open field fight with odds against us at start as they already have start and position and capital. If I could have assistance of some good experienced & reliable men . . . and necessary capital have no doubt of our success.[2]

The ADT Company's proposition was therefore worthy of consideration. According to its terms, both the Bell and Western Union interests would benefit. For example, if it cost the telephone companies $1 per year to maintain a telephone, the district company would pay $7 per year for each telephone used, $4 to the company whose instruments were used and $3 to the company whose instruments were not used. Barton argued it would make no difference to the district company or to either telephone interest which instruments were used. The district company would benefit by having the freedom to choose the best telephone. He concluded:

> In this manner you would be assured of a handsome revenue from the start, and would make more money than you could possibly make from a competing organization, for such an organization could not hope to secure one half the business, on account of the advantage that the Am. Dist. Tel. Co. already has in the occupation of the field.[3]

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1. H. H. Eldred to Gardiner G. Hubbard, May 28, 1878, AT&T, Box 1152.
2. H. H. Eldred to Gardiner G. Hubbard, May 31, 1878, AT&T, Box 1152.
3. E. N. Barton to Gardiner G. Hubbard, June 1, 1878, AT&T, Box 1151.

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Hubbard responded that since the Bell Telephone Company had the basic patents for the telephone, it could not agree to any terms which would interfere with its ability to sue infringers. However, the Bell Company might receive any sum paid to it as a royalty for the use of its patents.[1]

Eldred urged compromise on the grounds that while the Bell interests could attract a large number of subscribers to its exchange, the rates, already low, might be driven so low that it could not make a profit:

> The principle of this adjustment I think a bad one; as Bell Co hold the patents, none other should be reorganized, but if we are not strong enough to maintain our rights . . . a compromise is certainly advisable in a financial view.[2]

Eldred advised Hubbard that Barton and the ADT Company did really desire compromise. He judged that Barton was trying to do fairly by all, a very difficult task since he was caught "between two forces."[3]

Conditions seemed to be perfect for a compromise in Chicago. Barton was certain an arrangement could be made with the ADT Company.[4] Anson Stager, owning an interest in the ADT, also favored the proposal, since he had only recently placed the company in a paying position and he did not intend to use his money to carry on a war for the benefit of the telephone interests.[5]

Eldred pointed out to Stager that a compromise would have to be reached quickly since the Bell Company was continuing its canvassing and would soon have to begin building its exchange. He suggested that a settlement in

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1. Gardiner G. Hubbard to E. N. Barton, June 4, 1878, AT&T, Box 1151.
2. H. H. Eldred to Gardiner G. Hubbard, June 5, 1878, AT&T, Box 1152.
3. Ibid.
4. E. N. Barton to Gardiner G. Hubbard, June 6, 1878, AT&T, Box 1151.
5. H. H. Eldred to Gardiner G. Hubbard, June 6, 1878, AT&T, Box 1152.

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Chicago might become the basis of a national settlement between the two telephone interests.[1] Watson agreed it might be good policy to adopt the Chicago compromise.[2]

Watson's analysis of the Chicago situation indicated that unless a compromise were effected soon, Eldred would require at least two thousand dollars from the Bell Telephone Company to start the exchange system.[3] He was convinced the opposition would accept any offer as long as it gave them a monopoly of the telephone exchange.[4] Chauncy Smith also advised compromise, if the Chicago proposal was acceptable as a business proposition and the details could be properly worked out.[5]

Meanwhile, events were rapidly coming to a climax in Chicago. Eldred's negotiations with the opposition werestalling and he concluded he could not delay opening the Bell exchange. The ADT Company was already building its lines and so Eldred rented an office for his exchange and prepared to construct his own lines.[6] Hubbard agreed with Eldred's assessment and ordered him to "press everything."[7]

In view of these decisions, Eldred questioned Sanders' action in drawing on him for $200. Eldred had been trying to start the exchange without

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1. Ibid.

2. Thomas A. Watson to Thomas Sanders, June 7, 1878, AT&T, Box 1152.

3. Thomas A. Watson to Gardiner G. Hubbard, June 7, 1878, AT&T, Box 1152.

4. Thomas A. Watson to Gardiner G. Hubbard, June 10, 1878, AT&T, Box 1152.

5. A. O. Morgan to Gardiner G. Hubbard, June 11, 1878, AT&T, Box 1152.

6. H. H. Eldred to Gardiner G. Hubbard, June 11, 1878, AT&T, Box 1152.

7. H. H. Eldred to Gardiner G. Hubbard, June 13, 1878, AT&T, Box 1152.

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calling upon the Bell Company directly for funds. Instead he had been using the funds which he controlled in the St. Louis agency. He pointed out: "If I am to continue to pay advances someone must furnish me with money . . . You understand my expenses are very heavy now and there will be no income for nearly a month."[1] Sanders instructed bookkeeper Robert Devonshire not to draw on Eldred temporarily.[2]

Eldred made rapid progress in organizing the Bell exchange. By June 16, he had a list of a hundred subscribers.[3] As negotiations continued, so did his work on the exchange. Consequently, he requested $500, which he believed would sustain him until a final decision was made.[4] Now funds were not only being diverted from St. Louis, but they were coming directly from Boston. Eldred succinctly described the situation: "The fight is commencing to wax warm, furnish me with the necessary funds and we will come out ahead."[5]

Negotiations with the ADT Company finally ended in failure. Apparently Stager was no longer interested in compromise.[6] Eldred's expenses kept mounting, and two weeks after receiving Sanders' check for $500,[7] he wired Hubbard for $200 more.[8]

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1. H. H. Eldred to Gardiner G. Hubbard, June14, 1878, AT&T, Box 1152.

2. Thomas Sanders to Robert W. Devonshire, pencilled note on A. O. Morgan to Thomas Sanders, June 15, 1878, AT&T, Box 1152.

3. A. O. Morgan to Thomas Sanders, June 15, 1878, AT&T, Box 1152; H. H. Eldred to Gardiner G. Hubbard, June15, 1878, AT&T, Box 1152.

4. H. H. Eldred to Gardiner G. Hubbard, June 17, 1878, AT&T, Box 1152.

5. H. H. Eldred to Gardiner G. Hubbard, June 18, 1878, AT&T, Box 1152.

6. H. H. Eldred to Gardiner G. Hubbard, June 20, 1878, AT&T, Box 1152.

7. H. H. Eldred to Thomas Sanders, June 24, 1878, AT&T, Box 1152.

8. H. H. Eldred to Thomas A. Watson, July 2, 1878, AT&T, Box 1152.

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A company of local capitalists was organized to assume control of the Bell exchange. The investors promised Eldred he would receive the necessary funds to continue, but failed to deliver them. Eldred informed Hubbard: "I have borrowed personally . . . and if a new company fail to come forward with the funds I will telegraph you when be pleased to forward necessary money."[1]

Despite reassurance that the Chicago company was an organization with immense push and backed by men of means who would advance whatever funds were needed,[2] Eldred was forced to conclude that the recently formed organization was nothing more than a "stock-jobbing operation" and he urgently requested Hubbard to visit Chicago.[3]

Thus, as the Bell Telephone Company closed its existence as a "voluntary association," it became more deeply entangled in the web of competition. Efforts to negotiate a settlement in Chicago failed just as they had done on the national level. Ironically, the final compromise included a royalty principle similar to that proposed in Chicago.

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1. H. H. Eldred to Gardiner G. Hubbard, July 15, 1878, AT&T, Box 1152.
2. Theodore N. Vail to Thomas Sanders, July 16, 1878, AT&T, Box 1152.
3. H. H. Eldred to Gardiner G. Hubbard, July 23, 1878, AT&T, Box 1152.

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CHAPTER X

ORGANIZING THE BELL TELEPHONE CORPORATION: THE PATENTEES BEGIN TO LOSE CONTROL

The negotiations between Gardiner Hubbard and Thomas Sanders regarding the reorganization of the Bell Company epitomized their different approaches to exploiting the Bell telephone. Hubbard resisted Sanders' propositions for raising new capital because they would require surrender of some of his control of the company's management. For this reason he had tenaciously clung to the theory that the Bell Company could be operated primarily on the basis of current receipts. Sanders, on the other hand, was eager to involve new capital and investors, probably because he wished to safeguard his own investment and dilute Hubbard's control.

From the creation of the Bell Telephone Company as a "voluntary association," Thomas Sanders had felt the need of an organization with ample capital and had worked to that end.[1] Early in September 1877, he indicated to Hubbard that he knew of a "channel" through which the company could obtain money. Sanders' prospective investors desired the organization of a national company, but Hubbard rejected this idea, claiming that rentals would cover expenses, and that the creation of local companies would push the business. Sanders yielded and attempted to satisfy his financial needs by supporting the organization of the New England Telephone Company which came into being only after lengthy debate with Hubbard.[2]

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1. Thomas Sanders to C. S. Bradley, et al., March 13, 1878, AT&T.

2. Thomas Sanders to Alexander Graham Bell, September 27, 1878, AT&T, Box 1003.

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Under the growing pressure of business and the Western Union competition, Sanders kept reminding Hubbard of the need for a stronger financial organization. In response, Hubbard toyed with the idea of selling stock in the Bell Telephone Company,[1] describing the company's capitalization as $500,000 in the form of 5000 shares at $100 each. (This description was inaccurate since the Bell Company was a "voluntary association" and had not been incorporated.) Proposing to sell $300,000 par value of stock at fifty percent for cash in order to obtain a working capital of $150,000, Hubbard asked agent Thomas Cornish of Philadelphia if his friends would be interested in any such plan.[2] The stock could be sold so cheaply, Hubbard pointed out, because of Sanders' need for immediate cash. He warned that if the $25,000 to $30,000 which Sanders required could be raised in some other way, he, Hubbard, would be "indisposed" to selling any stock even though his partner believed a large cash capital indispensable.[3]

Cornish made inquiries but found no one willing to invest.[4] "The headquarters being so far away is one great excuse and still another so many have been so badly 'bitten' by the heavy decline in railroad stock are somewhat chary."[5]

Hubbard offered the company's treasurership to Charles A. Cheever of

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1. Gardiner G. Hubbard to Thomas E. Cornish, March 1, 1878, AT&T, Box 1054.

2. Gardiner G. Hubbard to Thomas E. Cornish, February 26, 1878, AT&T, Box 1054.

3. Gardiner G. Hubbard to Thomas E. Cornish, March 1, 1878, AT&T, Box 1053.

4. Thomas E. Cornish to Thomas Sanders, March 5, 1878, AT&T, Box 1176.

5. Thomas E. Cornish to Gardiner G. Hubbard, March 9, 1878, AT&T, Box 1176.

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New York, hoping to forestall a reorganization[1] and feeling that the company now required the entire attention of a competent treasurer. Hubbard told Sanders that if the latter were unwilling to close his leather business, invest the proceeds in the telephone and give it his entire attention, Hubbard could easily find a person who would devote his attention exclusively to it.[2]

Cheever was not anxious to accept Hubbard's offer. He was flattered by it, but feared it would demand of him more money than he presently commanded. He wished to know specifically how much would be needed and whether or not the money could be invested as a loan with the privilege of conversion to stock. With such an option he might be able to find lenders. If things went right they could make a high profit by the conversion; if not, they would have first claim on the company's property.[3]

In reality Cheever was not the best candidate for the treasury. Although he was considered the company's best ally,[4] he had already expressed a reluctance to risk more money in his New York agency unless, of course, the prospects of making a profit were greater than usual.[5]

Sanders continued to insist on the necessity of a company reorganization. He argued that business was stagnating, that borrowing only postponed the inevitable, that Cheever feared taking any steps given the present

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1. Charles A. Cheever to Gardiner G. Hubbard, March 9, 1878, AT&T, Box 1168.

2. Gardiner G. Hubbard to Thomas Sanders, March 5, 1878, AT&T, Box 1176.

3. Charles A. Cheever to Gardiner G. Hubbard, March 9, 1878, AT&T, Box 1168.

4. Thomas Sanders to Gardiner G. Hubbard, March 5, 1878, AT&T, GMLB 13.

5. Charles A. Cheever to Gardiner G. Hubbard, December 3, 1877, AT&T, Box 1006.

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condition of the company, and that reorganization would have a generally beneficial effect on the company's agents.

> The moral effect of the knowledge that we are strong and not borrowers will be to strengthen our agents causing them to collect and remit money. The actual bare facts of the case are, that, as sensible businessmen our agents at this stage are cautious about involving themselves with us.[1]

Sanders was unable to understand his partner's stubbornness. After all, everyone who looked at the matter, including Charles Eustis Hubbard, saw the need of a company with capital. Sanders felt confident that when Gardiner Hubbard weighed the matter carefully he would also come to the same conclusion.[2]

By early March Hubbard was considering a plan submitted by Thomas Sanders and George L. Bradley for such an organization. It called for the creation of a national company, to be known as the Bell Telephone Company, capitalized at $700,000 in 7000 shares at $100 each. Of these 7000 shares, 3000 were to be issued to the Bell patentees for their patent rights, 3000 were to be issued to the New England Telephone Company for its rights and property, and 1000 shares were to be sold for $50 each.

The new company was to purchase from the Trustee of the Bell Telephone Company all its telephones and bell calls in stock, in agents' hands or leased at the rate of $3 per telephone and $10 per call bell. The new Bell Telephone Company would assume all of the contracts of the old Bell Company and the New England Telephone Company.

According to this proposal, the officers and directors of the new

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1. Thomas Sanders to Gardiner G. Hubbard, March 5, 1878, AT&T, GMLB 13.

2. Ibid.

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company were to be the same as those of the New England Telephone Company.[1] If adopted, Gardiner Hubbard would be president,[2] Sanders treasurer,[3] George L. Bradley General Agent,[4] and C. S. Bradley, William G. Saltonstall, Alexander Cochrane, George L. Gilsbee, Gardiner Hubbard, Thomas Watson and Charles Eustis Hubbard directors.[5]

Upon closer examination, Hubbard found the proposition more unfavorable than he originally supposed: "I think you [Sanders] must have been so strongly impressed with the absolute necessity of raising some money immediately you did not consider it as carefully as you would otherwise."[6] His chief objection was that the plan nearly doubled the money interest (as distinguished from the patent interest represented by the Bell Telephone Company) of the New England Telephone Company in the Bell patent without its contributing a single dollar.

According to Hubbard's analysis, the money interest in the Bell patent was estimated at one-eighth of the whole patent which would entitle it to one-eighth of the 7000 shares, or 875; but by the terms of the proposal, it was to receive 1500 shares (1500 shares also going to the Bell Company as

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1. Plan for the Formation of A Company to Carry On the Telephone Business throughout the United States [Charles E. Hubbard's handwriting], MBl.

2. Minutes of Directors' Meeting, February 2, 1878, New England Telephone Company, AT&T.

3. Minutes of Shareholders' Meeting, February 2, 1878, New England Telephone Company, AT&T.

4. Minutes of Directors' Meeting, February 2, 1878, New England Telephone Company, AT&T.

5. Minutes of Shareholders' Meeting, February 2, 1878, New England Telephone Company, AT&T.

6. Gardiner G. Hubbard to Thomas Sanders, March 9, 1878, AT&T, Box 1003.

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half owner of the New England Telephone Company). Hubbard also complained that the money interest would receive 1500 shares for one-eighth interest while the Bell patentees would only receive 3000 shares (in addition to their 1500 shares as owners of the New England Telephone Company) for a five-eighths interest in the patent. In effect the patentees would receive only twice as much for five times the property. Furthermore, the money investors had paid $55,000 for one-eighth of the patent, i.e., $50,000, into the Bell Company's treasury and $5000 commission to George L. Bradley, while the new investors would pay $50,000 for one-seventh and the patentees would pay the equivalent of a $10,000 cash commission. Thus, for a larger interest the Bell patentees would receive less than before. Hubbard concluded: "In whatever way I look at the new plan it appears most unfair to the Bell Tel Co. So unjust that I should be unwilling to make such a sacrifice of Mr. Bell's property without consulting him."[1]

Hubbard countered with an offer to organize a new company, without including the New England Telephone Company, capitalized at 5500 shares, 1000 of which were to be sold for $50,000. This proposition was predicated on his belief that business was not as poor as Sanders described it, and that the company was daily growing stronger. In March, according to Hubbard's evaluation of the company's condition, the Bell Telephone Company owed $23,000. Based on February's figures, the net debt for March, i.e., expenses over receipts, was only $1014. Hubbard argued that if agents had obeyed instructions concerning advance payments, the balance would have been paid. He believed that agents would obey company instructions hereafter and therefore was confident future revenues would be sufficient to meet future expenses.

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1. Gardiner G. Hubbard to Thomas Sanders, March 9, 1878, AT&T, Box 1003.

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In the meantime, there remained the company's $25,000 debt. Sanders' assurance that he could borrow $15,000 would provide temporary relief. If Sanders encountered any difficulty in obtaining the loan, Hubbard indicated he was in contact with several different parties who were prepared to advance the necessary funds. Hubbard therefore requested Sanders to borrow the $15,000 on the understanding that if he, Hubbard, could not make a better arrangement by the maturity of the loan, then he would accept Sanders' proposition. He concluded:

> I trust a careful examination of the whole case, will give you fresh confidence . . . & that you will try once more & I hope & believe it will be the last time you will find any difficulty in raising money for the Bell Tel Co.[1]

Sanders did obtain a loan but only for sixty days, not the four months Hubbard had recommended, and only on his personal guarantee that a company with an adequate capital of at least $100,000 would be formed within that period. Sanders counseled against "showing our hand" to anyone solely on the grounds that he had money, since Sanders' whole fortune was tied up in the telephone. In the long run an organization of honorable gentlemen was as desirable as capital.

Sanders feared Hubbard was still entertaining the idea of accepting advances from individuals merely to bridge over temporary needs. Not only would such a policy contradict Sanders' pledge to the bankers, but it would also create two rival organizations attended with many undesirable consequences, and would also create a continued state of uneasiness between two separate interests. Sanders requested he be allowed to participate in Hubbard's conferences with prospective investors, noting:

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1. Gardiner G. Hubbard to Thomas Sanders, March 9, 1878, AT&T, Box 1003.

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> If you had any idea of the state of supreme suspense in which you keep me, the imminent peril in which our whole property is placed, and realized that I had to bear the burden of it, you would not torture me any longer with the delay but would do that which is manifestly for our interest . . . immediate action . . . [is] absolutely essential to the maintenance of our credit, business reputation, everything--[1]

While calling for an organization of honorable men, Thomas Sanders was engaged in an activity which some might consider dishonorable. In an eight page letter entitled "Unofficial, Personal and Strictly Confidential," to Messrs. C. S. Bradley, William G. Saltonstall, G. L. Bradley, A. Cochrane, G. Z. Silsbee and Henry Saltonstall, friends, stockholders and directors of the New England Telephone Company, Sanders traced the history of his "peculiar position" with respect to Gardiner G. Hubbard.[2]

Sanders described his earliest relations with Bell and Hubbard to show the New England capitalists that "I have tumbled into this uncomfortable position by no apparent stupidity of my own but by a chain of unforeseen circumstances."[3] Sanders believed an explanation was necessary because he hoped these gentlemen would rescue the Bell Company again through a reorganization. They had expressed dissatisfaction to Gardiner Hubbard about some of Sanders' salary claims on the New England Company, and Sanders wished to clear up any misunderstanding which might impair future relations.

Sanders reminded the investors of their previous expressions of confidence in him during the formation of the New England Telephone Company, when they were willing to trust their money only to him and not to Hubbard. He explained the basis for his salary claims, and requested their friendly

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1. Thomas Sanders to Gardiner G. Hubbard, March 13, 1878, AT&T, Box 1003.

2. Thomas Sanders to C. S. Bradley et al., March 13, 1878, AT&T.

3. Ibid.

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assistance and forbearance until he was able to bring his unreasonable partner to terms. The investors could aid in this by furthering his plans at the proper time.

Wishing to have a fair understanding about future relations, should a consolidation of interests occur, Sanders began by pointing out it would be an act of justice for Hubbard to be chosen president. Whatever Hubbard's shortcomings, Sanders acknowledged him to be "fair and honorable." If Hubbard proved to be anything less, Sanders would be the first to call for his resignation. Sanders argued that the disadvantages of having a "man of no financial standing" at the head of the company would be more than offset by Hubbard's efficiency and "peculiar fitness" for his duties. "You must realize that he has been the pioneer in exploiting the patents and is entitled to consideration on that ground. Do not therefore think me unreasonable in expecting you will choose him."[1]

Sanders was willing to waive his claims to the treasurership if that would promote the consummation of the proposed reorganization. Nevertheless, he believed he was entitled to a trial. If he was found unfit for the office, he promised his own vote would not keep him in. Sanders disclaimed responsibility for any shortcomings in the affairs of his present office: "I must say in my own behalf at the risk of seeming egotism that, given, the tools with which I had to work I have not made many mistakes, and the results have not been altogether unsatisfactory."[2]

In requesting the New England investors' active co-operation, Sanders assured them he would do everything that was right, fair and honorable. He anticipated no trouble among the various investors after the new company was

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1. Ibid.

2. Ibid.

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formed. Sanders cautioned the investors, however, that propriety and Hubbard's "peculiar cast of mind" dictated that he not see the contents of the letter, although he might be shown them at some later time. In closing Sanders acknowledged:

> I consider myself extremely fortunate in being in the hands of gentlemen, many of whom are so closely connected with me by ties of friendship and kinship and I trust that our mutual relations may always be agreeable and satisfactory.[1]

Hubbard disagreed with his partner's evaluation of the New England Telephone Company investors. He believed they were not entitled to the description "honorable gentlemen," but more properly to the designation "shrewd businessmen." Hubbard sympathized with Sanders' request to participate in conferences with investors, because Hubbard claimed that he had been excluded from the conferences which created the New England Telephone Company.

Hubbard reminded Sanders that his fortune and credit were also tied up in the telephone venture. He reiterated his pledge to accept the Bradley-Sanders proposition should he fail to form at once a new organization with $50,000 capital. Although Hubbard still insisted the Bell Company could continue to operate under its present means, he was willing to defer to Sanders' wishes. He reminded Sanders that the "Bradley Contract" for the New England Telephone Company had also been made in deference to Sanders' wishes although Hubbard believed he could have secured a better one.[2]

The $15,000 loan was quickly used up and Sanders began demanding more funds. Here was a good and clear reason for organizing a new company quickly.[3] Charles Eustis Hubbard supported Sanders' demands for the creation

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1. Ibid.

2. Gardiner G. Hubbard to Thomas Sanders, March 15, 1878, AT&T, Box 1003.

3. Thomas Sanders to Gardiner G. Hubbard, March 15, 1878, AT&T, Box 1003.

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of a consolidated national company. He also felt that the capital which his brother was proposing to raise was totally inadequate and would be wiped out almost immediately, especially in view of the predicted fight with the Western Union.[1]

In pressing for his plan over Hubbard's, Sanders noted that the New England investors, unlike Hubbard's candidates, were not asking financially embarrassing questions. Their present position made them willing to take the Bell Company as it was. Sanders denied Hubbard's contention that he had been ignored during the organization of the New England Telephone Company.

Sanders also suggested that Hubbard's plan to sell 1000 of 5500 shares for $50,000 would actually be harmful and was only motivated by spite against the New England investors. Sanders' sole objection to the New England plan was that it did not call for $200,000 instead of $100,000. He considered the 1500 shares offered to the New England Company to relinquish its valuable rights were little enough to dispose of an "uncomfortable encumbrance," and so he urged Hubbard to agree to the formation of a company which included the New England interests. Sanders reminded Hubbard of his agreement to accept the New England proposition if he could not obtain more than $100,000 for less outside of New England.

> As you truly say we are both in one boat, but that boat is drifting at the mercy of wind and tide without propelling power or crew, the captain and mate disputing as to whether it is advisable to take the rope thrown to them by the only craft in sight capable of carrying them to port or to trust to putting in with some other craft that will ask less salvage. The peril is great and it seems madness to me to drift any longer.[2]

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1. C. E. Hubbard to Gardiner G. Hubbard, March 16, 1878, AT&T, Box 1003.

2. Thomas Sanders to Gardiner G. Hubbard, March 16, 1878, AT&T, Box 1003.

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Hubbard explained that the reason the company's figures looked so poor was because they did not tell the whole truth. According to him, the more carefully strangers examined the company's activities the more pleased they were with the company's results.[1]

In his desperation to organize a consolidated national company, Thomas Sanders wrote to Alexander Graham Bell asking him to try to persuade Hubbard of its importance. Sanders described the circumstances surrounding the organization of the New England Telephone Company. He pointed out that Bell himself knew almost all of the investors, many of whom were his friends, and noted that all were gentlemen with whom he would like to be associated.

Sanders argued for the consolidated company on the grounds that the New England investors were the only parties interested with the Bell patentees; two companies for different sections of the country might result in conflicting interests; and the investors' current interest in the patents would enable a better trade than with other parties. A division of interests now might be fatal since the Bell Company would not possess the unity to fight its enemies. In Sanders' estimation, Hubbard's plan for organizing a company with a quick capital of $50,000 would require the surrender of substantially the same amount of stock for less money.

Sanders considered Hubbard's prejudice against the New England Telephone Company unreasonable. He explained that Hubbard's belief that the proposed consolidation was simply a plan to advance the New England investors' interests was incorrect since the plan had been originated by George L. Bradley, C. E. Hubbard and himself without consulting them or anyone else.

Sanders called for immediate action because he had stretched his money

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1. Gardiner G. Hubbard to Thomas Sanders, March 20, 1878, AT&T, Box 1003.

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and credit to the utmost to carry the company's $30,000 debt, and Hubbard was financially unable to assist him. In a postscript Sanders added:

> I would not urge this so strenuously if it were possible for me to do any more for the company in the way of more advances . . . He [Hubbard] is not a businessman, does not pretend to be and therefore cannot appreciate the weight of the burden I am carrying and the desperate necessity for capital. . . . We are all ruined, if something is not done between now [March 20] and May 11, 1878.[1]

Eustis Hubbard, trying to overcome his brother Gardiner's objections to the original plan for the distribution of the consolidated company's stock, arranged with Sanders that the stock should be distributed as follows: 1000 shares were to be sold; 1250 to be issued to the cash subscribers of the New England Telephone Company; 4750 to be issued to the Bell Telephone Company, from which 200 shares were to be paid as a commission for placing 1000 shares. Two hundred and fifty additional shares were to be paid to the cash subscribers.

Eustis suggested that this additional sum be deducted from Sanders', Hubbard's and Watson's shares, the two major partners contributing 107 shares each and Watson 36. If no arrangement could be worked out, he suggested, Sanders should contribute 150 shares and Hubbard 100. This feature was intended to overcome Gardiner's objections to paying 1500 shares to the cash subscribers of the New England Telephone Company.[2]

Eustis Hubbard criticized his brother's proposal to sell new stock at $50 per share and to ask the New England investors to exchange their stock share for share, and if necessary as a compromise, to offer them one

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1. Thomas Sanders to Alexander Graham Bell, March 20, 1878, AT&T, Box 1003.

2. C. E. Hubbard to Gardiner G. Hubbard, March 28, 1878, AT&T, Box 1003.

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and a quarter shares for one old share. He pointed out that many of these investors had paid $70 per share and even with Gardiner's compromise plan they would be expected to exchange a $70 share of stock for one worth $62.50. Gardiner's proposition, based on his estimate that New England was worth one-quarter of the whole country, was simply unacceptable to the investors. Despite his criticisms, Eustis was pleased that his brother had agreed to a consolidated company.

Eustis also tried to clear up Gardiner's misunderstanding regarding George Bradley's stock commission. He explained that Bradley would have to share it with him (Eustis) and others who would help in placing the stock. Bradley's assistance would be invaluable in persuading the New Englanders to "come in" and invest more money. Eustis concluded: "I think every share of the new stock will have ten times the market value of the present Bell stock for every purpose."[1]

Sanders was so joyful at Gardiner Hubbard's decision to organize a consolidated company that he was unwilling to argue over the division of the additional 250 shares. Still, he could not understand why he should part with a larger portion of his stock than Gardiner. Furthermore, while he was willing to see Alexander Graham Bell retain his interest, he thought it fitting that Bell should share in the division, "as patents are not valuable except as they are managed, and the commercial value of this one has been contributed to you and me as much as by Mr. Bell."[2]

Hubbard opposed Bradley's stock commission and wished to preserve Bell's interest intact because he wished to dilute the strength of the new

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1. Ibid.

2. Thomas Sanders to Gardiner G. Hubbard, March 29, 1878, AT&T, Box 1003.

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investors and retain control of the new company. As a result of Gardiner's objections, Eustis persuaded Bradley to yield one-half of the 1000 shares to Gardiner, who was to place them with his friends. Bradley would still receive his entire commission of 200 shares.[1]

According to Eustis' calculations, the proposed distribution of stock to the Bell patentees, not including Sanders, plus the 500 shares Gardiner was to place with his friends, would account for 3558 shares in addition to those of Eustis' friends in the New England Company. Thus the patentees had a clear majority, and if Sanders were included, a very large majority.[2]

Gardiner Hubbard rejected Sanders' argument that they both contribute equal portions of stock to make up the 250 shares. He felt the whole matter was unnecessary and only agreed to it out of deference to Sanders' wishes.

> I think I am conceding twice 250 shares to please you (as I consider it unnecessary). I do not see why Mr. Bell should contribute any portion, and I shall not ask or advise him to do so. As Mr. Watson is very desirous to make a change I think it is right and proper that he should contribute a part.[3]

By April 1878 Hubbard began to have new doubts about the consolidated company. He required a financial statement from treasurer Sanders before he could make any final decision.[4] He explained that in justice to Bell or himself he could not accept the proposition without essential modifications. Either the stock held by Sanders, Mr. and Mrs. Bell and himself must be voted as a unit or Bradley could not be chosen general agent.

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1. C. E. Hubbard to Gardiner G. Hubbard, March 25, 1878, AT&T, Box 1003.

2. Ibid.

3. Gardiner G. Hubbard to Thomas Sanders, March 27, 1878, AT&T, Box 1003.

4. Gardiner G. Hubbard to Thomas Sanders, April 3, 1878, AT&T, Box 1001.

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Hubbard believed it unwise to appoint Bradley as general agent because he did not have the experience to control such large interests. As Hubbard viewed the proposed arrangement, Sanders and Bradley, cousins, would entirely control the finances and management of the business, thus leaving Hubbard powerless. Surely Sanders did not intend this.

Again reminding Sanders about his suspicions concerning the creation of the New England Company, Hubbard criticized his partner for not supplying the necessary financial reports for a correct decision. Hubbard also charged Sanders with misleading him about his ability to raise money. Finally, Hubbard claimed that he had been misinformed about the terms for reorganizing the Bell Company, including the fact that Bradley was to receive the full commission in order to prevent the company's management from falling into Hubbard's hands.

Consequently Hubbard suggested as a possible further modification of the proposed arrangement that his duties as president be enlarged to include supervisory power over all the company's transactions other than financial ones. He also suggested that Bradley be appointed treasurer and Vail, or some other suitable person, be appointed general or traveling agent. Hubbard also announced that he was negotiating with New York investors and had offered them a share in the company's executive management. He felt that this was the only way he could protect the interests he represented.[1]

Eustis responded to his brother's objections with a seven page letter in which he carefully retraced the history of the negotiations, refuted some of Gardiner's criticisms and tried to clear up his misconceptions. He again urged Gardiner to adopt the New England proposal even though he still

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1. Gardiner G. Hubbard to Thomas Sanders, April 5, 1878, AT&T, Box 1003.

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had thirty days in which to complete an alternative organization.

Gardiner Hubbard's latest objections would necessitate a change in the plan to sell 1000 shares for cash. Originally George Bradley and Eustis Hubbard were to sell 750 and 250 shares respectively, Bradley receiving the full commission of 200 shares. In response to Gardiner's demand that he be allowed to place 750 shares, Bradley agreed to compromise if he could retain his full commission. He would permit Gardiner to place 500 shares while he placed the remaining 500 shares.

According to Eustis, Bradley insisted on placing 500 shares so that one person could not have a controlling interest in the company. This was not directed at Hubbard especially but rather against any one man who might be able to control the majority.

Eustis denied having previously heard of Gardiner's wish to include his friends in the new company, but had no intention of ignoring them. Eustis reminded his brother that the original proposal called for the new company to have the same officers as the New England Company.

George Bradley was to be appointed general agent in order to satisfy his father, a chief figure in the negotiations, who made it a condition for reorganization. Eustis could not understand Gardiner's objections. Not to accommodate the Bradleys would endanger the reorganization, increase the difficulties of placing the stock, and cause the New England Telephone Company to hesitate to transfer its property to the Bell Company.

Eustis defended Sanders' behavior in failing to provide Gardiner with complete financial information. He explained that Sanders acted as he did because agents did not supply him with all the information he requested. Eustis also pointed out that communications and negotiations were unduly

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complicated by the separation of the principals involved.[1]

In view of Gardiner Hubbard's recent agreement, Sanders was surprised at his request for a modification of the proposed organization. If Hubbard meant that Sanders should not join with anyone against him, then Hubbard's modification was no modification at all. If, however, Hubbard meant Sanders to bind himself "hand & foot" to see everything through Hubbard's eyes, then Sanders could not consider this for an instant. Sanders pledged to support Hubbard for the presidency with all the power he could reasonably expect, because it was a position to which he was entitled by virtue of the interest he represented and his acknowledged talent. He explained that neither he nor Bradley wished to usurp the president's powers. Sanders added:

> Why will you persist in looking upon this as a conspiracy to deprive you of power, when on the contrary, it makes your power greater than it can be by any other conceivable plan, looking to any reorganization whatever?[2]

Sanders was certain that Hubbard would not sacrifice the present opportunity simply to humiliate him because he mistakenly believed that Sanders was working against him. Nevertheless, he protested against Hubbard's negotiations with other investors as being unjust to all concerned and leading to disastrous consequences.[3]

Hubbard responded that he became suspicious when Sanders delayed in sending the financial reports. He characterized Sanders' proposal as being calculated to take control from Bell and himself and give it to Sanders and

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1. C. E. Hubbard to Gardiner G. Hubbard, April 5, 1878, AT&T, Box 1003.

2. Thomas Sanders to Gardiner G. Hubbard, April 7, 1878, AT&T, Box 1003.

3. Ibid.

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his friends. Hubbard was unsure of Sanders' intentions but he was certain the benefits to be gained from reorganization would not be commensurate with the great loss to Bell, Sanders and himself.

Although Hubbard still insisted that a treasurer with good financial standing and credit could easily operate the company, he did agree to a reorganization if Sanders, after reconsideration, continued to believe it necessary and desirable. Since he now understood the company's financial condition more fully, Hubbard could not agree to the earlier proposal. He would agree to its general features but he required the right to sell one-half of the company's stock at a twenty percent commission on each share. Further, George Bradley was not to be appointed general agent for the whole country. Sanders could decide whether Bradley was appointed treasurer or general agent for New England.[1]

As George Bradley understood the modified plan, now, Hubbard was to be president, at a salary ranging from $3000 to $5000 or more if the company's success justified it, with active supervision of the company's affairs. Hubbard was to direct the company's agents and supervise important contracts subject to the directors. Sanders was to remain as treasurer with his salary and duties determined by the directors also. George Bradley was to be appointed General Manager, with the understanding that his duties were confined to the home office. The directors of the new company were to be the same as those of the New England Telephone Company, except in the case of resignation, according to its by-laws. Bradley was to receive 200 shares paid by the Bell Company as commission.

While Bradley agreed to use his best efforts to have Hubbard's

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1. Gardiner G. Hubbard to Thomas Sanders, April 10, 1878, AT&T, Box 1003.

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modified plan adopted, he admitted it would be a very difficult task.[1] Hubbard's objections to Sanders' plan finally caused Sanders to state something which had undoubtedly rankled in him for a long time:

> My only object and desire has been that a company should be formed of which you should be at the head, but in which the rest of the stockholders should have a voice. You have so endeavored to manipulate the stock that your power should be absolute in every plan that has been submitted.[2]

Although Sanders was suspicious about a private correspondence which Hubbard had opened with George Bradley, he was willing to agree to any arrangement that might result if it hastened the formation of a national company.[3] He reminded Hubbard that if their positions were reversed Hubbard would feel justified in rebuking him for his secret dealings.[4]

In reply, Hubbard recognized his error in writing to Bradley and noted that he had already asked him to consider the letter withdrawn. He explained that while he was not suspicious by nature he had sometimes doubted Sanders and might have used critical language. This was due, however, to the financial strain he was under. Hubbard sounded a note of conciliation:

> Your letters have been frank and manly and it is absolutely necessary for our success and comfort that we shall at all times be in perfect harmony and all our relations be open and frank. I will strive to be so in the future.[5]

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1. George L. Bradley to Gardiner G. Hubbard, April 10, 1878, AT&T, Box 1003.

2. Thomas Sanders to Gardiner G. Hubbard, April 12, 1878, AT&T, Box 1003.

3. Ibid.

4. Thomas Sanders to Gardiner G. Hubbard, April 15, 1878, AT&T, Box 1003.

5. Gardiner G. Hubbard to Thomas Sanders, April 20, 1878, AT&T, Box 1003.

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Four proposals for the reorganization of the Bell Telephone Company were being considered by mid-April. The first was Sanders and Bradley's, which called for the organization of a company with $700,000 capital stock, $300,000 of which was to be turned over to the New England Company, $300,000 to be issued to the Bell Telephone Company, and $100,000 to be sold for cash. George Bradley was to receive 200 shares as a commission.

The second proposition was Gardiner Hubbard's modification of the first. The stock was to be distributed in the same manner except that Bradley and Hubbard were each to sell $50,000 worth of stock and equally divide a commission of 200 shares. This plan also called for the clarification of the president's powers and responsibilities, and the creation of an executive committee of three, one of whom was to be the president, which was to ratify important contracts.

A third proposal called for the organization of a New York company if Sanders rejected the second plan. This company was to be organized with a capital of $800,000, $300,000 worth of stock going to the owners of the New England Telephone Company, $300,000 going to the patentees and $200,000 worth being sold at fifty percent with a twenty percent commission. Gardiner Hubbard was to be president, Theodore N. Vail general agent, and the New York investors were to name the treasurer.

The fourth plan, entitled "Organization in New England by Messrs. Sanders & Hubbard," called for the organization of a company with $600,000 capital stock, $150,000 of which was to be designated "cash stock," $150,000 to be paid to the Bell Telephone Company for one-half of its New England Telephone Company stock, and $300,000 to be issued for the remainder of the patents.[1]

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1. Summary, AT&T, Box 1003.

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Gardiner Hubbard wished to reorganize the Bell Telephone Company without the aid of the New England Telephone Company, as in the fourth plan. So desirous was he that he hoped the New England Company would reject the second proposal.[1] Sanders, however, could see no reason why the second plan should not be adopted since it only varied from the first in that Bradley was deprived (unreasonably Sanders believed) of his commission. Not only was Hubbard's latest plan unnecessary but it would also be difficult to carry. Sanders asserted that if Hubbard had clearly signified his modification of the Sanders-Bradley plan, something could have been adopted six weeks earlier. He observed:

> Every plan which has presented any attraction to you from the start has hinged upon the tying of my hands and my exclusion from the executive management of the co. If a national co will be formed on no other condition I am prepared to sacrifice myself and have been from the first, although it was incomprehensible to me why you should desire this when I have done everything in my power to promote your interests.[2]

Sanders concluded, as did Eustis before him, that explanations and misunderstandings might have been avoided if the principals could have met in person instead of being obliged to put their proposals down on paper.[3]

Even as Gardiner Hubbard was predicting that a new company would be organized within the month of May,[4] Judge Bradley informed him that the New England people were unwilling to enter the proposed agreement. Some refused because they preferred isolation and security, while others believed the

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1. Gardiner G. Hubbard to Thomas Sanders, April 20, 1878, AT&T, Box 1003.

2. Thomas Sanders to Gardiner G. Hubbard, April 22, 1878, AT&T, Box 1003.

3. Ibid.

4. Gardiner G. Hubbard to Thomas Sanders, May 3, 1878, AT&T, Box 1003.

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subscribers should control the money paid into the company, not the patentees. Bradley believed that justice and policy forbade that Hubbard be asked to retire, but he did ask that the subscribers be enabled to insure their property and common interest against any possible mistake of judgment. He summed up the feelings of the New England investors:

> No branch of the law is so uncertain in its workings as the patent law. And when the patentees are repaid their investments and a large sum besides & retain nearly all the patent & the subscribers risk a hundred thousand dollars, mostly lost if unsuccessful, the best of the bargain is with the patentees. No such sale of an interest in a contested & untried patent was ever made in this country.[1]

Nevertheless, Bradley recognized the need for funds to prosecute infringers and for harmony between the two interests and therefore was willing to support his son's latest proposal.[2]

The New England investors were not the only ones unwilling to invest in the proposed company. In April Hubbard had begun asking agents to invest in the company on the grounds that it was important to have agents financially interested with the patentees.[3] Agents did not respond enthusiastically, especially in view of the fact that infringements were going unchecked.[4] At least Thomas Sanders was willing to take a share in the partnership commensurate with the responsibilities he assumed. It was at this time that he arranged to close his leather business and pledged his credit and ability to the Bell Telephone Company.[5]

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1. C. S. Bradley to Gardiner G. Hubbard, May 7, 1878, AT&T, Box 1003.

2. Ibid.

3. Gardiner G. Hubbard to Thomas E. Cornish, April 8, 1878, AT&T, Box 1054.

4. G. W. Stockly to Gardiner G. Hubbard, April 15, 1878, AT&T, Box 1170.

5. Thomas Sanders to Gardiner G. Hubbard, May 8, 1878, AT&T, GMLB 14.

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The directors of the New England Telephone Company objected to the proposed consolidated company[1] because Hubbard and Sanders intended to retain their executive positions.[2] Sanders learned that these individuals would be willing to double their possible investment, that is, guarantee the sale of 2000 shares for $100,000 in addition to the New England capital, if he and Hubbard would give up their claims. He explained to Hubbard:

> They say Mr. Hubbard is an impractical man, the theory on which he tries to run the company proves this. Another thing, whether by his fault or not a fatality seems to have attended every enterprise in which he has embarked, so that he finds himself after a lifetime of brilliant opportunities unable to meet his obligations. Mr. Sanders has had no experience of a kind to fit him for the place and shows his stupidity by placing himself in a position where his whole fortune and credit are imperilled . . . between them they have managed to place the company in a position of great danger.[3]

Sanders suggested that both he and his partner should step aside if this were the only basis on which the new company could be formed, even though he considered it unfair and not in accordance with his wishes or the best interests of the company. Despite these complications the chances for organizing a national company seemed good to Sanders.[4]

George Bradley, meanwhile, sought Hubbard's permission to introduce a new plan which called for the organization of a company outside of New England. It was to possess a capital stock of $400,000, $300,000 of which was to be issued to the Bell Telephone Company and $100,000 of which was to

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1. Ibid.

2. Thomas Sanders to Gardiner G. Hubbard [undated], AT&T, Box 1003; George L. Bradley to Gardiner G. Hubbard, May 8, 1878, AT&T, Box 1003.

3. Thomas Sanders to Gardiner G. Hubbard [undated], AT&T, Box 1003.

4. Thomas Sanders to Gardiner G. Hubbard, May 8, 1878, AT&T, GMLB 14.

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be sold for $50,000 cash. Bradley would offer the cash subscribers of the New England Company the first opportunity to purchase stock.[1] Sanders objected to certain features of this proposal but felt there was no alternative if the New England Company rejected the original plan.[2]

In the face of the New England Company's opposition, Hubbard and Sanders reconciled their views. Sanders wrote:

> I think we understand each other now and that whatever comes we shall act together and put confidence in each other. Such a course is the only way open to us and besides making life much easier for both of us will put money in our pockets.[3]

Hubbard was pleased with Bradley's proposal, for it evidenced confidence in the Bell Telephone Company. Hubbard believed that when the New England Telephone Company investors realized that a national company was being organized they would be eager to join. If not, the Bell Company would require a capitalization of $450,000 and $75,000 in cash. Such an organization would provide the patentees with nearly as much cash as if the New England Company had merged with it.[4]

Hubbard finally acknowledged the importance of merging the New England and Bell Company interests if possible. Based on Bradley's latest plan, Hubbard suggested a method by which the stock could be increased by $250,000, thus enabling the New England Company to ultimately consolidate with the Bell Company.

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1. George L. Bradley to Gardiner G. Hubbard, May 8, 1878, AT&T, Box 1003.

2. Thomas Sanders to Gardiner G. Hubbard, May 8, 1878, AT&T, GMLB 14.

3. Ibid.

4. Gardiner G. Hubbard to Thomas Sanders, May 10, 1878, AT&T, Box 1003.

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According to Hubbard's calculations, if the Bell Telephone Company issued five shares of stock for every four in the New England Company, not only would the new company's capital be increased to $700,000, but also the New England stockholders would receive a twenty-five percent bonus. Hubbard believed that sixty percent of the New Englanders could be attracted, thus forcing the reluctant ones to join in.[1]

Sanders now urged restraint. He believed the best way to induce the New England investors to join with the Bell Company was to leave them "severely alone." Eventually they would see the identity of their interests with the Bell Company, but for the present it was not wise to urge any new plans.[2]

Hubbard expressed complete agreement with Sanders' evaluation of the situation, suggesting only that the New Englanders might be forced into joining the new organization.[3] Despite this meeting of minds, Hubbard's suspicions lingered, and he sent a representative, A. O. Morgan, to participate in the organizational activities. Morgan explained:

> In regard to my visiting Boston again, I think Mr. Hubbard has an idea that full justice is not done him and his efforts by either you [Sanders] or even his own brother and I simply guess that when he is up for discussion he desires that some person who is thoroughly acquainted with him should be heard.[4]

Hubbard still sought to control the Bell Company's stock in the New England Company in the event of reorganization. Sanders reminded Hubbard's

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1. Gardiner G. Hubbard to Thomas Sanders, May 15, 1878, AT&T, Box 1193.

2. Thomas Sanders to Gardiner G. Hubbard, May 16, 1878, AT&T, Box 1080.

3. Gardiner G. Hubbard to Thomas Sanders, May 17, 1878, AT&T, Box 1080.

4. A. O. Morgan to Thomas Sanders, May 18, 1878, AT&T, Box 1080.

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representative, however, that the parties who controlled the stock were all of age, possessed of common sense and one undivided interest, and would probably refuse to be placed under guardianship.[1]

By June, Sanders was prepared to submit still another plan for the immediate organization of a company on a sound basis, which would pay the Bell Company's debts, leave $5000 in the treasury and provide for raising an additional $30,000 to $50,000 as might be required.[2] This plan, which envisioned interesting Vail and his friends financially, apparently failed.[3] Nevertheless, on June 29, 1878, ten persons,[4] including several New England investors, formally associated themselves with the intention of constituting a corporation, the Bell Telephone Company, capitalized at $450,000 with 4500 shares at a par value of $100 each.

> The purpose for which the Corporation is constituted is to manufacture and sell telephones and their appurtenances and to construct, maintain and operate telephone lines throughout the United States outside of the New England States.[5]

Having encountered some difficulty in raising funds for the new company Sanders offered Hubbard a new proposition. He agreed to sell 200 shares of stock for $10,000 and George Bradley agreed to sell 300 shares for $15,000, thus placing $25,000 in the company's treasury.[6] These five

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1. Thomas Sanders to A. O. Morgan, May 22, 1878, AT&T, Box 1193.

2. Thomas Sanders to Thomas A. Watson, June 7, 1878, AT&T, Box 1193.

3. A. O. Morgan to Thomas Sanders, June 12, 1878, AT&T, Box 1003.

4. Gardiner G. Hubbard, Thomas Sanders, Alexander Graham Bell by his attorney G. G. Hubbard, C. E. Hubbard, Thomas A. Watson, A. O. Morgan, George L. Bradley, Thomas B. Bailey, James Sturgis and Joseph H. Goodspeed.

5. Agreement of Association, June 29, 1878, AT&T, Box 1008.

6. Thomas Sanders to A. O. Morgan, July 3, 1878, AT&T, Box 1003.

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hundred shares were ultimately disposed of as follows: Charles Williams Jr. purchased 123 shares because "he could not help it"; Bradley bought 300 shares because "he saw the ruin of the N.E. Co" in the Bell Company's ruin; and Sanders' friends took the remaining 77 shares in order to accommodate him.[1]

Sanders also agreed to furnish $25,000 on 1000 shares, increasing the cash capital to $50,000. These 1000 shares were to be held and voted by Sanders until they were sold at $50 per share. If Bradley could dispose of this block of stock within four months he was to receive a commission. If at the end of six months the 1000 shares remained unsold, they were to revert to Sanders at the price of his loan of $25 per share.

Sanders offered his position to any "honorable" gentleman. The 200 share commission on 1000 shares was to revert to the party lending money if the stock were not sold within the prescribed time. In addition, the lender was to receive one percent per month for six months unless the stock were sold before six months had passed.

Under the terms of this proposition neither Sanders nor Hubbard was to insist on any position. They were to accept the by-laws of the New England Telephone Company with a provision for an executive committee of three in which Sanders was to be a member if Hubbard was one, and the cash investors were to choose the third member. Theodore N. Vail, acting under the advice and direction of this committee, was to manage the company's affairs. His office was to be in New York City, and the other offices were to be located wherever the executive committee deemed necessary.

Finally, $40,000 of the $50,000 cash capital was to be paid to the old Bell Telephone Company for its plant. Thirty thousand dollars was to

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1. Thomas Sanders to Alexander Graham Bell, September 27, 1878, AT&T, Box 1003.

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be paid immediately, the balance in six months. After paying the old Bell Company's debts, the surplus was to be divided among Hubbard ($6000), Sanders ($6000), and Watson ($3000).[1]

By the terms of this proposition the management of the company was to be transferred from Gardiner Hubbard to Theodore Vail and the executive committee.[2]

Sanders' proposition became the basis of reorganization for the Bell Telephone Company.[3] On July 20, 1878, Trustee Hubbard assigned patents 161,739, 174,465, 178,399 and 186,787 to the new Bell Telephone Company in return for 3,000 shares of the new company's capital stock.[4] On the same day the signers of the articles of association met and adopted a set of by-laws. They[5] were essentially the same as the New England Company's.[6] The chief exception was Article Three which provided for the appointment of an executive committee by the Board of Directors from among their number.[7] The signers also unanimously elected Gardiner G. Hubbard, Thomas Sanders, Thomas Watson, C. E. Hubbard, James Sturgis, Joseph H. Goodspeed and Thomas A. Bailey directors, and Thomas Sanders treasurer. They further voted

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1. Thomas Sanders to A. O. Morgan, July 3, 1878, AT&T, Box 1003.

2. Thomas Sanders to Theodore N. Vail, July 16, 1878, AT&T, Box 1003.

3. Thomas Sanders to the Directors of the Bell Telephone Company, January 23, 1889 [sic], AT&T, Box 1003.

4. Patent Assignment, July 20, 1878, Box 1003, Minutes of Stockholders' Meeting, July 20, 1878, Bell Telephone Company, AT&T.

5. Minutes of Stockholders' Meeting, July 20, 1878, Bell Telephone Company, AT&T.

6. Minutes of Directors' Meeting, January 25, 1878, New England Telephone Company, AT&T.

7. Minutes of Stockholders' Meeting, July 20, 1878, Bell Telephone Company, AT&T.

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unanimously that the new company purchase from the Trustee the property of the Bell Company.[1]

The directors, meeting the same day, unanimously elected Gardiner Hubbard president of the Bell Telephone Company. They also unanimously elected Gardiner Hubbard, Thomas Sanders and George Bradley to the executive committee which was given such powers as might be needed for the management of the company.[2]

One week later, at a meeting attended by Gardiner Hubbard, Thomas Sanders, George Bradley, Thomas Bailey, C. E. Hubbard, Charles Williams, Jr., and A. O. Morgan, an additional by-law was adopted. According to it, the holders of stock for which cash had been paid were to have equal right and power for two years with that held by the patentees. The original cash subscribers were to cast two votes for every one of their shares while the patentees were to cast only one vote for each of their shares.[3] Thus, by the addition of By-law Thirteen the patentees surrendered their absolute control of the patents.

In order to acquire new capital, Hubbard was thus finally forced to relinquish the absolute power which he exercised and had demanded as a basis for reorganization. On July 30, 1878, the Bell Telephone Company received its Certificate of Incorporation from the Commonwealth of Massachusetts.[4] Sanders had his newly capitalized company at last.

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1. Ibid.

2. Minutes of Directors' Meeting, July 20, 1878, Bell Telephone Company, AT&T.

3. Minutes of Stockholders' Meeting, July 27, 1878, Bell Telephone Company, AT&T.

4. Certificate of Incorporation, July 30, 1878, AT&T, Box 1003.

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CHAPTER XI

THE OPERATION OF THE BELL TELEPHONE COMPANY

The reorganization of the Bell Telephone Company did not immediately affect the operation and functioning of agencies. Agents faced many of the same problems as before. They continued to complain about poor call bells as a serious obstacle to advancing the business.[1] Although newer models worked better, they were less durable, and so by year's end the Bell Company was instructing its agents to return all defective bells for replacement by the latest models.[2] Such changes took time, however, and promises of better bells did not always restore customer confidence.[3]

Agents and exchanges frequently complained about delays in filling their orders for instruments, switchboards, office fixtures[4] and business forms.[5] Such delays halted agency business,[6] and exchanges lost subscribers.[7] When the Bell Company inquired about the condition of one exchange, a licensee

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1. G. C. Maynard to Theodore N. Vail, October 3, 1878, AT&T, Box 1178; Thomas E. Cornish to Theodore N. Vail, February 1, 1879, AT&T, Box 1176.

2. Theodore N. Vail to O. E. Madden, December 2, 1878, AT&T, Box 1197.

3. Thomas E. Cornish to Theodore N. Vail, February 1, 1879, AT&T, Box 1176.

4. E. J. Hall to Thomas A. Watson, December 24, 1878, AT&T, Box 1164.

5. S. Hubbard to Gardiner G. Hubbard, October 20, 1878, AT&T, Box 1173.

6. G. F. Durant to Charles Williams Jr., February 22, 1879, AT&T, Letterbook 1H.

7. E. J. Hall to Thomas A. Watson, December 24, 1878, AT&T, Box 1164; G. F. Durant to Bell Telephone Company, February 11, 1879, AT&T, Box 1161.

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responded:

> We have no exchange and do not seem likely to have one. We have some pieces of switchboard but no bells . . . The battery telephones we ordered have not been shipped . . . and our customers are leaving for the other company. I do not know whether I can write strongly enough to let you know just how I feel in the matter but if something is not done before long I shall continue till our money is gone, as it soon will be, and then throw the whole thing into the hands of the men who have broken us down [Bell Co.] through no fault of our own.[1]

Delayed shipments naturally resulted in increasing criticism of Charles Williams, Jr. Agents who placed all of their orders with Williams and who promptly paid their bills felt especially aggrieved.[2] Continued delays ultimately forced unhappy agents to seek out more reliable electrical suppliers.[3]

The reorganization of the Bell Company had not improved Charles Williams' situation very much. Although the old Bell Company had paid in full its obligations to him, he was still short of funds and by August 1878 was seeking a $2000 advance from the new company so that he could continue his manufacturing operations. Williams' current shortage was due to the fact that he had used his "quick capital" to purchase an interest in the recently reorganized Bell Telephone Company.[4]

Clearly the Bell Company was becoming dissatisfied with Williams' performance. Hubbard recognized the necessity of making an advance to him

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1. E. J. Hall to Theodore N. Vail, January 10, 1879, AT&T, Box 1164.

2. G. F. Durant to Thomas A. Watson, December 27, 1878, AT&T, Box 1161.

3. G. F. Durant to Theodore N. Vail, March 6, 1879, AT&T, Box 1161.

4. Thomas Sanders to --, August 8, 1878, AT&T, GMIB 15.

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but disliked the idea.[1] After visiting the Chicago exchange and learning first-hand the effect of delayed shipments, Hubbard also urged that Williams be hurried along.[2] Vail inquired of Williams if there were not something he could do to get back orders filled and maintain a stock of instruments so that new orders could be filled without delay.[3]

Williams was himself becoming dissatisfied with the Bell Company's ability to pay its obligations to him. He repeatedly complained to Sanders about his difficulty in getting Bell Company notes discounted.[4]

Williams' financial demands on the Bell Company steadily increased throughout the last three months of 1878, and he expected them to continue at an increasing rate. Williams explained that the balance due him on October 1 was $9265.40, on November 1, $11,152.82, on December 1, $14,172.11, and predicted the balance for January 1879 would be $17,000. He required three or four thousand dollars immediately to pay his bills since his credit was being impaired.[5]

Williams' financial stringency resulted partly from Hubbard's failure to provide all the funds necessary to conduct the manufacturing business as he had promised and partly because Williams' company was employing more workers.[6]

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1. Gardiner G. Hubbard to Thomas Sanders, August 14, 1878, AT&T, Box 1194.

2. Gardiner G. Hubbard to The Executive Committee of the Bell Telephone Company, August 18, 1878, AT&T, Box 1152.

3. Theodore N. Vail to Charles Williams Jr., September 18, 1878, AT&T, GMLB 15.

4. Charles Williams Jr. to Thomas Sanders, October 26, 1878, AT&T, Box 1204; Charles Williams Jr. to Thomas Sanders, November 7, 1878, AT&T, Box 1204.

5. Charles Williams Jr. to Gardiner G. Hubbard, December 17, 1887 [sic], AT&T, Box 1204.

6. Ibid.

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Although Williams regretted the delays in delivery, he believed the agents were unjustified in many of their complaints. He pointed out that he had recently installed $2000 worth of new machinery and had increased the number of men working on telephonic items to meet the growing demand. He proposed to install more machinery and hire additional workers, if necessary, to meet future demands. Williams reported:

> In regard to telephones I have promptly filled all orders . . . and can increase the number if desired. I have shipped since Aug. 7th 1400 Magneto Calls, and average now 90 per week . . . There has been some delay on district bells caused by changing style of same . . . New tools have had to be made to accelerate [sic] & cheapen their manufacture . . . in a few days [we] can turn them out very rapidly. Annunciators we are getting out as rapidly as necessary. . . . I fully appreciate your [Vail's] position & shall do the best I can to forward this work.[1]

Vail in turn claimed to fully understand Williams' difficulties but pointed out that each agent believed his territory the keystone of the whole telephonic system and therefore was unwilling to listen to any excuse for delay.[2]

With the perfection of the battery telephone to meet the competition of the Edison carbon telephone, new pressures were applied to Williams to produce in greater quantity. Despite Watson's own efforts,[3] he was of the opinion that some telephonic work should be done in other shops.[4]

By the end of December Williams had increased his work force to 65

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1. Charles Williams, Jr., to Theodore N. Vail, December 19, 1878, AT&T, Box 1204.

2. Theodore N. Vail to Charles Williams, Jr., December 21, 1878, AT&T, GMLB 17.

3. Thomas A. Watson to Theodore N. Vail, December 19, 1878, AT&T, Box 1205.

4. Ibid.

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and he reassured Watson he would be able to turn out all the telephone work desired. Williams was now concerned about the price of new telephone models. He concluded he could produce telephones for $2.70 and would charge the Bell Company $3.00. However, several manufacturers had advised him that a fair profit would be about 33 percent. Therefore, while he wished to earn 50¢ on each instrument, he was willing to split the difference with Bell Company and offered to charge only 40¢ above cost.[1] The Bell Company agreed to pay Williams $3.10 for each telephone manufactured.[2]

Despite this arrangement Williams continued to complain of being "completely swamped" for lack of funds, and he reminded Sanders not to fail to send him a large remittance.[3] He explained:

> I hope you have remitted the balance . . . Mr. Sanders I have a large amount to make out every week. Your company is hurrying me upon Battery Telep. I am increasing my force every week to meet demand, it takes money and a large amount too. Keep the wheels moving, therefore do your "level best" for me.[4]

Williams' inability to supply sufficient quantities of instruments[5] caused the Bell Company to explore the possibility of using other manufacturers whose work was equal in quality and as low in price.[6] While Vail

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1. Charles Williams, Jr., to Thomas A. Watson, December 28, 1878, AT&T, Box 1204.

2. Charles Williams, Jr., to Bell Telephone Company, December 31, 1878, AT&T, Box 1204.

3. Charles Williams, Jr., to Thomas Sanders, January 9, 1879, AT&T, Box 1204.

4. Charles Williams, Jr., to Thomas Sanders, January 16, 1879, AT&T, Box 1204.

5. Theodore N. Vail to Thomas A. Watson, February 17, 1879, AT&T, Box 1205.

6. Gardiner G. Hubbard to O. E. Madden, January 18, 1879, AT&T, Box 1174.

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believed such a course absolutely necessary,[1] he desired it only for auxiliary equipment, leaving the manufacture of telephones exclusively to Williams.[2]

Consequently, Watson, on one of his tours, began instructing Post & Co. of Cincinnati how to manufacture such auxiliary telephone equipment. So anxious was this company to participate in the production of telephonic equipment that it ordered $1500 of new machinery to do the work. Watson undertook to have Post & Co. and George Bliss, who was about to establish a factory in Chicago, supply Bell agents in the west. He also proposed to inspect the facilities of another manufacturer and, if he found them satisfactory, to have them supply a different section of the country.[3]

Watson was able to report at the end of February that Post & Company had commenced supplying magneto bells to Cincinnati, Louisville, Nashville, St. Louis, Iowa and Chicago. He predicted that Post & Co. and Bliss would be able to supply the entire west; Davis & Watts and Patrick & Carter, other manufacturers, the south and part of the east; and with the establishment of a factory in New York, Williams would be free to manufacture only telephones and possibly some critical auxiliary equipment.[4]

These manufacturers were expected to meet certain standards and submit to general supervision by the Bell Company. Watson also suggested that they be required to sign an agreement to sell telephonic equipment only to Bell

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1. Theodore N. Vail to Thomas A. Watson, February 17, 1879, AT&T, Box 1205.

2. Theodore N. Vail to Thomas A. Watson, February 18, 1879, AT&T, GMLB 20.

3. Thomas A. Watson to Theodore N. Vail, February 19, 1879, AT&T, Box 1205.

4. Thomas A. Watson to Theodore N. Vail, February 28, 1879, AT&T, Box 1205.

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agents in return for his assistance in getting them started.[1] Sometimes Watson was required not only to provide technical assistance but also physical labor: "I am going through the same struggle at Post & Co. that I did at Williams' when we first began to manufacture. Had to pull off my coat and pitch in myself today."[2]

The Bell Company's decision to license other electrical manufacturers not only helped relieve the supply problem but it also enabled the company to evaluate Williams' performance more critically. Watson reported:

> I got him [an official of Post & Co.] to bid for the transmitters, he will make them for $2.60 each in lots of 500. Brother Williams will have to come down. I don't want them to make them if we can get all we want from Williams.[3]

When agents were not complaining about delays in the delivery of their equipment, they were complaining about delays in the ratification of their contracts. This too was an old problem.

As the telephone business matured and evolved, district and exchange systems increasingly surpassed private line agencies in importance. Agents could not, however, engage in these phases of telephony without first submitting proposals to the parent company and securing its consent.[4] Thus prompt ratification and execution of contracts was essential to the commencement of district and exchange systems.

Some early private line agencies continued to operate without contracts

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1. Thomas A. Watson to Theodore N. Vail, March 2, 1879, AT&T, Box 1205.

2. Thomas A. Watson to Theodore N. Vail, March 5, 1879, AT&T, Box 1205.

3. Thomas A. Watson to Theodore N. Vail, March 21, 1879, AT&T, Box 1205.

4. Theodore N. Vail to John Ponton, March 12, 1879, AT&T, Box 1123.

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well into the corporate period of the Bell Company. Occasionally these "verbal understandings" proved beneficial to the parent company, as when it desired to make new arrangements with other parties.[1]

Delays over contractual matters resulted from several factors. Hubbard tended to negotiate tentative agreements with agents by mail, leaving details and final execution of contracts for meetings during his tours of inspection.[2] The resulting delays sometimes proved costly. Hubbard's procrastination in submitting a proposition to the ADT Company of Erie which was considering establishing an exchange system resulted in that company's turning to the Gold and Stock Telegraph Company.[3] Although the latter's terms were not as favorable as the Bell Company's, they were accepted in part because of "the failure on the part of the Bell Company to act promptly in answer to their repeated requests, which they could only attribute to lack of business qualities or indifference on our part."[4]

Hubbard explained that he had hoped to visit Erie in July, then in August, but did not arrive until September. Since he had expected to be in Erie soon, he had not seen any purpose in reducing the proposition to writing, preferring, as he did, to meet the leading figures in person before making a formal proposition.[5] O. E. Madden summed up the situation when he wrote: "The Erie business is an example of what can be lost by delay. At

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1. Theodore N. Vail to O. E. Madden, March 13, 1879, AT&T, Box 1170.

2. G. C. Maynard to Theodore N. Vail, October 15, 1878, AT&T, Box 1178.

3. G. W. Moore to Gardiner G. Hubbard, October 9, 1878, AT&T, Box 1174.

4. O. E. Madden to Gardiner G. Hubbard, January 17, 1879, AT&T, Box 1174.

5. Gardiner G. Hubbard to O. E. Madden, January 18, 1879, AT&T, Box 1174.

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any time before October 1 last had a man spent a little time with them, time enough to understand their case, the Gold and Stock Company never would have got in at all. This I know."[1]

The second factor which caused contractual delays was the necessity of obtaining assent of the three-man Executive Committee of the Bell Company. Decisions were not always made speedily. For example, although the Executive Committee did not approve of a proposed contract to license a Buffalo exchange it would not reject it, preferring to let matters drift. When general agent Madden pressed Vail for a decision, Vail advised him to abandon the prospective investors who were unhappy with the delay, and if others could not be found, then Madden was to temporarily abandon plans for an exchange at Buffalo.[2]

Madden was confronted with similar delays in connection with Syracuse[3] and Rochester.[4] In both instances the Bell Company was faced with the prospect of losing the interest and co-operation of local capitalists and having the opposition step in with its own program. Madden complained:

> I wish that you [Vail] could travel among the agents and feel for yourself the degree of dissatisfaction which exists among them, mainly because they have not been able to get satisfaction from the Co., it would lead you I am sure to lend your influence toward bringing about a better state of affairs.[5]

Agents and prospective investors also suffered from a lack of

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1. O. E. Madden to Theodore N. Vail, January 23, 1879, AT&T, Box 1197.

2. Theodore N. Vail to O. E. Madden, November 16, 1878, AT&T, Box 1164.

3. O. E. Madden to Theodore N. Vail, January 19, 1879, AT&T, Box 1197.

4. O. E. Madden to Theodore N. Vail, February 6, 1879, AT&T, Box 1197.

5. Ibid.

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information from the Bell Company. The decision to shift the company's headquarters to New York City compounded the old problem of an irregular business correspondence between the parent company and its agents.[1]

Agents complained, as they had before, that the Bell Company failed to clear up public confusion regarding the status of former agents.[2] Agents often sought information regarding the company's latest policies, especially concerning the creation of exchanges: "Not having heard from you I am of course working in the dark. If I succeed in starting an exchange, I should like to be informed how to arrange the finances."[3]

Visits by company representatives often times filled these gaps in information. Chief of the visitors was Thomas Watson, who not only provided information but also was successful in soothing agents' irritations.[4] Sam Hubbard in California felt especially isolated and frequently requested that he be kept posted on company matters.[5] When a Bell representative visited him, Sam wrote to his brother Gardiner: "I . . . was glad to see him. He has given me a great deal of information regarding the telephone business, that I have so long desired. I shall now be able within a very short time to start a District Telephone Co. here."[6]

During this period of growing Western Union competition the Bell

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1. John Ponton to Thomas Sanders, October 19, 1878, AT&T, Box 1176; Theodore N. Vail to O. E. Madden, February 11, 1879, AT&T, Box 1164.

2. J. A. D. Tracy to Gardiner G. Hubbard, November 26, 1878, AT&T, Box 1178.

3. Ibid.

4. E. J. Hall to Theodore N. Vail, January 17, 1879, AT&T, Box 1164.

5. S. Hubbard to Gardiner G. Hubbard, August 5, 1878, AT&T, Box 1173; S. Hubbard to Gardiner G. Hubbard, October 9, 1878, AT&T, Box 1173.

6. S. Hubbard to Gardiner G. Hubbard, October 9, 1878, AT&T, Box 1173.

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Telephone Company began to require agents' full time devotion to the telephone business. After inspecting agent Ponton's records, Theodore Vail informed him that he was losing leases as they expired and therefore additional agents were being appointed to his territory.[1] Vail explained:

> I know that you have been energetic in presenting our claims . . . but what is needed is an energetic pushing agent in every town. You cannot rent telephones in any other way, nor can you with your other business give it the attention it demands.[2]

As the business matured, part-time agents resigned,[3] full-time ones were fired for failing to meet expenses,[4] and others sought reduction of their territory, preferring to retain lucrative cities and surrounding counties.[5] In appointing replacements, the Bell Company seemed more selective about the individuals it chose. It was willing to make temporary arrangements in order to continue the leasing of telephones, but it required time and consideration before establishing a permanent relationship. Vail explained: "I cannot in advance of seeing his work and knowing the man bind ourselves to make a contract which may not be satisfactory to our directors."[6]

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1. Theodore N. Vail to John Ponton, January 16, 1879, AT&T, Box 1123.

2. Theodore N. Vail to John Ponton, January 28, 1879, AT&T, Box 1123.

3. C. P. E. Burgoyne to Thomas A. Watson, September 1, 1878, AT&T, Box 1178.

4. Gardiner G. Hubbard to O. E. Madden, November 2, 1878, AT&T, Box 1197.

5. G. W. Stockly to Gardiner G. Hubbard, August 22, 1878, AT&T, Box 1170.

6. Theodore N. Vail to G. B. Engle, December 20, 1878, AT&T, GMLB 17.

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Bell agents continued to encounter public dissatisfaction with company policies. The decision to sell call bells instead of continuing to rent them caused agents no little difficulty.[1] As the Western Union increasingly resorted to price competition, agents were forced to seek clarification on or complain about telephone rentals and exchange system charges. Lest its agents act on their own authority in the face of such competition, the Bell Company reminded them:

> So far as cutting rates is concerned, that is impossible for in our instructions agents are forbidden renting at any other rates than those fixed by the Bell Telephone Company and we will discontinue any agency that does otherwise.[2]

This question of prices was frequently an issue of disagreement between the parent company and its agents. In its contracts the Bell Company required agents to pay such rentals as it might fix from time to time. Naturally agents were afraid that this provision placed them in a disadvantageous position, since the Bell Company possessed the power "at any moment" to raise annual rates, and they would be forced to pay them or forfeit their contract and plant on undesirable terms.[3]

The parent company explained that its prices would be applied to all agencies in general. It was unwilling to establish a general price by contract since such terms might make it economically unfeasible to rent the new style telephones at the fixed price. Vail, however, reassured concerned agents:

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1. Richardson and Barnard to Bell Telephone Company, September 26, 1878, AT&T, Box 1148.

2. Theodore N. Vail to John Ponton, January 25, 1879, AT&T, Box 1123.

3. Cozzens and Bull to Theodore N. Vail, March 24, 1878, AT&T, Box 1181.

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> It is not at all probable that we will ever raise the price, but it may be desirable to do so at some future time. You will understand that we at all times will have to fix a rate at which our agents will be able to rent telephones and make a profit. Else our own profit will suffer.[1]

The price of telephones was an especially critical item in organizing telephone exchanges. Part of the Bell Telephone Company's emphasis in developing the exchange business was motivated by its struggle with the Western Union. Gardiner Hubbard believed that if his company could control exchange telephony its future was assured.[2]

As of August 1878, the telephone exchange business was superseding that of private lines.[3] Watson, writing to Bell in England, proclaimed the central office system a success. He reported that the Bell Company had 500 subscribers in Chicago, over 200 of whom were already connected, 175 in Lowell, 300 in Albany, 300 in New Haven, and the system was commencing successfully in other places. Watson predicted that within a year or two the Bell Company would have a telephone exchange in every large city in the United States.[4]

Much of the Bell Company's exchange success was due to its exhortations to agents and interested parties to organize exchange companies.[5]

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1. Theodore N. Vail to Cozzens and Bull, March 25, 1878, GMLB 21; Theodore N. Vail to Frank Newell, March 25, 1878, AT&T, GMLB 21.

2. Gardiner G. Hubbard to Thomas E. Cornish, September 11, 1878, AT&T, Box 1054.

3. Thomas A. Watson to Frederick A. Gower, August 29, 1878, AT&T, GMLB 15.

4. Thomas A. Watson to Alexander Graham Bell, August 30, 1878, AT&T, Box 1105.

5. Theodore N. Vail to J. L. Mitchell, December 27, 1878, AT&T, GMLB 17.

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Agents were urged to take up the project on the grounds that there was no better return for the capital invested.[1] The Bell Company also instructed its general agents to devote their time, talent and sufficient capital to establishing exchange systems in all places where 100 subscribers could be obtained.[2]

During his inspection tours Watson also publicized the profitability of telephone exchanges and urged agents to invest in them. In later years he recalled:

> At that time [February 1879] I had several conferences with some . . . prosperous businessmen and did my best to get them to put their money into a telephone exchange . . . in Indianapolis. I figured out marvelous profits and I showed them what a grand success we were making in the East. They looked incredulous when I told them that in our Lowell, Mass. Exchange there were 115 subscribers already connected and 40 on the waiting list; that one day they had received 452 calls and had made 85 connections. My presentation of these striking facts evidently had some effect for an exchange was started . . . that same year.[3]

Watson provided much technical assistance in helping agents establish district and exchange systems. Other Bell employees were also assigned this task, but agents insisted that Watson and "no one else" be sent to help them set up their exchanges.[4] The Bell Company also sent out its General Manager to advise exchange organizers on financial and managerial questions.[5] Although the Bell Company was willing to do all in its power to help in establishing

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1. Theodore N. Vail to G. A. Cary [no date], AT&T, GMLB 16.

2. December 27, 1878, Synopsis of Conditions to Be Incorporated in Contract between Bell Telephone Company and a General Agent, AT&T, GMLB 17.

3. Thomas A. Watson, Address Before the Indiana Telephone Association Convention, May 7, 1931, AT&T, Box 1068.

4. O. E. Madden to Theodore N. Vail, November 21, 1878, AT&T, Box 1134.

5. Gardiner G. Hubbard to E. N. Gleason, October 3, 1878, AT&T, Box 1001.

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exchange systems, its offers of aid did not include financial assistance. Its financial condition did not make that possible.[1]

Exchange agencies often complained about the rentals which the Bell Telephone Company set for its instruments. In the face of Western Union competition the parent company sometimes adopted the expedient of waiving the first year's rental on telephones except for the advance due it. Where special conditions required it, agents were granted larger commissions than usual in order to secure their co-operation and to assist their efforts.[2] The company also continued its policy of giving larger commissions on the first year's rental and then reducing it after an exchange system had matured.[3] Nevertheless, the Bell Telephone Company did try to secure terms which would earn for it a minimum sum between $5 and $6 per instrument per year.[4]

One general agent believed that the Bell Company's requirement of a fixed minimum rental robbed him of his right to exercise his judgment in regard to setting terms. He proposed that he be permitted to exercise his own discretion in this matter.[5] Vail explained that the $5 minimum which the Company required on each rental was determined by experience. To do any business for less, except under unusual circumstances, would be tantamount

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1. Thomas Sanders to H. H. Eldred, August 31, 1878, AT&T, GMLB 15.

2. Gardiner G. Hubbard to George L. Bradley, September 17, 1878, AT&T, GMLB 16.

3. Theodore N. Vail to O. E. Madden, December 6, 1878, AT&T, Box 1197; Theodore N. Vail to John Ponton, February 26, 1879, AT&T, Box 1123.

4. Theodore N. Vail to O. E. Madden, November 26, 1878, AT&T, Box 1205; Thomas Sanders to H. R. Sackett, August 16, 1878, AT&T, GMLB 16.

5. O. E. Madden to Theodore N. Vail, November 25, 1878, AT&T, Box 1197.

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to doing no business at all. In regard to giving the agent discretion in the matter, Vail wrote: "I could not do so if I wanted to . . . There must be a limit and that limit placed just as far as the experience of the company would seem to justify, leaving all else to the discretion of the agents."[1]

While it might seem that the Bell Company was rigid in its policy of requiring a minimum of $5 on each instrument, it was not inflexible in its operation. It did permit agent Madden to offer telephones at prices and commissions which would net the Bell Company only $4 per instrument.[2] It also agreed to guarantee the Buffalo exchange company any excess over $3000 in the cost of connecting 200 subscribers.[3]

Licensees encountered many obstacles in establishing their exchanges. In order to forestall opposition exchanges and to stimulate public interest and acceptance Vail recommended that agents sign up leading citizens and institutions.[4] Hubbard also advised:

> As soon as you have 100 [names] will it not be a good plan to have a printed list made for your canvassers to carry around, not to give anyone, to show their customers. We . . . find it a good plan to go through one class of business with one canvasser, others like him to take up another.[5]

Since the exchange phase of telephony was relatively new it was difficult to estimate the cost of constructing an exchange. Moreover, much of

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1. Theodore N. Vail to O. E. Madden, November 26, 1878, AT&T, Box 1205.

2. Theodore N. Vail to O. E. Madden, December 2, 1878, AT&T, Box 1166.

3. Contract, November 20, 1878, AT&T, Box 47.

4. Theodore N. Vail to G. H. Twiss, December 12, 1878, AT&T, GMLB 17.

5. Gardiner G. Hubbard to Thomas E. Cornish, September 14, 1878, AT&T, GMLB 15.

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the expense of setting up a district system depended upon the individual who was in charge of actual construction.[1] Consequently, construction costs frequently exceeded estimates. Thus, for example, the original estimate for the Chicago exchange was from $12,000 to $15,000. The actual cost was over $40,000.[2]

Exchanges were frequently involved in disagreements with the Bell Company's policy concerning the transmission of messages for hire, i.e. the transmission of paid messages. In awarding contracts to district and exchange systems, the parent company reserved this telegraphic function for itself, although it did promise to permit local companies to participate in it at some future time.[3] Disputes over this matter often delayed the execution of contracts and the organization of exchange companies.[4] Occasionally the Bell Company did grant this privilege to selected exchanges,[5] but generally left the matter unsettled.[6]

The greatest problem which all agents faced during this period was the increased competition of the Western Union. The Western Union and its allies continued to rely upon their superior financial resources and well

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1. Theodore N. Vail to A. B. Homer, February 24, 1879, AT&T, GMLB 15.

2. Gardiner G. Hubbard, Memorandum to the Stockholders and Directors of the Bell Telephone Company, 1879, AT&T, Box 1003.

3. Theodore N. Vail to John Ponton, January 25, 1879, AT&T, Box 1123.

4. Theodore N. Vail to C. H. Sewall, September 3, 1878, AT&T, Box 1164.

5. Theodore N. Vail to O. E. Madden, January 31, 1879, AT&T, Box 1164.

6. Theodore N. Vail to G. B. Engle, March 25, 1879, AT&T, GMLB 21.

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established organization to challenge the Bell Telephone Company and neutralize any advantage the latter might enjoy in a particular place.

For example, Sam Hubbard anticipated a "sharp fight" from the American District Company when he began to establish a telephonic exchange, because it would be superior to a cumbersome district telegraph-telephone system which the ADT controlled.[1] However, in trying to raise capital for his exchange, Hubbard was informed that he was threatening the interests of the Gold and Stock Company and therefore as a result of rate cutting would not be allowed to make any profit on his venture. Hubbard was told:

> I would lose all the money that was put into the business. That their company would not interfere with my business as it was now running, but that if I started the Tel Ex. they should fight us in every direction.[2]

A representative of the Gold and Stock offered to pay Hubbard $150 per month not to start a Bell Telephone exchange system. The opposition district telegraph-telephone system would also connect any of Hubbard's customers without compelling them to use Gold and Stock instruments.[3]

This offer reflected the power and resources which the opposition was able to exert in trying to block Bell progress. It was this same power which helped convince the directors of the Erie American District Company to choose Gold and Stock instruments over those of the Bell Company. After investigating the situation, Madden reported to Gardiner Hubbard:

> The A. D. T. Co. was weak and unprepared to call down upon themselves the W. U. displeasure including the cancellation of the contract for de-

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1. S. Hubbard to Theodore N. Vail, October 17, 1878, AT&T, Box 1173.

2. S. Hubbard to Gardiner G. Hubbard, November 5, 1878, AT&T, Box 1173.

3. Ibid.

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> livery of messages which would inevitably follow the using of your instruments.[1]

Western Union agents were arrogant, no doubt reflecting what they believed to be their company's overwhelming power. One agent placed an American Speaking Telephone Company instrument in a police office and demanded to know what the Bell Company intended to do about it.[2]

The Western Union persistently circulated the story that a settlement between the conflicting interests was imminent. E. J. Hall of the Buffalo exchange reported to Vail:

> I had quite a talk with Mr. Tillinghash Western Union Manager here . . . He said in the presence of a number of gentlemen that the Bell Co . . . was making desperate efforts to combine with the Western Union and he thought that would ultimately be the result. I denied the statement but he said that it was based on positive personal knowledge of the facts--How is it?[3]

When another Bell agent was told the same story five months later, he reminded Vail and the company that should such an event occur it would be a terrible day for the agents since they would be slaughtered.[4]

Chief among the oppoisition's weapons was the Edison carbon telephone. Bell agents increasingly reported the loss of old[5] or potential subscribers because they felt the Edison instrument superior to the Bell. Agent Cornish described the frustration of his canvasser:

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1. O. E. Madden to Gardiner G. Hubbard, January 17, 1879, AT&T, Box 1174.

2. J. G. Tobey to George L. Bradley, March 2, 1878, AT&T, Box 1183.

3. E. J. Hall to Theodore N. Vail, January 24, 1879, AT&T, Box 1164.

4. C. H. Sewall to Theodore N. Vail, June 16, 1879, AT&T, Box 1164.

5. Thomas E. Cornish to Theodore N. Vail, December 27, 1878, AT&T, Box 1176.

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> He had persuaded a party to have a line. Spent weeks, but they tried our lines then the Edison [sic] said it was ten times as loud [as Bell's], gave him [G. and S. agent] the order, he guarantees them from all trouble.[1]

Bell agents themselves described the Edison instrument as being louder and clearer than the Bell[2] and continued to urge their parent company to do something.[3]

The Bell Telephone Company's delay in commencing suit against the Western Union caused some agents to complain about what seemed to be inaction. One Bell agent who was also a member of an ADT Company which was considering adopting Bell instruments wrote:

> We do not wish to involve ourselves in a lawsuit and as the W. U. Co. offer to protect us against any of course Mr. Spencer [an ADT official] says 'use the one most for our advantage' . . . As the matter now stands the W. U. Co. are fighting us and use their telegraph and we cannot stop them as you do not protect us as you should. And they agree to protect us against you, the natural result will be for us to do the best we can.[4]

Bell agents were still limited in their responses to competition. They did not have the authority to cut rates.[5] Their chief weapon consisted in their own ability either to persuade subscribers of the superiority of Bell instruments or the desirability of having a connection with a Bell

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1. Thomas E. Cornish to Gardiner G. Hubbard, September 10, 1878, AT&T, Box 1176.

2. H. R. Rhoads to Theodore N. Vail, December 30, 1878, AT&T, Box 1174; S. Hubbard to Theodore N. Vail, November 7, 1878, AT&T, Box 1173; O. E. Madden to Theodore N. Vail, January 17, 1879, AT&T, Box 1174.

3. Thomas E. Cornish to Theodore N. Vail, November 15, 1878, AT&T, Box 1176; S. Hubbard to Theodore N. Vail, November 7, 1878, AT&T, Box 1173.

4. G. W. Moore to Thomas Sanders, August 5, 1878, AT&T, Box 1174.

5. Theodore N. Vail to John Ponton, January 25, 1879, AT&T, Box 1123.

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exchange,[1] and their ingenuity in outwitting Western Union agents in occupying strategic locations.

Utilizing personal contacts, Bell sub-agents were introduced to the Mayor of Norwich, Connecticut, and secured his permission to use fire alarm poles whenever necessary for their own wires at no cost whatever. These agents consequently possessed a distinct advantage over competitors in establishing a telephone exchange.[2] Another agent secured permission from the Bell Company to rent telephones at unusually low prices to several newspaper editors in order to gain the assistance of their newspaper columns.[3]

The Bell Telephone Company appreciated the value of advertising but was unable to use it extensively. As Sanders explained: "We should advertise more extensively in the name of the Bell Tel. Co. $2000 or $3000 worth of a certain kind of advertising asserting our priority would be money well invested, if we had it to invest."[4] Consequently, much of the burden of advertising fell to agents. Agents of the New England Telephone Company had to agree to advertise the telephone before receiving their licenses.[5]

A major objective of such advertising was to caution the public about using non-Bell instruments.[6] The Bell Company advised its agents to further

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1. B. F. Blackall to Gardiner G. Hubbard, September 14, 1878, AT&T, Box 1166.

2. Cozzens and Bull to George L. Bradley, March 21, 1879, AT&T, Box 1181.

3. H. R. Rhoads to Gardiner G. Hubbard, August 28, 1878, AT&T, Box 1174; Bell Telephone Company to H. R. Rhoads, September 2, 1878, AT&T, Box 1174.

4. Thomas Sanders to Gardiner G. Hubbard, March 20, 1878, AT&T, Box 1004.

5. Draft of Appointment for Agents, AT&T, Miscellaneous Letterbook 1, hereafter cited MB.

6. George L. Bradley to L. W. Clarke, March 1, 1878, AT&T, MB1.

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publicize their rights by serving circulars describing the Bell patents and copies of an injunction obtained in Cincinnati on all parties using infringing instruments.[1] The Bell Company also used the Edison phonograph to advertise its telephone, although on at least one occasion a Western Union agent anticipated this tactic and employed it himself, much to the chagrin of the local Bell agent.[2]

The Bell Telephone Company also exhibited its instruments in competition with others at fairs and expositions.[3] It continued to make telephones available to colleges and scientific schools at special rates.[4] Suggestions that the company lend its instruments to these institutions free of charge[5] were rejected due to the company's poor financial condition.[6]

Despite financial stringencies, the Bell Telephone Company and its agents did produce their own publications to counter those of the Western Union. In September 1878, the Bell Company sponsored the publication of the "Record," of which little is known. This "semi-official organ of the Bell Company" was eagerly awaited by a licensee in St. Louis in the hopes that it would offset the effects of a rival organ.[7] Several agencies and

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1. Circular, February 6, 1879, AT&T, Box 1005.

2. Thomas E. Cornish to Gardiner G. Hubbard, March 25, 1878, AT&T, Box 1176; Thomas E. Cornish to Thomas Sanders, December 11, 1878, AT&T, Box 1176.

3. George L. Bradley to Gardiner G. Hubbard, September 3, 1878, AT&T, MB 2.

4. George L. Bradley to E. S. Ritchie and Sons, December 20, 1878, AT&T, MB 2; George L. Bradley to E. S. Ritchie and Sons, January 2, 1879, AT&T, MB 2.

5. Theodore N. Vail to George L. Bradley, December 20, 1878, AT&T, GLB 17.

6. George L. Bradley to Theodore N. Vail, December 23, 1878, AT&T, MB 2.

7. G. F. Durant to Gardiner G. Hubbard, September 12, 1878, AT&T, Box 1161.

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exchanges also issued their own telephonic publications.

One of the earliest of these, The Telephone Journal, was issued by the Bell Telephone Exchange of Chicago in October 1878. The first issue explained:

> The daily increase in the number of subscribers to our Telephonic Exchange and the success which has attended our efforts to place the business community in rapid and reliable communication with their various interests has induced us to establish the Telephone Journal which is designed in the interest of our patrons.[1]

While the Journal may have been designed in the interest of its patrons, an analysis of its content clearly indicates that its purpose was to advertise the exchange and Bell equipment, list the subscribers of the exchange in a kind of rudimentary directory, and expound upon the Bell Company's legal position.[2]

Under the aegis of the National Bell Telephone Company, the Bell Company's successor, several other exchanges issued their own publications. In April 1879, the Southern Agency of the Bell Company issued its first number of The Southern Herald of The Telephone. Although more elaborate in format than the Journal, The Southern Herald was also primarily devoted to publicizing and espousing the Bell cause against its opponents.[3] The Bell exchange in Worcester, Massachusetts, issued The Sunday Herald Jr. whose chief difference from these other publications was its miniature size.[4]

Late in March 1879, the Bell Company's successor began to take steps to issue a national telephonic publication entitled Telephonic Journal.[5]

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1. The Telephone Journal, October 1878, AT&T, Box 1040.
2. Ibid.
3. The Southern Herald of the Telephone, April 1879, AT&T, Box 1178.
4. The Sunday Herald Jr., May 11, 1879, AT&T, Box 1183.
5. Circular, B 19/79, Theodore N. Vail, March 25, 1879, AT&T.

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Vail explained his company's purpose in sponsoring this publication:

> It is not the purpose of the company to make this paper a mere advertising sheet; nor further than unscrupulous opposition may necessitate--will it be allowed to assume an attitude of partisanship. It is hoped that nothing will prevent its being conducted as a liberal medium of intercommunication between all who, as a matter of science or business, are interested in the development of this most wonderful and valuable invention--the Speaking Telephone.[1]

Unfortunately the illness of Francis Blake, Jr., its designated editor, compelled the National Bell Telephone Company to announce a postponement of its first issue.[2] It is not known whether the Telephonic Journal was ever issued.

While the Bell Telephone Company was trying to offset the Western Union's advertising superiority, it was also trying to develop an instrument to challenge the Edison carbon telephone. Watson had begun his search for a competing transmitter as early as April 1878.[3] Apparently the company decided not to seek a patent on Edison's telephone, as Chauncy Smith had suggested,[4] but rather to develop its own. However, Watson was restricted in his efforts to develop a telephone utilizing the variable resistance principle which helped to make the Edison instrument successful. As he recalled:

> Chauncy Smith, our counsel . . . told me that although he was certain that the Edison transmitter was covered broadly by the Bell patents, yet he thought it probable Edison might have a valid claim for the use of the carbon and, for that reason, said I must experiment with other materials.[5]

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1. Notice, Theodore N. Vail, AT&T, Box 1005.

2. Circular, Theodore N. Vail, April 11, 1879, AT&T, Box 1005.

3. Watson, Exploring Life, 140.

4. Gardiner G. Hubbard to Thomas A. Watson, April 15, 1878, AT&T, Box 1193.

5. Watson, Exploring Life, 140-141.

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Thus, Watson's problem was greatly intensified as he soon discovered, for while it was relatively easy to construct an efficient transmitter with carbon electrodes it was impossible to make one with any other material.[1]

However, an event had already occurred which would facilitate the solution of the Bell Company's problem. In February 1878, Charles Cheever had written to Gardiner Hubbard of a "gentleman of Jewish persuasion" who possessed a telephone which might be of value in anticipating some of Edison's details. This inventor, whose name was Emile Berliner, was reputed to be an "ingenious chap."[2]

Berliner had been tinkering with harmonic telegraph and through it had become interested in telephony and learned of Bell's basic patent. In the course of his electrical research Berliner frequented a telegraph fire alarm office and learned that the Morse key had to be pressed down firmly in order to produce a clear sound at the receiver. On the basis of this he reasoned:

> Knowing that in the production of sound in electrical telephony it was necessary to use undulatory currents of electricity, it immediately occurred to me that if by decreasing the pressure of electrical contact the current could be modified in proportion to the pressure applied, then, by vibrating one or both of the sides of the contact the vibrations of sound might be transformed into electrical undulations.[3]

Reasoning as he did, in January 1877,[4] Berliner had worked out the essential elements of the theory of microphonic transmissions which would be incorporated into the Edison transmitter and which would become the subject of controversy concerning the priority of its invention and application

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1. Ibid.

2. Charles A. Cheever to Gardiner G. Hubbard, February 28, 1878, AT&T, Box 1205.

3. Affidavit of Emile Berliner, May 19, 1881, AT&T, Box 1205.

4. Ibid.

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to telephony.

By February 1877, Berliner had reduced his theories to a working model and on June 4, he filed a patent application for his "contact" transmitter and receiver.[1] Although an interference was declared against them in the Patent Office, Bell counsel Anthony Pollok judged them worthy of interest.[2] Watson was sent to Washington to inspect and test Berliner's transmitter. He found that:

> It talked fairly well but it had the carbon electrode I had been forbidden to use. However, as he had constructed it many months before, I thought he might antedate Edison in such use of carbon and advised Mr. Hubbard to make some agreement with Berliner.[3]

Consequently, negotiations were commenced by the Bell Telephone Company to secure Berliner's transmitter which employed the microphonic principle. Although Berliner's patent application described a transmitter possessing metal electrodes, he believed it also covered carbon forms.[4] He claimed that his instrument in combination with Bell receivers worked "perfectly," showing that as a transmitter his telephone could hardly be improved.[5]

Hubbard disagreed with Berliner on the development of his invention and the value he placed on it. He reported that a test of Berliner's instruments was only partially successful, but he believed they possessed the "germ" of an instrument that might be useful to the Bell Company. He

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1. Ibid.

2. Frederick William Wile, Emile Berliner: Maker of the Microphone (Indianapolis: Bobbs-Merrill Co., 1926), 109.

3. Watson, Exploring Life, 140; Thomas A. Watson to Gardiner G. Hubbard, June 3, 1878, AT&T, Box 1193.

4. Affidavit of Emile Berliner, May 19, 1881.

5. Emile Berliner to Gardiner G. Hubbard, June 5, 1878, AT&T, Box 1205.

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therefore suggested Berliner reduce the royalty he sought in compensation for it.[1]

Berliner was not easily moved. He appreciated the value of his claim that his caveat antedated Edison's patent application for a carbon telephone and that it also covered all similar devices in principle.[2] He pointed out to Vail:

> My position against Mr. Edison shows that a close contest against him may be expected which judiciously handled may well turn out completely in my favor . . . Even for the sake of insuring another level to help your manipulations against the W.U.T. Co. it might be worthwhile to settle an arrangement with me.[3]

A settlement was finally reached in September 1878. It included among its provisions that Berliner was to be employed by the Bell Telephone Company at a modest salary. The Bell Company, in turn, received control over his potentially valuable caveats and patent applications.[4] Unfortunately, Berliner suffered a debilitating illness which prevented him from joining the Bell Company until November 1878.[5] In the meantime the Bell Telephone Company still needed an instrument to compete with Edison's.

Watson was "very sanguine" that he could construct a telephone as good as Edison's carbon transmitter.[6] However, his results did not match his optimism. In mid-October he wrote to Vail:

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1. Gardiner G. Hubbard to Emile Berliner, June 13, 1878, AT&T, Box 1205.

2. Emile Berliner to Gardiner G. Hubbard, August 1, 1878, AT&T, Box 1205.

3. Emile Berliner to Theodore N. Vail, July 3, 1878, AT&T, Box 1205.

4. Wile, Emile Berliner, 117.

5. Wile, Emile Berliner, 127.

6. George L. Bradley to Gardiner G. Hubbard, September 14, 1878, AT&T, MB 2.

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> Am losing about a pound a day over the battery telephone. One day am feeling very well over it thinking I've got it o. k. and the next day feeling bluer than indigo. I appreciate the importance of getting it perfected and am pushing it as hard as I know how.[1]

Watson was still hard at work trying to perfect a transmitter when Francis Blake appeared on the scene one day in October 1878 with a transmitter he had designed.[2] Blake became interested in telephony when a member of the Centennial Committee visited him in 1876 and explained the principle of Alexander Graham Bell's invention.[3] Upon retiring from twelve years of service in the United States Coast Survey, Blake devoted his full attention to telephony.[4] He began constructing his microphonic transmitter in June 1878, after reading about English discoveries on the subject.[5] Blake's patents made no claim to the microphone principle or the electrical material used but merely covered the construction features of his transmitters.[6]

Watson tested the Blake transmitter and declared that it was louder than Edison's, and its adjustment was easier.[7] Although Blake's instrument clearly relied upon the "forbidden" carbon electrode, the Bell Company's need for a transmitter equal to Edison's was so great that it was willing to assume the risks of using carbon contacts and acquired Blake's telephone.[8]

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1. Thomas A. Watson to Theodore N. Vail, October 12, 1878, AT&T, Box 1205.

2. Watson, Exploring Life, 148.

3. W. L. Richards, Memorandum of Francis Blake's Work on the Blake Transmitter, AT&T, Box 1060.

4. Biographical Sketch of Francis Blake, AT&T, Box 1160.

5. W. L. Richards, Memorandum of Francis Blake's Work on the Blake Transmitter, AT&T, Box 1060.

6. R. B. Hill, Memorandum, September 18, 1930, AT&T, Box 2047.

7. Thomas A. Watson to Theodore N. Vail, October 19, 1878, AT&T, Box 1205.

8. Watson, Exploring Life, 148.

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By mid-November the Blake transmitter was already in production and had been placed in operation. Watson was "delighted" with its performance on Holmes' lines in Boston and reported that he was pushing its manufacture with all possible dispatch. He advised there was still some experimental work to be done on the transmitter, but suggested this would not produce any delay.[1]

Although Watson advised that the battery transmitters could be produced as fast as needed,[2] the Bell Company soon ran into problems with them. Watson reported in December:

> Blake and I are working like Trojans and if we don't bring something out of it shortly it won't be my fault. Neither of us are satisfied with the last lot of instruments although they work better than previous lots. An assurance that they are working successfully would be very satisfactory to us and decide me to push their manufacture harder.[3]

Despite its shortcomings the Blake transmitter began achieving satisfactory results[4] and Watson promised to furnish two hundred of them by January.[5] Blake's request that his name be stamped on each transmitter manufactured evoked Watson's fear that a precedent would be set whereby the company's distinctive name "Bell" would be obscured. Nevertheless he consented to the decision.[6]

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1. Thomas A. Watson to Theodore N. Vail, November 15, 1878, AT&T, Box 1205.

2. Thomas A. Watson to Theodore N. Vail, November 20, 1878, AT&T, Box 1205.

3. Thomas A. Watson to Theodore N. Vail, December 9, 1878, AT&T, Box 1205.

4. Francis Blake to Thomas A. Watson, January 2, 1879, AT&T, Box 1205.

5. Thomas A. Watson to Theodore N. Vail, December 19, 1878, AT&T, Box 1205.

6. Thomas A. Watson to George L. Bradley, January 16, 1879, AT&T, GMLB 18.

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George Bradley was happy to receive Watson's assent. He believed that as the Bell Company continued its business it would occasionally purchase new inventions and believed it would gain much by giving full and just acknowledgment to inventors' names.[1] He assured Watson:

> I think that you are mistaken in your reasoning . . . Mr. Bell is, and always must remain inventor by eminence as far as telephones are concerned, but there will necessarily be other stars in the telephone field which it will never injure us to look at and which you suggest 'obscure' the greater light.[2]

Blake's request for public recognition in connection with the transmitter also aroused the opposition of Emile Berliner who argued that Blake had only improved upon a device shown by him. Berliner asserted that if he had been in better financial condition he would have worked out his ideas and constructed an instrument similar to Blake's. Therefore he believed he had as much right as Blake to have his name displayed on the transmitter.[3]

George Bradley denied Berliner's allegation. He was willing to publicize Berliner's name when he secured his patent but he also pointed out the difference between his and Blake's position: "Mr. Blake gave us an instrument which we at once put into practical use and which has been of some service to us."[4] Bradley was soon forced, however, to acknowledge Berliner's contribution to the Blake transmitter.

Although Vail advised agents that the Bell Telephone Company believed

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1. George L. Bradley to Thomas A. Watson, January 15, 1879, AT&T, Box 1194.

2. Ibid.

3. Emile Berliner to George L. Bradley, January 16, 1879, AT&T, GMLB 18.

4. George L. Bradley to Emile Berliner, January 17, 1879, AT&T, MB 3.

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its transmitter was far ahead of Edison's[1] and would "carry all before it,"[2] the Blake instrument required refinement and perfection. When Francis Blake became ill, the task was turned over to Berliner and an assistant.[3] Within six weeks Berliner had perfected Blake's transmitter.[4] The importance of Berliner's work was later the subject of some disagreement,[5] but Berliner believed it "was an important factor and helped the Bell Company defeat the Western Union Telegraph Company . . . It insured to the Bell Telephone Company the Telephone monopoly."[6]

Whatever the exact value of Berliner's work, there seems little doubt that his claims to priority in inventing the microphone and his developmental work on the Blake transmitter, together with Blake's contribution, enabled the Bell Telephone Company to supply its agents and subscribers with a battery transmitter of at least equal quality to the Edison.

The Bell Company's utilization of independent inventors' inventions and innovations in its solution of the transmitter problem reflected its continuing interest in non-Bell inventors. The company carefully examined offers made by these individuals for it never knew when some itinerant inventor might succeed in inventing something useful. For example, when G. S. Moles informed Hubbard that he had invented a device operated by a crank to serve as a calling instrument upon a line, Watson commented:

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1. Theodore N. Vail to G. B. Engle, January 13, 1879, AT&T, GMLB 18.

2. Theodore N. Vail to H. A. Clute, January 13, 1879, AT&T, GMLB 18.

3. Emile Berliner, Memorandum, July 31, 1923, AT&T, Box 1076.

4. Wile, Emile Berliner, 129.

5. Thomas D. Lockwood to Thomas A. Watson, January 19, 1917, AT&T, Box 1070.

6. Berliner, Memorandum, July 31, 1923, AT&T, Box 1076.

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"Don't believe there is anything patentable in this but let Hamilton [New York agent] investigate."[1]

As technical problems arose there always seemed to be someone who claimed to have worked out a solution. Referring one such offer to Watson, agent Durant explained:

> This is the fourth man who has come to our rescue with exactly what we want and 'so simple' that Bell and Edison might well resign their empty honors . . . This production you will observe was the work of an hour--a flash--as it were (in the pan).[2]

The Bell Telephone Company desired to obtain all improvements connected with telephonic apparatus and communication,[3] even if they were only for future use.[4] Naturally in negotiating for such inventions the Bell Company kept a wary eye on the Western Union.[5]

Thomas Watson continued to carry the main burden of research and development. In addition to his work on the battery transmitter, Watson was occupied in helping to perfect the exchange system and its attendant apparatus. His field work enabled him to gain valuable experience[6] at no cost to the Bell Company.[7]

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1. G. S. Moles to Gardiner G. Hubbard, April 2, 1878, AT&T, Box 1199.

2. G. F. Durant to Thomas A. Watson on C. F. Aubin to G. F. Durant, February 18, 1879, AT&T, Box 1199.

3. Theodore N Vail to G. Black, December 7, 1878, AT&T, GMLB 17.

4. Thomas A. Watson to Theodore N. Vail, August 30, 1878, AT&T, GMLB 15.

5. George L. Bradley to Thomas A. Watson, March 29, 1879, AT&T, Box 1195.

6. Gardiner G. Hubbard to the Executive Committee of the Bell Telephone Company, August 10, 1878, AT&T, Box 1152.

7. Thomas A. Watson to Theodore N. Vail, March 5, 1878, AT&T, Box 1205.

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It was clear to the Bell officials that the district and exchange business would produce many new patents and inventions. Consequently, from its commencement the Bell Company studied these patents and inventions with a view to acquiring them lest someone else gain control of them and hamper the company in its development of this business.[1] The Bell Telephone Company's policies concerning research and development were intimately connected to its struggle to achieve supremacy and retain it.

The Bell Company confronted its competition directly while at the same time it sought peaceful arrangements. It negotiated an agreement in September 1878 with the Central District and Printing Telegraph Company of Pittsburgh, a majority of whose stock was owned by the Gold and Stock Company. The arrangement closely resembled in principle the one suggested by Barton for Chicago.

The Pittsburgh Company agreed to pay the Bell Telephone Company a royalty of $3 on every Edison instrument it used.[2] This indicated to Hubbard that the Central District and Printing Telegraph Company did not have a very sure thing. The concession further reinforced Hubbard's belief that the Bell Company could occupy the district field without a revolution since the Gold and Stock Company seemed unable to develop an exchange after starting it. Hubbard concluded that if his company secured this phase of telephony its future was safe.[3]

Hubbard offered this solution to other district telegraph companies

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1. U. S., Federal Communications Commission, Telephone Investigation; 1935, Exhibit 1989 "Patent Structure of the Bell System. Its History and Policies and Practices Relative Thereto," p. 20.

2. Gardiner G. Hubbard to Thomas E. Cornish, September 11, 1878, AT&T, Box 1054.

3. Ibid.

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which were disturbed about the cost and problems resulting from a decision to adopt the telephone for their systems.[1] Sam Hubbard reported that his opposition in San Francisco expressed interest in pooling the exchange business and perhaps paying a royalty.[2]

Dr. Samuel White, a major stockholder in the American Speaking Telephone Company,[3] had a long discussion with Sanders in the fall of 1878 about combining telephone interests. He proposed a meeting be held with other Bell executives.[4] George Bradley agreed to participate in the discussions but was opposed to consolidation, especially if it gave the opposition control.[5] Apparently Western Union officials expressed a desire to meet Bradley secretly without Gardiner Hubbard's knowledge.[6] Perhaps they hoped to capitalize upon the mistrust existing between Hubbard and the investors represented by Bradley. Bradley dismissed the idea of secret meetings and reiterated his opposition to any scheme which would net the Bell interests less than one-half of the stock of a consolidated company.[7]

The Bell stockholders whom Bradley sounded out suggested that if the opposition were sincere in its desire to consolidate on a fair basis a board

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1. Gardiner G. Hubbard to R. A. Shipman, September 26, 1878, AT&T, GMLB 15.

2. S. Hubbard to Gardiner G. Hubbard, January 4, 1879, AT&T, Box 1173.

3. "Affidavit of Elisha Gray, November 9, 1885," Storrow,"Proofs," II, 694/172.

4. George L. Bradley to Gardiner G. Hubbard, November 2, 1878, AT&T, MB 3.

5. Ibid.

6. George L. Bradley to H. L. Roosevelt, November 4, 1878, AT&T, MB 3.

7. Ibid.

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of referees might determine the apportionment of stock.[1] In December George Walker, a vice-president of the Gold and Stock Telegraph Company, submitted a memorandum to Thomas Sanders proposing to establish relations between the Bell Company and the Gold and Stock and Western Union telegraph companies in order to create a consolidated telephone company.

Walker's memo pointed out the advantages which would result from an alliance. The Western Union had 8000 offices and the Gold and Stock, in addition to its extensive business in New York City, possessed a controlling interest in district companies in six major cities. It also proposed that the Gold and Stock Company retain its private line business as conducted under its contract with the American Speaking Telephone Company.

In requesting this privilege, the Gold and Stock claimed that it was not asking for a monopoly of telephones for private line purposes but only that the proposed telephone company agree not to engage in the business of erecting private telegraph lines and that no other company in its interest should possess the exclusive right to use telephones in a given locality without its consent. Such a provision did not preclude the sale or rental of telephones to any private party or corporation.

Walker indicated that the Western Union was willing to relinquish to its ally, the Gold and Stock Company, the phase of commercial telegraphy which looked to the application of telephones on branch telegraph lines from Western Union telegraph stations to outlying towns or villages. In return the Western Union desired a contract from the Gold and Stock providing that all such branch lines should deliver commercial telegraph business to it exclusively. It also desired a contract with the proposed

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1. George L. Bradley to H. L. Roosevelt, November 14, 1878, AT&T, MB 3.

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telephone company indicating that the latter would not enter into competition with the Western Union Telegraph Company for commercial telegraph business. Both telegraph companies agreed to use only the telephones of the new company.[1]

Concurrent with the Walker memo, William D. Baldwin, one of the attorneys defending the Western Union interests in the Dowd case, advised Dr. White of the desirability, indeed the necessity, of a settlement with the Bell Telephone Company. He wrote:

> On the broad ground of the method of telephone transmission I think Bell will win from the fact that Gray never reduced the invention to practice prior to the grant of Bell's patent, and certainly not prior to Bell. But Gray's claim to the 'iron-pan' receiver will enable him to offset this claim of Bell, provided . . . his use constituted a reduction to practice and not a mere experiment. In view of the prestige acquired by Bell, and of the fact of his prior actual reduction of the invention into public use, I would recommend a compromise with him any time he made a reasonable offer.[2]

Baldwin was even willing to see concessions made on Gray's multiple telegraph claims, which he considered more valuable than his telephonic ones, in order that White might realize some return from his large investment. He noted, however, that if Bell decided to fight it would cost his backers more than they would ever likely realize from the patent.[3] White must have taken his attorney's advice to heart for he was willing to sell enough stock so that the Bell Company might secure control of the new company.[4]

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1. Memorandum from George Walker to Thomas Sanders, December 1878, AT&T, Box 1111.

2. William D. Baldwin to S. S. White, December 11, 1878, AT&T, Box 1110.

3. Ibid.

4. Thomas Sanders to George L. Bradley, December 13, 1878, AT&T, Box 1126.

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White urged prompt action by Sanders and his company since many important decisions regarding prices would soon have to be made. He reminded Sanders that the Western Union could not stop the competitive character of its canvassing until definite instructions and limitations were given. He argued: "Every day's delay is wasting our future which will be grand if a united front is presented."[1]

Negotiations between the Bell Company and its opponents apparently stalled at the end of January 1878. Vail informed one licensee:

> You can deny in the most emphatic terms that the Bell Telephone Company are making any effort at all towards consolidation. Representatives of the rival interests have at different times submitted propositions looking to that end all of which have been declined and now no negotiations of any kind are going on.[2]

Vail explained that no consolidation would ever be made, nor any proposition entertained, which did not fully recognize the rights of the Bell Telephone Company to its patents and make the telephone interest independent of all other interests. Noting that the Bell Company's stockholders were among the best and most prominent Boston capitalists, he pledged a campaign with "new vigor" against the company's opponents.[3]

No doubt negotiations stalled, as they would several months later, over the division of interests in the proposed arrangements. William H. Forbes summed up the situation then when he wrote:

> We understand that the Western Union Co. do not care to consider any plan which would not place the control, by majority interest, of the telephone business in

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1. S. S. White to Thomas Sanders, December 23, 1878, AT&T, Box 1126.

2. Theodore N. Vail to E. J. Hall, January 26, 1879, AT&T, GMLB 18.

3. Ibid.

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> their hand. I think such a settlement would be dangerous to our stockholders' interests and cannot recommend it.[1]

Another factor working against consolidation might have been Alexander Graham Bell who, having returned from England, agreed to devote his services to the Bell Telephone Company. In his contract Bell reserved the right to withdraw from it in the event the Bell Company should arrange a consolidation with any company other than the New England Telephone Company.[2]

Although negotiations ended in failure some kind of arrangement existed between the competing telephone interests. Hubbard opposed a suggested discount on telephones in January because it was contrary to "our understanding with the Gold and Stock Telegraph Company that no discount should be made."[3] A month later the Gold and Stock Company's general agent for New England accused the New England Telephone Company's licensee in Worcester of having reduced rates, contrary to an understanding between him and Bradley, in order to displace Gold and Stock instruments already installed.[4] In March the Bell Telephone Company decided to reduce its rates on transmitters so that its agents could compete more effectively with their opposition.[5] Thus the Bell Company took another step in its campaign to "seize control of the telephone business in the United States."[6]

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1. William H. Forbes to S. S. White, April 18, 1879, Presidents Letterbook 1G hereafter vited 1G.

2. Alexander Graham Bell to the Executive Committee of the Bell Telephone Company, December 11, 1878, AT&T, MB 1.

3. Gardiner G. Hubbard to Theodore N. Vail, January 9, 1879, AT&T, Box 1194.

4. W. F. Chester to George L. Bradley, February 19, 1879, AT&T, Box 1185.

5. Theodore N. Vail to Thomas A. Watson, March 4, 1879, AT&T, Box 1194.

6. George L. Bradley to E. T. Quimby, February 13, 1879, AT&T, MB 2.

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Bell agents continued to report rumors of an impending consolidation. Even Watson noted them:

> I hear reports wherever I go that the Bell Co. are to compromise with the Western Union, this undoubtedly arises I suppose from an intense desire on the part of the opposition, to consolidate. If they don't change their method of working and push us harder than they now are, it certainly will do us no good to join hands with them.[1]

As part of its program to "seize control of the telephone business"[2] the Bell Telephone Company pressed its legal case against independent infringers as well as the Western Union and its allies. In addition to moving against infringers the Bell Company was engaged in defending its patents in the "Telephone Interferences" commenced by the Patent Office during an earlier period.

When Alexander Graham Bell received his basic telephone patent various individuals filed applications asserting that they had invented the telephone or controlling improvements prior to Bell.[3] These claims and applications for patents began a line of litigation in the U. S. Patent Office, lasting almost eleven years (March 26, 1878, to February 23, 1889), which attempted to officially determine the first inventor of the telephone and its important improvements. The greater part of this litigation occurred during the years 1880 to 1889.[4]

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1. Thomas A. Watson to Theodore N. Vail, February 28, 1879, AT&T, Box 1194.

2. George L. Bradley to E. T. Quimby, February 13, 1879, AT&T, MB 2.

3. Swan, "Narrative History," 2; T. D. Lockwood, Memorandum Relating to the Litigation of the Bell Telephone Patents, AT&T, Box 1056.

4. T. D. Lockwood, Memorandum Relating to the Litigation of the Bell Telephone Patents.

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The most prominent of those who claimed priority were Elisha Gray, Amos Dolbear and Thomas Edison, all of whose applications were owned by the Western Union and its allies and formed the basis of their telephone opposition.[1] Since these companies acted without awaiting the final disposition of claims by the Patent Office, the Bell Telephone Company brought suit against Peter A. Dowd in the U. S. Circuit Court for the District of Massachusetts on September 12, 1878.[2] This was the first contested suit on the Bell patents.

Although Peter Dowd, an agent of the Gold and Stock Telegraph Company, was the specified defendant, the real defendant was the Western Union, which assumed charge of the defense.[3] Chauncy Smith and James J. Storrow conducted the suit for the Bell Company, and George Gifford, Causten Browne and William D. Baldwin presented the defense.

The defense attempted to establish that Elisha Gray was the principal inventor of the telephone. It claimed that during 1874-1875, while working on the harmonic telegraph, he had constructed a number of receivers utilizing electro-magnets which produced musical notes by the passage of intermittent current through them. Gray was supposed to have constructed these instruments, used them experimentally and demonstrated them to a number of persons.

Elisha Gray testified that since the telephone had come into use under Bell's patents, he and several expert electricians had connected one of his early receivers with a carbon transmitter and found it able to act as a receiver for articulate speech. There was an element of plausibility in Gray's

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1. Swan, "Narrative History," 3.

2. Ibid., 21-22.

3. The following discussion is based upon Swan, "Narrative History," 106-133.

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priority claim, since he had filed a caveat embodying his ideas on telephony only a few hours after Bell had filed his application for a patent.

The Bell counsel argued that even admitting the dates when Gray made his various receivers, he did not get beyond experiments which did not result in anything useful, were dropped and never applied to practical use until after Bell had taken his second patent in 1877. They maintained that no experiment or use by Gray and his assistants or the state of knowledge at the time justified the belief that such a "contrivance" could be practically operated to give any useful results under the influence of the excessively feeble variations of current produced by the speaking telephone.

The Bell lawyers further argued that the proof of the existence of an instrument which in light of Bell's patent could be used both as a transmitter and receiver could not affect the scope of Bell's patent because such an instrument was of no value whatever in the hands of those who had not learned to transmit speech by electricity. In other words, Gray had not explained the theory of speech transmission as had Bell in his original patent.

The testimony which began in January 1879 and closed in September 1879 filled two large volumes amounting to approximately 1200 pages. During the course of this lengthy trial the principal parties began private negotiations which culminated in a compromise settlement. The Dowd case therefore was disposed of by a consent decree and never came to an actual hearing. Nevertheless the Dowd suit proved to be among the most important in the litigation on the Bell patents.[1]

Aside from its effect on the negotiations and compromise, the Dowd case was significant because it provided the occasion for Alexander Graham

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1. Swan, "Narrative History," 129.

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Bell's first deposition in the telephone litigation, which with minor exceptions was the only testimony given by him during the whole litigation upon his patents. Bell's deposition remained unimpaired as his account of the invention of the telephone and was stipulated into a number of later cases.

With the commencement of the Dowd suit the Bell Company could encourage its disheartened agents. Hubbard promised that the company would not "let up" on the Western Union.[1] George Bradley pointed out that the Bell Company possessed good and able counsel who considered the Western Union's answer to their bill of complaint "weak." Moreover, the company enjoyed an advantage in having the case tried in Boston where greater speed could be made and before a judge who was "a man of acknowledged ability and unsullied reputation." Bradley could foresee only one result, namely that the enemy would be enjoined from using speaking telephones.[2]

Bradley felt certain that the Bell Company could obtain injunctions all over the country on the basis of such a decision. Then, individuals using Gold and Stock instruments would not only be forced to cease using them but would also be required to pay damages for infringing the Bell patents. In the meantime he urged Bell agents to stage a good fight.[3] Vail promised his agents that the Bell Company would commence suits in every circuit as soon as a decision was reached in the Dowd case.[4]

The Bell Company also continued the practice, started by its predecessor, of requiring its agents to keep a record of all parties who manu-

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1. Gardiner G. Hubbard to E. W. Gleason, October 3, 1878, AT&T, Box 1001.

2. George L. Bradley to H. P. Frost, January 9, 1879, AT&T, MB 2.

3. Ibid.

4. Theodore N. Vail to F. O. Vaille, March 8, 1879, GMLB 20.

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factured, used, leased or sold infringing instruments in their territory.[1] Upon receipt of this information, the company advised these individuals to seek a guarantee of full indemnity from the Western Union lest they be compelled to pay their rental again, this time to the Bell Telephone Company.[2] The Bell Company indicated that it did not wish to take legal action against individual users but desired that they simply stop using the infringing instruments.[3]

The Western Union and its allies used the same kind of "scare tactics." After the Patent Office reissued one of Elisha Gray's patents which he claimed covered the fundamental principle and substantial mechanism of the Bell Telephone,[4] the Harmonic Telegraph Company and the American Speaking Telephone Company jointly issued a broadside announcing the event. They also warned all parties using telephones not furnished by them or the Gold and Stock Telegraph Company that they were liable to a lawsuit.[5]

The Bell Telephone Company responded by issuing its own broadside twelve days later. It reminded the public that it owned the "only patents" covering the principles and mechanisms of speaking telephones. It commented on the opposition's circular:

> We believe the circular issued by the Harmonic Telegraph Co. and the American Speaking Telephone Co. was simply intended to prejudice the public; but it should be borne in mind, that the whole matter is

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1. George L. Bradley to L. W. Clarke, March 1, 1878, AT&T, MB 1.

2. Circular, January 1, 1879, AT&T, Box 1003.

3. Theodore N. Vail to Arkell and Smith, February 6, 1879, AT&T, GMLB 19.

4. Cozzens and Bull to George L. Bradley, February 10, 1879, AT&T, Box 1181.

5. Circular, "Telephone Patents," February 5, 1879, AT&T, Box 1003.

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> before the Court, and will be decided there, and not by the statements of either party; meanwhile the Bell Patents Are Full and Ample Protection to All Parties Using Telephones Leased By This Company.[1]

This battle of the broadsides continued until the end of February with each side issuing at least one more printed notice to the public.[2]

The Bell Telephone Company did not confine itself to legal action or a war of words in trying to combat its opposition. It advised its agents that the company's first leases were about to expire and suggested they visit every customer and determine the condition of his instruments. If necessary the agent was to exchange unsatisfactory instruments for new ones which the Bell Company would furnish at no cost. General Manager Vail added:

> We believe that by following these suggestions you can retain every customer you now have. . . . We intend at all times to furnish telephones equal in every respect and we believe superior to those furnished by parties infringing on our patents.[3]

The Bell Company also reduced its rates on its battery instrument, for although it worked as well as the Edison, it consisted of a "disjointed-disconnected transmitter and receiver" and was not competing well with the "compact, neat combination instrument" of the opposition.[4]

In its struggle with the Western Union, the Bell Telephone Company sometimes made decisions which were contrary to its established policy and proved to be costly. One such incident was its involvement in the establishment of the Buffalo exchange.

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1. Circular, February 17, 1879, AT&T, Box 1003.

2. Circular, "Telephone Patents," February 19, 1879, AT&T, Box 1003; Circular B11/79, February 27, 1879, AT&T, Box 1003.

3. Theodore N. Vail to Agents, Circular B3/79, AT&T, Box 1005.

4. Theodore N. Vail to Thomas A. Watson, March 4, 1879, AT&T, Box 1194.

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When Bell agent J. N. Culbertson experienced difficulty in establishing a district system in Buffalo due to the efforts of the opposition, Gardiner Hubbard recommended that the Bell Telephone Company pay a canvasser $1 each for the first 200 subscribers he signed. This sum was to be repaid by the district company once it was organized. Thus, for only $200 the Bell Company would help to establish a district company in Buffalo and in doing so facilitate the organization of similar companies in several other large cities of New York State.[1]

O. E. Madden, Culbertson's successor, also experienced great difficulty in commencing the exchange system. Capitalists were reluctant to invest in the proposed exchange unless they received special concessions from the Bell Company.[2] Hubbard agreed to guarantee two investors, Edward J. Hall, Jr., and H. C. Palmer, that the cost to them of connecting 200 subscribers should not exceed $3000. Vail calculated that the Bell Company's liability would not exceed $500.[3]

The Executive Committee of the Bell Company balked at ratifying the contract.[4] One member, George Bradley, was afraid that the guarantee might draw more heavily on the company's resources than anticipated. However, Vail argued:

> After it [Bell Company] has become involved I think it is just as disastrous to withdraw from the fight and let the opposition take possession of the field . . .

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1. Gardiner G. Hubbard to The Executive Committee of the Bell Telephone Company, August [1878], AT&T, Box 1164.

2. O. E. Madden to Bell Telephone Company, November 1, 1878, AT&T, Box 1164.

3. Theodore N. Vail to George L. Bradley, November 12, 1878, AT&T, Box 1131.

4. Theodore N. Vail to O. E. Madden, November 14, 1878, AT&T, Box 1164.

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> We entered the field--now shall we retire? If by this means [the guarantee] we can secure the business of Buffalo or even if we still go farther and remit to them all the first years rentals it will be far better than to let the opposition have full possession of the city of Buffalo and surrounding country. This if we intend to make ourselves a permanent organization and live beyond the time our patents may run will be a fatal error.[1]

The contract embodying the guarantee was ratified and signed November 20, 1878.[2]

Interestingly, the contract also contained a clause which provided that the Bell Company would defend and "save harmless" the exchange owners from and against suits for using Bell instruments.[3] One day after execution of the contract Vail notified Madden that contracts negotiated in the future were not to contain the phrase "hold harmless." The Bell Company would defend all licensees to the best of its ability but could not agree to pay damages should the lawsuits be decided against it.[4]

As the Buffalo exchange encountered increasing Western Union competition, the Bell Company was forced to make still more concessions to its licensee. First it agreed to supply instruments at rates which would enable the exchange to compete with those of the opposition,[5] then it waived rentals for two years, excluding a payment of $2 for each hand instrument and $5 for

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1. Theodore N. Vail to George L. Bradley, November 14, 1878, AT&T, Box 1131.

2. License Contract, November 20, 1878, AT&T, Box 47.

3. Ibid.

4. Theodore N. Vail to O. E. Madden, November 21, 1878, AT&T, Box 1164.

5. Theodore N. Vail to E. J. Hall, December 12, 1878, AT&T, GMLB 17.

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each battery transmitter.[1] Fortunately for the Bell Company, the Buffalo exchange waived all claims against it arising under the November 20 contract.[2]

It is conceivable that the Bell Company would have been required to reimburse Hall and Palmer approximately $6000, since it had cost them $10,000 to connect 251 subscribers to their exchange.[3] Even so, Vail calculated that the rental waiver might cost the Bell Company about $4000.[4] To George Bradley's continued unhappiness about the Bell Company's involvement in Buffalo Vail responded: "The Buffalo contract is one of the mistakes made by the Co. or rather the result of one of the mistakes, and the only thing to do is to accept the best terms possible and get out."[5]

The Buffalo licensees continued to have financial difficulties, resulting largely from the fact that costs were greater than original estimates. Consequently, they undertook to organize a company capitalized at $30,000.[6] Hall suggested that the Bell parent company, the recently organized National Bell Telephone Company, should purchase an interest in it.[7] Several months later William H. Forbes, president of the National Bell Telephone Company, expressed his company's decision not to invest money in district exchanges:

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1. Memorandum, Theodore N. Vail, January 11, 1879, AT&T, Box 47.

2. License Contract, January 30, 1879, AT&T, Box 47.

3. E. J. Hall to Theodore N. Vail, February 22, 1879, AT&T, Box 1164.

4. Theodore N. Vail to O. E. Madden, February 1879, AT&T, Box 1164.

5. Theodore N. Vail to George L. Bradley, February 5, 1879, AT&T, GMLB 19.

6. E. J. Hall to Theodore N. Vail, March 15, 1879, AT&T, Box 1164.

7. E. J. Hall to Theodore N. Vail, April 12, 1879, AT&T, Box 1164.

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"Our plan is that this should be left to local interests to operate and the capital supplied by those who can best defy competition, the businessmen who want the facilities."[1]

This policy was greatly influenced by the parent company's experiences in Buffalo and Chicago which began as a limited response to preserve the field for Bell interests against the Western Union and resulted in costly involvements with local interests. By the close of its active existence the Bell Telephone Company was already overburdened by the results of its predecessor's intervention in Chicago.

H. H. Eldred's efforts to secure financial backers for the Chicago exchange were unsuccessful. Therefore he continued to draw upon the Bell Company for funds. Hubbard explained to his executive committee that Eldred's work was costing more than expected because of the necessity of rushing everything or losing the whole to the opposition, the intrinsic difficulties of the situation, the problem of obtaining good workmen, and Eldred's own inexperience.

Hubbard believed Chicago would become the best field in the country for the telephone. He therefore regretted his company's decision to try and sell its Chicago interest but agreed that the company probably should be content with small but sure profits, leaving the "large prizes to others."[2] Hubbard thought it necessary to develop Chicago not only because it would probably use more Bell telephones than any other city in the country[3] but also because it was too important to the opposition.[4]

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1. William H. Forbes to E. J. Hall, July 1, 1879, AT&T, 1G.

2. Gardiner G. Hubbard to The Executive Committee of the Bell Telephone Company, August 3, 1878, AT&T, Box 1152.

3. Gardiner G. Hubbard to The Executive Committee of the Bell Telephone Company, August 10, 1878, AT&T, Box 1152.

4. Gardiner Hubbard to Thomas A. Watson, August 10, 1878, AT&T, Box 1152.

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Sanders, on behalf of the Executive Committee, urged Eldred to use his utmost endeavors to prevent any unnecessary outlay and do nothing but connect subscribers already obtained. Eldred was also expected to use previously established credit to delay payments as long as possible.[1] Eldred noted the committee's sentiments and appreciated the company's position but explained that he was without funds due to extraordinary expenses incurred in the competitive struggle:

> By payment of some money I succeeded in having our ordinance for setting poles come up in counci last Monday and it is placed as a special order for final decision Monday evening . . . The Western Union have been using some money against us to buy six votes to secure our measure . . . If we fail to secure ordinances to set up poles we may as well shut up here.[2]

Despite Eldred's agreement to "retrench,"[3] he continued to make financial demands upon the Bell Company.[4] By the end of September he owed $16,175.99. Vail declared that the Bell Company would have to push matters in Chicago in order to keep ahead of the opposition. While he did not despair of organizing a local company, he did think the prospects were exceedingly doubtful.[5] Vail believed that if the Bell Company allowed Chicago to get out of its control it might as well abandon the whole Northwest. Moreover, he argued that the Bell Company would be making a wise investment if it retained its interest in the Chicago exchange.[6]

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1. Thomas Sanders to H. H. Eldred, August 31, 1878, AT&T, GMLB 15.

2. H. H. Eldred to Thomas Sanders, September 6, 1878, AT&T, Box 1152.

3. H. H. Eldred to Gardiner G. Hubbard, September 10, 1878, AT&T, Box 1152.

4. H. H. Eldred to Thomas Sanders, September 11, 1878, AT&T, Box 1152.

5. Theodore N. Vail to Gardiner G. Hubbard, September 25, 1878, AT&T, Box 1152.

6. Theodore N. Vail to --, September 27, 1879, AT&T, Box 1152.

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Hubbard now advised Vail to make the best deal possible in organizing a Chicago company and securing investors because the Bell Company required money to carry on its lawsuits.[1] Vail was forced to report, after exhaustive efforts, that he could not obtain the necessary capital and therefore recommended that the parent company complete the organization and incorporation of the Bell Telephone of Chicago. The Chicago company would then issue to the Bell Company $80,000 of its paid up stock for the exclusive right to use Bell telephones and for the Bell Company's plant, goodwill and business.[2] The Chicago company's notes and stock would provide a basis upon which funds could be raised both for its own needs[3] and those of the Bell Telephone Company.[4]

Sanders concluded that part of Vail's difficulty in failing to obtain investors were the terms he offered. Sanders therefore urged Vail not to make any terms which he could not abandon with dignity. He instructed his General Manager:

> Please consider seriously the vital necessity of cash in hand which should outweigh any and every other consideration no matter how brilliant the future prospect may be if we hold the whole thing [stock]. If the bills that are due in Chicago are not promptly paid our whole prospects will be blighted much more than in any other way.[5]

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1. Gardiner G. Hubbard to Theodore N. Vail, September 27, 1878, AT&T, Box 1152.

2. Theodore N. Vail to The Executive Committee of the Bell Telephone Company, October 2, 1878, AT&T, Box 1152.

3. Thomas Sanders to Theodore N. Vail, October 5, 1878, AT&T, Box 1152.

4. Gardiner G. Hubbard to Theodore N. Vail, October 2, 1878, AT&T, Box 1152; George L. Bradley to Gardiner G. Hubbard, October 8, 1878, AT&T, Box 1152.

5. Thomas Sanders to Theodore N. Vail, October 10, 1878, AT&T, Box 1152.

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The Bell Telephone Company gave some consideration at this time to consolidating its interests in Chicago with the opposition. Vail argued against this course of action, claiming that it would give credence to the Western Union boast that the Bell Company was bankrupt and would soon be sold to it.[1] Vail recognized his company's predicament regarding its involvement in both Chicago and Buffalo:

> One thing is certain if we back down in any place then the opposition will think they see the beginning of the end or in other words think they have at least got the lever under us which will eventually give them the advantage which they desire but which we now have. It does seem to me that our company has passed through far more trying ordeals than that before us.[2]

At the end of the year Vail finally ordered Eldred to organize and incorporate the Bell Telephone Company of Illinois. The Bell Telephone Company was to receive $80,000 of fully paid up stock for its franchise and property in Chicago.[3] The Bell Company had decided to retain its exchange interests in Chicago rather than surrender the Northwest to the Western Union.[4]

In his report to the stockholders and directors of the Bell Telephone Company President Hubbard explained that the actual cost of the Chicago exchange to the company was $40,000. In addition, the exchange required more money to develop it, since receipts were not much in excess of expenditures.[5] It was not surprising, then, that Vail wrote to Watson: "Every

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1. Theodore N. Vail to George L. Bradley, October 31, 1878, AT&T, GMLB 16.

2. Theodore N. Vail to George L. Bradley, November 15, 1878, AT&T, GMLB 16.

3. Theodore N. Vail to H. H. Eldred, December 12, 1878, AT&T, GMLB 17.

4. Gardiner G. Hubbard, Memorandum to the Stockholders and Directors of the Bell Telephone Company, 1879, AT&T, Box 1003.

5. Ibid.

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time Chicago is mentioned we tremble for fear there is to be a new dose of liabilities showered upon us."[1]

Thus, what had begun as a temporary emergency measure to block the Western Union proved to be a very costly and enduring commitment by the Bell Telephone Company. The financial requirements of the Chicago exchange contributed appreciably to the necessity of reorganizing the Bell Company and its attendant removal of the original Bell patentees from any real control of the company.

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1. Theodore N. Vail to Thomas A. Watson, February 19, 1879, AT&T, Box 1152.

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CHAPTER XII

THE OLD GUARD STEPS DOWN

Several months after the corporate organization of the Bell Telephone Company, agents were notified that the company's general offices had been transferred from Boston to New York City.[1] This was the fulfillment of an idea that had long been contemplated by officers of the company.

In January 1878, when Hubbard was seeking an alternative to the organization of the New England Telephone Company, he located parties in New York who were willing to advance between $30,000 and $50,000 to the Bell Company. The arrangement, however, would require the removal of the company's "works" and offices to New York. Hubbard regretted this condition but emphasized that if Sanders' friends could not furnish funds he would look to these New York investors.[2] Sanders indicated he would be very sorry to move to New York if funds could be secured in any other way.[3]

The issue arose again in June. This time Sanders agreed with Hubbard that it was advisable to have the office of the president and the general manager located in New York. He did not, however, see the necessity of moving Watson there also.

Sanders pointed out that the Bell Company's capital was inadequate for the establishment and maintenance of a factory there. Watson's men were

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1. Gardiner G. Hubbard to Agents, September 2, 1878, AT&T, Box 1003.

2. Gardiner G. Hubbard to Thomas Sanders, January 23, 1878, AT&T, Box 1193.

3. Thomas Sanders to Gardiner G. Hubbard, January 28, 1878, AT&T, Box 1193.

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busy at work in Williams' Boston shop, where at least $30,000 was invested. They were producing superior instruments, and this could continue without the expenditure of one dollar of the Bell Company's capital. Sanders explained:

> The reasons that we should continue to manufacture telephones in Williams' shop are because there we have the men and the tools which under Mr. Watson's training, have succeeded in making the only successful telephone in the world, because it would cost more money than we have to start a shop of our own, under Mr. Watson's supervision, and because we cannot expect and ought not to try to go into any other shop in the country on the same terms that we have here.[1]

Sanders argued further that if the reasons for keeping Watson and the production facilities in Boston were valid, then it seemed entirely proper and convenient to keep the treasurer's office in Boston also. Still, while Sanders preferred to remain in Boston, he would go to New York rather than abandon a "thing" in which he had such a vital personal and financial interest.[2]

Apparently Hubbard's attempts to move the company's offices to New York were a maneuver to remove Sanders from the management of the company's finances. Sanders by this time, however, had closed his leather business and was pledging his full time and attention to the treasurership. He declared to Hubbard:

> I do not desire the Treasureship as a sinecure and care little who has the title, but I do care to actually manage the finances of the co. and did not think you would be the one to suggest a substitute, but if such an arrangement would be satisfactory to the gentlemen who put their money into the co. I

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1. Thomas Sanders to Gardiner G. Hubbard, June 18, 1878, AT&T, Box 1193.

2. Ibid.

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> shall have to submit, even if you propose to dispense with me altogether, but I think it would hardly be in accordance with your previous expressions, in regard to our mutual interests, for you to propose such a course.[1]

Hubbard's current efforts were in keeping with his previous suggestions that someone with money be appointed treasurer.[2] Indeed, one of the latest plans considered for the reorganization of the Bell Company contemplated the organization of a New York company in which the New York investors would name the treasurer.[3]

With the corporate organization of the Bell Telephone Company the company's main offices were finally located in New York City. Watson later recalled that this achievement was largely due to the urgings of Hubbard and Vail, who felt New York City was the proper location of a company doing a national business. Their views prevailed over the preferences of Sanders, Bradley and the other company directors.[4]

No doubt there were several other factors which influenced the move. New York was the headquarters of the Western Union Telegraph Company. Perhaps it was believed that by having the Bell Company located there also, it would be able to deal with its competitor more efficiently. Moreover, since the failure of Cheever and Roosevelt the Bell Telephone Company was intimately involved in the affairs of the New York agency. Thus, being located in New York facilitated the Bell Company's supervision of this agency's business.[5]

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1. Ibid.

2. Gardiner G. Hubbard to Thomas Sanders, March 5, 1878, AT&T, Box 1003.

3. Summary, AT&T, Box 1003.

4. Thomas A. Watson to William Chauncy Langdon, May 23, 1923, Thomas A. Watson Collection (Boston Public Library), Vol. 10, Folder 99.

5. -- to --, January 17, 1879, AT&T, Box 1194.

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The Bell Telephone Company shared its quarters in New York with the Edison Phonograph Company. The Bell Company's personnel consisted of Theodore Vail, Robert Devonshire and Emile Berliner. Vail was the only executive who was permanently stationed in New York. Watson, Sanders and Hubbard occasionally came down to confer with him.[1]

Despite Hubbard's assurances to the contrary,[2] delays did occur with the removal of the Bell Company's offices from Boston to New York. John Ponton reported that he had experienced some irregularity in his business correspondence since the transfer.[3]

If the decision to move to New York had been intended to apply pressure on Sanders it was successful, for in November he complained to Bradley of his dissatisfaction with his position. Sanders wrote:

> I am . . . satisfied that I cannot do justice to the Company in my capacity as Treasurer until I can be constantly at the office. I am ready and willing to devote all my time and energy to the conduct of the business in all its details if I can receive such compensation as will enable me to take my family to New York.[4]

After having been located in New York for only about six months, the Bell Telephone Company's offices were moved back to Boston again.[5] George Bradley did not agree with this decision because conditions were not yet satisfactory in New York. He believed that such a move would enable the

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1. Emile Berliner, Memorandum: Final Development of the Blake Transmitter, July 31, 1923, AT&T, Box 1076.

2. Gardiner G. Hubbard to James L. Ross, September 6, 1878, GMLB 15.

3. John Ponton to Thomas Sanders, October 19, 1878, AT&T, Box 1176.

4. Thomas Sanders to George L. Bradley, November 20, 1878, AT&T, Box 1003.

5. Theodore N. Vail, Circular Letter, February 1, 1879, AT&T, Box 1003.

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Western Union to say that "the Bell Yankees had tried to fight the Western Union in N. Y. and had to give it up."[1] However, there were more pressing reasons for moving back to Boston.

As Bradley himself pointed out, the move would simplify certain difficulties regarding the consolidation of the New England and Bell Telephone companies.[2] Moreover, the move was probably a phase of the contest between Hubbard and Sanders in connection with the contemplated reorganization of the Bell Company.[3] This theory is supported by the fact that Sanders' resignation from the treasury became effective upon the Bell Company's removal to Boston.[4] Another important factor in this decision was the inefficiency resulting from the geographical separation of the company's executive officers. In responding to an agent's disgust over delays Vail acknowledged this condition: "Little delays will continue until our directors and executive officers are in the same locality and for that reason we are intending to move the offices to Boston as we cannot get the directors to move here."[5]

Although it was expected that the Bell Telephone Company's financial condition would greatly improve with its corporate organization it did not. Throughout its active existence, the Bell Company's finances were generally strained.

Hubbard's financial difficulties continued to prevent him from making

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1. George L. Bradley to Thomas Sanders, January 3, 1879, AT&T, Box 1194.

2. George L. Bradley to Thomas Sanders, December 28, 1878, AT&T, MB 3.

3. Thomas A. Watson to William Chauncy Langdon, May 23, 1923.

4. Minutes of Directors' Meeting, January 23, 1879, Bell Telephone Company, AT&T.

5. Theodore N. Vail to E. J. Hall, February 5, 1879, AT&T, GNLB 19.

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any financial contributions. Together with several partners in another enterprise Hubbard owed $100,000. When a scheme to pay off his debts failed, Hubbard contemplated selling some of his telephone stock unless, through Sanders' "good offices," he could sell a portion of his interest in the English Telephone Company to the New England Telephone Company.[1]

Hubbard was not the only partner who required funds; both Alexander Graham Bell and Thomas Watson needed them also. Bell even suggested that Watson, in the interest of all the financially hardpressed partners, investigate the possibility of manufacturing Christmas toys, including a "Swearing Top."[2]

An analysis of the instruments shipped to agencies and exchanges indicates that the Bell Telephone Company was making progress in renting its instruments. Although it was active for only seven months, the Bell Company shipped 12,964 instruments compared to 12,262 shipped by its predecessor during a twelve month period.[3] The main source of the company's financial difficulties were the continued demands made by the Chicago exchange.

The Bell Company's financial difficulties were necessarily reflected in its outlook and policies. Sanders believed that the company's difficulty in enlisting investors for its exchange companies was due to its policy of requiring a large share of stock in them in return for rights to use Bell instruments. He therefore suggested that terms be offered which would interest the right sort of men from the start in order to insure the

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1. Gardiner G. Hubbard to Thomas Sanders [1878], AT&T, Box 1126.

2. Alexander Graham Bell to Thomas A. Watson, August 12, 1878, AT&T, Box 1105.

3. "Instruments Shipped to and Returned by Agents and Exchanges in the U. S.," AT&T, Box 1004.

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the successful prosecution of the business. Obviously influenced by the Chicago situation, Sanders noted: "our greatest mistakes have been made where we have insisted on terms that were apparently very advantageous to us . . . let us start right . . . in such a way that we may never be obliged to assume the local property."[1]

Sanders also advised against having the company's salaried agents operating until the company was in better financial condition.[2] It was precisely these agents who could involve the company in costly ventures. When Gardiner Hubbard expressed the desire to send a representative to California to confer with the Bell agent there about the possibility of organizing a company,[3] Sanders replied: "My only objection to sending Mr. Morgan to California is the chronic one of not putting out money until we get more in the treasury."[4]

One immediate consequence of the Bell Company's financial stringencies was its inability to pay Anthony Pollok's legal fees. Since the company had no funds in the treasury, Sanders recommended that the New England Telephone Company pay him and charge the Bell Company with three-quarters of the fee.[5] Several of the company's other legal counsel were also waiting for their retainers and by December there were other "pressing bills."[6]

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1. Thomas Sanders to Gardiner G. Hubbard, September 10, 1878, AT&T, Box 1194.

2. Thomas Sanders to George L. Bradley, September 12, 1878, AT&T, Box 1194.

3. Gardiner G. Hubbard to Thomas Sanders, September 17, 1878, AT&T, Box 1194.

4. Thomas Sanders to Gardiner G. Hubbard, September 17, 1878, AT&T, Box 1194.

5. Thomas Sanders to George L. Bradley, October 17, 1878, AT&T, GMLB 16.

6. George L. Bradley to Gardiner G. Hubbard, December 23, 1878, AT&T, MB 3.

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Despite the gravity of the situation Hubbard remained optimistic. After reciting a litany of the company's debts George Bradley commented to him: "I can hardly know how you can take quite so rosy a view of our affairs in the presence of these hard facts."[1]

The Bell Telephone Company's needs were temporarily fulfilled in November when it borrowed $5,000 each from George L. Bradley, Thomas Sanders, and Charles Eustis Hubbard (acting as trustee). The company pledged to repay these sums within two years at seven percent interest payable semiannually. The Bell Company's note also provided that within two years the company could issue to the individuals one hundred shares of common stock (the note to Bradley specified preferred stock) plus interest at the rate of seven percent per annum on $5,000.[2]

According to George Bradley, he raised the money which constituted the company's working capital[3] and therefore felt obligated to make clear his views on company policy. In general he believed that the company should retrench. He argued that the company's agents should be paid only by commission, and that the company should temporarily confine itself to renting telephones, leaving the rest of telephony to the enemy. Bradley also suggested that the company should make no contracts which would place burdens on itself in the near or distant future. He concluded: "By this policy, carried out with even ordinary ability, my belief is that we can defray all our expenses, lawyers' fees, and have a decent surplus left over."[4]

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1. Ibid.

2. Bell Telephone Note to George L. Bradley, November 6, 1878, AT&T, Box 1194; Bell Telephone Note to C. E. Hubbard, November 6, 1878, AT&T, Box 1194; Bell Telephone Note to Thomas Sanders, November 8, 1878, AT&T, Box 1194.

3. George L. Bradley to Theodore N. Vail, November 15, 1878, AT&T, Box 1194.

4. George L. Bradley to Theodore N. Vail, November 13, 1878, AT&T, Box 1194.

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Bradley claimed to have the endorsement of nearly every stockholder and director.[1] Sanders fully agreed with Bradley's suggestions. He explained to Vail:

> I am determined to use every means in my power to prevent the company from incurring any debt or obligation outside of its legitimate designated business viz. the renting of telephones and I see in the Buffalo matter rocks ahead . . . The harvest will be plenty enough when our patents are decided in our favor, and if we use our weapons of defense for extending business we are lost.[2]

Treasurer Sanders rendered an accounting of his financial stewardship to the Executive Committee of the Bell Telephone Company in mid-December. From the formation of the company on July 1, 1878, to December 1, 1878, he had received from all sources $75,519.63, for which he possessed property in Chicago, 13,342 telephones and 2,477 magneto bells together with stock in various local companies and contracts with them the value of which depended upon future developments. Approximately 12,000 telephones were rented at an average yearly rental of $4.00 along with 1400 bells at about the same rental. The company possessed $3086.30 in cash and a debt of $7939.52 against which the company had probable renewals equalling at least that amount but not payable within the period the obligations became due.[3]

The Bell Company was strengthened in December by new investors whom Sanders characterized as "good and strong."[4] These investors required representation on the Board of Directors as part of the price of their assistance.

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1. George L. Bradley to Theodore N. Vail, November 18, 1878, AT&T, Box 1194.

2. Thomas Sanders to Theodore N. Vail, November 15, 1878, AT&T, Box 1194.

3. Thomas Sanders to The Executive Committee of the Bell Telephone Company, December 20, 1878, AT&T, GMLB 17.

4. Thomas Sanders to Charles A. Cheever, December 31, 1878, Thomas Sanders' Letterbook, AT&T, Box 1002.

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At the meeting of the Board on December 13, two members resigned and were replaced by William H. Forbes and Francis Blake, Jr.[1]

George Bradley expressed the surprise of the new investors at learning of the Bell Company's true financial condition. Apparently Sanders' financial report in December had not accurately portrayed the company's affairs. Bradley wrote Hubbard: "We are very much disturbed at the present moment at having learned that the Bell Company actually owes $30,000 and that some notes come due the present minutes."[2] It seemed to Bradley as if the Bell Company's liabilities grew like mushrooms and its assets were only imaginary.[3] William H. Forbes, son of John Murray Forbes and one of the new investors, later explained that only after he and the other investors purchased their stock did they discover that the Bell Company possessed a $40,000 debt, the amount and existence of which seemed unknown to the Executive Committee.[4]

General Manager Vail indicated the company's true financial condition to Hubbard when he reported that it would require about $35,000 by March over and above collections. Although he calculated the company would receive $38,000 over expenses, he concluded:

> I do not count on any great income from new business as it will take such a large portion of the income we receive . . . to pay for the instruments and besides I only count on getting on an average 6 months' rentals while we will probably get a much higher average as so much of it will be paid in advance. That however will be deducted from next year's business and perhaps

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1. Minutes of Directors' Meeting, December 13, 1878, Bell Telephone Company, AT&T.

2. George L. Bradley to Gardiner G. Hubbard, January 13, 1879, AT&T, MB 3.

3. George L. Bradley to Theodore N. Vail, January 16, 1879, AT&T, MB 3.

4. William H. Forbes to Alexander Graham Bell, March 5, 1879, AT&T, Box 1003.

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> would not more than offset the advances we have already received on telephones rented last year but really is for a portion of this year.[1]

By mid-January, however, the Bell Company's condition was more serious than even Vail seemed to indicate. To Alexander Graham Bell, who was involved in the financial discussions, it appeared on the "verge of bankruptcy."[2] Bell's characterization was no exaggeration. He explained that when the Board of Directors met on January 23, 1879, it was faced with an immediate crisis because the payroll for the Chicago exchange was due that same day. If it were not paid, the "opposition were ready there to pounce down upon our property there and declare us seemingly bankrupt."[3] In order to prevent such an occurrence Judge Bradley advanced $1500 out of his own pocket.[4]

Since other large bills were due the next day it was imperative something be done quickly. According to Bell, who was on the scene, four plans were proposed. First, Sanders offered to advance $30,000 if the company would give him bonds for that amount so that it would be practically in his power and he could manage it as he chose. Second, it was proposed to make a call on all stockholders to supply the necessary funds. Third, it was proposed to increase the number of shares of the company and sell enough of them to provide all the money necessary for the payment of debts and to place the company on its feet without alarming stockholders by making calls or assessments upon them. Some of the directors guaranteed they could find purchasers for the new stock immediately. If none of these plans was

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1. Theodore N. Vail to Gardiner G. Hubbard, January 22, 1879, AT&T, GMLB 18.

2. Alexander Graham Bell to Mabel Bell, January 24, 1879, NGS.

3. Alexander Graham Bell to Mabel Bell, January 27, 1879, NGS.

4. Ibid.

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adopted, then it was proposed to "wind up the affairs of the Company and have it declared bankrupt."[1]

The directors adopted the third plan and appointed Forbes and George Bradley to raise the money needed for the next day. Although the directors required the consent of the company's stockholders to increase the stock, all those present, including Bell, pledged themselves in the emergency to support the committee if it found purchasers willing to pay in advance.[2]

Thus, on a motion by William H. Forbes and seconded by Thomas Sanders, it was voted that the directors recommended to the stockholders to increase the capital stock of the company by $75,000 upon the basis of additional cash already paid in or to be paid in. They also voted that the purchasers of this stock were to be entitled to the double-voting power described in article thirteen of the company's by-laws.[3]

Although Bell was unfamiliar with Gardiner Hubbard's views, he pledged his word that his wife Mabel, to whom he had assigned most of his stock, would support the company's action by permitting Forbes and Bradley to sell her proportion of the increased stock.[4]

On the strength of these assurances, Bell reported, Forbes and Bradley succeeded in obtaining the necessary funds. It soon became clear, however, that a law required corporations to sell increased stock at par and since the principals felt it would be difficult to accept the new stock on this basis, it was proposed to nominally dissolve and reorganize the company on

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1. Ibid.

2. Ibid.

3. Minutes of Directors' Meeting, January 23, 1879, Bell Telephone Company, AT&T.

4. Alexander Graham Bell to Mabel Bell, January 27, 1879, NGS.

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the basis of the increased shares.[1]

Gardiner Hubbard failed to see the necessity of the directors' uneasiness over the company's affairs. He requested to know if Vail had made a statement on the company's probable receipts from new business for the coming year. Such a report would not only show what had been accomplished but also what the prospects for the future were.[2]

Hubbard expressed himself more fully on the company's condition in his Memorandum to the Stockholders and Director of the Bell Telephone Company which was prepared for the special stockholders' meeting held February 8, 1879.[3] After giving a brief account of the company's financial history, he went on to explain the circumstances surrounding the current $40,000 debt which had led to a feeling of distrust by the new stockholders and had resulted in the revocation of the Executive Committee's powers.[4]

He explained that $30,000 of the Bell Company's capital had been expended for the Chicago exchange, $10,000 was still owed for that property and $10,000 more would be required for extensions there. Hubbard concluded:

> This [financial] statement is sufficient to show that if we had not embarked in the Chicago enterprise the Company would have been at the present time free from debt and enabled to go on without further calls upon the stockholders.[5]

Hubbard also described the factors which caused the Executive Committee

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1. Ibid.

2. Gardiner G. Hubbard to Theodore N. Vail, January 27, 1879, AT&T, Box 1194.

3. Gardiner G. Hubbard, Memorandum to the Stockholders and Directors of the Bell Telephone Company, 1879, AT&T, Box 1003; Robert W. Devonshire to H. B. Thayer, June 19, 1925, AT&T, Box 1003.

4. Memorandum, p. 1.

5. Ibid.

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to violate its own rule that the Bell Company would not invest in district companies and thus caused the company to become embroiled in Chicago. He also explained that in September and November the opposition had offered to pay the Bell Company a royalty if it would abandon its exchange operation there, but the Executive Committee declined, lest in so doing it would surrender the Northwest to the Western Union even though the Bell Company would have been relieved of its financial burdens in Chicago. Hubbard concluded that, "under the circumstances there was no other course open . . . to pursue."[1]

Hubbard did not consider it yet possible to sell the Chicago property and noted that it required further expenditures. However, he expected that the Chicago exchange would soon pay a fair profit and predicted that when an injunction was obtained against the Western Union the Chicago company would be the most profitable of any of the District companies.[2]

Hubbard provided a short statement of the Executive Committee's successes in arranging for the establishment of exchange systems. He considered these efforts a substantial accomplishment in view of the Western Union's powerful opposition. He explained:

> It had been an absolute necessity to start these companies at all these places, for the co. that first occupies the field in any city must hold it against any newcomer and the failure of the Western Union is due to this fact. Our future success therefore seems assured.[3]

Disclaiming any responsibility for the company's finances, Hubbard admitted that the Bell Company had not collected as much money during the past six months as expected. This was due to the general stagnation of

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1. Ibid., 3.
2. Ibid.
3. Ibid., 4.

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business, the effectiveness of the Edison carbon telephone, and the difficulties licensees had in establishing their exchanges and commencing operations. He pointed out, however, that the Bell Company had rented approximately 12,000 telephones at a net fee of $5 each per year and the business was hardly out of its infancy. Hubbard predicted that the company would soon have over 100,000 telephones in actual use and the success of the Bell Telephone Company would be "fully realized."[1]

Hubbard concluded "that no company was ever started for the introduction of a new invention which has so quickly attained so great success or been opposed by such bitter and powerful enemies."[2] In essence Hubbard's Memorandum was a defense of his conduct as company president and member of the Executive Committee. He had good reason for writing such a report since he was the object of much criticism by the new investors and their friends.

Sanders was particularly critical of Hubbard's disregard of his duty to submit contracts to the Executive Committee for inspection and evaluation. It must have seemed to Sanders that Hubbard was conducting himself as he had while Trustee of the old Bell Company.

When Hubbard requested permission to sign contracts for Buffalo and Rochester, Sanders complained that he was not even aware of the existence of the contracts. He urged caution, further consideration and discussion. Sanders reminded Hubbard that what seemed perfectly clear to him was not true for Bradley and himself who were entirely in the dark.[3]

Efforts to have Hubbard refer contracts to the Executive Committee

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1. Ibid., 5.

2. Ibid., 8.

3. Thomas Sanders to Gardiner G. Hubbard, September 12, 1878, AT&T, Box 1194.

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actually represented an attempt by Sanders and Bradley to curb Hubbard's power. Sanders correctly remembered, by way of explanation to George Bradley, that there was no provision in the company's by-laws which authorized anyone to sign contracts. He believed, however, that Bradley's suggestion that all contracts be signed by the Executive Committee a good one because:

> Mr. Hubbard's desire to have the execution of all business, if indulged, will allow too much of the power to drift into his hands. We must not allow any new contracts to be executed without some knowledge of the parties to them as well as of the contents.[1]

Hubbard was agreeable to Sanders' suggestion but explained that the delay required to submit contracts to the committee might result in their loss. In regard to his departure from the guidelines established by the committee for drawing up such contracts. Hubbard explained that he did and would invariably adhere to them but in almost every instance some arrangement had to be made to suit individual circumstances.[2] Nevertheless, he instructed General Manager Vail to make all contracts subject to the approval of the Executive Committee.[3]

In his Memorandum Hubbard noted the criticism about "improvident contracts." He denied the charge saying:

> I believe it would be almost impossible with our present experience to select better or more efficient agents or to make more satisfactory contracts. . . . With a few exceptions our agents have not made any money but have incurred large expenditures, relying upon the future profits for their repayment; with a less commission the inducement would have been insufficient.[4]

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1. Thomas Sanders to Gardiner G. Hubbard, September 12, 1878, AT&T, Box 1194.

2. Gardiner G. Hubbard to Thomas Sanders, September 14, 1878, AT&T, Box 1194.

3. Gardiner G. Hubbard to Theodore N. Vail, September 24, 1878, AT&T, GMLB 15.

4. Hubbard, Memorandum, p. 6.

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Hubbard's inaccessibility was a further source of criticism. George Bradley frequently desired to consult with him during critical periods but was unable to do so.[1] The result was that important decisions were often delayed.[2] Hubbard promised to devote more time to the company when Congress closed its session and his duties on the Congressional Postal Committee ended.[3] Even when the company was going through its organizational crisis and Hubbard's position was at stake he was unavailable for consultation.[4]

As the company's difficulties became more critical, Sanders' management was also criticized. He reminded Bradley:

> We must all realize that we are mutually responsible for the success or failure of the Bell Telephone Company and I should not throw the blame on any one member of the Executive Committee as if we act together that would be unreasonable. You and I agree on all important points and I hope we can now work together without recriminations.[5]

When criticism of Sanders continued, he expressed the wish to be relieved of his unhappy responsibilities, which, although discharged for the best interests of all parties, brought him only what Bradley termed "universal disapprobation." Sanders wondered how Bradley could objectively judge him, given their conflicting interests. He noted:

> I am forced to acknowledge that I have been . . . [influenced] by the struggles through which I have passed in the last two years and have no doubt been

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1. George L. Bradley to Gardiner G. Hubbard, December 7, 1878, AT&T, MB 3.

2. George L. Bradley to Gardiner G. Hubbard, December 5, 1878, AT&T, MB 3.

3. Gardiner G. Hubbard to O. E. Madden, January 22, 1879, AT&T, Box 1197.

4. Alexander Graham Bell to Mabel Bell, January 24, 1879, NGS.

5. Thomas Sanders to George L. Bradley, November 20, 1878, AT&T, MB 3.

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> unreasonable. I know . . . that I have prejudiced my case with you by my harsh manner of arguing it which is as distasteful to me as to you but I have felt singularly alone in the whole matter as if every man's hand was against me.[1]

Sanders indicated his readiness to resign every claim to the management of the company if that were the only way to secure peace. He would regret the necessity of having to do so, however, since he had a deep interest in the company and he felt as if he had expended his "life blood" in its cause. Sanders hoped that his name at least would be associated with it.[2]

Sanders continued to believe that Bradley was unjust in charging him with so much of the shortcomings of management, especially since Bradley had given him so much advice. But soon all this would be over and Sanders hoped that he and Bradley would see things clearly and be friends again one day.[3]

The Bell Telephone Company's financial and managerial crisis had come to a head at the directors' meeting on January 23, when financial problems required immediate solution. According to Bell, the company's most recent investors "were raising heaven and earth to avoid a calamity." In assuming control of the company's affairs they had abolished the Executive Committee. Apart from his personal feelings Bell felt these men were pursuing the best course open to them.[4]

Bell was deeply involved with these new investors during the immediate crisis and the organizational activities thereafter. Relying heavily

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1. Thomas Sanders to George L. Bradley, January 7, 1879, AT&T, Box 1126.

2. Ibid.

3. Thomas Sanders to George L. Bradley, January 15, 1879, AT&T, Box 1126.

4. Alexander Graham Bell to Mabel Bell, January 24, 1879, NGS.

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on an individual's appearance and the "cast" of his head, Bell gave a sigh of relief when he found "Mr. Forbes' head among those on the Board of Direction." He commented: "It seems a well-balanced phrenological head and he is a man who looks you full in the face--and whose whole appearance inspires confidence."[1]

Sanders appeared as a "good fellow" to Bell but he felt he could not trust Sanders' judgment. Bell concluded that Sanders did not possess much ability.[2] No doubt Bell was influenced by his father-in-law's prejudices as well as his own.

Bradley seemed a much more solid man than Sanders, but Bell felt him to be too rash and sanguine to be well balanced. While conceding that Bradley seemed to possess judgment and ability, Bell was inspired with a feeling of lack of experience when he saw him.

Although Francis Blake possessed a thoroughly honest expression, Bell judged that he did not seem to possess power or firmness and that he lacked any particular ability as a director. Bell declared Watson as a man of "great and good judgment" but he too possessed no experience as a director. Eustis Hubbard, while seeming "thoroughly good and upright" did not inspire Bell's trust. These were the men who were entrusted with the destiny of the Bell Telephone Company. Bell concluded:

> Taking my impressions of all the men gathered together to consider the condition of the company--I think we have reason to be thankful that we have such a good set of men connected with the company. But the only man who impresses me as possessing marked ability is this Mr. Forbes.[3]

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1. Ibid.
2. Ibid.
3. Ibid.

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Bell heartily approved of the action they took on January 23, and believed that all depended on Gardiner Hubbard's co-operation which, he trusted, would be given when he knew all the details.[1]

The necessity of reorganizing the Bell Corporation afforded an opportunity for amalgamating the Bell Telephone Company and the New England Telephone Company into a single organization. The chief difficulty with this proposition, according to Bell, was the refusal of the cash investors of the New England Company to unite their property with the Bell Company if Hubbard continued to remain its head. They suspected Hubbard's financial position since it was said that many of his notes went to protest. Accordingly they had no confidence in the Bell Telephone Company while Hubbard was its president.

Even at this critical juncture Hubbard was not in Boston, much to his son-in-law's despair. Bell advised Hubbard that if he did not co-operate with the monied investors the telephone company would be ruined. The investors were already alarmed and if internal dissensions existed a panic might ensue in which they would probably sell out for what they could get. Should this occur the Western Union might take advantage of the situation by purchasing these shares and gaining the upper hand.

Bell agreed with the investors that Hubbard's "unfortunate condition" reacted upon the Bell Company. His views regarding Hubbard's future relation to the company were ambiguous, however, as expressed to his wife, who was Hubbard's daughter:

> I am quite distressed at this [lack of confidence in Gardiner Hubbard] but I cannot shut my eyes to the fact--and I feel that a crisis is approaching and that either the moneyed men will leave us--or your

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1. Alexander Graham Bell to Mabel Bell, January 27, 1879, NGS.

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> father's name be less prominently associated with the company. I feel also that Mr. Hubbard would never consent to any other person being President of the Company--and I--for one--would not support any attempt to displace him should he not wish to resign.[1]

Bell rejected suggestions that this problem could be solved by making him president of the company. He claimed he was not "fitted" for the position and wished only to be left in peace. Bell was certain that if all the interested parties could meet together peace, harmony and prosperity would return. Agonizing over his dilemma Bell wrote his wife:

> I am troubled and anxious and don't know what to do. I love your father and am proud to have him at the head of this company--and yet even I feel that his name stands in the way of obtaining the pecuniary support we require--and threatens financial ruin to the company. Oh! dear! What can we do? How will it all come out? I wish you could put your arms around my neck my darling wife and tell me what you wish. Whatever you want I will do.[2]

Writing from Washington, Hubbard explained to his son-in-law that the company's difficulties arose from the Chicago involvement. He believed that he had done a good job of introducing the telephone despite the obstacles he had encountered. Hubbard asserted that if the company's books and finances had been properly supervised the Bell Company would not be in its current crisis. He reiterated his belief that Sanders was unfit to be treasurer and that all of the company's difficulties could have been avoided with a good treasurer.[3]

Sanders acknowledged that he was held responsible by some parties for everything that went amiss with the company, but he was unprepared for

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1. Ibid.

2. Ibid.

3. Gardiner G. Hubbard to Alexander Graham Bell, January 27, 1879, NGS.

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Hubbard's "retreat" from his responsibilities. He charged Hubbard with having "usurped" authority in every department, and as proof he referred Hubbard to the piles of letters received from almost every agency and the company's few copies of Hubbard's responses.

Sanders also charged himself with usurpation of authority for he had assumed one of Hubbard's duties which had been shamefully neglected, namely the direction of the company's lawsuits. He asserted that there seemed to be no concert of action among the company's counsel and argued that if Hubbard did not do something then he would indeed demonstrate his unfitness in managing that department.[1]

Hubbard finally held a meeting with the company's directors during the first week in February. It proved to be more harmonious than he had expected. He indicated to Vail that the company would have no trouble in securing all the funds it wished and stated that it had secured some excellent parties whom he believed Vail would like very much. Hubbard was uncertain, however, what would happen to him, explaining:

> I am absent . . . and all like to throw all the blame of everything on my shoulders and to take the entire credit of everything good that has been done. The agreement with Mr. Bradley when our Company was organized was that I should be Prest . . . I need the pay and I want to be connected with the Co. and I would feel very badly if they turned me out.[2]

Hubbard clearly appreciated that his tenure as President of the Bell Company was limited. He had assumed, since Sanders' retirement from the treasury, that the new financial interests would remove him because they

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1. Thomas Sanders to Gardiner G. Hubbard, January 30, 1879, AT&T, GMLB 19.

2. Gardiner G. Hubbard to Theodore N. Vail, February 2, 1879, AT&T, Box 1194.

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had "no knowledge" of him.[1] Bell believed that the strong feeling between Hubbard and the stockholders resulted from Sanders' vindictiveness toward Hubbard. He reported, however, that Forbes and Bradley were anxious to smooth things over and therefore he believed Hubbard could be retained as president.[2]

In pursuance of actions taken by the directors' meetings in January, a special stockholders' meeting was held in Boston on February 18, 1879, at which it was voted that a committee, consisting of Gardiner Hubbard, William Forbes and George Bradley, be authorized to negotiate with the New England Telephone Company for the purpose of selling out the property of the two companies to a new Bell Telephone Company. This company was to be organized with a cash capital not exceeding $900,000, $200,000 of which was to be issued to the New England Company for the purchase of all its property, and $450,000 of which was to be issued share for share to the current Bell Company stockholders. Seventy-five thousand dollars worth of stock was to be sold in accordance with the vote passed by the directors on January 23, and the remaining stock was to be held in trust by the treasurer to be disposed of as the directors might determine.

The stockholders also voted that in case the purchase of the New England Company's property were not made, the Bell Company would sell its property to a new company to be organized with a capital not exceeding $600,000, $450,000 of which was to be issued share for share to the Bell Company's stockholders. Seventy-five thousand dollars worth of stock was to be sold according to the January vote, and the remainder was to be held

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1. Gardiner G. Hubbard to Thomas E. Cornish, February 5, 1879, AT&T, Box 1054.

2. Journal of Mabel Bell, February 2, 1879, NGS.

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by the treasurer.[1]

During this period Sanders agreed to sell George Bradley 200 shares in both the Bell and New England Companies at $65 a share.[2] Six months earlier Bell Company stock had gone "begging" at $50 a share.[3] Sanders' sale was partly intended to allow Bradley to gain control of the company through stock ownership rather than exercising article 13 of the by-laws, which Sanders hoped would not be incorporated into the proposed company's by-laws.[4] By February 25, Sanders had sold 600 shares to Forbes' friends and would no longer take an active part in the company's affairs. He planned to resume his business in Haverhill.[5]

Hubbard, aware of the growing displeasure with his management, offered to resign from the presidency if Alexander Graham Bell were elected in his place. He believed that Bell's name should be brought prominently before the public in connection with the company. Perhaps he hoped to continue his influence in the company's affairs through the appointment of his son-in-law. In any case, Hubbard explained to the company's directors:

> In taking this step you will of course understand that my interest in the company will not be lessened, and that I shall always be glad to do all in my power, to make our company a success, and shall at all times be at the disposal of the directors to do any-

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1. Minutes of Stockholders' Meeting, February 8, 1879, Bell Telephone Company, AT&T.

2. Thomas Sanders, Agreement, February 5, 1879, Thomas Sanders Letterbook, AT&T, Box 1002.

3. Gardiner G. Hubbard to Alexander Graham Bell, February 28, 1879, NGS.

4. Thomas Sanders to George L. Bradley, February 10, 1879, AT&T, GMLB 19.

5. Alexander Graham Bell to Gardiner G. Hubbard, February 25, 1879, NGS.

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> thing, which in their opinion, will advance the interests of the company.[1]

Bell continued to refuse the presidency of the company. He hoped instead to retain Hubbard in that position. Seeking Sanders' co-operation, Bell pointed out that Hubbard was the only man in the company whose name was known outside of Boston. He expressed his own determination to quit the company if Hubbard were treated unjustly.[2]

As Bell attempted to mediate between the different interests he received indications that the "moneyed men" might agree to retaining Hubbard as president if he had no power over finances. Bell was determined to make a point about retaining Hubbard in the presidency because he was disturbed at Forbes' suggestions regarding the advisability of compromising with the Western Union. As he explained, "Mr. Hubbard's retention as President is my guarantee that no arrangement will be made with the Western Union until by reputation has been cleared."[3]

Bell may have relaxed his insistence that Hubbard be kept as president when Hubbard indicated that his self-respect would not permit him to accept or keep the position simply because of the exertions of his friends. He explained to Bell: "If I am elected President of the Company it must be because the Directors think I can serve the company better than anyone else . . . If I cannot be President of the Co. you should be."[4]

Nevertheless Bell continued to urge Hubbard's candidacy. At a

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1. Gardiner G. Hubbard to The Directors of the Bell Telephone Company, February 11, 1879, AT&T, Box 1003.

2. Alexander Graham Bell to Mabel Bell, February 19, 1879, NGS.

3. Alexander Graham Bell to Mabel Bell, February 21, 1879, NGS.

4. Gardiner G. Hubbard to Alexander Graham Bell, February 22, 1879, NGS.

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meeting of the joint committee of the Bell and New England Companies William Forbes announced that over $160,000 had been paid or subscribed as working capital by individuals "conversant with business matters" who only desired to have the company's affairs placed on a business footing.

Forbes stated that it seemed desirable and proper that these persons who had staked such a large sum on the success of the Bell Telephone Company should decide upon the manner in which the company was organized and should place the administration of its affairs in the hands of those who were personally known to them as men of practical business education. Nevertheless, the stockholders desired to recognize the efforts of the executive officers of the Bell and New England companies in establishing the telephone business as long as they did not hamper those with whom the business control might be placed.

Consequently, Forbes offered a plan which he believed would accomplish these ends, and he hoped Hubbard would join the committee in recommending it to the stockholders. According to it, the stockholders would elect a board of eleven directors, a treasurer and a clerk. The directors would elect a president and vice-president and whatever other executive officers were necessary. The board was also to choose a committee of three directors which was to have control over the company's entire affairs except, such as were reserved for reference to the full board or otherwise specially provided for by the directors.

The president, and in his absence the vice-president, was to preside at the meetings of the directors and stockholders and to sign papers as required by the company or state law. The joint committee of the Bell and New England Companies recommended Gardiner Hubbard for president and Thomas Sanders for vice-president. The membership of the Executive Committee

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would be decided upon after further consultation.[1] By this plan, then, Hubbard and Sanders would be relegated to the position of mere figure-heads, since neither would be on the committee of three.

According to Bell this offer of the presidency represented the honest belief of the monied men who "controlled everything" that Hubbard was the best man for the job although they lacked confidence in his business abilities. Forbes told Bell he believed Hubbard to be a man of great resources and abilities and had always offered excellent suggestions. He thought Hubbard could be of utmost service as president as long as the directors could have the benefit of his thoughts and suggestions and he did not have the power to force anything upon them. Thus Bell concluded: "My opinion of the position taken by the monied men is that they want you to be President--but are afraid of giving you much power."[2]

Bell indicated to Hubbard that Sanders had promised he would not oppose Hubbard's election to the presidency although he would not promise to vote for it. At a meeting held on February 24, Sanders kept his word and "did not open his mouth."[3]

Hubbard acknowledged the propriety of capital's having a controlling interest in the company until its success was fully established, and he agreed as to the "propriety of allowing" capital to decide the manner in which the company should be organized. He insisted that he could not take the presidency unless his decision met the full approval of Forbes and the

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1. William H. Forbes to Gardiner G. Hubbard, February 24, 1879, AT&T, Box 1003.

2. Alexander Graham Bell to Gardiner G. Hubbard, February 25, 1879, NGS.

3. Ibid.

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interests he represented. However, Hubbard believed that it was proper for one of the owners of the patents to be a member of the Executive Committee, since there was no reason why capital should have the entire control of the company's affairs. Therefore,

> representing with Mrs. Bell, about one-third of the entire stock of the company, I think you [Forbes] will agree to the propriety of my being a member of that committee. With this suggestion, I agree fully in the proposed plan of organization.[1]

Alexander Graham Bell supported Hubbard's views. He expressed surprise upon learning that the Board of Directors proposed to appoint an executive committee entirely from among the capitalists. Bell reminded Forbes that he was perfectly satisfied to have the capitalists control the business and that matters should be so arranged so that the president could not act except by and through the Board of Directors, but he certainly had never advocated that the patent interests should be ignored. If Hubbard's engagements prevented him from being on the committee, then Bell expected that someone who possessed the confidence of both interests would be placed on it.[2]

Hubbard reasserted the success of his management of the company's affairs. He claimed that not even his critics, the new investors, wished to change the basic policies he had established. He added: "Our success is further shown by the fact that . . . [the] business . . . has drawn to itself some of the leading businessmen in Boston."[3]

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1. Gardiner G. Hubbard to William H. Forbes, February 26, 1879, AT&T, Box 1003.

2. Alexander Graham Bell to William H. Forbes, February 28, 1879, AT&T, Box 1003.

3. Gardiner G. Hubbard to Alexander Graham Bell, February 28, 1879, AT&T, Box 1003.

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Forbes responded that the investors did not take the same view of the company's affairs as did Hubbard. He had attempted to conduct the business through an executive committee of three, one living in Boston with the New England Company on his hands, one in New York, and the third, Hubbard himself, in Washington with many other affairs to attend to. This situation, together with Hubbard's attempt to manage the company without having anything to do with its finances, demonstrated "a want of appreciation of the business necessities of the case, which is, to men conversant with such matters rather startling."[1]

Forbes argued that if it had not been for the new investors the Bell Company's property would have gone into the hands of the first strong parties who stood by waiting to take advantage. In such an event the old stockholders would have received no consideration whatever. Forbes explained that the new investors simply viewed the Bell Company as one of various interests in which they held a share and for which they were accustomed to demand fair business management.

The investors felt they were meeting Bell's wishes in suggesting Hubbard for the presidency and Sanders for the vice-presidency and in placing them and C. E. Hubbard on the Board of Directors. In their view the patent interests would thus be fully recognized. However, the committee on reorganization believed that if Hubbard and Sanders were elected to the presidency and vice-presidency, the new Board should establish a working committee so composed as to be likely to work together and be satisfactory to the businessmen. To make Hubbard president and place him on the committee which should have immediate supervision of the company's affairs would be to

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1. William H. Forbes to Alexander Graham Bell, March 5, 1879, AT&T, Box 1003.

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continue the old condition, which was unsatisfactory.

Forbes explained that the stockholders simply felt that Gardiner Hubbard lacked the business experience which the company's business imperatively demanded. Nothing so proved the undesirability of placing the company's management in Hubbard's hands as the fact that he currently believed the business was well managed, was successful and that its success was due to his efforts. The investors thought otherwise:

> To all of us who have looked into the matter it is very clear that such success as has been attained is owing to the remarkable value of the invention itself and the only reason why businessmen are now ready to invest in the Telephone stock is the growing belief in the Telephone as of commercial value, and the fact that all the stockholders were believed to recognize that the time has come to put the company's affairs on a business footing.[1]

Sanders now expressed dissatisfaction at the way events were shaping up. He explained that he had expressed a willingness to step aside and allow the new stockholders to assume the company's management, but he presently discovered that he was the only member of the old Board of Directors excluded from management under Forbes' plan. Sanders believed he should have the same voice in managing the company's affairs as did Hubbard. Any arrangement which admitted Hubbard but excluded him would be an obvious reflection upon his past performance. He reminded Forbes: "I have resigned all claims conditionally and for the sake of peace, not choice. I think you will see the impropriety of drawing a line between Mr. Hubbard and myself to my disadvantage."[2]

Bell supported Sanders' position. He rejected efforts to exclude

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1. Ibid.

2. Thomas Sanders to William H. Forbes, March 11, 1879, AT&T, Box 1003.

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the original patentees from any share in the company's actual management. Bell had not previously advocated Sanders' representation on the Executive Committee as he had Hubbard's, because he had misunderstood Sanders' position.

Bell believed that it would be a mistake to make any change in the management of the Bell Company that would be apparent to the public. For this reason he urged retention of the patentees in management positions. Moreover, he explained:

> I must say that if the President of the Company and the majority of the members of the Executive Committee are men who have only a pecuniary interest in the Telephone my own confidence in the management will be shaken. I have other interests than pecuniary ones in the Telephone Co. and so long as my personal friends Messrs. Hubbard and Sanders have a voice in the management of affairs I know that no business negotiations will be undertaken with the opposing Companies that would compromise my honor and reputation.[1]

Consequently, Bell urged that Hubbard and Sanders be appointed president and vice-president respectively, and that they either be placed on the Executive Committee or be made ex officio members of it without the right to vote so that they might have at least a consultative voice in the management of affairs.[2]

While these negotiations were occurring, the necessary steps for consolidating the Bell and New England Companies were being taken. Treasurer George Bradley, apparently in his only report to the stockholders of the New England Telephone Company, stated that the company's net earnings for eleven months were $6488.43. The company thus possessed $22,403.31 in cash, including $15,914.88 unexpended capital.[3]

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1. Alexander Graham Bell to The Directors of the National Bell Telephone Company, March 11, 1879, AT&T, Box 1003.

2. Ibid.

3. George L. Bradley to The Stockholders of the New England Telephone Company, January 27, 1879, AT&T, Box 1001.

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President Sanders also reported to the stockholders of the New England Company. He agreed with his treasurer that the company enjoyed a satisfactory state of affairs. However, noting that the interests of the New England and Bell Companies were so closely interwoven that the success or failure of one necessarily involved the other, he urged consolidation.

Sanders argued that by consolidating, the Bell interests could present a solid and unbroken front to the opposition, which was capable of concentrating its efforts on a single point such as Boston where the New England Company had a large investment in the district and exchange system. It might be well to have the resources of the rest of the country to call upon should such an attack be made there.

Sanders also pointed out that as the telephone business developed and the district systems were connected together it would be advantageous to have a common interest in such a system, which would make the Bell interests a most powerful opponent.[1]

There was no substantial point of disagreement between the committees of the two companies appointed to work out the details of consolidation. The New England Telephone Company, however, insisted upon having a dividend of its earnings declared before consolidation. Hubbard sympathized with the demand and hoped Forbes and Bradley would feel the same.[2]

Although Hubbard had been elected to the Bell Company's committee he did not assume a very active role in its deliberations. He indicated his willingness to "acquiesce" in any report which his co-members Forbes and Bradley might agree upon. Indeed, he offered his resignation so that his

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1. Thomas Sanders to The Stockholders of the New England Telephone Company, January 27, 1879, AT&T, Box 1003.

2. Gardiner G. Hubbard to William H. Forbes and George L. Bradley, February 12, 1879, AT&T, Box 1003.

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place on the committee could be filled.[1]

The New England committee on consolidation recommended to its stockholders that a dividend be declared and that a consolidated company be formed. This company was to be organized on the basis of 8500 shares at a par value of $100 per share. Two thousand shares would be distributed, share for share, to the stockholders of the New England Telephone Company. Four thousand five hundred shares were to be distributed on the same basis to the stockholders of the Bell Telephone Company. Seven hundred and fifty shares were to be sold in accordance with an agreement (January 23, 1879) already entered into by the Bell Company, and the remaining 1250 shares were to be sold by the treasurer only by the authority of a majority of the Board of Directors.

The committee's report was accepted and 1374 shares voted that the New England Telephone Company sell all of its property to the new company for 2650 shares of capital stock. This stock, issued to Forbes as trustee, was to be disposed as follows: 2000 shares to the New England stockholders and 650 shares to be held by the trustee.[2]

On the same day that the New England Telephone Company made its formal decision, the stockholders of the Bell Company heard the report of their committee (which was identical to the New England committee's report), accepted it and voted to sell all of the company's property for 5850 shares of the new company's stock to be issued to Forbes as trustee. Four thousand five hundred shares were to be issued to the stockholders, 750 shares were to be disposed of according to a previous agreement and 600 shares were to

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1. Ibid.

2. Minutes of Stockholders' Meeting, February 18, 1879, New England Telephone Company, AT&T.

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be held by the trustee subject to the directors. As in the stockholders' meeting of the New England Company, no negative votes were cast.[1]

On February 17, 1879, three days before the stockholders' decisions, fourteen individuals executed an agreement of association stating their intention to constitute a corporation to be called the National Bell Telephone Company. The purpose of this company was to manufacture, sell and rent telephones and their appurtenances, and to build, maintain and operate lines for the transmission of messages by electricity or otherwise.

The individuals who thus hoped to form the National Bell Telephone Company included Gardiner Hubbard and his brother Eustis, Thomas Sanders, Alexander Graham Bell, the Bradleys, William H. Forbes and other who were connected with the Bell interests.[2] About one month later these parties were issued a certificate of incorporation from the Commonwealth of Massachusetts.[3] Almost immediately thereafter the Bell[4] and New England[5] companies executed the necessary assignments to the National Bell Telephone Company.

The president, treasurer and a majority of the directors of the National Bell Telephone Company certified on March 31 that $850,000 had been paid in by conveyance of property. The company's property consisted of patent rights pertaining to telephones already in use (valued at $650,000),

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1. Minutes of Stockholders' Meeting, February 20, 1879, Bell Telephone Company, AT&T.

2. Agreement of Association, February 17, 1879, AT&T, Box 1008. Other signers included Francis Blake, Jr., G. Z. Silsbee, Richard S. Fay, Alexander Cochrane, Thomas B. Bailey, J. Cheever Fuller and Robert W. Devonshire.

3. Certificate of Incorporation, March 13, 1879, AT&T, Box 1008.

4. Patent Assignment, March 20, 1879, AT&T, Box 1008.

5. Patent Assignment, March 30, 1879, AT&T, Box 1008.

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telephones and apparatus ($88,000), a four-tenths interest in the New York district system ($35,000), the Chicago district system ($45,000), the Boston and Lowell district systems ($22,000) and $10,000 in cash.[1]

The stockholders of the National Bell Company convened on March 10 and adopted a code of by-laws which contained the solution to the controversy between the patentees and the monied investors. The officers of the company were to consist of a clerk, treasurer and eleven directors chosen by the stockholders from among themselves. The president and vice-president were to be chosen by the directors from among their number.

The by-laws provided that the directors were to take "entire general charge and supervision" of all the company's business. The directors were to appoint an executive committee of their own number, a general manager and such other officers as might be necessary.

The stockholders elected C. E. Hubbard clerk and George L. Bradley treasurer. They also elected Gardiner Hubbard, Thomas Sanders and William H. Forbes to the Board of Directors.[2] The next day the directors elected Forbes president and appointed Forbes, Gardiner Hubbard, Thomas Sanders, R. S. Fay and Francis Blake to the Executive Committee.[3] George Bradley was later elected vice-president.[4] Thus, Bell and the other original patentees had carried their point. They were clearly represented in the executive management of the company even if they could not control it.

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1. Statement for Capital Certification, March 31, 1879, AT&T, Box 2023.

2. Minutes of Stockholders' Meeting, March 10, 1879, National Bell Telephone Company, AT&T.

3. Minutes of Directors' Meeting, March 11, 1879, National Bell Telephone Company, AT&T.

4. Ibid., March 18, 1879.

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CHAPTER XIII

THE OPERATION OF THE NATIONAL BELL TELEPHONE COMPANY

One of the first decisions of the management of the National Bell Telephone Company was to correct what it considered the unbusinesslike practices of previous administrators, especially the way in which Hubbard had hired agents. Frequently Hubbard had made verbal arrangements with agents and companies, and these often became a source of misunderstanding.[1] Consequently, the National Bell Telephone Company requested agents to forward copies of letters or memoranda of verbal agreements relating to agency appointments so that each might rest upon "formal writing . . . before the parties to the same may have forgotten it all beyond reach."[2] President Forbes sought a method of getting acquainted with these "understandings" and classifying them.[3]

The National Bell Company also regularized and standardized other aspects of its relations with agents. It reduced the number of reports which agents submitted to one per year, and even anticipated a time when this would not be required, for it intended to use traveling agents.[4]

Gardiner Hubbard was urging the appointment of a traveling auditor whose business would be to travel among the agencies seeing that their

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1. Richardson and Barnard to Theodore N. Vail, April 12, 1879, AT&T, Box 1148.

2. Theodore N. Vail to John Ponton, April 9, 1879, AT&T, Box 1123.

3. William H. Forbes to [G. L.] Bradley, April 12, 1879, AT&T, Box 1152.

4. Theodore N. Vail to C. H. Haskins, April 25, 1879, AT&T, GMLB 22.

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accounts were accurately kept and their remittances promptly made.[1] President Forbes agreed that it was important to have a representative pay frequent visits to its agencies.[2] Therefore the National Bell Company late in the spring of 1879 began to appoint special traveling agents. These men were to perform some of the functions served by Watson, Vail, and Hubbard on their various tours and visits. The traveling agents were authorized by the National Bell

> To inspect its agencies with a view to determining the best method of keeping accounts between the Company and its agents, and the adoption of some uniform system for keeping the agents' accounts required to be fixed by this Company under its contracts, and to make settlements between the agents and this Company.[3]

The National Bell Telephone Company proposed a new method of assessing and collecting rentals in order to establish "exact uniformity" in its accounts and to give all agents and licensees the same advantage regarding time for payment. Henceforth, after October 14, 1879, rentals were to be charged on all instruments from the first day of the second month succeeding the month in which instruments were shipped by the company.[4]

In effect, the Bell Company abandoned its policy of drawing advances from its agents. According to the new policy, agents were given a substantial margin of time between the shipment and receipt of instruments when rental began. One Bell official calculated that on a year's business this

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1. Gardiner G. Hubbard to William H. Forbes, April 9, 1879, AT&T, Box 1005.

2. William H. Forbes to George L. Bradley, May 1, 1879, AT&T, Box 1195.

3. Letter of authorization for J. M. Brown, June 30, 1879, AT&T, GMLB 25.

4. Theodore N. Vail to Agents and Exchanges, October 14, 1879, AT&T, GMLB 28.

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margin would figure to several rent-free instruments as he needed them.[1] Moreover, since agents collected rentals six months to a year in advance from their subscribers, they would have the use of much of this money because the National Bell Company charged them only monthly.[2]

Although the directors of the National Bell Telephone Company were making a concerted effort to streamline the company's operations, old problems persisted. Agents continued to chafe at delays arising from contractual disputes with the parent company. One agent complained that he had been forced to wait so long for the National Bell Company to reduce an understanding to writing that he was ultimately required to accept less desirable terms due to changes in company policy. He wrote to Vail:

> I have been acting agent for your company for nearly two years, and it is your fault and not mine that this agreement was not made as you promised six or eight months ago--and if it had been the old form [of contract] would have been used without doubt.[3]

One of the most critical and persistent difficulties which agents and licensees faced was lack of information about important telephonic business affairs. Watson commented: "One thing [which] has struck me on this trip is the ignorance in which our agents are regarding the affairs of the home company. Can't we bring our agents into closer relations with us, some way?"[4]

Perhaps in response to Watson's observation, the National Bell Company

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1. O. E. Madden to H. C. Brown and Son, October 31, 1879, AT&T, GMLB 29.

2. Robert Devonshire to J. M. Brown, August 22, 1879, AT&T, GMLB 26.

3. H. R. Rhoads to Theodore N. Vail, September 13, 1879, AT&T, Box 1174.

4. Thomas A. Watson to Theodore N. Vail, July 1, 1879, AT&T, Box 1205.

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instructed its agents to call its attention to any delay or neglect in answering letters or inquiries addressed to the Boston office.[1] Part of the confusion and lack of communication was due to the parent company's overwhelming correspondence as business grew. To facilitate matters, it began to systematize its correspondence. It recommended that agents confine each letter to one subject, number each question and make it distinct from others, and keep orders for telephones and other equipment separate.[2]

Much of the agents' ignorance was due to the home company's failure to keep them posted on important matters. When the National Bell Telephone Company resumed confidential negotiations with the Western Union it did not inform its agents. Consequently Bell agents were unable to evaluate rumors about an impending consolidation between the two rivals. One agent wrote the parent company: "I enclose a scrap [an article reporting the rumor that the W. U. had absorbed the National Bell Company] from the Buffalo Courier of yesterday; have written a contradiction . . . I suppose the report enclosed is without foundation."[3]

The Western Union capitalized on this ignorance of Bell agents. It was able to purchase controlling interests in several Bell companies by telling them that the National Bell Telephone Company was compromising with it. Consequently, the National Bell Company was finally forced to inform its agents about negotiations with the Western Union and to assure them that no arrangement would be made which did not secure them their privileges under their contracts with the national company.[4]

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1. Theodore N. Vail, July 11, 1879, AT&T, Box 1005.
2. Ibid.
3. E. J. Hall to Theodore N. Vail, May 12, 1879, AT&T, Box 1164.
4. William H. Forbes, June 19, 1879, AT&T, Box 1054.

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When General Manager Vail instructed the Superintendent of Agencies to keep the company fully posted in regard to agents and their feelings,[1] the latter responded:

> You think I have no cause for complaint, I do, and it is simply because I have too few facts as a basis of action . . . What information I have received from the Company regarding the pending compromise, nothing, save the bare fact . . . Nothing regarding details, of course prudence may have dictated reticence on that point.[2]

Agencies and exchanges were confronted with newer types of problems as well as these older ones. Southern agents Richardson and Barnard explained to Vail that it would not be very profitable for them to establish a district system in a certain Southern city since it was taxing telephones. Efforts to secure a change in the law had failed.[3]

Other agents encountered difficulties with municipal authorities when they sought permission to erect poles and string wires.[4] Thomas Cornish of Philadelphia complained:

> We have been fighting the Mayor and police for several weeks[;] they arrest our men[;] have forbidden our stringing wires under heavy penalty--our wires are torn down and we find it very difficult to replace them . . . Our books are full of orders yet we cannot fill them, unless we can get a charter by going into council and by paying a large sum.[5]

The most serious challenge to Bell agents and licensees came from the

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1. Theodore N. Vail to O. E. Madden, July 10, 1879, AT&T, GMLB 25.

2. O. E. Madden to Theodore N. Vail, July 12, 1879, AT&T, Box 1197.

3. Richardson and Barnard to Theodore N. Vail, June 11, 1879, AT&T, Box 1148.

4. H. R. Rhoads to O. E. Madden, December 22, 1879, AT&T, Box 1174.

5. Thomas E. Cornish to Theodore N. Vail, September 10, 1879, AT&T, Box 1176.

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Western Union. Since the Bell Company concentrated its energies on the establishment of exchange systems, the Western Union likewise did so.[1] The mere presence of an exchange canvasser in a particular locality was enough to stimulate the Western Union to action. Consequently, the National Bell Company adopted special precautions. Its officials frequently used ciphers when sending telegrams to one another,[2] occasionally even using aliases.[3] The company advised its agents to make all necessary preparations for going into an area, occupying the territory, and commencing canvassing operations before making known their intention.[4]

In effect, the key to successfully establishing an exchange system was to take the town by storm.[5] Vail advised: "The way to begin . . . would be to have all things arranged and then go in and occupy the town without giving any notification whatever. Starting out your canvassers and following them right up with line builders."[6]

These tactics were necessary to prevent the Western Union from frightening potential investors.[7] The Western Union succeeded in causing financial backers to withdraw support from Bell exchanges in several cities merely by threatening to start an opposition exchange and taking preliminary steps to that end.[8] In some places where Bell exchanges were already

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1. Theodore N. Vail to O. E. Madden, April 14, 1879, AT&T, Box 1179.
2. O. E. Madden to Theodore N. Vail, April 8, 1879, AT&T, Box 1197.
3. Theodore N. Vail to O. E. Madden, April 14, 1879, AT&T, Box 1179.
4. Theodore N. Vail to O. E. Madden, April 14, 1879, AT&T, Box 1179.
5. Theodore N. Vail to H. R. Sackett, March 26, 1879, AT&T, GMLB 21.
6. Theodore N. Vail to J. K. P. Balch, June 26, 1879, AT&T, GMLB 25.
7. Theodore N. Vail to J. Carleton, June 12, 1879, AT&T, Box 1195.
8. J. F. Reynolds to Theodore N. Vail, July 3, 1879, AT&T, Box 1183.

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established these tactics caused timid stockholders to sell their stock to the Western Union.[1]

While the National Bell Telephone Company placed the highest importance on agents' and exchanges' securing sufficient capital before commencing operations,[2] it also recognized the value of securing it locally. If an agent were successful in that, he could present his exchange as a local institution attacked by a monopolistic outsider, thus winning the support of local inhabitants.[3]

The Bell Company advised its agents to "hold on" once they started an exchange. In those places where the opposition drove away Bell agents, it soon ran into difficulty when it began to construct its exchange, since it was unable (perhaps unwilling) to furnish instruments and central office apparatus. The Western Union thus secured the field simply by holding on to subscribers and promising them everything.[4]

The National Bell Telephone Company considered its competitive efforts against the Western Union very successful. It asserted that where it had established exchanges in New England it had practically driven the opposition from the field. There were exceptions in Worcester, Springfield and Providence, but the Bell Company believed it was so far ahead in the last two cities that there was no real contest.[5]

Perhaps it is significant that the Bell Company's greatest challenges were in the larger cities, such as Buffalo, Chicago and those in New England.

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1. O. E. Madden to A. L. Couger, September 11, 1879, AT&T, GMLB 26.
2. Theodore N. Vail to P. H. Grant, March 25, 1879, AT&T, GMLB 21.
3. Theodore N. Vail to G. S. Smith, July 23, 1879, AT&T, GMLB 26.
4. Theodore N. Vail to G. H. Guardon, May 5, 1879, AT&T, GMLB 27.
5. Ibid.

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Perhaps the Western Union was only offering token opposition in places of lesser importance. For whatever reason, the Bell Company found its opponent generally unsuccessful except in selected areas.

The National Bell Telephone Company presented an image of confidence to its agents. It claimed superiority for its instruments and systems. It advised one agent that his opposition would prove to be "more bluster than fight."[1]

On the basis of its success against the "strongest opposition," the Bell Company considered itself "almost invincible."[2] The Bell interests continued to attribute much of their success to their longer experience. They therefore advised agents:

> As we have so far succeeded in keeping from six months to a year in advance of the opposition in our Central Office System, I would suggest that the greatest caution be exercised in explaining to those not known to be connected with this Company the methods of conducting the Exchange or District Office System.[3]

The National Bell Company claimed that it could operate an exchange under rates and conditions which would result in a loss if attempted by the Western Union.[4] If its experience was not enough to reassure waivering investors in Bell exchange systems, the Bell Company suggested that even if the opposition proved victorious in the pending suits it would be happy to arrange a settlement with a system already in operation and giving satisfaction.[5]

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1. Theodore N. Vail to R. C. Christopher, May 20, 1879, AT&T, GMLB 23.

2. Theodore N. Vail to Kansas City Telephone Exchange, June 11, 1879, AT&T, GMLB 24.

3. Circular, B 27/79, Theodore N. Vail, May 9, 1879, AT&T, Box 1005.

4. Theodore N. Vail to G. S. Glen, March 26, 1879, AT&T, GMLB 21.

5. Ibid.

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To those who complained about the Western Union's enormous financial advantage Vail replied: "The W. U. have no more, if as much capital in comparison to the amount of business done than you have in your business, and are no more able to compete for that business than you are."[1] He contended that if the Western Union concentrated its capital in one town it would be all powerful, but it was forced to spread it all over the whole United States. Moreover, the opposition was represented by agents who had no personal interest whatever in the success of the company and therefore did not give it their personal service as did Bell agents.[2]

The Western Union merely intensified the tactics it had adopted earlier. It relied on what the Bell interests described as "bulldozing," that is, using its strength to intimidate investors and subscribers alike. The Bell agent in Worcester, Massachusetts, who was attempting to establish an exchange system, reported that the opposition went to one of his subscribers, threatened to withdraw its business from him, and thus forced him to seek a release from his commitment to the Bell exchange.[3] The opposition's "bulldozing" also took the form of frightening Bell telephone users into believing they faced a lawsuit unless they used Gold and Stock instruments.[4]

The Western Union no longer enjoyed the advantage of possessing a superior transmitter. If a Bell agent were confronted with the competition of the Edison transmitter he could resort to the Blake transmitter, which

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1. Theodore N. Vail to Columbus Telephone Exchange, May 19, 1879, AT&T, GMLB 23.

2. Theodore N. Vail to T. B. Doolittle, April 6, 1879, AT&T, GMLB 22.

3. J. F. Reynolds to George L. Bradley, April 18, 1879, AT&T, Box 1183.

4. J. F. Reynolds to George L. Bradley, April 24, 1879, AT&T, Box 1183.

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subscribers often rated as good, if not better.[1] The National Bell Company considered its transmitter and hand telephone as unquestionably more satisfactory than any instruments its opposition possessed.[2]

The Western Union continued to use its telegraphic influence to persuade district telegraph companies to adopt Gold and Stock instruments instead of Bell instruments. In Cleveland, for example, the ADT Company had to agree in writing that it would not enter into any business in conflict with the interests of the Western Union in order to secure a five year renewal of its contract with that company for a messenger service.[3]

While the Western Union continued to lower rates for telephones and exchange services, the National Bell Telephone Company generally continued refusing to compete in like manner. Vail believed that once the Bell Company began to cut its rates there was no telling where it would end. He felt the company would lose less by allowing the opposition to gain an "occasional customer" by rate cutting than by trying to compete.[4]

Not only did the National Bell Telephone Company admit that it was useless to try to compete with Western Union prices,[5] but it also believed that a policy of overt price competition would materially affect the question of damages which would have to be settled ultimately.[6]

In case the Western Union adopted a general reduction in its prices

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1. O. E. Madden to Theodore N. Vail, May 13, 1879, AT&T, Box 1183; J. F. Reynolds to George L. Bradley, April 29, 1879, AT&T, Box 1183.

2. Theodore N. Vail to M. J. Myers, June 14, 1879, AT&T, GMLB 24.

3. O. E. Madden to Theodore N. Vail, May 27, 1879, AT&T, Box 1170.

4. Theodore N. Vail to George H. Twiss, March 26, 1879, AT&T, Miscellaneous Letterbook 3, Thomas B. Bailey, hereafter cited MBa.

5. National Bell Telephone Company to Allaire and Reyburn, September 13, 1879, AT&T, GMLB 27.

6. Theodore N. Vail to George H. Twiss, April 10, 1879, AT&T, GMLB 21.

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the National Bell Telephone Company indicated it would furnish its exchanges with better instruments at a price that would enable them to fight on until the suits were decided and the opposition driven from the field.[1] Thus the National Bell Telephone Company acknowledged (at a time when compromise with the Western Union was close to completion): "If . . . competition is long continued our Company will have to and propose to make arrangements to assist exchanges in meeting the same [i.e., lower prices], as we cannot of course, afford to be driven from the field."[2]

The National Bell Company did waive rentals on a selective basis. It did not wish to encourage the practice of "deadheading" since it might get out of control. Nevertheless Vail recognized that "a little judicious 'deadheading' answers very often a good purpose."[3]

In certain instances the parent company evaded its policy concerning "deadheading" or cutting rates by lending instruments to an especially endangered exchange.[4] In order to gain the friendship of municipal authorities, the company often allowed its agents to set special rates for telephones used in public institutions. These rentals were to last for the duration of the competition.[5]

Occasionally the National Bell Company would furnish telephones rent-free for a limited time to a company which was about to establish an exchange in order to give it a good start and to "bridge over" its first opposition.[6]

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1. Theodore N. Vail to E. F. Keirn, May 22, 1879, AT&T, GMLB 27.

2. National Bell Telephone Company to Allaire and Reyburn, September 13, 1879, GMLB 27.

3. Theodore N. Vail to O. E. Madden, July 10, 1879, AT&T, GMLB 25.

4. Theodore N. Vail to M. J. Myers, June 14, 1879, AT&T, GMLB 24.

5. O. E. Madden to M. J. Myer, September 11, 1879, AT&T, GMLB 26.

6. Theodore N. Vail to J. R. Doolittle, April 23, 1879, AT&T, GMLB 21.

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It also used free instruments as an incentive to have exchanges secure the connection of key subscribers, as for example "the leading cotton presses, offices of navigation lines, and railroad offices."[1] Vail explained:

> Our rule has been . . . to place the price of telephones while the exchanges were being started and during their early struggles, as low as possible, in order to give the companies all the assistance within our power fixing the price higher instead of lower, after they were thoroughly under way.[2]

On at least one occasion Vail suggested that the best way for agents to meet their competition, other than by cutting prices, was to buy the opponents' district business.[3] Ironically, the Western Union was pursuing just such a policy[4] and by mid-summer had purchased a majority interest in several Bell exchanges.[5]

The National Bell Telephone Company concluded that Western Union offers to buy into Bell district and exchange companies were being made in anticipation of a negotiated settlement which was then under discussion between the two telephone interests. President Forbes reminded stockholders in Bell district companies that they could not part with their interest in a franchise without the National Bell Company's consent. Forbes also made a special request that the parent company be notified before a stockholder decided to part with any portion of his interest.[6]

In response to the Western Union's new tactics, the National Bell

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1. Theodore N. Vail to A. B. Holmes, July 17, 1879, AT&T, GMLB 25.
2. Theodore N. Vail to C. H. Haskins, April 28, 1879, AT&T, GMLB 22.
3. Theodore N. Vail to G. H. Twiss, April 10, 1879, AT&T, GMLB 21.
4. Theodore N. Vail to O. E. Madden, June 18, 1879, AT&T, GMLB 24.
5. Theodore N. Vail to E. J. Hall, June 19, 1879, AT&T, GMLB 24.
6. William H. Forbes, June 19, 1879, AT&T, Box 1054.

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Telephone Company tried to insert a stipulation in its exchange contracts that if stockholders desired to sell their stock to any other parties, except to other stockholders in the company, it was to have the first option.[1] The parent company stressed that this provision was made not to get control of local companies but to prevent the Western Union from gaining control.[2]

Forbes must have reacted with mixed emotions when he received a letter from George C. Maynard of Washington, D. C., informing him that he had indeed received numerous intimations of a desire to purchase an interest in his telephone business but he had no intention of disposing of any portion of it. Instead, Maynard wrote,

> Faithfully relying on your company to fully carry out the letter and spirit of its contracts and promises to defend me against all opposition and indemnify me for all losses and damages. I propose to stand by the Bell Telephone and all its interests, to the end of the war.[3]

Maynard's pledge was accompanied by a request for assistance against Western Union threats to open a competing exchange.[4]

If a Bell agent capitulated to the threat of competition and joined the Western Union, the National Bell Telephone Company felt highly aggrieved at what it considered an act not only of cowardice but of ingratitude also. In such an event, the parent company refused to acknowledge the transfer and held its agent to "strict accountability" for his contract.[5]

The Western Union succeeded in converting not only Bell agents to its

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1. Theodore N. Vail to O. E. Maddon, June 23, 1879, AT&T, GMLB 24.
2. Theodore N. Vail to C. J. Glidden, June 25, 1879, AT&T, GMLB 24.
3. G. C. Maynard to William H. Forbes, June 24, 1879, AT&T, Box 1178.
4. Ibid.
5. Theodore N. Vail to G. H. Twiss, July 21, 1879, AT&T, GMLB 25.

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cause, but also an occasional high-ranking official. Its greatest success was its hiring of H. H. Eldred, who had helped to establish the Bell exchange in Chicago. Eldred quit the Bell interests to become head of the Western Union Telephone Department because he felt he had not been treated properly.[1] Bell officials were greatly concerned about Eldred's defection, believing that he might be particularly effective in winning away potential exchange investors because of his intimate knowledge of that phase of telephony.[2]

During much of 1879 a truce existed between the Western Union and the National Bell Company while they negotiated. However, both companies only honored it on a selective basis. Contrary to its agreement to stop its telephone work in territories where it had no exchanges in operation, the Western Union did make arrangements to open exchanges[3] and thus gave rise to Bell agents' complaints and pleas for assistance.[4] Opposition officials claimed they were merely defending themselves against the perfidious conduct of the Bell people.[5]

Despite the problems of competition, some Bell officials believed that the Western Union fight would ultimately prove beneficial if it were not continued too long. Vail explained:

> A strong opposition brings the business so prominently before the public and in a much better way than any other possible method, and the probabilities are that at the end of six months you will have three times as

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1. O. E. Madden to Theodore N. Vail, May 27, 1879, AT&T, Box 1170.

2. Ibid.

3. G. C. Maynard to Theodore N. Vail, August 2, 1879, AT&T, Box 1178.

4. L. C. Kinsey to Theodore N. Vail, September 18, 1879, AT&T, Box 1174.

5. J. F. Reynolds to George L. Bradley, March 9, 1879, AT&T, Box 1183.

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> many subscribers to your system in the face of the opposition as you would have had, had you met with none.[1]

As the National Bell Company believed its chances for removing the opposition improved, it began to take a harder line with agents and exchanges. In March and April it predicted that it would give no discounts on instruments used for district and exchange purposes as soon as its suits were decided.[2] In announcing to its agents the existence of negotiations with the Western Union, the National Bell Company also explained that as its risks decreased it expected to profit more from its business and proposed to share these profits with those who had shared the risk.[3]

The argument that those who joined with the Bell Company while there was still a risk would therefore receive more favorable terms than those who waited until the risk was eliminated became an important element in negotiations with prospective agents and exchange investors.[4] By October 1879, when a negotiated settlement with the Western Union had been practically concluded, the National Bell Telephone Company became more determined to reduce discounts and impose harsher terms on its agents. Those who had delayed in closing their contracts with the national company now found they would have to accept those less desirable terms.[5]

Although the Bell Company did not abandon the practice of giving

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1. Theodore N. Vail to Kansas City Telephone Exchange, June 11, 1879, AT&T, GMLB 24.

2. Theodore N. Vail to O. E. Madden, March 18, 1879, AT&T, GMLB 20; Theodore N. Vail to James S. Ross, April 9, 1879, AT&T, GMLB 21.

3. Theodore N. Vail to R. A. Cunningham, April 24, 1879, AT&T, GMLB 21.

4. Theodore N. Vail to A. P. Holmes, April 22, 1879, AT&T, GMLB 21.

5. Theodore N. Vail to W. O. Wychoff, October 18, 1879, AT&T, GMLB 28.

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discounts to its agents, it did reduce them from the usual forty or fifty percent to thirty percent, and its contracts were for a shorter period of time.[1] Exchanges which had secured better terms during an earlier period continued to enjoy them but were required to purchase Western Union exchanges in their area after the settlement had been negotiated. The National Bell Company argued it could not offer more than a thirty percent discount to exchanges established after the compromise, since they would face no competition and would be licensed under both Bell and Western Union telephone patents.[2]

Sometimes exchanges sought to have existing contracts cover additional territory. Again, the parent company explained that the earlier, more favorable terms had been negotiated under conditions which no longer existed. Contracts were now made for five years and carried only a thirty percent discount. The Bell Company explained that not only would it be unnecessary to arrange for better terms, since it was confident it could find agents for its territory, but better terms would also be unjust to those who had taken territory on less desirable terms. Nevertheless, the National Bell Company did offer to make special arrangements with some exchanges when they agreed to assume unusual burdens in developing their territory.[3]

In its report to its stockholders, the Bell Telephone Company explained its reasons for shortening the duration of its contracts:

> Immediately after the settlement with the Western Union Company, the policy of making only five year contracts was adopted, in order that our company could have time

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1. Theodore N. Vail to C. H. Haskins, October 31, 1879, AT&T, GMLB 29.
2. O. E. Madden to A. Merrill, January 5, 1880, AT&T, GMLB 33.
3. O. E. Madden to M. G. Kellogg, May 1, 1880, AT&T, GMLB 46.

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> to learn the best permanent basis for the relations between the company and its licensees, and to see which of them would prove satisfactory as associates.[1]

With the cessation of competition the National Bell Company became very selective in choosing exchange agents. Before agreeing to terms, it wished applicants to provide pertinent information about themselves.[2] The company also contacted applicants' references and requested information about the candidates' ability to invest in the business.[3]

The Western Union settlement in November 1879 made standardized contracts possible. The parent company required the surrender of old contracts and the adoption of new, standard contracts as a condition for licensing its agents and exchanges under the Western Union telephone patents which it now controlled.[4] Madden explained to one Bell agent:

> In order that we may license you under these patents [W. U.] it will be necessary for you to surrender your present form of contract, and accept in lieu thereof, the contract which we herewith enclose. This contract does not differ essentially from the one you now hold, but it goes more into detail.[5]

The exchange of older contracts for standard forms enabled agents to renegotiate terms with the parent company. In one instance, an exchange succeeded in extending its territorial rights and eliminating its liability for telephones destroyed by fire. However, the National Bell Company also

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1. Report of the Directors of the American Bell Telephone Company to the Stockholders, March 29, 1881, p. 7.

2. O. E. Madden to S. T. Noble, December 30, 1879, AT&T, GMLB 33; O. E. Madden to J. W. Porter, December 31, 1879, AT&T, GMLB 33.

3. O. E. Madden to C. R. Peddle, January 6, 1880, AT&T, GMLB 33.

4. Cozzens and Bull to Theodore N. Vail, January 9, 1880, AT&T, Box 1181.

5. O. E. Madden to T. B. Anderson, January 28, 1880, AT&T, GMLB 36.

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secured the provision that upon expiration of the contract, if both parties should fail to agree upon a renewal, the Bell Company was to purchase the exchange at fair valuation.[1]

The National Bell Telephone Company, in limiting its contracts to five years, provided that upon their expiration an opportunity to renew would be given to the original licensee. The parent company would offer as favorable terms to the licensee as it would to anyone else. Should the contract not be renewed, and the right to continue the business be given to other parties, it was to be on condition that they purchase the exchange property at a price to be determined by arbitration, not exceeding actual cost.[2]

In addition to differences with the parent company and problems raised by Western Union competition, agents and exchanges had to contend with shortages of equipment. The complaint of one exchange director was reminiscent of those heard in earlier periods: "Are in distress for Transmitters. Want Fifty here to put in this week. Cannot collect bills or complete lines and customers are giving notice that they will take the Edison if we cannot fill their orders."[3]

Shortages of bells,[4] telephones[5] and insulated wire,[6] and delays in

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1. Contract, Charles B. Allaire and Walter S. Reyburn and National Bell Telephone Company, December 23, 1879, AT&T, 1 H.

2. E. S. Babcock to National Bell Telephone Company, December 13, 1879, AT&T, 1 H.

3. E. J. Hall to Theodore N. Vail, April 15, 1879, AT&T, Box 1164.

4. G. F. Durant to Theodore N. Vail, April 2, 1879, AT&T, 1 H.

5. William H. Forbes to George L. Bradley, April 12, 1879, AT&T, Box 1152.

6. O. E. Madden to Theodore N. Vail, May 14, 1879, AT&T, Box 1183.

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the construction of switchboards,[1] all resulted in costly delays in agency and exchange business. As business increased and delays continued General Manager Vail advised agencies and exchanges to place their orders as early as possible.[2] He also requested agents to return all instruments above one month's requirements.[3]

Recognizing the gravity of the situation, President Forbes began to see the necessity of increasing the company's manufacturing capacity if Charles Williams, Jr., could not keep "well up and a little ahead."[4] George Bradley explained that the company was pushing Williams to the utmost, but agreed that it would be wise to make immediate arrangements with other manufacturers to furnish both telephones and auxiliary equipment.[5]

Actually preliminary steps had already been taken during the closing days of the Bell Telephone Company's existence, when Thomas Watson had established contact with a number of electrical manufacturers. Also, the directors of the National Bell Telephone Company in March had authorized the General Manager to contract for such telephones and telephonic supplies as were necessary to fill orders and maintain a stock on hand for contingencies.[6]

Consequently, the National Bell Telephone Company formally licensed

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1. O. E. Madden to Thomas A. Watson, May 22, 1879, AT&T, Box 1183.

2. Theodore N. Vail to A. B. Homer, March 25, 1879, AT&T, GMLB 21.

3. Theodore N. Vail to Agents, April 11, 1879, AT&T, Box 1123.

4. William H. Forbes to George L. Bradley, April 12, 1879, AT&T, Box 1152.

5. George L. Bradley to William H. Forbes, April 12, 1879, AT&T, Box 1152.

6. Minutes of Directors' Meeting, March 18, 1879, National Bell Telephone Company, AT&T.

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four electrical manufacturers, in addition to Charles Williams, Jr., to supply its agents with auxiliary telephone equipment and electrical materials. It utilized George Bliss's Electric Merchandising Company in Chicago, which had been organized largely in response to H. H. Eldred's assurances that it would receive the business of the Bell Company's Chicago exchange;[1] Davis and Watts of Baltimore, agents of the Bell Company and manufacturers of "Electrical Goods of Every Description";[2] the Indianapolis Telephone Company;[3] and Post and Company of Cincinnati.[4]

In advising the National Bell Telephone Company to license George Bliss, Vail recommended a number of conditions which were ultimately applied to all of the company's licensed manufacturers. The manufacturer would supply telephone equipment only to Bell agents. Instruments made under Bell patents or in connection with Bell telephone exchanges would bear the notation that they were made for the National Bell Telephone Company. Any royalty which the National Bell Company might have to pay would be included in the manufacturer's price and refunded to the parent company. Manufacturers would be required to file regular reports with the National Bell Company, and all instruments would be subject to inspection by an accredited Bell agent to see that they conformed to standards. In return, the National Bell Telephone Company would license production of instruments under existing or future Bell patents, and would recommend these instruments, although not exclusively, to its agents.[5]

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1. George H. Bliss to Theodore N. Vail, April 25, 1879, AT&T, Box 1151; George H. Bliss to Theodore N. Vail, May 21, 1879, AT&T, Box 1151.

2. Theodore N. Vail to Davis and Watts, May 17, 1879, AT&T, Box 1158.

3. Thomas A. Watson to E. T. Gilliland, June 11, 1879, AT&T, GMLB 24.

4. Theodore N. Vail to Post and Company, April 6, 1883, AT&T, GMLB 148.

5. Theodore N. Vail to William H. Forbes, April 14, 1879, AT&T, Box 1151.

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The manufacturers prided themselves on their production facilities.[1] E. T. Gilliland of the Indianapolis Telephone Company was delayed in commencing operations because he was having standard gauges made in order to manufacture everything with interchangeable parts.[2] By the end of May, however, his factory was completed and after a short inspection Madden commented:

> He has facilities for turning out work which sets anything and everything which Williams has completely in the shades. . . . The machinery which Gilliland has enables him by the use of unskilled and hence cheap labor to make all his parts perfectly interchangeable.[3]

Gilliland not only adopted progressive production techniques, but also was developing an improved model of the Blake transmitter which Madden hoped the parent company would substitute for its present cumbersome model.[4] Watson also was impressed by Gilliland and his factory and assured him that Vail would award his company an order for transmitters.[5] In 1880, Vail declared: "He [Gilliland] has done more towards developing the apparatus used in connection with Exchanges than any man, except those possibly, who are working directly under this company."[6]

Despite such commendations, Gilliland did not receive any orders to produce telephones. Williams' company continued to be the sole manufacturer

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1. George H. Bliss to Theodore N. Vail, May 21, 1879, AT&T, Box 1151; August G. Davis and J. Henry Watts to Theodore N. Vail, January 29, 1879, AT&T, Box 1158.

2. E. T. Gilliland to Thomas A. Watson, May 1, 1879, AT&T, Box 1153.

3. O. E. Madden to Theodore N. Vail, May 31, 1879, AT&T, Box 1197.

4. Ibid.

5. Thomas A. Watson to Theodore N. Vail, July 1, 1879, AT&T, Box 1205.

6. Theodore N. Vail to William H. Forbes, December 14, 1880, AT&T, GMLB 65.

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of these instruments. This was done so that the parent company could keep the production of telephones under its abolute control.[1] All transmitters shipped from Boston were subjected to a thorough test.[2] Watson instructed Chief Instrument Inspector Emile Berliner:

> You are, in addition to your other duties, to inspect the various processes of manufacturing by making at least once per day, a trip among the workmen engaged in the manufacture of telephones and transmitters and report to me any defects you may observe.[3]

As a result of this policy the National Bell Telephone Company tended to reject complaints about its instruments, suggesting instead that difficulties might be the result of faulty connections or poorly constructed auxiliary equipment.[4] The Bell Company also hesitated before making available new instruments or devices until they had first been given the fullest testing in Boston.[5]

By the end of April 1879, Williams was manufacturing a surplus of telephones,[6] and the shortages in switchboards and other auxiliary equipment would soon be solved by the licensed manufacturers.

Williams continued to look to the Bell Company for large sums of money because some of its agents failed to pay their bills. In May 1879, he requested $1500 to meet his payroll, and since the company's treasurer had not set aside this sum, President Forbes personally loaned the money

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1. Theodore N. Vail to E. H. Parker, July 11, 1879, AT&T, GMLB 25.
2. Theodore N. Vail to R. C. Wetmore, October 13, 1879, AT&T, GMLB 28.
3. Thomas A. Watson to Emile Berliner, October 27, 1879, AT&T, GMLB 28.
4. Theodore N. Vail to R. C. Wetmore, October 13, 1879, AT&T, GMLB 29.
5. Thomas A. Watson to W. H. Bofinger, October 29, 1879, AT&T, GMLB 29.
6. Theodore N. Vail to G. B. Engle Company, April 24, 1879, AT&T, GMLB 22.

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to the National Bell Company so that it could meet Williams' request.[1] The company owed him over $4000 by mid-July.[2]

Charles Williams' shop enjoyed special advantages over the other licensed factories. When Post and Company complained that Williams seemed to reach agents faster than anyone else, Vail explained that agents tended to purchase their apparatus from Williams because he was "universally known" as the National Bell Company's manufacturer. Moreover, when new exchanges requested sample instruments the Bell Company sent those manufactured by Williams.[3]

Despite Williams' advantages, there was some complaint about his products. According to one agent, the western manufacturers were producing better bells, and since they did not have to charge high freight rates they were also cheaper. This agent concluded that Williams would either have to make better bells or sell them cheaper if he wished to trade in the West.[4]

In return for his privileged status, Williams agreed to furnish the National Bell Telephone Company with magneto bells for its own exchanges in Boston, New York and Chicago at lower prices than those charged to other exchanges and agents.[5] The other licensed manufacturers fell into line and also agreed to grant the National Bell Company's exchanges special prices.[6]

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1. William H. Forbes to George L. Bradley, May 2, 1879, AT&T, 1 G.

2. George L. Bradley to William H. Forbes, July 22, 1879, AT&T, Box 1195.

3. Theodore N. Vail to Post and Company, September 29, 1879, AT&T, GMLB 27.

4. C. N. Fay to Thomas A. Watson, January 19, 1880, AT&T, Box 1151; C. N. Fay to Thomas A. Watson, January 14, 1880, AT&T, Box 1151.

5. Theodore N. Vail to Post and Company, January 22, 1880, AT&T, GMLB 26.

6. Davis and Watts to Theodore N. Vail, January 26, 1880, AT&T, Box 1158; George H. Bliss to Theodore N. Vail, January 27, 1880, AT&T, Box 1151.

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The National Bell Company did not intend that there should be any competition among its licensed manufacturers. When Post and Company complained about competition from the Indianapolis licensee, Vail responded:

> If they are cutting rates, we will put a stop to it, as we could not under any consideration allow that to go on, as our idea is to have the prices uniform and if there is any difference at all, it must be in the superiority of the workmanship.[1]

A brief period of competition among the manufacturers occurred during the late summer and fall of 1879, due to a decline in demand which had resulted from the truce being observed by the National Bell Company and the Western Union. Vail reassured the Chicago licensee:

> As soon as we commence business again the demand will be great enough to keep employed all the manufactories that are now under license. We have not been pushing our business at all for the last three months owing to pending negotiations between ourselves and the Western Union Telegraph Company.[2]

In licensing manufacturers, the National Bell Telephone Company charged them no royalty on the instruments they manufactured, but instead tried to keep the cost of auxiliary apparatus as low as possible to facilitate the use of the telephone. Beginning in November 1879, however, the National Bell Company notified its manufacturers to charge a royalty on magneto and electro-bells.[3] This was necessitated by arrangements made between the Bell Company and the inventors.[4] Nevertheless, the parent company was able to report in March 1880: "The cost of electrical apparatus used by our agents in barely 50 percent of that of similar apparatus in use

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1. Theodore N. Vail to Post and Company, August 12, 1878, AT&T, GMLB 26.

2. Theodore N. Vail to Electric Merchandising Company, October 13, 1879, AT&T, GMLB 28.

3. Notice, Post and Company, November 15, 1879, AT&T, Box 1117.

4. "Patents Owned or Controlled by the National Bell Telephone Company," March 1880, AT&T.

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for telegraphic purposes, when the telephonic business began about three years ago."[1]

By January 1880, Madden reported that the Bell Company had a large stock of telephones on hand and orders were being filled on the same day they were received. Facilities were such that he was confident the company would be able to continue to furnish instruments equally as promptly.[2] In July, Madden instructed Williams to limit the number of instruments he delivered to the Bell Company's stockroom.[3]

The National Bell Telephone Company continued to license manufacturers until 1884, when it began to terminate its licenses and took steps to consolidate its manufacturing operations under the Western Electric Company.[4] By the time the National Bell Telephone Company ended its existence the production problem had been solved as a result of Williams' conquering his problems and the licensing of other manufacturers for auxiliary equipment.

Research and Development

The National Bell Company continued the research and development practices of its predecessors. It depended upon the efforts of its own personnel and those of independent inventors for new and improved telephonic devices.

The Bell Telephone Company had previously contracted for the services of Alexander Graham Bell upon his return from England. Bell had agreed to devote all of his time and energies to the company, assigning to it all his

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1. Ibid.
2. O. E. Madden to J. G. Elwood, January 8, 1880, AT&T, GMLB 33.
3. O. E. Madden to Charles Williams, Jr., July 2, 1880, AT&T, GMLB 52.
4. DeLand, "Notes," Popular Science Monthly, 70 (May 1907), 412.

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right, title and interest in any inventions which might result.[1] When the National Bell Telephone Company was organized, Bell negotiated a better contract with it.[2]

President Forbes complained that the company had not received any return from Bell's latest research. Bell explained, however, that for several months he had devoted much of his time to the pending lawsuits.[3] Although Bell was still interested in telephony, he did not wish to confine his research to that area, and in negotiating his latest contract had sought terms which would permit him to decide how much time to devote to it.[4] Forbes found this condition unacceptable.[5]

Nevertheless, Bell did patent several inventions related to telephony. One was a photophone which utilized crystalline selenium, the conductivity of which varied with exposure to light, to produce a "facsimile of sound" from a light beam of varying intensity. Bell did not perfect this device for commercial use but instead went on to do research in other fields, such as aviation.[6] Thus, shortly after his return to America, Alexander Graham Bell relinquished to others the task of improving the telephone and developing

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1. Alexander Graham Bell to The Executive Committee of the Bell Telephone Company, December 11, 1878, AT&T, Box 1104.

2. Alexander Graham Bell to William H. Forbes, April 1, 1879, AT&T, Box 1104.

3. Alexander Graham Bell to William H. Forbes, May 19, 1878, AT&T, Box 1104.

4. Alexander Graham Bell to William H. Forbes, March 29, 1879, AT&T, Box 1104.

5. William H. Forbes to Alexander Graham Bell, May 13, 1879, AT&T, 1 G.

6. Frederick Leland Rhodes, Beginnings of Telephony (New York: Harper and Brothers, 1929), pp. 45-46.

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its auxiliary apparatus.[1]

Thomas Watson continued to be a major source of telephonic inventions. In May 1879, he contracted with the National Bell Company to assign to it all the inventions which he had made and patented, and all which he might make during the following year. For this Watson received $1000 and was appointed General Inspector.[2]

As General Inspector, Watson supervised the expanding instrument and electrical departments, which by the end of the National Bell Company's existence numbered about nine employees,[3] including two electrical engineers.[4] The National Bell Telephone Company not only appropriated increasing funds to its experimental department,[5] but also began to formally structure its operation.[6]

Watson was specifically charged with supervising and maintaining the high quality and workmanship of instruments manufactured by the company's licensees. He was also expected to devise practical and convenient forms for instruments made under company owned or controlled patents. Watson was to continue answering agents' queries regarding instruments, their faults and ways of remedying them.

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1. Ibid., 47.

2. Contract, Thomas A. Watson and National Bell Telephone Company, May 1, 1879, AT&T, Box 1070.

3. Chronological List of Officers and Employees of the American Bell Telephone Company and Its Predecessors, AT&T, Box 1008.

4. Emile Berliner to Paul Magne and Henri Pelletier, December 17, 1879, AT&T, GMLB 32.

5. Minutes of Directors' Meeting, March 18, 1879, February 14, 1880, National Bell Telephone Company, AT&T.

6. Staff Duties of Electrical Department [dated circa 1885, but from internal evidence more likely 1880 or 1881], AT&T, Box 1227.

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One employee was to collate suggestions for the improvement of the company's telephonic system. Another was charged with gathering information about laying cables and overcoming electrical problems connected with them. A third employee was to conduct and supervise experiments on transmitters and magneto telephones.[1]

The National Bell Telephone Company began a systematic policy of acquiring the "thousand and one little patents and inventions" which were essential to the operation of the exchange business.[2] George Bradley explained: "I think it exceedingly important that we apply for patents at once to cover all that is patentable about the apparatus that we are using in the different branches of our business."[3]

The company's experimental department analyzed inventions originated either by Bell personnel or independent inventors, while the patent department determined their patentability.[4] The National Bell Company was always prepared to consider acquiring by purchase or assignment any device relating to telephony.[5]

In pursuing its goal of controlling telephony, the National Bell Telephone Company was prepared to acquire patents of little or no value[6] in order to eliminate their potential nuisance value.[7] Similarly the company

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1. Ibid.

2. U. S. Federal Communications Commission, Telephone Investigation; 1935, Exhibit 1989 "Patent Structure of the Bell System," p. 20.

3. George L. Bradley to William H. Forbes, April 14, 1879, AT&T, Box 1195.

4. U.S. F.C.C., "Patent Structure."

5. Theodore N. Vail to D. B. Gandy, December 20, 1879, AT&T, GMLB 32.

6. Theodore N. Vail to M. L. Baxter, December 24, 1880, AT&T, GMLB 66.

7. Theodore N. Vail to J. B. Speed, January 5, 1880, AT&T, GMLB 33.

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was willing to purchase patents which possessed no immediate value. Vail expressed this philosophy when he wrote to one inventor:

> We do not consider that your patent covers any principle which it is particularly desirous for us to obtain . . . The only object in our purchasing your patent would be, the bare possibility of obtaining something that would be useful in the future, and we do not deem it of sufficient value, to offer you any considerable price.[1]

If the company thought an invention was worth owning, it offered to pay the inventor's expenses in obtaining a patent. It also offered him a flat sum and agreed to pay a royalty on each device used up to a maximum sum. In return, the National Bell Company demanded exclusive use of the invention, and also expected to be assigned any improvements.[2]

In March 1880, several months after the settlement with the Western Union, Theodore Vail reported that the National Bell Telephone Company owned or controlled the fundamental principles of every known telephone as well as nearly every combination of telephonic apparatus. In this way, he concluded, the company's interests were doubly protected: first, by owning or controlling the telephone patents, and second, by owning or controlling the appliances absolutely necessary for the proper operation of the telephone.[3]

Consequently President Forbes reported to the company's stockholders:

> With a thorough occupation of the principal cities and towns by our licensees, the ownership of broad patents concerning the use of the speaking telephone, and the control of nearly all of the inventions for apparatus necessary to the telephone business which have yet been

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1. Theodore N. Vail to H. H. Barker, October 20, 1880, AT&T, GMLB 60.

2. Theodore N. Vail to --, May 20, 1879, AT&T, GMLB 23; Theodore N. Vail to H. M. McIntyre, June 11, 1879, AT&T, GMLB 24; Theodore N. Vail to J. B. Gardiner, October 15, 1880, AT&T, GMLB 60.

3. Theodore N. Vail to William H. Forbes, March 10, 1880, AT&T, Box 1004.

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made, the danger of competition from newcomers seems small.[1]

Towards Establishing A National Telephone System

The National Bell Telephone Company insisted that organizers of exchanges possess sufficient capital before commencing operations not only because it did not wish to be forced into retreat by the opposition, but also because it did not wish to be obliged, due to financial conditions, to build and carry on the exchange itself.[2] The company continued to insist that it was not its policy to operate district and exchange systems on its own account. It also believed that a locality's interests were more apt to be considered by a local company than a "foreign corporation."[3]

However, when attempts to construct an exchange at Fall River, Massachusetts, ran into financial difficulty in the spring of 1879, President Forbes wondered whether it might not be expedient for the National Bell Company to sell its interest in Chicago and invest the funds in Fall River and five or ten other important places.[4] He suggested that the money invested in these exchanges would generally strengthen the Bell interests even though the plan would conflict with the company's stated policy.[5]

Gardiner Hubbard considered it a mistake for the National Bell Company to invest any money in district companies however expedient that might be in

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1. William H. Forbes to Stockholders, March 29, 1880, AT&T, Box 1004.

2. Theodore N. Vail to H. W. Pope, F. M. Delano, and James Carleton, June 11, 1879, AT&T, GMLB 24.

3. Theodore N. Vail to T. E. Hinckley, May 27, 1879, AT&T, GMLB 23.

4. William H. Forbes to George L. Bradley, May 2, 1879, AT&T, Box 1195.

5. William H. Forbes to Gardiner G. Hubbard, May 3, 1879, AT&T, 1 G.

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an individual situation.[1] He must have found it ironic that he was being asked to support a plan similar to the one he had adopted for Chicago and for which he had been severely criticized by the investors represented by Forbes and had ultimately been removed from power. Perhaps relishing their reversed positions, Hubbard concluded: "The president of a company like ours, must at times assume responsibility. In such cases my rule is to support the action of the officer without reference to my own judgment in the particular case."[2]

During the late spring of 1879, the directors of the National Bell Telephone Company were considering what policy they should pursue in regard to the Western Union fight. They saw two alternatives: either "pulling in our horns until the patent suits are decided or giving the opposition a vigorous fight."[3] Vail speculated that if the latter decision were made, the company would raise a fund to invest in district systems.[4] In the meantime, he recommended that the parent company permit district companies in a strong fight to pay cash for only a small portion of their rentals, the remainder to be paid after the fight when the business was more profitable. Vail recognized that "this . . . will not be any great assistance, but I think it will make our agents feel that we have considerable confidence in the telephone."[5]

The National Bell Company decided after all not to go into the exchange

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1. Gardiner G. Hubbard to William H. Forbes, May 5, 1879, AT&T, Box 1195.

2. Ibid.

3. Theodore N. Vail to O. E. Madden, May 29, 1879, AT&T, GMLB 23.

4. Ibid.

5. Ibid.

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business as a means of fighting the Western Union, but instead entered negotiations which culminated in a compromise settlement. After this settlement had been reached, the question of the parent company's relationship to its exchanges was again raised.

The National Bell Telephone Company, apparently confident about its ability to raise capital, began to discuss with some exchanges the possibility of providing capital to enable them to expand their business. In return the Bell Company would receive a partial interest but would leave the management to local parties: "in other words," as Vail explained, "giving to each exchange all the benefit of one grand organization with general experience and abundant capital, and the strength that comes from local organization."[1]

A committee appointed by the Board of Directors reported that it would be unwise for the National Bell Company to immediately undertake the ownership and control of the entire system of district exchanges, since this would require a very large capital and a corps of officers which could not be obtained for many months. Instead it recommended it would be better to own only certain district companies or such interests in them as should be deemed expedient.[2] Thus, although the desire to unite the various telephone services under a "central organization" had become a prime factor in seeking to reorganize the National Bell Telephone Company,[3] the company continued to refrain from generally investing in district and exchange systems.

The National Bell Company did acquire interests in selected exchanges.

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1. Theodore N. Vail to G. C. Maynard, September 13, 1879, AT&T, GMLB 26.

2. Committee Report [undated], AT&T, Box 1195.

3. Report to Stockholders [October 24, 1879], AT&T, Box 1195.

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It commenced awarding permanent contracts to exchanges which were prosecuting their business with "energy and success" in return for a "substantial interest" of their stock. As a result of this policy the parent company expected to gradually acquire "a large permanent interest in the telephone business throughout the country so that . . . [it] will not be dependent upon royalties for a revenue when the patents shall have expired."[1]

The practice of taking stock in return for an exclusive franchise was by no means new.[2] It had been used by the National Bell Company's predecessors, and as early as June 1879, the National Bell Company itself was negotiating with a group of investors to organize a company for Cleveland in which it would take stock as payment for the telephone equipment.[3]

The Western Union settlement of November 1879 not only forced the National Bell Telephone Company to reconsider the nature of its relationship with its exchanges, but also to develop policies on the connection of district systems, cities and towns, and the collection and delivery of business to telegraph companies through its exchanges.

The National Bell Company considered either making the connections itself, or licensing others to do it.[4] However, the directors' committee created to chart the company's future course recommended that the parent company secure whole or part ownership with local companies in only selected

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1. Report of the Directors, March 29, 1881, 7.

2. Theodore N. Vail to J. M. C. Marble, August 12, 1879, AT&T, GMLB 26.

3. Theodore N. Vail to Fred M. Delano, June 11, 1879, AT&T, GMLB 24; Theodore N. Vail to Fred M. Delano and James Carleton, October 13, 1879, AT&T, GMLB 28.

4. Theodore N. Vail to Thomas E. Cornish, June 20, 1879, AT&T, GMLB 24; O. E. Madden to W. C. Pendleton, October 3, 1879, AT&T, GMLB 27.

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lines connecting exchanges.[1] The national company delayed making a final decision until early in 1880 when it contracted with other parties to build the connecting lines and pay it twenty-five percent of the line's gross receipts.[2]

Under its extra-territorial contract the parent company permitted agents to connect individual subscribers in towns where no exchange existed. Agents were allowed to charge whatever they saw fit for this service as long as it was "reasonable."[3]

The National Bell Company, in consequence of numerous applications,[4] began to consider plans for connecting small country towns and villages which could not afford to support telegraphic facilities. Since a single wire could be put up very cheaply there was no reason why a telephone office should not be maintained in every village or neighborhood. Vail suggested that the best way of accomplishing this was by authorizing exchanges to extend their lines into the surrounding country. He predicted:

> This will afford telephonic or telegraphic communication with thousands of places that otherwise would be isolated, and in the aggregate, feed an immense business to our main lines connecting the various exchanges, and to the telegraph companies connecting therewith, affording a very considerable indirect revenue, in addition to the direct revenue to be derived from the rentals on the telephones used.[5]

During its last months, the National Bell Telephone Company began

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1. Committee Report [undated], AT&T, Box 1195.

2. Theodore N. Vail to William H. Forbes, March 10, 1880, AT&T, Box 1004.

3. O. E. Madden to S. C. Lombard, March 6, 1880, AT&T, GMLB 39.

4. Theodore N. Vail to William H. Forbes, March 27, 1880, AT&T, GMLB 41.

5. Theodore N. Vail to William H. Forbes, March 10, 1880, AT&T, Box 1004.

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preparing contracts for these "branch lines." They would permit exchanges to connect naturally tributory points where there was no exchange. The parent company would not receive any special compensation for this privilege other than the normal rental paid to it under exchange contracts.[1]

These "branch lines" could be used for the transmission of messages for hire, i.e., paid messages, except where they were in competition with the Western Union Telegraph Company.[2] This restriction was required by the terms of the Western Union settlement.[3] In the past the National Bell Company had made arrangements for transmitting messages for hire, receiving a percentage of the gross receipts for the privilege.[4] Significantly, however, the several parent organizations did not utilize the transmission of messages for hire as a weapon against the Western Union. Perhaps the lack of a national telephonic network made such a scheme impractical. Not until April 1880 did the directors of the National Bell Company adopt a general plan for the transmission of messages for hire.[5]

The National Bell Telephone Company completed the process whereby exchange business superseded private line business. It no longer awarded a large slice of territory to agents for general purposes. Instead it awarded the territory surrounding an exchange to its organizers.[6] In this

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1. O. E. Madden to S. C. Schenk, April 16, 1880, AT&T, GMLB 44.

2. Ibid.

3. Theodore N. Vail to Cunningham and Mansfield, October 23, 1879, AT&T, GMLB 28.

4. Theodore N. Vail to Post and Company, May 1, 1879, AT&T, GMLB 28.

5. Minutes of Directors' Meeting, April 28, 1880, National Bell Telephone Company, AT&T.

6. Theodore N. Vail to Elisha Wilson, April 22, 1879, AT&T, GMLB 21.

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way the area was "worked up" better, and more telephones were rented.[1]

Although the national company continued to appoint private line agents, it reserved the right to appoint other agents for the same territory who were willing and able to commence district and exchange systems. Anyone who accepted a private line agency thus faced the possibility of losing his territory, since an exchange system naturally absorbed some surrounding territory.[2]

The National Bell Company was quite candid in its efforts to discourage private line agencies and to encourage the organization of exchange systems. Madden explained to one interested party:

> If you have any position, it, in our opinion would be better to hold it than undertake an agency, unless you have an amount of ready capital at your disposal, in which event it might be well to consider the establishment of a district and exchange system at some unoccupied point.[3]

Private line agencies were doomed to extinction not only as a result of the parent company's policies, but also because exchanges provided better service. As the value of exchange systems became clear, subscribers quickly abandoned their private lines and sought connection with the exchanges.[4]

In general the National Bell Telephone Company adopted policies which looked toward the development of telephony on a national system, especially as hostilities with the Western Union ended. In executing contracts the National Bell Company, and its predecessors, usually reserved certain rights

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1. Theodore N. Vail to E. B. Hamlin, June 12, 1879, AT&T, GMLB 24.
2. Theodore N. Vail to H. R. Rhoads, July 17, 1879, AT&T, GMLB 25.
3. O. E. Madden to W. E. Mallory, December 13, 1879, AT&T, GMLB 31.
4. O. E. Madden to W. N. Estabrook, November 26, 1879, AT&T, GMLB 30.

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for itself. These rights involved inter-agency and inter-exchange telephony. Vail explained:

> I must . . . say that our co. will insist upon retaining the absolute control of the use of the telephone except for local purposes in every district. This they have not as yet parted with, and do not intend to, considering it of more value than any other use to which it may be put. Whether they are right or wrong . . . remains for the future . . . But I do not consider that we have by any means developed all the uses of the telephone as yet . . . [as] to our method of developing it, that of course will be seen hereafter.[1]

The National Bell Telephone Company clearly was preparing to launch a nation-wide system of telephony when its program was assumed by its successor, the American Bell Telephone Company.

Finances

Soon after the National Bell Telephone Company had been organized, an estimate of revenue and expenses was drawn up for the year 1879. It calculated that the revenue for 1879 would amount to $160,000 while expenses would be about $120,000, thus leaving a "margin" of $40,000.[2] The report noted that the telephone business was new and expanding and needed to be systematized immediately. This work, in addition to the necessity of defending agencies against infringement suits, would be expensive. Therefore the report suggested that it might be wise to retain most of the anticipated surplus as a margin against unforeseen difficulties and possible increases in legal expenses.[3]

The task of raising adequate funds to standardize and organize the

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1. Theodore N. Vail to C. H. Haskins [undated], AT&T, GMLB 26.

2. Revenue and Expenses, April 1879, AT&T, Box 1205. The estimate does not clearly indicate whether this "margin" or "surplus" was either gross or net profit.

3. Ibid.

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telephone business became one of the National Bell Telephone Company's major concerns. Almost immediately its directors began discussing the expediency of selling the treasury stock to provide the necessary funds. Gardiner Hubbard opposed this proposal unless it was absolutely necessary. He argued that several stockholders, including himself, might be unable to take their proportion of stock. If so, their interest in the company would be diminished while those who could purchase the additional stock would have their interest increased. Hubbard expected that Forbes, acting as trustee of the undistributed stock, would naturally consider the interests of the poorer as well as the wealthier stockholders.[1]

Hubbard suggested that the company's financial difficulties might be relieved by the appointment of a traveling agent whose sole function would be to see that licensees' accounts were kept accurately and remittances were promptly made. If this plan failed, then he recommended that the company sell either its Boston or Chicago district system.[2] Hubbard's suggestion about appointing a traveling agent was adopted.

Even though rentals were not paid promptly, Forbes was optimistic about the future since the National Bell Company was executing important contracts for territory and patents, and its suit appeared strong.[3] Theodore Vail expressed great confidence, if not exuberance, when he wrote: "I am glad to say that business is rushing and the indications of increased business are very flattering indeed. In fact, it is almost beyond our power

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1. Gardiner G. Hubbard to William H. Forbes, April 9, 1878 [sic], AT&T, Box 1005.

2. Ibid.

3. William H. Forbes to R. S. Fay, April 26, 1879, AT&T, 1 G.

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to take proper care of that [which] we have already."[1]

An analysis of the number of instruments shipped by the National Bell Company during its first three months substantiates the validity of Vail's optimism. The number of instruments shipped steadily increased from 2260 in March to 4828 in June. Although the number declined during July and August, the total was over 3000 for each month.[2] There were over 33,000 telephones in use by June 1, 1879.[3]

In addition to the company's need for funds to systematize the business, it also required large sums for its Chicago exchange in order to retain its lead over the opposition there.[4] Between May 1 and July 31, 1879, the National Bell Telephone Company spent about $16,633.18 on the Chicago system.[5]

The directors of the National Bell Company met late in June to consider ways of raising funds. They contemplated increasing the company's stock and hoped to sell it above par. (On June 11, 1879, Hayes and Henshaw, apparently stockbrokers, sold some National Bell stock at 110¼.)[6] Under Massachusetts law, however, such stock had to be sold at par. Consequently, the directors contemplated reorganizing the company with a capital stock of $600,000, $450,000 of which would be exchanged share for share with the

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1. Theodore N. Vail to L. W. Nicholson, May 13, 1879, AT&T, GMLB 22.

2. "Instruments Shipped to and Returned by Agents and Exchanges in the U. S.," AT&T, Box 1004.

3. "Deposition of Thomas A. Watson," Storrow, "Proofs," I, 218/292.

4. George L. Bradley to William H. Forbes, May 1, 1879, AT&T, Box 1195.

5. C. N. Fay to George L. Bradley, July 31, 1879, AT&T, Box 1151.

6. List of Stock Prices, June 11, 1879-December 28, 1880, AT&T, Box 1070.

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stockholders of the National Bell Company. The directors hoped that enough of the remaining $150,000 worth of stock could be sold to cover the company's most pressing needs. The balance would be held in reserve to be sold, at a higher price hopefully, should the necessity arise.

Meanwhile, George Bradley was to arrange for the sale of treasury stock in order to raise funds immediately.[1] By order of the company's directors,[2] Bradley issued a circular stating that Hayes and Henshaw would sell two hundred shares of National Bell stock.[3] Treasurer Bradley calculated the company would have a total debt of $32,189.57 for July and August. As he was preparing his report, Bradley was called upon to pay out $10,764.18, which, while reducing the company's debt for July, diminished its cash reserve from $13,626.98 to $2862.80.[4]

Even this small amount was all but wiped out when Charles Williams demanded payment of his bills and Bradley advanced him $1200 against his account of over $4000.[5] Thus by mid-July the National Bell Telephone Company had practically no cash on hand.

Gardiner Hubbard had correctly analyzed part of the company's problems when he singled out the faulty system of collections. Bradley confirmed this analysis when he complained that about half of the company's collections for June were made on the last day of the month.[6] The appointment of

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1. George L. Bradley to Gardiner G. Hubbard, June 24, 1879, AT&T, MB 3.

2. Minutes of Directors' Meeting, July 3, 1878, National Bell Telephone Company, AT&T.

3. Circular, George L. Bradley, July 3, 1879, AT&T.

4. George L. Bradley to William H. Forbes, July 18, 1879, AT&T, Box 1195.

5. George L. Bradley to William H. Forbes, July 22, 1879, AT&T, Box 1195.

6. Ibid.

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traveling agents would, it was hoped, remedy this situation by seeing to it that agents paid their bills when they became due. By November 1879, the National Bell Company had employed four of these agents.[1]

In the meantime, the company apparently secured funds by additional sales of treasury stock in August and September at prices ranging from 227½ to 370.[2]

The Board of Directors had appointed a committee in August to consider the question of finances and the possibility of forming a new company with increased capital.[3] The company's finances became more critical by October when it was clear that the terms of the Western Union settlement required the Bell Company to purchase the opposition's instruments. This expense plus the company's regular expenses and its "small debt" indicated the necessity of raising between $1,150,000 to $1,200,000 for the following year and a half. The company actually raised $1,150,000 by various stock sales to its subscribers.[4]

The directors' committee recommended that the company should have the power in its charter to issue capital stock as fast as it could be profitably employed. Although recognizing that it might not be wise to provide capital immediately for a more extended business, the committee noted it was altogether probable that in the development of a business alliance with the telegraph companies a considerably increased capital might be used to advantage.

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1. Theodore N. Vail to William H. Forbes, November 1, 1879, AT&T, Box 1005.

2. List of Stock Prices, June 11, 1879-December 28, 1880, AT&T, Box 1070.

3. Minutes of Directors' Meeting, August 1, 1878, National Bell Telephone Company, AT&T.

4. W. R. Driver to The Stockholders, September 15, 1880, AT&T, Box 1005.

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The committee estimated that the national company would require $1,200,000 to conduct its operations for the remainder of 1879 and 1880. Consequently it recommended that the National Bell Telephone Company should be reorganized with a $10,000,000 capital, $4,800,000 of which would be distributed to the company's shareholders at the ratio of six to one, and $1,200,000 of which was to be sold for working capital, being offered first to current stockholders on a pro rata basis.[1] The remaining $4,000,000 worth of stock was to be retained by the treasury.[2] The committee also suggested that the new company be organized under the laws of any state which the directors might deem expedient.[3]

The Board of Directors accepted the committee's report and elected a new committee to consider the question of organizing a new company.[4] On the same day the stockholders authorized the directors to sell the company's property to a company to be organized according to the committee's recommendations.[5]

The formal removal in November of the Western Union opposition necessitated a re-evaluation of the National Bell Company's condition. General Manager Vail estimated the company's expenses for the current year to be about $100,000. In addition the company could use a large sum for advertising since the cessation of competition ended the gratuitous advertising resulting from it.

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1. Committee Report [undated], AT&T, Box 1195.

2. Minutes of Stockholders' Meeting, October 24, 1879, National Bell Telephone Company, AT&T.

3. Committee Report, AT&T, Box 1195.

4. Minutes of Directors' Meeting, October 24, 1879, National Bell Telephone Company, AT&T.

5. Minutes of Stockholders' Meeting, October 24, 1879, National Bell Telephone Company, AT&T.

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Vail calculated that the Bell Company would have 50,000 telephones rented (not including the opposition's 35,000) as of November 1, and would rent 15,000 more in the remaining two months. Allowing for new types of expenditures, such as advertisement, and errors in judgment which were inseparable from a new and developing business, he estimated a net rental income of over $400,000 for 1879.

Vail predicted that after some initially large expenditures for the construction of exchanges and connecting and feeder lines, the company would derive its largest revenue from precisely these phases of the business. Carrying forward his estimates to 1881, he calculated that the company's total net rental income would amount to $1,126,000. Although Vail was unable to estimate the revenue from the newer phases of telephony, he believed they would be large enough to offset the company's ordinary and extraordinary expenses.[1] The General Manager thus presented a very rosy picture of the future.

Currently, however, Madden reported to him that orders for instruments were coming in very slowly and represented quite a decline from past business.[2] Vail explained that this was due to

> the present unsatisfactory and doubtful situation of affairs [concerning settlement with W. U.], but [I] have not the slightest doubt as soon as matters are arranged and people know just what they are doing that, orders will be forthcoming.[3]

The instruments shipped to agencies and exchanges declined from the

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1. Theodore N. Vail to William H. Forbes, November 1, 1879, AT&T, Box 1005.

2. O. E. Madden to Theodore N. Vail, November 20, 1879, AT&T, GMLB 30.

3. Theodore N. Vail to O. E. Madden, November 21, 1879, AT&T, GMLB 30.

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year's high of 4828 in June to its low of 2617 in September. The total increased to 3572 and 3577 in October and November but it did not rise above 4000 until December.[1]

The Board of Directors on November 13 authorized the president and treasurer to issue a circular offering the company's stockholders five hundred shares of stock on a pro rata basis.[2] The circular suggested that it was better to remain in Massachusetts if a charter could be secured there.

Pending the reorganization, however, considerable funds were required to make the necessary payments to the Western Union under the terms of settlement and to develop the telephone business. Therefore five hundred shares of stock being then held in trust were to be sold at $600 per share, producing $300,000 for the company's immediate needs.[3]

Among the tasks confronting the National Bell Telephone Company in the new year, according to its General Manager, was that of organizing the treasury with a view to future needs and establishing a system for auditing agents' accounts and enforcing collections.[4]

The National Bell Company was unable in January 1880 to secure loans from Kidder and Peabody and Company[5] and Blake Brothers and Company.[6] Apparently the terms proposed by President Forbes were unacceptable to

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1. "Instruments Shipped to and Returned by Agencies and Exchanges in the U. S.," AT&T, Box 1004.

2. Minutes of Directors' Meeting, November 13, 1879, National Bell Telephone Company, AT&T.

3. Circular, November 14, 1879, Minutes of Directors' Meeting, November 14, 1879, National Bell Telephone Company, AT&T.

4. [Theodore N. Vail], Report, December 15, 1879, AT&T, Box 1005.

5. Kidder and Peabody and Company to William H. Forbes, January 15, 1880, AT&T, Box 1195.

6. Arthur W. Blake to George L. Bradley, January 16, 1880, AT&T, Box 1195.

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these companies. Consequently the committee on reorganization reported that many of the company's stockholders were willing to advance the price of the stock to be sold in the new company, so that all the necessary funds could be secured before the company was organized.

The committee recommended that the treasurer be granted authority to make such loans as he found advisable and that payment in advance for new shares of stock be allowed upon the understanding that six shares of new stock were to be given for each one of the National Bell Telephone Company, and 9000 shares of the new stock were to be offered to current stockholders at par on a pro rata basis.[1] In this way the National Bell Telephone Company met its financial needs until reorganization as accomplished.[2]

Organization of a new company was delayed because the directors of the National Bell Company were encountering difficulties in securing a charter from the Commonwealth of Massachusetts, where they preferred to remain due to the telephone's historic connection with that state.[3] A special act of the legislature was necessary in order to secure a charter which would expressly permit the parent company to hold stock in other companies.[4] This was to be the means by which the national company would exercise control over the expanding telephonic network.

In seeking a new charter, the National Bell Telephone Company did not wish to be governed by the existing legal statutes which regulated the

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1. Memorandum, January 22, 1880, AT&T, Box 1195.

2. William H. Forbes to The Stockholders, March 8, 1880, AT&T, Box 1004.

3. "Storrow's Points," January 1880, AT&T, Box 1326.

4. U.S., Federal Communications Commission, Telephone Investigation; 1935, Exhibit 1360-A-Vol. 1, "A.T.&T. Co. - Corporate and Financial History," pp. 27-28.

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telegraph as a "common carrier of intelligence by electricity." J. J. Storrow, attorney for the telephone company, argued that since the Bell Company's work consisted mainly in affording the means for private and personal communications between houses and private premises, and not in transmitting public information, its lines could not be free to all as directed by statutes covering common carriers.

Storrow also argued that there would be no danger of a monopoly of lines since the telephone company's profit would result from extending the use of its instruments. He explained that the National Bell Telephone Company had granted the Western Union an exclusive license for the transmission of messages

> Not for the purpose of preventing their [telephones'] use for those purposes, but because in a compromise where the patents of both sides must be put together in order to enable anybody to use good telephones, we had to concede that they should serve the public with them in that particular branch.[1]

Despite Storrow's arguments there was opposition to granting the Bell interests a new charter. The discovery that the company would not permit its instruments to be used for the transmission of news to newspapers aroused some criticism in the legislature. Therefore President Forbes sought a readjustment of the pertinent provisions of the Western Union settlement which required this restriction of the telephone's use. He did so lest the issue cause the company's charter to be "loaded with amendments" or unacceptable laws to be passed regulating telephony.

Forbes pointed out that any law passed in Massachusetts would be examined and perhaps copied in other states as telephone questions arose. He explained: "I regard it as imperative that our charter and the earlier

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1. "Storrow's Points," January 1880, AT&T, Box 1326.

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laws that may be passed affecting telephones should leave us as untrammelled as possible."[1] The Western Union agreed to co-operate with its ally.[2]

Forbes considered the situation so critical that he did not feel it was safe for him to leave Boston since the enemy was watching for a chance to slip in an amendment to the charter.[3]

The directors of the Bell Company had investigated the possibility of securing a charter from Rhode Island, but with the receipt of an acceptable one from Massachusetts, Forbes advised C. S. Bradley to rescind the application being made in his state.[4] Subsequently the stockholders of the National Bell Telephone Company agreed to sell the company's property to the American Bell Telephone Company which the Massachusetts legislature had authorized to be incorporated with a capitalization up to $10,000,000.[5]

All signs pointed to a bright future for the Bell interests as the National Bell Telephone Company ended its first year of operations in March 1880. The company's most serious challenger had been eliminated as a result of a compromise settlement. The number of instruments being shipped to agencies and exchanges was rising.[6] The Company was supplying orders at the rate of nearly 5000 telephones per month.[7] There were hardly a dozen

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1. William H. Forbes to Norvin Green, February 6, 1880, AT&T, 1G.

2. William H. Forbes to Norvin Green, February 9, 1880, AT&T, Presidents' Letterbook 1A.

3. William H. Forbes to J. J. Storrow, February 10, 1880, AT&T, 1G.

4. William H. Forbes to C. S. Bradley, March 5, 1880, AT&T, 1G.

5. W. R. Driver to The Stockholders, March 31, 1880, AT&T.

6. "Instruments Shipped to and Returned by Agencies and Exchanges in the U. S.," AT&T, Box 1004; Instrument Report, AT&T, Box 1004.

7. William H. Forbes to The Stockholders, March 8, 1880, AT&T, Box 1004.

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cities with a population of 15,000 which did not have a contract for a telephone exchange. And, as President Forbes reported to his company's stockholders, attention was being devoted towards the connection of cities and towns with each other.[1]

The General Manager's report detailed more clearly the company's success. There were 35,141 instruments in the hands of agents, including about 25,000 Western Union instruments. The company's average net rental on exchange telephones had been increased from $5 to $6.50 per annum, and discounts currently being made were lower so that the average net rental would soon reach $7.

Despite the expectation that a large decrease in orders would occur after consolidation with the Western Union, orders continued to increase steadily thus indicating to Vail's satisfaction that the past demand had been healthy and not created by competition and rivalry.

The National Bell Company owned almost the entire interest in the Chicago and Boston exchanges. It also owned a majority interest in exchanges in New York and California, plus a large interest in the Philadelphia exchange. Vail reported that these companies were already operating on a profitable basis and would provide the national company a "very handsome" net revenue for the current year. He was sure this revenue would greatly increase in future years.

The company's exchange contracts embraced 998 cities and towns, ranging in population from 5000 to 15,000. There were only 175 cities and towns of similar size not yet covered.

Vail estimated that the company's net revenue for 1880 would amount

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1. Ibid.

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to $460,000.[1] This represented about seven percent on $6,500,000 of capital.[2] Although the General Manager gave his estimate without comment, the treasurer's office sounded a cautious note. While recognizing that the stockholders might find it reasonable to hope for a result as good as this, it reminded them that the conditions of the company's business were novel and the machinery for enforcing payments was still crude. Nevertheless,

> If . . . the business continues to increase as every present indication leads us to expect the net income will be compounded rapidly after this year. Our running expenses will not increase in any appreciable proportion to the receipts and with only such a demand as there seems reason to expect the net income would easily increase in each year 6 or 7% upon a capital of $6,000,000 for some years to come while if branches of the business outside of the simple rental of telephones prove as successful as may be fairly hoped for there is a good prospect of a more flattering prospect.[3]

President Forbes reported to the stockholders on March 29 that the company's financial requirements for the next twelve months amounted to $1,300,000. The sum was large, but future prospects were excellent since he was also able to report that "the danger of competition from newcomers seems small," and arrangements had already been made for the reorganization of the company with a larger capitalization.[4]

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1. Theodore N. Vail to William H. Forbes, March 10, 1880, AT&T, Box 1004.

2. Digest of General Manager's Report, March 10, 1880, AT&T, Box 1004.

3. Ibid.

4. William H. Forbes to The Stockholders, March 29, 1880, AT&T, Box 1004.

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CHAPTER XIV

THE WESTERN UNION SETTLEMENT

On April 1, 1879, soon after the organization of the National Bell Telephone Company, eighteen stockholders, representing a majority interest, agreed to withhold from sale stated amounts of their stock in order to protect themselves against an attempt by the opposition to purchase control of the company. They further agreed not to give their proxies to anyone except to each other. The agreement was to remain in force until April 1, 1880, or until the subscribers agreed to terminate it.[1] It was a measure of the apprehended danger.

On December 15, 1879, the investors terminated their agreement.[2] They did so because a settlement had been reached with the Western Union. The threat which had given rise to the agreement no longer existed. This chapter will trace the maneuverings and dealings which saved the day.

Dr. Samuel S. White, a major stockholder in the American Speaking Telephone Company, appears to have initiated the latest phase of negotiations which resulted in an exchange of proposals by April 11, 1879. He advised Forbes that if each side could submit a modified plan, the main features of which would be acceptable to the other, then it would be comparatively easy to settle the remaining points of disagreement. White also speculated that after all the testimony had been given in the Dowd suit, both sides might be more receptive to proposals which avoided the delay of arbitration. He

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1. Stockholders' Agreement, April 1, 1879, AT&T, Box 1196.
2. Stockholders' Agreement, December 15, 1879, AT&T, Box 1196.

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believed it better for each side to surrender something rather than continue a costly fight.[1]

J. J. Storrow advised President Forbes to agree to a plan of union if it gave the Bell interests fifty percent of the stock in a consolidated company, with an additional twenty-five percent set aside to be awarded at a later time. The National Bell Company would agree to surrender half of the latter amount should it be defeated in its suits. Storrow advised: "I should incline to take it [a proposition] basing my judgment on commercial considerations and on the general risk of litigation and not on any special fears about your legal rights, so far as I can see them."[2]

Storrow did not believe that the Western Union would press a legal suit against a patent it partly owned, nor that a court would hear such a case. He advised that any settlement should place responsibility on the opposition for not settling the dispute by a trial.[3]

Forbes was skeptical about the possibility of consolidating with the Western Union, because a Western Union vice president had told Gardiner Hubbard that his company would not consent to any agreement advantageous to the Bell Company. Consequently Forbes had not asked his directors to commence negotiations, although he concurred with White in desiring a union. Forbes' initial proposal was the result of a consultation with C. S. Bradley, not the Board of Directors.

The major obstacle to consolidation was the Western Union's insistence on a majority of the stock. Forbes could not recommend a plan so dangerous

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1. Samuel S. White to William H. Forbes, April 11, 1879, AT&T, Box 1126.

2. J. J. Storrow to William H. Forbes, April 6, 1879, AT&T, Box 1126.

3. Ibid.

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to the Bell stockholders. He explained to White:

> While I believe, as, I told you . . . that a plan can be derived which will protect the interests of the Western Union Company, and at the same time give to the owners of the telephone patents the legitimate fruits of their own business, it seems to me, if the former company maintains the attitude I have described, that it would be a waste of time to attempt a negotiation.[1]

However, Forbes was ready to present the matter before the Board and join White in the attempt to make such a negotiation a success if it assumed a different shape and if White believed a combination could be made on terms satisfactory to both sides.[2]

White suggested that Hubbard's report did not correctly represent the views of the opposition. White contended that his attitude represented the spirit with which Forbes would be met, and he urged Forbes to inform the directors of recent negotiations. Since everyone admitted the desirability of a union, White was convinced that sensible, intelligent men could arrange it.[3]

White informed Forbes that he had secured the consent of a long-standing member of the executive committee of the Western Union and Gold and Stock companies to combine all the telephone interests in a new organization. This company was to be capitalized at $2,000,000, $500,000 of which was to remain in the treasury as working capital, and the remainder to be divided among the telephone interests.[4]

Forbes did not act hastily, despite White's urgings; he promised only to bring the matter to the directors' attention at a future meeting of the

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1. William H. Forbes to Samuel S. White, April 18, 1879, AT&T, 1G.
2. Ibid.
3. Samuel S. White to William H. Forbes, April 19, 1879, AT&T, 1G.
4. Samuel S. White to William H. Forbes, April 22, 1879, AT&T, 1G.

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Board. He may have been stalling in an effort to have the testimony in the Dowd case continue, believing that the enemy's chief argument, i.e., that the instruments described in Bell's first patent would not work, was about to fail and therefore the Bell Company's broad patent claims would be sustained.[1]

The opposition did not admit to being at all concerned about this possibility. White informed Forbes that the Western Union was on the verge of instructing all its offices to commence canvassing subscribers preparatory to establishing telephone exchanges. White suggested that Forbes' counsel had probably concluded, as had Western Union's, that the telephone patented by Bell was not very practical and that the practical instrument invented by him was not patented. If the courts decided that the Bell patent covered the magneto telephone, the Western Union could always rely upon the Edison, which would not infringe upon it. White professed to make these remarks merely to stimulate Forbes' inquiry in these directions.[2]

Forbes appreciated the intent of White's suggestions but believed that the two competing interests were too far apart in what each expected from the suit for an accord to be reached just then. Any attempt to negotiate immediately might actually retard progress when conditions were "riper." Forbes concluded that the course of the suits might modify the terms each side now offered, and he suggested a temporary arrangement pending a court decision. He wished it clearly understood that the National Bell Telephone Company insisted on controlling certain phases of the business. However, a plan could be devised which would protect the Western Union from competition and still develop the telephone business rapidly.

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1. William H. Forbes to R. S. Fay, April 26, 1879, AT&T, 1G.

2. Samuel S. White to William H. Forbes, April 26, 1879, AT&T, Box 1126.

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Forbes introduced the subject to the Board of Directors. Its general view, like his, was that a better time for negotiations would probably be after all the testimony had been heard in the Dowd case. Nevertheless the Board was prepared to consider any proposition that might be offered.

Forbes recognized the Western Union's right to make all-our war by cutting rates, but suggested that such a policy was actually contrary to its best interests since both companies could reap handsome rewards while the litigation continued. Moreover, a general attack against Bell exchanges would create great local opposition to the Western Union, because all but two or three Bell exchanges were owned by local interests.[1]

On May 3, Dr. White indicated the features of an organization which he believed practicable and free from the defects which had blocked success before. He reminded Forbes that the concept of arbitration which Forbes found unacceptable had originally been suggested by Judge Bradley.

According to White's latest plan all the telephone interests should be concentrated in a new company capitalized at $5,000,000. The National Bell Telephone Company and the American Speaking Telephone Company would each receive $1,500,000 worth of stock, out of which each would contribute $400,000 for working capital. The remaining $2,000,000 worth of stock was to be divided by a board of arbitrators which would decide the respective values of the competing patents after testimony had been given in the suit.

The Bell Company and the American Speaking Telephone Company would turn over to the new company all telephones in use. The Western Union and Gold and Stock companies would pay for all instruments they might use. All telephone exchange business would be left to the new company while the Gold and Stock would retain the private line business. White concluded that the

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1. William H. Forbes to Samuel S. White, April 30, 1879, AT&T, 1G.

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new company would be as competent to take care of the Bell interests as its present organization.[1]

Apparently the opposition was sincere about negotiating a settlement, because the Western Union empowered White to open discussions and he spent several days in Chicago with Forbes.[2] While there, he fully disclosed the nature of the opposition's legal organization. Forbes believed that White, as a stockholder in the American Speaking Telephone Company, was chiefly motivated by his desire to prevent the infanticide of the telephone business.

White acknowledged that the Bell Company had surpassed the opposition in developing the telephone business. The Bell Company had rented about 30,000 instruments which gave the public satisfaction, while its opponents had rented only about one-third of this number at approximately four times what it had cost the Bell Company and their instruments did not give the public satisfaction.

Forbes concluded that the opposition was playing a losing game and knew it. Bell Company legal counsel, moreover, were confident that the courts would grant the company's broad claim on Bell's patent, thereby giving it exclusive right to use the telephone.

President Forbes therefore believed that the opposition was truly anxious to compromise, and that the Western Union and the American Speaking Telephone Company were prepared to sacrifice the Gold and Stock Company to accomplish this, Consequently he and Judge Bradley were inclined to think that White's proposal, with modifications, might be the safest course for the company to adopt. The National Bell Company's lawyers were confident that competent arbitrators would grant a large majority of the reserved

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1. Samuel S. White to William H. Forbes, May 3, 1879, AT&T, Box 1126.

2. William H. Forbes to R. S. Fay, May [3-9], 1879, AT&T, 1G.

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stock to their company. Even if not, the Bell Company would still secure a substantial interest and a powerful alliance.[1]

It seemed better to Forbes, however, to postpone the consolidation until the courts had made their decision, so that the parties who were to own the property might control the preliminary arrangements which would have an important influence on future business. Meanwhile, he advised an arrangement whereby both companies could continue their business without competition.[2]

White continued to urge prompt action. His side was not anxious to have the presidency of the company. If both sides elected the same number of directors, Vail would most likely be retained as superintendent. White believed that the proposed plan would stop the destructive, demoralizing competitive bidding. He pointed out also that certain individuals who supported consolidation were considering going abroad and their absence might seriously interfere with the completion of arrangements.[3]

Forbes informed White that the directors at their next meeting in mid-May would probably favor consideration of a union, but that the selection of arbitrators might be difficult. Furthermore, a formal court decision would furnish protection for future patent owners against all comers, protection which no mere arbitration could provide and which would be of special importance to the Western Union if the Bell Company gave it exclusive patent rights.[4]

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1. William H. Forbes to R. S. Fay, May 9, 1879, AT&T, 1G.
2. Ibid.
3. Samuel S. White to William H. Forbes, May 14, 1879, AT&T, Box 1126.
4. William H. Forbes to Samuel S. White, May 15, 1879, AT&T, 1G.

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White felt, on the contrary, that the previous testimony and the unity of interests would provide an impregnable front to all challengers. Besides, an agreement making the two telephone interests partners would make the argument of cases before the court improper. White saw only three choices: an agreement without arbitration, an agreement by means of arbitration, or a "fight to the bitter end without agreement."[1]

The National Bell Telephone Company's directors, at a special meeting, appointed President Forbes, C. S. Bradley and R. S. Fay to a committee to consider White's proposal and any other communications on the subject. The committee was instructed to report at a future meeting of the Board.[2]

Bell agents naturally became concerned about their future as word of the negotiations leaked out. Vail reassured them that if a consolidation occurred it would be on a basis that would fully protect everyone connected with the National Bell Telephone Company. He stated that the company had "no intention of being absorbed or swallowed up by any organization, feeling and knowing as we do that it is but a question of time when the telegraph will be absorbed by the telephone, and not vice versa."[3]

Among the points being considered in connection with the proposed consolidation was the Bell Company's agreement not to compete with the Western Union in its telegraph business. In addition the National Bell Telephone Company was not to connect or give business to rival telegraph companies. White considered this provision as a counterpart to the Western Union's agreement to rent their telephones only from the telephone company

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1. Samuel S. White to William H. Forbes, May 16, 1879, AT&T, Box 1125.

2. Minutes of Directors' Meeting, May 16, 1879, National Bell Telephone Company, AT&T.

3. Theodore N. Vail to E. F. Keirn, May 20, 1879, AT&T, GMLB 23.

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at the rates paid by most other favored subscribers. Moreover, he believed that where the telephone company established telephone connections and furnished business to the Western Union, the latter would agree to pay a commission.[1]

The Western Union was justifiably concerned about being protected against competing telegraph companies because Jay Gould was in the process of creating an important rival.[2] President David H. Bates of the Central Union Telegraph Company, the nucleus of Gould's organization,[3] advised Vail that only by a connection with a public telegraph company could the Bell interests hope to meet the public's desires while at the same time being equipped against the Western Union. He pleaded: "I beg of you . . . to delay . . . We certainly can do as much for you as the other parties and will go ahead and going ahead must naturally help you."[4]

Vail appreciated the potential value of competition between Jay Gould's organization and the Western Union. In response to a Bell agent's complaint that the Western Union would not receive messages from his exchange Vail advised:

> You can say to your customers that before Fall there will be an opposition telegraph reaching to all the prominent points in the country, in complete working order and it strikes me [that] with that opposition in the Fall the W. U. will only be too glad to be allowed to receive messages from your exchange.[5]

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1. Samuel S. White to William H. Forbes, May 21, 1879, AT&T, Box 1126.

2. Julius Grodinsky, Jay Gould (Philadelphia: University of Pennsylvania Press, 1957), pp. 202-203.

3. Ibid., 203.

4. D. H. Bates to Theodore N. Vail, May 23, 1879, AT&T, Box 1191.

5. Theodore N. Vail to D. H. Ogden, May 26, 1879, AT&T, GMLB 23.

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The Western Union demonstrated no apparent concern about the possible effects of telegraphic competition upon its telephone fight. Rather than awaiting decisions against companies or their agents, it began suing individuals whom it considered to be using infringing (Bell) instruments. Forbes warned White that this tactic would seriously prejudice negotiations and impair the business which was the principal inducement to consolidate.[1]

As evolved by May 26, 1879, the Western Union's chief proposal for consolidation consisted of a new company whose stock was to be divided by arbitration. All its telegraph business was to be given to the Western Union. Furthermore, it was not to compete with the Gold and Stock Company in commercial news and private line business, although the new company would retain district and exchange work. The Western Union and Gold and Stock companies were to pay a royalty on all telephones they used. The new company was to build telephone feeder lines to the Western Union if the latter so desired.[2]

At the end of May, Forbes, Bradley and Fay reported to the Board of Directors that the opposition preferred to decide the issue of patent rights by arbitration, whereas they, the committee, believed that a court decision could be readily achieved and would strengthen the patents. Moreover, the National Bell Telephone Company had better claims to the telephone patents, and yet arbitration would very likely divide the patent interests equally. The committee recommended that an alternative proposition be submitted to White and Green.[3]

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1. William H. Forbes to Samuel S. White, May 22, 1879, AT&T, 1G.

2. William H. Forbes to Gardiner G. Hubbard, May 26, 1879, AT&T, 1G.

3. Memorandum for Report of Committee on Consolidation, May 30, 1879, AT&T, Box 1126.

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After "protracted discussion" the Board of Directors unanimously endorsed a proposition of fifteen points. Any agreement was to include the Harmonic Telegraph Company, the American Speaking Telephone Company, and the Gold and Stock Telegraph Company as well as the Western Union and National Bell companies. The contracting parties were to surrender all telephone and auxiliary patents held currently or acquired during the term of the agreement to one telephone company, which should be given all telephone business except as provided for. The assignment of patents was not to affect the status of the parties in the several suits in equity.

Until the division of interest occurred the business of the telephone companies was to be conducted under the direction of a committee chosen by the AST and National Bell companies.

The capital stock of the new telephone company was to be not less than $5,000,000, of which the American Speaking Telephone Company and the National Bell Telephone Company would get one-fifth each. The remainder was to be divided as agreed by the committee with the aid of counsel. It was to be understood that the Dowd suit, or some other suit as might be devised by counsel, was to be carried on to judgment so as to "vindicate" the rights of Alexander Graham Bell as inventor of the telephone.

Neither the new company nor its district and exchange systems was to compete with the Western Union or Gold and Stock companies. Insofar as it was possible the telephone company was to turn over all telegraph business to the Western Union. The new company was to be given all telephones and property in consideration of the agreement and was to respect existing contracts.[1]

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1. Minutes of Directors' Meeting, May 30, 1879, National Bell Telephone Company, AT&T.

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By direction of the Board of Directors, its chairman appointed a committee of five with full power to arrange a settlement.[1] The committee asked the company's counsel for a plan to let the suits take their natural course, and it also sought a plan of arbitration from Judge Bradley.[2]

White continued urging a prompt end to the "miserable" competition. He reported increased resistance from his side to any compromise plan, and claimed to have forestalled a suit against the National Bell Company for its use of the Blake transmitter only through his assurances that an agreement would be made. Some on the Western Union side, he said, suspected the Bell Company of using the negotiations merely to better its position in the field. So his own position would be unpleasant and difficult to justify if a combination were not accomplished.[3]

The Bell Company's special committee gave the president a proposal for White which was to become the basis of negotiations between the two parties. Forbes was also to inform White that each side would probably have to disclose existing liabilities and contracts before any arrangement was completed. The committee also named William H. Forbes, Gardiner G. Hubbard and C. S. Bradley as a sub-committee to formulate a plan for the division of stock.[4]

The proposal to White contained the principles previously agreed upon by the directors. The American Speaking Telephone Company was to receive $800,000 of the $5,000,000 capital stock, while the National Bell Telephone

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1. Ibid.

2. Minutes of Special Committee, June 2, 1879, in Minutes of Directors' Meeting, National Bell Telephone Company, AT&T.

3. Samuel S. White to William H. Forbes, June 4, 1879, AT&T, Box 1126.

4. Minutes of Special Committee, June 6, 1878, AT&T.

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Company was to receive $1,200,000 "in view of the productive value of the business brought by it." Three hundred thousand dollars of stock was to be set aside for sale as working capital or for division as might be decided. The remaining $2,700,000 of stock was to be assigned to the contracting parties in accordance with a plan to be submitted.[1] The proposal provided, however, that in the final distribution of stock each of the two opposing parties was to receive not less than $1,000,000 of the total stock.[2]

The special committee rejected the earlier proposal by Dr. White for a company capitalized at $5,000,000: $1,000,000 for each of the opposing telephone companies, $500,000 for working capital and the remaining $2,500,000 to be divided after a decision of the courts or by a later plan of arbitration.[3]

White questioned the Bell Company's method of dividing the stock and its introduction of the concept of "productive value of the business." Furthermore, while his side considered $500,000 as sufficient working capital, it preferred that $1,000,000 be set aside for that purpose. He also questioned the meaning and implication of some of the Bell Company's terminology.[4]

White interpreted the Bell provision for the new telephone company's exclusive right to the district and exchange business as not only eliminating the Gold and Stock Company's several exchange systems but also restricting its operation of the private line business so as to make it relatively worthless. White concluded:

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1. Memorandum, Minutes of Special Committee, June 6, 1879, AT&T.

2. Ibid.

3. Minutes of Special Committee, June 7, 1879, AT&T.

4. Samuel S. White to William H. Forbes, June 11, 1879, AT&T, Box 1126.

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> My understanding has always been that exchanges existing under the auspices of either Co. at the time of the consolidation were to be excepted from the arrangement by which the new Co. was to have the Exchange business exclusively. This would leave the rival companies in most of the large cities, but I have believed that if the parent companies are reconciled, the local companies would soon come to agreement.[1]

White was correct in his assessment that the Gold and Stock's business would be severely curtailed. Vail was absolutely sure that if a compromise were effected, the Gold and Stock Company would have less to do with telephony than it currently did. Indeed, the Gold and Stock Company was not even being considered by either side since arrangements were substantially being made with the Western Union and the American Speaking Telephone companies.[2]

Forbes disagreed with White's views regarding the disposition of competing exchanges. If the new telephone company gave up the telegraph business, the opposition companies ought to get out of the district and exchange telephone business. The Bell Company owed this much relief to its district and exchange licensees. Further, Forbes indicated that his company had decided not to submit the questions of law to arbitration, but to leave these to the courts.[3]

Vail believed that the National Bell Company's insistence on giving the new company all telephone exchange business explained Western Union attempts to buy control of Bell exchange companies. If the Bell Company's terms prevailed, these companies would be very valuable.[4] Forbes felt that this Western Union tactic conflicted with the spirit of current negotiations

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1. Samuel S. White, Memorandum, June 10, 1879, AT&T, Box 1111.
2. Theodore N. Vail to E. J. Hall, June 19, 1879, AT&T, GMLB 24.
3. William H. Forbes to Samuel S. White, June 14, 1879, AT&T, 1G.
4. Theodore N. Vail to O. E. Madden, June 18, 1879, AT&T, GMLB 24.

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and might seriously jeopardize them.[1] In fact the National Bell Company now contemplated a more vigorous opposition to its competitors. Vail explained to Madden:

> Next week will decide the matter definitely whether we are to have peace or war, and if it is war our parties will go into it for the purpose of 'staying' until we are either obliged to pull down our flag or until we have conquered the enemy . . . If we go into this business [competing exchanges], we shall go in with plenty of money to build and carry on telephone exchanges wherever it is necessary.[2]

White proposed a meeting between committees from the opposing companies to determine which features of the negotiations were unclear and to conclude those which they agreed upon, leaving all others to arbitration. He felt that a committee could then be selected to run the business.[3] The meetings went smoothly.

According to Gardiner Hubbard the Western Union admitted the Bell Company's claim that it should be paid a consideration for the value of the telephone as well as for rentals. It also agreed to pay a commission on all business Bell exchanges delivered to it. Perhaps weakening under the Bell Company's threats not to compromise, President Norvin Green not only agreed to reconsider his company's position on the question of arbitration but also stated his wish not to see the Bell patents defeated under any circumstances since the Bell Company would bring a large amount of telephone business to the Western Union, and he preferred to have this done by one company rather than many. Hubbard concluded: "The general result of the meeting was to produce a more kindly feeling towards each other."[4]

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1. William H. Forbes to Samuel S. White, June 18, 1879, AT&T, 1G.

2. Theodore N. Vail to O. E. Madden, June 20, 1879, AT&T, GMLB 24.

3. Samuel S. White to William H. Forbes, June 11, 1879, AT&T, Box 1126.

4. Gardiner G. Hubbard to Thomas E. Cornish, June 25, 1879, AT&T, Box 1054.

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Rumors about the probable combination worried not only Bell agents but also D. H. Bates, head of Gould's rival telegraph organization. Bates claimed that the existence and growth of his company strengthened the Bell Company's negotiating position, and he urged the Bell people not to make a final deal until they had discussed possibilities with his company.[1] Bell agents themselves suggested that a connection with the Western Union's competition might be a useful weapon in the struggle, even though such a connection would require the National Bell Company to relinquish its exclusive rights to the collection and delivery of telegrams to exchanges. The agents had a growing feeling that the Western Union was delaying negotiations in order to occupy the field.[2]

Fearing that the Bell Company was not braced for an attack, Superintendent Madden warned that under cover of compromise talk the opposition was preparing for a bitter, all-out fight. "I am sure," he wrote, "that the train is being laid with consummate skill throughout the entire U. S. to be fired the hour that no compromise is reached. We should be ready with bucket and torch."[3]

By the end of June negotiations had reached an impasse.[4] The main obstacle was whether or not the outstanding differences should be settled by arbitration of legal suit.

Western Union's lawyer, George Gifford, objected to a settlement by litigation since it was likely to take a long time and was liable, as a

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1. D. H. Bates to Theodore N. Vail, June 26, 1879, AT&T, Box 1191.
2. E. J. Hall to Theodore N. Vail, June 28, 1879, AT&T, Box 1164.
3. O. E. Madden to Theodore N. Vail, July 9, 1879, AT&T, Box 1197.
4. William H. Forbes to Norvin Green, June 28, 1879, AT&T, 1G.

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result of sharp controversy and close scrutiny, to expose the weak points in each of the patents and reduce them to such a very narrow interpretation so as to advertise to inventors the very points they needed to know to produce a non-infringing instrument. President Norvin Green believed that no progress could be made as long as the companies' respective counsel diverged so widely. He therefore concurred with a suggestion by Forbes that Smith and Gifford meet to ascertain basic points of agreement and disagreement.[1]

Prior to sailing for London, Hubbard reported to Forbes on his latest conversations with Green. He mentioned Green's approval of a legal conference but advised deferring it until after Alexander Graham Bell had given his deposition in the Dowd case, since Gray had already given his. Hubbard informed Forbes that Green had no objection to deciding the questions by lawsuit. (Either Hubbard misunderstood Green's position or Green was trying to confuse the issue.) Green seemed anxious for an early accommodation. He told Hubbard that Dr. White would naturally co-operate, having no interest in either the Gold and Stock Company or the Western Union, and that the Western Union would lend the new company between $100,000 to $200,000 if needed. Hubbard tried to negotiate a separate agreement with the Western Union, but Green thought the idea unfair to the Gold and Stock Company and to Dr. White. Green assured Hubbard that the Western Union would not push any new district companies while negotiations were continuing. Both Green and Walker also denied that their companies had undercut the Bell Company's prices.[2]

Forbes agreed with the idea of stopping competition as far as was practicable, since both sides were working not to injure the business but

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1. Norvin Green to William H. Forbes, July 2, 1879, AT&T, Box 1126.

2. Gardiner G. Hubbard to William H. Forbes, July 3, 1879, AT&T, Box 1126.

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to bring it into joint ownership.[1]

On July 4, he told Chauncy Smith that the other side would submit no new propositions until Smith had conferred with Gifford on the agenda and manner of arbitration and on alternative plans for settling differences by lawsuit. However, Forbes advised, "if Mr. Gifford appears inclined to recommend a direct settlement to his parties, you encourage his leaning in that direction as I think our committee would much prefer this method."[2]

While Green would not pledge to cease establishing exchanges, claiming that his company's lack of activity had already placed it at a disadvantage, he did assert that the Western Union was not projecting any new exchanges. Those recently completed had been started before negotiations began. He correctly predicted, in fact, that the chief difficulty would result from the exchanges which the National Bell Company had established, since their rights and property were beyond that company's control.[3] In reply, the Bell Company offered to do nothing by new arrangements or under old ones, until September 1, that would complicate the negotiations.[4]

Smith and Gifford met late in July. At Gifford's urging Green accepted a proposal by Forbes that for twenty days while the lawyers were conferring, nothing should be done by the companies to prejudice their work.[5]

Having heard that Bell agents were dealing with Western Union's telegraphic rivals, Green wished to know if they possessed authority to do so.[6]

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1. William H. Forbes to Norvin Green, July 3, 1879, AT&T, 1G.
2. William H. Forbes to Chauncy Smith, July 4, 1879, AT&T, 1G.
3. Norvin Green to William H. Forbes, July 7, 1879, AT&T, Box 1126.
4. William H. Forbes to Norvin Green, July 8, 1879, AT&T, 1G.
5. William H. Forbes to Norvin Green, July 25, 1879, AT&T, 1G.
6. Norvin Green to William H. Forbes, July 25, 1879, AT&T, Box 1126.

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Forbes explained that only in a few places did Bell licensees have rights which could be of service to any such rivals. In Albany, the principal place where the Bell Company's telegraphic restrictions on its licensees had been suspended, the American Union Telegraph Company, Western Union's rival, had already purchased the rights. In agreeing to the twenty-day armistice, Forbes promised to continue those restrictions, although the company would feel free to sell its interests in exchange companies. He did not interpret the truce to mean that its agents would completely cease to establish exchanges. However, the company's chief canvassing agent would immediately be stopped from opening new territory and Forbes expected that his Western Union counterpart, H. H. Eldred, would be stopped also.[1]

The Western Union for its part did not interpret the truce as a bar to the supplying of current demand for telephones, provided they could be turned over at cost to the new company in case of a settlement. Green ordered that no more local organizations be formed but permitted the work being done for the Western Union's own account and with its own money to continue, since it would be entirely within the company's control in the event of a settlement.[2]

These qualifications of the truce probably account for the charges of violation made by agents on both sides.

While the opposing counsel tried to overcome the existing impasse, an event was occurring which would ultimately provide the basis for a compromise settlement.

The Bell Telephone Company had awarded to James M. Ormes of New York

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1. William H. Forbes to Norvin Green, July 25, 1879, AT&T, 1G.

2. Norvin Green to William H. Forbes, July 26, 1879, AT&T, Box 1126.

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an agency contract for the states of Virginia, West Virginia, North and South Carolina, Georgia, Florida and Alabama, excepting such areas as had been previously granted to other parties. Ormes' contract was for five years with the right of renewal for five years more. However, during the first six months, if the Bell Company were dissatisfied with Ormes' accomplishments it had the right to terminate the contract.[1]

Despite intense competition from the Western Union,[2] Ormes made excellent progress in his territory. Gardiner Hubbard commented:

> The value of the Southern territory has proved to be of very much more importance than any of us supposed when our arrangement with him [Ormes] was made. He has a very valuable contract, and has performed his work to our satisfaction and is therefore entitled to his permanent contract.[3]

In addition to making Ormes' contract permanent, the Board of Directors authorized the president and treasurer to remit to Ormes the rentals previously received on telephones leased in Richmond, Virginia, up to the amount of $1,000. It also authorized the purchase of up to $10,000 of stock in the Richmond and Petersburg Telephone Company which Ormes was to organize.[4] Thus drawing upon the National Bell Company for financial support, Ormes prepared to do battle with the opposition.[5]

In mid-July Ormes informed the National Bell Company that the Gold and Stock Company would agree to cease all telephone business in the South in

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1. Theodore N. Vail to James M. Ormes, December 27, 1878, AT&T, Box 1034.

2. D. I. Carson to Thomas A. Watson, May 9, 1879, AT&T, Box 1148.

3. Gardiner G. Hubbard to William H. Forbes, May 24, 1879, AT&T, Box 1264.

4. Minutes of Directors' Meeting, June 2, 1879, National Bell Telephone Company, AT&T.

5. James M. Ormes to Theodore N. Vail, June 5, 1879, AT&T, Box 1148.

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return for $1 on each Bell telephone Ormes installed. The Gold and Stock Company's general agent for the South would also be willing to join with Ormes financially, and Ormes estimated that on this basis he could install between 8000 and 10,000 instruments during the next fifteen months. Affirming his loyalty to the Bell cause, Ormes explained that his field was a "hot one" where prices were fearfully cut. Under the terms of this proposal he was convinced that he could rent four times as many instruments and still control the business.

At the same time, Ormes informed the National Bell Company of a flattering offer he had received from the American Union Telegraph Company to aid him in his territory. He therefore was eager to learn if he were at liberty to act on either proposition.[1]

Ormes and the Gold and Stock general agent for the South, DeLancy H. Louderback, conferred with William H. Forbes on July 22, 1879. Louderback explained that neither he nor Ormes was asking for concessions from the National Bell Company but instead wished to know if their plan met with Forbes' approval, if indeed Ormes possessed the same territory as did Louderback, and if the Bell Company would continue to grant Ormes contracts as previously where both wished to open joint exchanges.

Louderback noted that in return for the $1 payment to the Gold and Stock, he and Ormes would secure their territory free of competition, and the Gold and Stock would permit him to decide which instruments to use. Ormes and Louderback did and would agree to use only Bell telephones, thus enabling the National Bell Company to receive a rental on every telephone used in their seven state territory. The arrangement would also enable Ormes and Louderback to "make some money, instead of doing Public Service,

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1. James M. Ormes to William H. Forbes, July 18, 1879, AT&T, Box 1034.

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at a loss, or a very small profit."[1]

The two agents wished it clearly understood that in the event of any war between the National Bell Telephone Company and the Western Union or Gold and Stock Telegraph Company, their seven-state territory was to be considered neutral ground and they were not to be required to sacrifice themselves. Louderback concluded: "In any light the matter is placed, it is of advantage to your company, as it secures you all, the entire field, as far as Rentals and Phones go, and enables us to put in, two to one, as against the present arrangement."[2]

Forbes responded that the National Bell Company would not object to Ormes' paying a royalty to the Western Union and Gold and Stock companies in order to keep them out of his territory. But before the Bell Company could agree to using the opponents' money in establishing exchanges, Forbes wished to know the terms and conditions upon which this money was to be contributed, especially as to telegraph and telephone connections with other cities which the Bell Company normally reserved to itself. If an agreement could be made with the proper guarantees for the opposition's withdrawal and a satisfactory contract could be executed for the district and exchange business, Forbes would recommend the Bell Company's approval of Ormes' proposition.[3]

Ormes wired Forbes that the Gold and Stock Company guaranteed him undisturbed control of his territory under the same contracts he currently used, including the National Bell Company's reservation of telegraph business.[4]

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1. D. H. Louderback to William H. Forbes, July 23, 1879, AT&T, Box 1034.
2. Ibid.
3. William H. Forbes to James M. Ormes, July 24, 1879, AT&T, 1G.
4. James M. Ormes to William H. Forbes, July 25, 1879, AT&T, Box 1034.

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Vice President H. M. Twombly of the Western Union explained that he was willing to finance Ormes and Louderback and give them exclusive control of their territory because he believed it would be profitable and also because of his company's great desire to "head off" the American Union Telegraph Company. Twombly was anxious to have Ormes' exchanges' co-operation with the Western Union in gathering and delivering telegraph business.[1]

Ormes requested permission on July 29 to join with Louderback on the proposed terms including a commission to the National Bell Company in return for its rights in collecting and delivering telegraph business.[2] Assured that Ormes and Louderback would control any exchange in which the Western Union might invest, Vail recommended adoption of the proposition, giving Ormes the exclusive right to organize district companies in the South under the National Bell Company's standard contract for one year.[3]

Meanwhile the Western Union was attempting similar settlements with other Bell agents. It offered to keep out of Burlington, Vermont, if the Bell licensee would deliver telegraphic business to it exclusively, and out of Dayton, Ohio, if the Bell agent there agreed to use an Edison transmitter instead of the Blake wherever a battery instrument was required. Vail interpreted this to mean that nothing but Bell telephones would be used, since the Bell magneto instrument sufficed wherever there was no opposition.[4]

Although Vail doubted the wisdom of any "detached arrangement," he felt that Ormes' arrangement would establish a precedent of great value in future negotiations.[5] On August 8, 1879, the National Bell Company's special

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1. James M. Ormes to William H. Forbes, July 25, 1879, AT&T, Box 1034.
2. James M. Ormes to William H. Forbes, July 29, 1879, AT&T, Box 1034.
3. Theodore N. Vail to William H. Forbes, July 30, 1879, AT&T, Box 1034.
4. Ibid.
5. Ibid.

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negotiating committee approved Ormes' agreement for submission to the Board of Directors.[1] Two weeks later the Tri-Partite contract embodying the Ormes-Louderback arrangement was executed.[2] By its terms James Ormes received an exclusive contract from the National Bell Telephone Company to establish district telephone exchanges in his territory for ten years. The National Bell Company retained the right, however, to establish or to license others to establish exchanges in any place not occupied within fifteen months. If the national company availed itself of this right, all such exchanges were to be subject to the condition of Ormes' contract.

The National Bell Telephone Company agreed to turn over to the Western Union exclusively, insofar as it was able to, all messages collected by the district exchanges for transmission to other points. The Western Union would forward those at regular rates and pay the Bell Company a fifteen percent commission upon the gross tolls. If it used the telephone for delivery it would pay a "fair price."

In consideration of a bonus not to exceed $1 on each telephone rented in the Southern territory, the Western Union Telegraph Company, representing the Gold and Stock Telegraph Company, the American Speaking Telephone Company and the Harmonic Telegraph Company, agreed to stop renting telephones there, giving the National Bell Telephone Company and its licensees exclusive rights in that territory to telephone inventions or improvements owned by the Western Union and its associates.

The National Bell Telephone Company or its licensees might connect Western Union telegraph stations with any place in the territory having

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1. Minutes of Special Committee, August 8, 1879, AT&T.

2. Tri-Partite Contract, August 26, 1879, AT&T, Box 1004.

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no Western Union line or office. The Bell Company agreed to turn over all messages collected from these points to the Western Union exclusively. It would not connect nor co-operate with any other telegraph company.

If the National Bell Telephone Company built lines in a new area and developed business for the Western Union, the latter was not to build to these points without continuing to pay the regular commission on all business gathered from there or acquiring the National Bell Company's plant at cost.

In retaining the right to connect district telephone exchanges or cities and towns for the personal communications of subscribers, the National Bell Telephone Company agreed that its lines were not to be used for the transmission of general business messages, market quotations or news for sale or publication in competition with the Western Union or its associates.

Finally, if the Western Union or its associates wished to use telephones in their business within the Southern territory they were to pay the Bell Company the same rental as other parties using them for similar purposes. The Western Union agreed to use no instruments except those furnished by the National Bell Telephone Company.

The Tri-Partite contract was to remain in force for ten years, after which time either party could terminate it upon one year's notice.[1] The contract provided that neither party would use it or anything in it to the prejudice of the other in any patent suit or controversy currently pending or which might arise.[2]

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1. Tri-Partite Contract, August 26, 1879, AT&T, Box 1004; Statement of Principles, Signed by William H. Forbes, Anson Stager and James M. Ormes, AT&T, Box 1034.

2. Tri-Partite Contract, August 26, 1879, AT&T, Box 1004.

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The Tri-Partite contract for the Southern territory established the general basis upon which the competing telephone interests would eventually be harmonized for the rest of the country.

Shortly after the execution of the contract, Louderback reported that the combined agency was receiving large orders for Bell telephones. He predicted that he and Ormes would do a "splendid business" at all points where there had been no rate cutting, since the public was perfectly willing to pay. This would demonstrate what could be accomplished by a consolidation. He noted: "Everyone is congratulating us on our combination, and I trust you will also have cause to congratulate yourselves also."[1]

If Louderback believed the public would pay, he also believed it would react critically if told that the Bell and Western Union interests had been combined. He feared it would accuse the consolidated company of being a monopoly, as soon as it attempted to get paying prices. Consequently, Louderback advised that the settlement not be advertised and that the public learn of it gradually.[2]

Vail did not agree. He believed it would be best to announce the settlement in a circular jointly sponsored by the National Bell Company and the Western Union. Vail explained: "This will at once make it apparent that there is a monopoly in the field, but at the same time it will remove all doubts of the parties using the telephones as to liability for damages, etc."[3] Furthermore, if people were allowed to believe that competition

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1. D. H. Louderback to William H. Forbes, September 4, 1879, AT&T, Box 1034.

2. D. H. Louderback to Theodore N. Vail, September 21, 1879, AT&T, Box 1148.

3. Theodore N. Vail to D. H. Louderback, September 23, 1879, AT&T, GMLB 27.

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would continue, they might delay renting telephones, hoping to take advantage of it.[1]

During negotiations with Ormes and Louderback, Forbes instructed Chauncy Smith to make it clear in his discussions with George Gifford that if the courts sustained the Bell patents, then the Western Union would have to assume the "onus" of settling competing claims in order to permit an alliance with the National Bell Telephone Company. Moreover the Western Union could ask payment only for the auxiliary patents which it owned.

Since Forbes believed the Bell Company's suit would be successful he felt that the one-fifth share of stock proposed for the Western Union was altogether too much. He suggested that if the Bell interests yielded anything, it should be either $300,000 to $400,000 in cash or $600,000 to $800,000 worth of stock out of $5,000,000 total.

Forbes wanted Smith to warn Gifford that if the competing companies had to go into court for a settlement, and the Bell claims were sustained, then the Bell Company would demand damages for the injury inflicted.[2]

The legal conferees seemed to be making progress. Smith reported in confidence that Gifford, for the purposes of negotiation, was prepared to concede Alexander Graham Bell's claim to being the first inventor of the speaking telephone. However, while Gifford expressed his company's willingness to use the telephone, Smith feared that if the public turned largely to the telephone, the Western Union might try to save commissions by obstructing its use in feeding the telegraph. On August 5, 1879, Smith

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1. Ibid.

2. William H. Forbes to Chauncy Smith, August 4, 1879, AT&T, 1G.

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reported to Forbes: "I am satisfied that he [Gifford] is very desirous to bring about an arrangement, but we have not yet touched the most difficult questions."[1]

Although Forbes agreed with Gardiner Hubbard's guess that negotiations would not move quickly, he was able to report to him in mid-August that progress was being made and the Western Union was beginning to see Bell as the inventor of the telephone.[2] By the end of the month Forbes expected "immediate progress" in the arrangements for the whole country.[3]

The truce was to expire on September 1, but it was extended.[4] Continued discussions were necessary, for during the latter part of August the principles in the Ormes contract became the basis of negotiations for a national settlement.[5] Samuel White thought the Ormes principle too much of a surrender, but on Green's assurances to the contrary he agreed to consider it.[6] Thomas Watson was confident that a national settlement could be reached on the basis of the Ormes contract. He interpreted the Western Union's willingness to execute the Ormes contract as proof that it had no confidence in its case.[7] Watson's view was soon borne out.

While the general principle of the Ormes contract could be applied to the whole country, various details had to be worked out. For example, if

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1. Chauncy Smith to William H. Forbes, August 5, 1879, AT&T, Box 1162.
2. William H. Forbes to Gardiner G. Hubbard, August 19, 1879, AT&T, 1G.
3. William H. Forbes to O. E. Madden, August 28, 1879, AT&T, 1G.
4. William H. Forbes to Norvin Green, August 30, 1879, AT&T, 1G.
5. Norvin Green to William H. Forbes, August 30, 1879, AT&T, 1G.
6. Ibid.
7. Thomas A. Watson to Edward --, September 1, 1879, AT&T, GMLB 26.

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the American Speaking Telephone Company were to go out of business altogether it could not ship its instruments elsewhere as could be done in the South. Consequently, President Green wished the National Bell Telephone Company to take the Western Union's telephone properties at cost and to assume its contracts on switches and devices for "trifling" royalties.[1]

President Green on September 3 offered to settle on the basis of a royalty or bonus for the Western Union's patent rights and goodwill. This proposal ultimately ended the competition. He suggested a royalty of twenty percent of the annual rental on all telephones (less agents' commissions) and a bonus of at least $1 per instrument per year (except under special conditions when it might be reduced to not less than 75¢). At current rates Green calculated that the royalty would net $1.10 on each first year rental and $1.30 thereafter. He claimed to have difficulty in persuading the Western Union's telephonic allie to agree to so small a share of the business. The Western Union still felt, said Green, that its patents were stronger than the Bell Company's, but would compromise for the sake of "peace and harmony, and to avoid the trouble, loss and expense of a bitter and wasteful competition."[2]

The arrangement could be completed as soon as several matters were settled. Western Union licensees should have full and equal protection with Bell licensees, and well established exchanges might be continued until local interests could be harmonized. The Gold and Stock Company should retain its private line business, though using Bell instruments. The Bell Company would buy the Western Union's telephonic property at

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1. Ibid.

2. Norvin Green to William H. Forbes, September 3, 1879, AT&T, Box 1006.

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actual cost and would assure exclusive connection with the Western Union as in the Ormes contract.

The arrangement should run for seventeen years or the life of the patents, Green explained, since a ten year contract as in Ormes' case might permit the National Bell Company to occupy the telephone field, while at the end of the ten years the Western Union would have to start anew to make its patents valuable. Green suggested that "the settlement should be made for a term that would leave nothing to quarrel over hereafter."[1]

Contrary to Green's views, the National Bell Company's committee believed that the bonus should be a simple percentage without a minimum or maximum. It agreed that the Gold and Stock Company should be free to do a private line business but only in furnishing its regular market news and quotations. And the Bell Company should have a statement on the cost of the exchanges it was to assume. Despite these reservations Forbes concluded:

> I do not think there is now any substantial obstacle to an arrangement and if you can . . . place the . . . figures before us that we may know approximately the amounts called for I should think it possible to come to a quick decision.[2]

During the negotiations the Bell Company continued to press the taking of depositions in the Dowd case. The Western Union interpreted this as an attempt to pressure it, and Green warned that his company might react unfavorably.[3] Forbes explained that this action had been taken by the Bell counsel without any instructions from the company. In consideration of the

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1. Ibid.

2. William H. Forbes to Norvin Green, September 4, 1879, AT&T, 1G.

3. Norvin Green to William H. Forbes, September 11, 1879, AT&T, Box 1006.

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Western Union's feelings, the National Bell Company would postpone its cross-examination.[1]

September was consumed in clarifying and negotiating the points Green had outlined in his letter of September 3.[2] The Western Union seemed to be in no hurry for a final settlement. Green explained that: "it is too large a matter, and involves too many undertakings of magnitude to be executed, until we are fully advised by counsel that it may not be capable of some construction that is not meant.[3]

By October 1, however, the various agreements and guarantees had been worked out, and Green wired Forbes that he apprehended no trouble about the ratification of the contract by his group.[4] On that same day the Bell Company directors recommended that the proposed agreement be submitted to the stockholders.[5]

On October 6, President Forbes notified district companies that the Western Union and the National Bell Telephone Company had practically reached an agreement by which the competing telephone interests would be united. The National Bell Company would soon arrange with them for the collection and delivery of telegraph business under the provisions of the settlement. In the meantime the district companies were to make no arrangements regarding

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1. William H. Forbes to Norvin Green, September 12, 1879, AT&T, Presidents' Letterbook 1A.

2. Norvin Green to William H. Forbes, September 13, 1879, AT&T, Box 1006; William H. Forbes to Norvin Green, September 15, 1879, AT&T, 1G; Norvin Green to William H. Forbes, September 23, 1879, AT&T, 1G.

3. Norvin Green to William H. Forbes, September 24, 1879, AT&T, Box 1006.

4. Norvin Green to William H. Forbes, October 1, 1879, AT&T, Box 1006.

5. Minutes of Directors' Meeting, October 1, 1879, National Bell Telephone Company, AT&T.

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these matters, lest they endanger the company's interests.[1] Presumably one object of this notice was to forestall the activities of the American Union Telegraph Company, which was trying to arrange for Bell exchanges to deliver public telegraph business exclusively to it in return for a commission and other valuable considerations.[2]

Events now began to move smoothly and rapidly. Forbes consulted Judge Ebenezer R. Hoar, who declared the contract clearly and strongly drawn. He made only one or two suggestions concerning its construction.[3] Smith reported that negotiations with George Gifford regarding the contract were also settled.[4]

At the special stockholders' meeting on October 24, fifty-five Bell Company stockholders, representing 6862 shares out of a total of 8000, were present. After a reading of an abstract of the proposed contract they unanimously voted that the president, treasurer, and clerk of the company be authorized to execute and deliver an agreement with the Western Union. It was to be prepared in accordance with an agreement signed by the special committees of the concerned companies (September 24, 1879)[5] with such alterations as might be approved by the Board of Directors.[6] This same

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1. William H. Forbes to District Companies, October 6, 1879, AT&T, 1A.

2. E. J. Hall to Theodore N. Vail, September 22, 1879, AT&T, Box 1164; C. N. Fay to Theodore N. Vail, September 24, 1879, AT&T, Box 1151; G. C. Maynard to Theodore N. Vail, September 26, 1879, AT&T, Box 1178.

3. William H. Forbes to Chauncy Smith, October 21, 1879, AT&T, Box 1006.

4. Chauncy Smith to William H. Forbes, October 21, 1879, AT&T, Box 1006.

5. Minutes of Directors' Meeting, November 12, 1879, National Bell Telephone Company, AT&T.

6. Minutes of Stockholders' Meeting, October 24, 1879, National Bell Telephone Company, AT&T.

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stockholders' meeting authorized the sale of the National Bell Company's property to a new corporation to be organized with a capital of $10,000,000.[1] The National Bell Telephone Company's finances were thus intimately related to the Western Union settlement.

On November 12, 1879, the directors declared the agreement between the National Bell Telephone Company and the Western Union Telegraph Company, dated November 10, 1879, to be "authorized, approved, ratified and confirmed."[2] They also created a committee with full power to settle all differences between the conflicting parties in any territory named in the contract and to make new contracts with any and all parties.[3]

Following the precedent established in the Ormes contract, the agreement of November 10, 1879, was made by and between the Western Union Telegraph Company for itself and the Gold and Stock Telegraph Company, the American Speaking Telephone Company, and the Harmonic Telegraph Company, and the National Bell Telephone Company.

According to it the National Bell Telephone Company agreed to pay the Western Union a "royalty or bonus" of twenty percent, after deducting commissions and certain allowances, on all telephones used in the United States. The standard rental was fixed at $10 per year for a single instrument and $15 per year for a pair. The Bell Company could change its rentals with the Western Union's consent but no change should reduce the Western Union's royalty below $1.00 for each single instrument and $1.80 for each pair. If the two companies could not agree about a change in rentals, referees were

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1. Ibid.

2. Minutes of Directors' Meeting, November 12, 1879, National Bell Telephone Company, AT&T.

3. Ibid.

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to be appointed.

The Western Union was to pay twenty percent of the legal expenses which the Bell Company incurred in defending and prosecuting its telephone rights. The Western Union granted the National Bell Company an exclusive license to make and use telephones under its telephonic patents. It also agreed to acquire the further inventions of Phelps and Edison and to license the Bell Company to use them upon being reimbursed for their cost. The contract operated as a release of the parties from all patent infringement claims on which suits were pending.

The Western Union agreed to withdraw from the manufacture, rental, and use of telephones, and would co-operate with the Bell Company in extending the use of telephones by making available its lines, poles, and structures.

The agreement provided for the transfer of all Western Union exchanges except those within a thirty-three mile radius of New York's City Hall and those covered by the Ormes contract. It established a series of schedules whereby Western Union exchanges were to be adjusted and transferred.

The National Bell Telephone Company retained the right to connect telephone exchange systems for personal conversation, but not for general business messages, market quotations or news for sale or publication in competition with the Western Union or Gold and Stock Company. In fact the National Bell Company was to prevent the transmission of this type of information over its own lines or those of companies it controlled.

The Bell Company agreed to turn over to the Western Union all telegraph messages insofar as it lawfully could. The Western Union was to forward these and pay the Bell Company a fifteen percent commission. If the National Bell Telephone Company constructed branch lines for general telegraph or telephone business, the Western Union would pay a fifteen percent commission plus an additional fee for turning over these messages.

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Existing suits and interferences were to be disposed of as counsel for the Western Union and National Bell companies might advise, subject to the orders of the courts and the findings of the Patent Office.

The National Bell Telephone Company was to keep accounts of all instruments, which were to be made available to the Western Union quarterly and at all reasonable times.

The contract was to be in force for seventeen years from November 1, 1879, and covered the whole United States except the territory covered by the Ormes contract, which territory would be included upon expiration of that contract. It was to be binding on each party's successors, and no provision was to be construed as imposing an illegal obligation on either party.[1]

The settlement established a limit on the extent to which the telephone could be used in competition with the telegraph, since an exchange could not go beyond a fifteen mile radius. But in return the Bell Company received a monopoly of the telephone business.[2]

The value of this settlement was quickly appreciated. On November 11, 1879, one day after the agreement was signed, three shares of National Bell Telephone Company stock were sold for $1,000 per share.[3] Four days later Hayes and Henshaw were selling National Bell stock at $977.50 per share, a rise of $472.50 from its last sale price in September.[4]

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1. Contract, November 10, 1879, AT&T, Box 1006; Memorandum, AT&T, Box 1006.

2. O. E. Madden to J. D. Powers, May 17, 1881, AT&T, GMLB 87.

3. Newsclipping, "Boston Stock Exchange Prices and Sales," November 11, 1879, AT&T, Box 1003.

4. List of Stock Prices, June 11, 1879-December 28, 1880, AT&T, Box 1070.

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With the signing of the agreement the signatories proceeded to arrange the details of transferring telephones and exchanges. There naturally arose disagreements about the exact meaning of various provisions, such as whether or not the Bell Company was required to receive defective Western Union instruments.[1]

A major obstacle to the speedy transfer of telephone properties was the difficulty of consolidating competing exchanges where third parties had been given exclusive rights by the National Bell Company or the Western Union.[2] These third parties often refused to agree upon terms which would permit the consolidation of their exchanges.

Samuel White suggested that Thomas Cornish, the Bell licensee in Philadelphia, was refusing to co-operate because he believed that the National Bell Company was obligated to assist him in his fight against the opposition exchange and would therefore continue its suits against his opponents.[3] Actually Gardiner Hubbard, an owner of the Philadelphia exchange,[4] was urging Cornish to delay settling affairs on the ground that the longer the delay the better the terms of settlement would be.[5]

In those places where the National Bell Company or the Western Union retained exclusive control, the transfers of property and exchanges were

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1. Theodore N. Vail to H. R. Butler, March 20, 1880, AT&T, GMLB 41.

2. Norvin Green to William H. Forbes, February 3, 1880, AT&T, Box 1213; Theodore N. Vail to D. H. Bates, March 19, 1880, AT&T, GMLB 40.

3. Samuel S. White to William H. Forbes, October 4, 1879, AT&T, Box 1054.

4. Gardiner G. Hubbard to Thomas E. Cornish, December 10, 1879, AT&T, Box 1053.

5. Gardiner G. Hubbard to Thomas E. Cornish, November 15, 1879, AT&T, Box 1053.

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speedier, although not without some disagreements.[1] The Bell Company informed those of its agents who were reluctant to purchase their competitors' exchanges that this was a necessary condition not only to end competition but also to be licensed under the Western Union's patents. Vail explained to those who questioned the prices they were paying:

> The only way to look at the question is, how much is it worth to you to be entirely relieved from [the] opposition, and make up your mind that a certain portion of the sum spent for the plant . . . will be paid for that relief and that alone.[2]

The Board of Directors of the National Bell Telephone Company authorized that loans be made available to local exchange companies for the purpose.[3]

Despite delays and disagreements, the directors of the National Bell Company's successor reported in March 1881 that with one unimportant exception all the Western Union exchanges had been bought and resold to Bell licensees. Thus, sixteen months after the national agreement was executed, the Bell Company secured control of fifty-five opposition exchanges at the cost of $325,160.06. Of these the National Bell Company retained the Boston exchange valued at $26,000 and turned the remainder over to its licensees for $267,187.98.[4] The Bell Company also acquired an estimated 35,000 opposition telephones of various styles.[5] According to its own calculations the parent company sustained a loss of $31,972.08.[6] The

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1. O. E. Madden to J. B. Van Every, March 10, 1880, AT&T, GMLB 40.

2. Theodore N. Vail to P. L. B. Coombs, December 1, 1879, AT&T, GMLB 31.

3. Minutes of Directors' Meeting, December 1, 1879, National Bell Telephone Company, AT&T.

4. Report of the Directors of the American Bell Telephone Company to the Stockholders, March 29, 1881, pp. 3-4.

5. Theodore N. Vail to William H. Forbes, November 1, 1879, AT&T, Box 1005.

6. Report, March 29, 1881, pp. 3-4.

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directors of the Bell Company concluded:

> This may be considered a satisfactory settlement as there was much waste and bad building on the part of the opposition exchanges for which our licensees were unwilling to pay, and yet it was of the greatest importance to get the whole country settled, and under one system.[1]

One uninformed newspaper reporter explained that the settlement with the Western Union was simply another example of that company's usual sharp practice of strangling its competitor in its infancy. He suggested that the Bell Company had been tricked by the "shrewd manipulations of Vanderbilt's interests."[2] Quite the opposite was true in regard to both the causes and effects of the settlement.

The Bell Company viewed its agreement with the Western Union as a success owing much to the strength of its patent position. Chauncy Smith explained:

> After the facts of the case had been fully brought out in evidence the acute and sagacious counsel of the Western Union Tel. Co. were satisfied that Mr. Bell would prevail. . . . The settlement was based upon the assumption and concession that the Bell Patent was valid and that it covered all the apparatus known.[3]

Western Union counsel George Gifford confirmed this interpretation. He stated in 1882:

> A very vigorous defense was made by the Western Union Company, and testimony at great length and at great expense was taken in support of the answer. After the testimony was closed, on both sides, I was convinced that Bell was the first inventor of the telephone, and that the defendant, Dowd, had infringed said Bell's patent by the use of telephones in which carbon transmitters and microphones were elements, and that none of

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1. Ibid., 4.

2. Press Clipping, AT&T, Box 1152.

3. Chauncy Smith to William H. Forbes, March 23, 1881, AT&T, Box 1199.

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> the defenses which had been set up could prevail against him; and I advised the Western Union to that effect, and that the best policy was to make some settlement with the complainants.[1]

The National Bell Company did not seek a judicial settlement of the Dowd case because the Western Union and its allies had brought countersuits against it in several cities, claiming that their patents covered certain essential features of the telephone. Although the Bell Company believed it could defend itself against these suits it was not certain of success. Consequently, in order to free itself and its subscribers from litigation, it agreed to an exclusive license under all the Western Union patents. However, the settlement was made on the basis that the National Bell Telephone Company's rights were supreme under the Bell patents.[2] Gifford also noted that Western Union's patents and claims had strengthened its position.[3]

In addition to the advice of its counsel, there were other factors which motivated the Western Union to compromise rather than use its superior power and resources against the Bell Company. The chief of these seems to have been its concern about increasing competition from Jay Gould and the American Union Telegraph Company.

Throughout the Western Union's negotiations with the National Bell Company, the American Union had been making overtures to the Bell Company and its licensees. It sought telephonic connections which would not only strengthen its own interests but also the Bell interests in their struggle with Western Union.

By the midsummer of 1879 Jay Gould was a strong and growing factor in

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1. Copy, Affidavit of George Gifford, September 19, 1882, AT&T, Box 1006.

2. "Storrow's Points," January 1880, AT&T, Box 1326.

3. Affidavit, George Gifford, AT&T, Box 1006.

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the telegraph industry.[1] He was in opposition to the Western Union Telegraph Company, which was controlled by conservative eastern stockholders who were primarily interested in preserving the company's financial position and income, led by William H. Vanderbilt.[2] Apparently Vanderbilt lacked the courage, character, or personality to persevere in the corporate battles of the day. One historian has concluded:

> Repeated attacks by his opponents forced him into a negative strategy. He was unable to develop mature and well-conceived plans to overcome his opponent so as to make him, and not himself, sue for terms of peace. And when the opposition persisted in its aggressiveness, he frequently sued for peace. He thereby became one of the country's greatest appeasers.[3]

Thus, faced with the prospect of a struggle with Jay Gould and being advised by counsel that its telephone claims were legally weak, it is not surprising that the Western Union leadership compromised in the fall of 1879.

Epilogue

The removal of the Western Union threat and the organization of the American Bell Telephone Company with sufficient financial resources marked the end of the formative stages of the telephone's commercial development and the beginning of its maturity. The Bell interests proceeded to expand and further develop the telephonic system begun during this early period. In doing so they faced many serious technical, economic and political challenges, but the decisions and policies of the formative period enabled the commercial heirs of Alexander Graham Bell to weather them and create "the third largest public utility and the greatest corporation in the world."[4]

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1. Grodinsky, Jay Gould, 206.

2. Ibid., 269-270.

3. Ibid., 209-210; for similar conclusions on Vanderbilt's character see Wayne Andrews, The Vanderbilt Legend (New York: Harcourt, Brace and Company, 1941), pp. 195-198; also, Robert V. Bruce, 1877: Year of Violence (Chicago: Quadrangle Paperbacks, 1970), p. 40.

4. N. R. Danielian, A.T.&T. (New York: The Vanguard Press, 1939), p. 43.

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CHAPTER XV

SUMMARY AND CONCLUSION

Alexander Graham Bell was the right man in the right place at the right time when he invented the telephone. He had a natural enthusiasm for scientific inquiry, a desire to reap the rewards a rapidly developing technological society would pay for an invention that speeded communications, and the requisite senses, trained by his profession as a speech teacher. Moreover, Bell lived in Boston, a center of intellectual and financial resources.

Bell had long been fascinated with the problem of speeding communications and it was while working on a system of multiple telegraphy that he invented the telephone. He secured financial backing for his telegraphic experiments through his contacts as a teacher of the deaf. Leather merchant Thomas Sanders' son was one of Bell's pupils, and Gardiner G. Hubbard, a lawyer of some financial means, was president of a school for the deaf and dumb where Bell taught.

Sanders and Hubbard, in the autumn of 1874, offered to finance Bell's promising telegraphic experiments in return for an equal share in any inventions he might patent. Hubbard was especially enthusiastic about Bell's telegraphic experiments as a result of his general interest in telegraphy. Hubbard had long been critical of what he considered the Western Union Telegraph Company's refusal to utilize the latest technological developments. He had even proposed a plan to Congress for chartering a new telegraph company which would replace the Western Union as the country's chief telegraph company.

The informal partnership between Bell, Sanders and Hubbard became the

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basis of the Bell Patent Association, the first stage in the legal organization of the Bell Telephone System. Initially, the Patent Association was created to exploit Bell's telegraphic inventions.

As a result of his telegraphic connections, Gardiner Hubbard arranged for several tests of Bell's telegraphic inventions before the Western Union. Although the tests were technically successful, President William Orton expressed his company's reluctance to develop Bell's invention because of Hubbard's past criticisms and attacks. This episode marked the beginning of a serious rivalry between the Bell interests and the Western Union.

In June 1875, Bell discovered that sound could be transmitted and reproduced electrically. He quickly worked out the principles and reduced them to a working model. However, it was not until February 1876 that a patent was sought for the telephone, since Bell was waiting for a Canadian neighbor and prospective backer to apply for an English patent. By February Hubbard was concerned about further delaying the American application, and so without Bell's knowledge he filed Bell's specifications for a telephone patent.

Hubbard's decision to file when he did proved to be highly propitious, for several hours later on the same day, another inventor, Elisha Gray, filed a caveat for his own telephonic invention. Because of Hubbard's earlier filing, a temporary interference against Bell's application was dissolved and he soon received a patent for his telephone. This patent meant that the Bell partners possessed sole control and disposition of the telephone. It would have been very difficult, if not impossible, for the Bell interests to have maintained their claims against various challengers without this patent. That they possessed it and were able to do so was largely due to Hubbard's decision.

In September 1876, the partnership was expanded when Thomas A. Watson

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was given a minor share in return for his mechanical and electrical services. Watson, as an employee of Charles Williams' electrical shop, had worked closely with Bell in developing both his telegraphic and telephonic inventions.

Soon after receiving his telephone patent, Bell launched a campaign to publicize his invention. He began by conducting demonstrations and experiments for the academic and scientific community of Boston. His invention quickly gained local attention.

Bell established his national and international reputation after he successfully demonstrated his telephone to Sir William Thomson, considered one of the world's leading electrical experts, at the Centennial Exhibition in the summer of 1876. Only after Sir William had endorsed Bell's invention, did the American public generally take notice of Bell and his telephone.

As a result of the growing publicity Bell began to receive inquiries about, and business propositions for his invention. While these were being considered, however, he needed money in order to exploit his foreign patents and also to be able to marry Mabel Hubbard, Gardiner Hubbard's daughter. This need, plus a successful demonstration before the Essex Institute of Salem, prompted Bell to give a series of public lectures during the spring and summer of 1877.

Although these lectures were artistically and technically successful, they did not prove as financially rewarding as Bell had hoped. They did, however, provide some immediate funds which enabled Bell to resist suggestions that he sell telephones to raise funds immediately. The decision not to sell them made possible the later policy of renting telephones, upon which the Bell System was created.

By March 1877, the Patent Association decided to make the telephone

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available for commercial use. The first telephones were rented by young businessmen in Boston who appreciated the telephone's usefulness in conducting their businesses. At the end of June 1877, 234 telephones were in public use.

The Patent Association's decision to rent rather than sell telephones was based upon Hubbard's familiarity with the practice as a legal counsel in the shoe machinery business, and also on the fact that the policy of renting would permit the Bell interests to exercise greater control over their instruments.

Raising capital proved to be a major problem of the association. It failed in this not only because of Western Union pressure on potential investors, but also because it refused to surrender any of its control over the telephone business in return for new capital. Until such time as the patentees could find investors willing to accept their unrealistic terms, the patentees planned to use their own financial resources together with current receipts to push the business.

In July 1877, the Patent Association was replaced by the Bell Telephone Company, a "voluntary association." Hubbard, as Trustee, continued to manage the Bell interests. Hubbard's appointment as Trustee was logical. He had demonstrated excellent judgment in several key decisions, he possessed the right personality for promoting the telephone, and as a member of the Special Commission on Railway Mail Transportation he was able to bring the telephone to the attention of many influential people. Since Hubbard controlled a majority of the company's shares of ownership (by virtue of his own shares and those of his daughter and son-in-law) he managed the business like a dictator, much to Thomas Sanders' irritation.

The patentees' inability to raise capital on acceptable terms, and

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the attendant shortage of money, largely determined the way in which they commercialized the telephone. For example, their lack of capital forced them to utilize local people and local funds to develop the telephone on a local basis while they retained overall authority.

The Trustee reported, by August 1, 1877, that ten agents had been appointed to rent telephones, and that negotiations were being held with others. Many of the early agents were introduced to the telephone either by Bell or Hubbard. The greatest number, however, began their connection with the telephone business as a result of their own inquiries. Many of these early agents were already connected with some aspect of the electrical communications industry.

The terms of agency contracts varied from place to place. Some contracts were for cities, sections of a state, a whole state or even a group of states. Agents were generally remunerated by a forty percent commission on the first year's rental and a lesser commission on subsequent years' rentals. Commissions were subject to variation depending upon a particular agent's location and problems. Contracts usually continued at the pleasure of the parent company.

The earliest Bell agencies were created primarily to supply instruments for private lines. However, the idea of connecting speakers who were on separate lines was soon conceived, and agencies' functions began to change.

The first public telephonic interconnection occurred on May 17, 1877, in Boston in the burglar alarm office of E. T. Holmes. The first commercial telephone exchange opened a year and a half later in New Haven. The central exchange system increasingly became the chief feature of the telephone business.

In addition to the various problems which agents would have faced in commencing any new business, they were frequently confronted by a shortage

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of instruments. The shortages and ensuing delays became especially critical as the Western Union began to offer its own telephones to the public.

Charles Williams' electrical shop was the sole producer of telephones for the Bell Telephone Company, but for some unknown reason it was unable to produce an adequate supply of instruments. Williams' requests to the Bell Company for advances to enlarge his facilities, and more importantly his requests that overdue bills be paid, placed a heavy burden on the Bell Company's already strained finances.

Williams was primarily responsible for manufacturing the telephones, not for perfecting their operation. That task was left to Watson and others when Bell left for an eighteen-month stay in Europe to develop his English patent rights. The Bell Company relied heavily upon its agents and upon independent scientists and inventors to improve its telephonic equipment. Their combined efforts made Bell's telephone an improved and constantly improving instrument of communication.

By October 1877, after only six months of operation, the Bell Company had 2000 telephones in use, and by the end of the year it had shipped 5319 instruments to its agents. The patentees' decision to operate the company on current receipts proved to be unworkable. The growing business required more funds than current revenue could provide, especially since it would recover the cost of its instruments only over a long period of time because it was renting rather than selling telephones. Hubbard rejected the obvious solution, suggested by Sanders, of forming a new company with new investors because this would have required him to surrender some of his control of the company's management.

Hubbard's refusal to heed Sanders' suggestions for the creation of a company well-endowed with funds became a major source of disagreement

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between the two partners. Sanders, who was supplying most of the capital, due to Hubbard's personal state of near-bankruptcy, sought relief from his financial burdens. Perhaps his motive in seeking a company reorganization was partly to dilute Hubbard's control.

As the Bell Company's business grew it became necessary to hire a full-time general manager. Hubbard made a significant contribution to the company's development when he hired Theodore Vail, formerly of the Railway Mail Service. As Hubbard's power was gradually reduced because of company reorganizations, Vail exercised increasingly greater influence over the company's management.

When the Bell Telephone Company finally ended its legal existence in August 1878, it had earned a net profit of $25,000, and had shipped 12,484 telephones to its agents.

Sanders' constant complaints about the company's difficult financial condition finally persuaded Hubbard to agree to the organization of a company to carry on the telephone business in New England. Although Sanders would have preferred the reorganization of the parent company he agreed to the organization of the New England Telephone Company in February 1878. The company was capitalized at $200,000; one-half of this stock was turned over to the Bell Company in return for the exclusive right to operate in New England. The stock, plus the funds derived from the Bell Company's sale of its property in the New England states to the New England Company, provided Sanders with only temporary financial relief. The New England Company was important not only because it set the precedent for establishing regional companies, but also because many of its owners later became investors of the parent company.

The Bell interests encountered infringers almost as soon as they

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began to commercialize the telephone. Their greatest challenge, however, came from the Western Union, which after rejecting an offer to buy Bell's patent soon saw the error of its decision and took steps to compete with the Bell interests for control of the emerging telephone business.

The Harmonic Telegraph Company, which controlled Elisha Gray's inventions and patent applications, and the Gold and Stock Telegraph Company, a subsidiary of the Western Union, created the American Speaking Telephone Company to conduct a rival telephone business based upon the competing claims of various inventors. Although the Western Union was technically not involved, it was clear to all that it was exercising a controlling influence.

Although both sides early called for a negotiated settlement and contacts were established for that purpose, compromise was less of a possibility in the early period than later on. Each side was confident that it possessed superior advantages and therefore was desirous of testing its opponent.

Sanders, appreciating the financial consequences of a fight with the Western Union, was more reluctant to fight than either Hubbard or Watson. Reinforced by his lawyers' assurances that the Bell agents and experience were superior to Western Union's, Hubbard eagerly awaited the contest.

The Western Union used its superior financial strength to good advantage. It advertised more extensively and offered its instruments at cheaper rates than did Bell agents. It discouraged potential Bell investors and subscribers. The Western Union used its telegraphic influence to dissuade district telegraph companies from adopting Bell instruments.

Since Bell agents did not have the authority to alter the rentals they charged for telephones, they looked to the parent company, as well

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as their own ingenuity, for assistance in combatting their opponents. They called upon the Bell Company to provide them with instruments comparable to Thomas Edison's, which were being offered by the Western Union. They also urged the parent company to commence legal action against the infringers.

The suits were being delayed because of a disagreement between Hubbard and Sanders regarding the proper time for commencing them. Hubbard urged immediate action but Sanders, protesting against incurring new financial obligations while old ones had not yet been met, advised delay, and won his point.

During 1877 the threat of competition seems to have been greater than its reality. The Western Union was not yet ready to engage in full scale competition. With the intensification of competition after January 1878, the Bell Company's business did decline, although it is not clear that this was due solely to the effects of competition. In fact some Bell officials believed that a little Western Union activity would stimulate business.

Responding to the Western Union threat in Chicago, Hubbard rushed in a Bell agent to commence a telephone exchange. The result of Hubbard's action, which was not made known to Sanders until after it was taken, was to involve the parent company in a direct confrontation with its opponents. Consequently, the Bell Company was required to provide funds from its limited treasury to pay for the construction of its exchange and engage in other competitive practices.

Sanders' constant calls for the reorganization of the Bell Company with greater capital led to Hubbard's reluctant co-operation. He generally criticized Sanders' proposals, since he believed they were designed by Sanders and the New England investors to strip him of his control. After much negotiation, complicated by the geographical separation of the

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principals, Hubbard finally agreed to a plan which would consolidate the New England Company with the Bell Company. The New England Company investors rejected the concept of consolidation because some preferred isolation and security in the form of their separate organization while others objected to having the patentees control the money they (NET investors) had paid into the company.

Consolidation was temporarily abandoned, and the Bell Telephone Company was organized as a corporation with a capitalization of $450,000. Three thousand shares of the capital stock (having a par value of $100 each) were turned over to the old Bell Company along with $40,000 for its property. Fifteen hundred shares were used in one way or another to raise $50,000 cash.

The new Bell Company adopted essentially the same set of by-laws as those of the New England Company, the chief exceptions being the creation of an executive committee to manage the company's affairs, and the passage of an article which doubled the voting power of the cash investors. The patentees were thus forced to share their control with the new investors. On July 30, 1878, the Bell Telephone Company officially came into being.

The new organization did not materially alter the company's operations. Agents continued to face many of the old problems. In view of Williams' persistent inability to provide adequate quantities of instruments the Bell Company began to explore the possibility of licensing other manufacturers.

During this period the Bell Company solved at least one major problem--it produced a transmitter comparable to Edison's in quality and principle. The Bell Company purchased the patent applications of Emile Berliner, who claimed to have anticipated Edison in inventing the microphonic principle utilized in the Edison transmitter. Combining Berliner's

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claims with the instrument purchased from Francis Blake, the Bell Company was able to blunt the competition of the Edison instrument.

Negotiations between the Bell Company and the Western Union continued to be unsuccessful. The Western Union refused to consider any plan which did not give it control of the telephone business. Despite the failure to arrive at a compromise, an understanding was reached which provided for maintaining similar prices. This understanding was not uniformly respected, and in March 1879, the Bell Company decided to reduce its rates in order to permit its agents to compete more effectively.

By this time also the Bell Company was pressing its legal case against its opponents. In September 1878 it brought suit against Peter A. Dowd, an agent of the Gold and Stock Company. The real defendant was of course the Western Union.

The defense attempted to establish that Elisha Gray was the principal inventor of the telephone. The Bell counsel denied this. Even if the dates when Gray claimed to have invented his various instruments were admitted, he had not gone beyond mere experimentation, and this at a later date than Bell's work. He had not achieved any useful results. Moreover, Gray had neither understood nor explained the theory of telephonic speech transmission as Bell had done.

During the nine months that testimony was being taken in the Dowd case, negotiations between the opposing sides were resumed, and by November 1879 a compromise settlement was reached. Consequently, the Dowd case was disposed of by a consent decree and never came to a hearing.

Despite increasing competition the Bell Telephone Company continued to make progress in renting its instruments. By the end of its seven month existence it had shipped 12,964 instruments, compared to 12,262 shipped

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during its predecessor's twelve month existence.

The financial demands of the Chicago exchange continued to place a financial strain on the Bell Company's treasury. In December a new group of investors headed by William H. Forbes, son of John Murray Forbes, temporarily replenished the company's depleted treasury. Shortly after their admittance to the company's management, these investors learned the full extent of its financial obligations. Hubbard was again forced to agree to a new reorganization to secure additional funds. Due to legal technicalities it was decided to dissolve the Bell Company and organize a new company with a larger capitalization. This occasion also provided the opportunity for uniting the New England Telephone Company with its parent company.

The process of reorganization precipitated a struggle for control between the original patentees and the new investors. Supported by his son-in-law, Hubbard resisted all efforts to remove him from the presidency and the active management of the company. The investors were agreeable to retaining Hubbard as president as long as he was only a figurehead. They were highly critical of Hubbard's previous management and did not believe him qualified to manage the growing business. The issue was finally resolved by placing the eleven-man Board of Directors in charge of the company's business. The Board was to create an executive committee to carry out this responsibility. Hubbard and Sanders were among those appointed to it. Thus the original patent interest was clearly represented in the highest levels of management although it could not exercise a controlling influence.

The National Bell Telephone Company was organized in March 1879 with a capitalization of $850,000. Two thousand shares of its stock were distributed, share for share, to the stockholders of the New England Telephone Company. Four thousand five hundred shares were distributed on the same

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basis to the stockholders of the Bell Telephone Company. Seven hundred and fifty shares were sold in accordance with a previous arrangement, and 1250 shares were held by the treasurer to be sold as needed.

The new management almost immediately began to eliminate what it considered the unbusinesslike practices initiated by its predecessors. It regularized and standardized many aspects of its relations with its agencies and exchanges.

The chief problem of the new company and its agents was the continued Western Union threat. The Bell Company presented an image of strength and confidence to its agents. It claimed success in its competitive battles with the Western Union. It may be significant, however, that the company's greatest challenges occurred in the larger cities, where its success seemed to be less clear-cut. Perhaps the Western Union was only offering token opposition in places of lesser importance. Whatever the reason, the Bell Company found its opponent generally unsuccessful except in selected areas.

The National Bell Company continued to refuse to engage in a general price war with its opposition. Not only was it unable to do so, but it believed that such a policy would weaken its claims for damages. In special cases, however, the Bell Company departed from its own policy.

As the company believed its chances for securing victory improved, it began to take a harder line with its agents. It reduced commissions, shortened the duration of contracts and generally imposed stricter conditions upon its licensees. The settlement with the Western Union enabled the Bell Company to extend this development.

The National Bell Company did solve the problem of supply, largely through its licensing of four manufacturers in addition to Williams. Williams continued to be the sole producer of telephones, as distinct

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from other equipment, but he seems to have overcome his earlier production difficulties.

The Bell Company continued to utilize the inventions and improvements both of independent inventors and of its own people. It began to organize its own department of research and development. It also sought to acquire by one means or another the various devices which made the telephone system function smoothly. The Western Union settlement of November 10, 1879, and the attendant right to use Western Union patents gave the Bell interests supreme control over the technical aspects of telephony.

Almost from its organization, the directors of the National Bell Company recognized the need for additional capital and began exploring methods of raising it. Pending the organization of a new company, the National Bell Company financed itself by selling stock from its treasury. The Western Union settlement added to the urgency of raising new capital. Large sums were necessary not only to pay the royalties required under the settlement, but also to carry out plans for creating a national telephonic system now that the field was open. Consequently a new charter was secured for the organization of the American Bell Telephone Company with a capitalization of $10,000,000.

All signs pointed to a bright future for the Bell interests as the National Bell Company ended its first year of operations. The telephone was accepted by the public as an important instrument of communications. The company was supplying its agents and exchanges at the rate of 5000 telephones per month. There were few large cities which did not have a telephone exchange. Attention was being devoted to establishing a national telephone system. And, most importantly, the Bell interests' most serious challenger had been eliminated as the result of a compromise.

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Negotiations leading toward this settlement had resumed in April 1879. The emphasis was on the creation of a new company which would combine the Bell and Western Union interests. The main stumbling block continued to be the issue of control. Although there was much discussion about creating a joint committee to conduct the telephone business while legal questions were being resolved, nothing was done and competition continued.

By the summer of 1879 the negotiations were stalemated. Plans were made for a conference of the opposing legal counsel, who were to try to seek a new solution. In the meantime, however, an event was occurring which would provide the basic principles of a settlement.

James M. Ormes had been awarded an agency contract to rent Bell telephones in the South. In mid-July he informed the National Bell Company of an offer from the Gold and Stock Company to withdraw from the telephone business in the South in return for a royalty of $1 on each Bell instrument Ormes installed. It also indicated that its general agent for the South would be willing to join with Ormes in establishing exchanges in their mutual territory.

The Western Union made this offer primarily because it was attempting to head off Jay Gould's competing telegraph company which was becoming an important threat and which was seeking to ally itself with the Bell Company.

After receiving certain guarantees, the National Bell consented to the compromise arrangement between Ormes and the Western Union. Ormes agreed to pay a royalty on each instrument he installed in return for the elimination of Western Union competition. The National Bell Company agreed to turn over all telegraph business in Ormes' territory to the Western Union. The Western Union also licensed Ormes to use its telephonic inventions in his territory.

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During the latter part of August the principle of the Ormes arrangement became the basis of discussion for reaching a national settlement. With its adoption, the impasse was overcome and progress was achieved relatively quickly. A contract embodying the Ormes principles was signed November 10, 1879, between the National Bell Telephone Company and the Western Union.

The settlement established a limit on the extent to which the telephone could be used in competition with the telegraph, but in return, the Bell Company received a monopoly of the telephone business.

The Bell Company viewed its arrangement with the Western Union as the result of its successful presentation of its patent case. Western Union's chief counsel supported this interpretation. The Bell Company did not press for a judicial settlement, however, because it faced several countersuits initiated by the Western Union which charged the Bell Company with having infringed several patents on its telephonic improvements. In order to free itself and its subscribers from a lengthy litigation, the Bell Company agreed to settle out of court.

The Western Union was moved to accept the advice of its chief counsel to compromise, despite its ability to financially harrass the Bell Company, because it was faced by a strong competitive threat from Jay Gould's telegraphic interests. The Western Union, controlled by a group of conservative investors headed by William H. Vanderbilt, preferred to compromise rather than engage in an expanded competitive struggle.

The removal of the Western Union threat and the organization of the American Bell Telephone Company with sufficient financial resources marked the end of the formative stages of the telephone's commercial development and the beginning of its maturity.

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Note: The main sources of information for this study were the archives of the American Telephone and Telegraph Company in New York City, and the Bell Collection of the National Geographic Society in Washington, D. C. The AT&T Collection consists primarily of outgoing correspondence in the form of letter books, and incoming correspondence from company officials, agents, and others, as well as business records, legal documents, and various types of memoranda.

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