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THE DYNAMICS OF ACCESS COMPETITION

THE REFUSAL OF THE BELL and independent telephone interests to interconnect gave the ensuing business rivalry a specific form. Competition became a matter of whose network provided access to the most people within a particular user's community of interest. In the more technical language of chapter 3, the networks competed on the basis of their scope, or the size of their bundle of access units. That kind of competition gave the networks strong incentives to tap new user groups, enter undeveloped areas, lower access prices, and interconnect with non-competing networks. Caught up in that dynamic, Bell and the independents were propelled into a race to achieve universality. The dramatic expansion of telephone service did not occur because of altruistic motives, grand social visions, or government policy, but was literally forced upon the contestants by the dynamics of access competition.

This chapter recounts the progress of telephone exchange competition from 1894 until 1907. Its object is to document the linkage between access competition and the pursuit of universality. In accordance with the book's thematic emphasis, the growth of dual service is quantified by counting the *number of communities with competing exchanges*, as well as the gross number of Bell and independent exchanges and telephones. That data has not been published in prior accounts of the competitive period.¹⁰⁴ The presence or absence of competing exchanges in American cities is the best indicator of the growth and decline of competition. Only in cities served by both Bell and independent telephone exchanges did consumers actually have a choice of suppliers. Moreover, some independent companies connected with Bell, and therefore their telephones, though independent in manufacture, actually were united with the Bell system in the access competition.

Phase 1: Filling the gaps, 1894-1898

In the first phase of the competition, the independents achieved a quick and ultimately unbreakable foothold in the marketplace by filling the vacuums left by Bell's development strategy. The geographic distribution of independent telephony, and the market segments in which they succeeded, faithfully reflected the gaps between supply and demand left by the Bell system.

¹⁰⁴ Telephone Census, 1902, 1907, 1912; FCC Telephone Investigation, 1939; Brock, 1981; Lipartito, 1989. Those sources typically use the number of Bell and independent *telephones* in operation as the index of competition and market share.

From 1894 to 1898, 1,074 commercial, independent telephone companies began operation in the United States.¹⁰⁵ Hundreds more were started but never survived long enough to be counted by the 1902 census. Although they are often stereotyped as rural, mom-and-pop operations, the first wave of independents were a heterogeneous lot. They were formed in major urban areas,¹⁰⁶ in small towns, in mid-sized cities, and in rural areas. Competition developed in the industrialized East, the rural Midwest and South, and the West. The fate of those different approaches to competition differed markedly, however. Early attempts to occupy major cities were notably unsuccessful.¹⁰⁷ Most of the tiny rural farmer lines, on the other hand, came into existence five to seven years later.¹⁰⁸ The success and longevity of independents varied greatly by region as well.

The first wave of independents were concentrated in what the Census Bureau labeled the North Central part of the United States, which included the states of Ohio, Indiana, Michigan, Illinois, Wisconsin, Iowa, Missouri, Nebraska, Kansas, Minnesota, North Dakota, and South Dakota. Of the 740 commercial independent systems that were started between 1894 and 1897 and that survived until 1902, 424 (57.3 percent) were concentrated in those eleven states.¹⁰⁹ By way of contrast, only six surviving independent systems had been started in the states of Massachusetts, Connecticut, and Rhode Island, the more urbanized, industrialized areas of the East.

The North Central region had been neglected by the Bell system for three reasons. One was its aversion to rural small towns and its concentration on cities. In the three New England states dominated by Bell, 90 percent of the population lived in areas classified by the U.S. Census as “urban;” i.e., with a population of 2,500 or greater. In the North Central states, on the other hand, only 30 to 50 percent lived in cities of that size or greater. Bell’s bias was regional as well as urban. Although its grand plan was to become a national network, in actuality Bell was still rooted in the northeast. Its network had started in New England and gradually spread south and west. In 1894 about 35 percent of all the telephones in the United States could be found within a 300-mile

¹⁰⁵ Bureau of the Census, ELECTRICAL INDUSTRIES CENSUS, Table 10, 9 (1902). That statistic understates the amount of entry because it only counts telephone systems which remained in operation until 1902. Depending on the size of the community, the failure rate of independent exchanges ranged from 15 percent to 40 percent.

¹⁰⁶ The Mercantile Electric Co. announced plans to establish a telephone exchange for bankers and brokers in downtown New York City. The New York and Eastern Telephone Co. applied for franchises in Brooklyn and New York. See 24 ELECTRICAL REVIEW 175 (Apr. 11, 1894). The Drawbaugh Telephone and Telegraph Company, the Mutual Automatic Telephone Company and the Clamond Telephone Co. all took steps to establish themselves in Philadelphia. Between 1893 and 1898 four companies were organized to gain a competing franchise in Chicago.

¹⁰⁷ For more on the fate of dual service in the cities, see the section entitled *Dual Service in the Cities* of this chapter.

¹⁰⁸ Independent telephony is often associated with the small mutual companies and farmer lines that brought the telephone to rural America during the early 1900s. Although both movements were predicated on the expiration of the Bell patents and their interests often converged, their identities should not be confused. According to the 1902 Census of telephones and telegraphs, 774 of the new telephone systems that began operation from 1893 to 1897 were commercial independents, while only 84 were mutual companies. After 1900, in contrast, new mutual systems sprang up at the rate of 200-300 per year. Most of the 100,000 or so independent telephones in operation by the end of 1897 were in small towns and cities, not in the rural areas per se.

¹⁰⁹ Bureau of the Census, ELECTRICAL INDUSTRIES CENSUS, Table 10, 9 (1902).

radius of Boston.¹¹⁰ When the patents expired, AT&T's long distance lines were just beginning to extend into Missouri, Michigan, Kentucky, and the South.

The geographic bias was also an inadvertent product of the Bell organization's management structure. Most of the states of Ohio, Indiana, Illinois, and Iowa were included in the territory of the Bell licensee company known as the Central Union Company (see figure 6-1). The population in Central Union territory was dispersed into thousands of farms and small and medium-sized market towns. But it also included major cities such as Columbus, Toledo, and Indianapolis. Only one licensee company was responsible for developing what the Bell organization apparently thought of as an undifferentiated hinterland. By way of contrast, the Bell organization had given each of the metropolitan areas centered on Chicago, Cleveland, and Cincinnati their own individual licensee company. Serious underdevelopment in Central Union territory was the result.¹¹¹ Not coincidentally, the Central Union territory became the stronghold of the independent telephone movement. The strongest state associations and most ambitious operating companies originated in that region. Dual service competition and the independent share of telephones reached their highest levels in Central Union territory.

FIGURE 6-1



¹¹⁰ EXCHANGE STATISTICS 1894, AT&T-BLA.

¹¹¹ One AT&T manager, Thomas Doolittle, recommended dividing the Central Union territory into three or four territories. A. R. Chappelka, History of Independent Telephone Operating Companies in the United States, Memorandum for Messrs. Dewey, Ballantine, Bushby, Palmer, and Wood, Affirmative Topic #10, Civil Action #17-49 (1956).

Just as important as Bell's uneven geographical coverage was the huge gap in the market for local and regional connections left by Bell's pursuit of a national system modeled on the telegraph. Bell's licensee companies had concentrated their attention on exchange development in major urban areas, while AT&T had concentrated on supplying intercity long-distance communications. The most successful independents, in contrast, concentrated on providing broader coverage of a county or a multi-county market area. They built exchanges in small towns where there were no Bell exchanges, then tied them together with short-haul toll lines. Or, they built exchanges in mid-sized cities with an established Bell exchange, and supplied superior telephone access to the surrounding areas, which had been ignored by Bell. As table 6-1 shows, most of the dual service cities in Phase 1 were smaller cities (pop. 5,000-20,000) that served as communication nodes for the agricultural economy. While Bell had been laboring to make it possible for New York to talk to Chicago, for Boston to talk to Philadelphia and Pittsburgh, the independents were connecting towns like Massillon, Ohio, with the nearby tributary towns of Dalton, Beach Grove, Canal Fulton, and Navarre.

TABLE 6-1
DUAL SERVICE BY CITY SIZE, 1894-1901

Entry date	Large >50,000 pop.	Medium 20-50,000 pop.	Small 5-20,000 pop.	Total
1894 # cities	2	4	23	28
% Surviving after 5 yrs:	0	50%	74%	68%
1895-1897 # cities	16	43	161	220
% Surviving after 5 yrs:	81%	86%	87%	86%
1899-1901 # cities	20	29	136	185
% Surviving after 5 yrs:	95%	97%	96%	96%

Source: Chappelka, 1956

A typical example can be drawn from West Virginia, where new companies started exchanges in the rapidly growing towns of Grafton, Fairmont, Clarksburg, and Morgantown in 1895. The population of those cities in 1900 was 5,650, 5,655, 4,050, and 1,895, respectively.¹¹² The towns were situated in a thirty-square mile area, each one being about ten to fifteen miles apart. Although Bell exchanges had been started recently in all of those locales, the independents were able to attract subscribers, according to the Bell manager, "by reason of their [the independents] great extension of toll lines." "We cannot afford to cover that territory with toll lines of the character of construction which we have adopted as a standard," the manager wrote. He concluded: "I must confess to a feeling of discouragement, and am at a loss to determine what we can do ... to break down the opposition in our territory."¹¹³ The much-vaunted superiority of the

¹¹² 1900 Census. By 1910 they had all grown substantially: to 7,563, 9,711, 9,201 and 9,150.

¹¹³ J. King Goodrich to C. J. French, August 26, 1896. AT&T-BLA.

Bell long-distance system was of little help here. What was needed most, from the point of view of average telephone subscribers, were local and regional connections to the places with which they had regular commerce.

That this kind of development had the capacity to make serious inroads into Bell's business had become obvious by the end of 1896. Companies such as The Western Electric Telephone Company of Britt, Iowa, the Western Illinois Telephone Co., and The Farmer's Telephone Co. of Massillon, Ohio, constructed extensive networks of grounded iron toll lines connecting rural subscribers to city and town exchanges. The Farmer's Company used its control of access to rural telephone users in Stark County to establish a successful exchange in Massillon (pop. 12,000), the county's second largest city.¹¹⁴ The Home Telephone Company of Ft. Wayne, Indiana, a substantial city of 45,000, was connected with independent exchanges in over fifty towns by the middle of 1896.¹¹⁵ That it was access competition which provided the incentive to reach those areas is clear. In 1896, for example, the Secretary of the Ohio Independent Telephone Association wrote a letter to every independent exchange owner urging them to "hasten the construction of toll lines connecting towns so small as not to be reached by the Central Union [Bell licensee] Company."¹¹⁶

Aside from undersupplying regional connections in the country, Bell had often neglected connections between large cities and their own suburbs and tributaries. Believing that small exchanges in less populous communities could not support themselves, Bell usually just ran long-distance circuits out from a larger city and cut in one public station in each small town along the way. Such perfunctory service made telephone communication less than convenient. Users in those locations had to leave their office and go to the public station; and while they could place calls to other cities on the Bell network, it was not possible for people in other cities to call them. Worse, a single circuit serving public stations in five to ten towns was technically the equivalent of a gigantic party line. A call in any one of the towns along the way tied up the line for all of the towns along the circuit. Anyone talking on the line had to contend with constant interruptions from people in other towns who picked up the phone and tried to signal the central office.¹¹⁷ In the New Jersey and Pennsylvania suburbs of Philadelphia, lines of ten, fifteen, or twenty people waited an hour for a connection to Philadelphia and two and a half hours for an open circuit to New York.¹¹⁸ Bell's competitors thrived on the inadequacy of toll facilities and organization. Many suburban cities in New Jersey and eastern Pennsylvania fell into the hands of the independents as a result.

The state of Michigan affords an example of independent development compressed into an unusually short period of time. By 1895, competing exchanges had been established in thirteen of the state's thirty-nine cities with a population in excess of 5,000. All but one of the cities (Kalamazoo, pop. 24,000) were mid-sized towns with populations between 5,000 and 20,000. Fueled by lower rates, better rural connections, and public hostility to Bell, those exchanges met with quick success in attracting subscribers. In Cadillac (pop. 5,000), Bell held on to only fifteen subscribers, compared to the independent's 120. In Ispsheming (pop. 13,000), Bell had 100

¹¹⁴ 24 ELECTRICAL REVIEW 293 (June 13, 1894).

¹¹⁵ 26 ELECTRICAL REVIEW 35 (July 15, 1896).

¹¹⁶ F. R. Colvin to President Hudson, Apr. 8, 1896, Box 1298, AT&T-BLA.

¹¹⁷ Thomas Doolittle to President Hudson, June 27, 1899. Box 1330, AT&T- BLA.

¹¹⁸ Thomas Doolittle, Report on toll matters, to President Hudson, Sept. 11, 1899.

subscribers at the end of 1897, the independent 400. Encouraged by the success of smaller cities, independent entrepreneurs organized new companies to serve the state's two largest cities, Grand Rapids and Detroit. The Citizens Co. of Grand Rapids grew from 400 subscribers at its opening in mid-1896 to 2,300 by the end of 1897, surpassing the number of Bell subscribers by 1,000. The path to a Detroit franchise was opened by a reform mayor.¹¹⁹ The independent Detroit Telephone Co., which began operating in December 1896, quickly attracted 5,000 customers by offering monthly flat rates half the size of the Bell company's. (Those rates proved troublesome, however, as the exchange faced bankruptcy only three years later.)

Then, early in 1897, the New State Telephone Co. was organized to "spread low-rate telephone service to all parts of the state," beginning with the towns surrounding Detroit.¹²⁰ Both the New State Co. and the Citizens Co. eventually assumed the role of a long-distance company, connecting their dispersed exchange holdings in the state with high-grade, metallic circuits. Although independents usually entered the business using lower quality grounded iron circuits, successful commercial companies such as the New State upgraded to higher quality metallic circuits at the first opportunity. By 1898, New State Co. lines connected Port Huron, Grand Rapids, Lansing, Grand Ledge, and Lake Odessa.¹²¹ By 1899, thirty-six of the thirty-nine Bell exchanges (92 percent) faced direct competition. The Detroit independent exchange failed in 1900, and, along with the Kalamazoo exchange, was sold to the Bell interests. A new competing exchange was established in Detroit only two years later, however. Never financially healthy, it struggled along with about 20 percent of the market but was nevertheless maintained by the independent interests in order to provide termination in the state's largest city. The Grand Rapids-based Citizens Company, on the other hand, dominated its section of the state until its merger with the Bell system in 1916. From 1900 to 1907, the number of Michigan communities over 5,000 in population with dual service stayed at 70 percent or above.

The independents did not suffer much from their lack of connections to the Bell system-not yet. On the contrary, their exclusion from Bell exchanges and toll lines encouraged them to develop a critical mass of users by constructing toll lines and new exchanges in areas underserved by Bell and organizing themselves in ways that would facilitate the interconnection of all anti-Bell users. The supply of telephone facilities was so far below the demand for them that there was plenty of room for carving out new subscriber universes. During the 1894-1898 period, the number of independent subscribers doubled every eighteen months. Much of that torrid rate of increase stemmed from the establishment of new exchanges. Independent exchanges that already existed, however, usually doubled in size each year for the first few years of their existence. When independent exchanges failed, and many did, it was rarely for want of subscribers. By 1902 there were 1.3 million Bell telephone subscribers, more than five times the number that had existed in 1894. But there were nearly a million users of independent telephones.

¹¹⁹ The mayor declared that since telephone service cost \$25 per year in Canada and \$65 per year in Detroit, he would drive rates down or drive the telephone company out of the city. 25 ELECTRICAL REVIEW 118 (Sept. 5, 1894).

¹²⁰ 30 ELECTRICAL REVIEW 87 (Feb. 24, 1897).

¹²¹ 31 ELECTRICAL REVIEW 64 (Aug. 8, 1897); 31 ELECTRICAL REVIEW 146 (Sept. 22, 1897).

TABLE 6-2
GROWTH OF DUAL SERVICE COMPETITION, 1894-1907

	#Public Exchanges		#Telephone		Dual Service [^]	
	Bell	Independent	Bell+ Independent connecting	Independent non- connecting	#Places >5k	(%)
Jan 1, 1894	1,409	*98	266,000	*15,000	28	2%
1897	1,799	*1,700	415,000	*100,000	220	23%
1902	3,005	3,400	1,401,021	969,845	449	55%
1904	3,365	*4,400	2,399,213	1,348,000	483	60%
1907	4,889	5,400	3,958,489	2,279,578	466	57%

Sources: Telephone Censuses, 1902, 1907; Chappelka, 1956, Telephony, misc issues; ABT Co. and AT&T Annual Reports.

* Estimates based on 1902 Telephone Census. Independent exchanges do not count rural farm lines or exchanges with incomes less than \$5,000.

[^] Note: dual service points counted only in communities with population of 5,000 or more. Percentages = percentage of cities with population of 5,000 or more.

Phase 2: System overlap, 1898-1907

In the second phase of the competition, from 1898 to 1907, dual service competition was pushed from its stronghold in the middle-sized towns and previously undeveloped areas to the extremes of urban and rural America. Although, as noted in chapter 3, access competition makes perfect duplication of service impossible, it nevertheless gives the competing networks an incentive to match each other's scope as closely as possible. Thus, Bell and the independents entered a period of growing system overlap. In order to remain competitive with the independents, the Bell system extended its presence to small towns and rural areas, partly through new construction and partly by interconnecting with noncompeting independents. At the same time, the independents attempted to extend their access to major cities with established Bell exchanges.

From 1897-1904 the number of communities greater than 5,000 in population with competing exchanges shot up from 23 percent to 60 percent, and stayed over 55 percent until 1912. As dual service competition spread, price competition and service improvements in the affected cities typically doubled telephone users within a year. As that occurred, both sides raced to extend connecting service to new user groups, such as farmers and residences. Technologies which lowered the cost of access, such as party lines and automatic switches, were rushed into operation.

Dual Service in the Cities

Early independent efforts to compete in large cities had almost always failed. A variety of snares and pitfalls awaited those who ventured directly into Bell's urban strongholds. The political

maneuvering required to obtain a franchise in a major city was complicated and expensive.¹²² Heavy capital investment was required to match the facilities of the Bell system. In New York and Boston, where Bell had lavished most of its corporate attention, service was reasonably good. If there were complaints about the telephone company, they were limited to the high price of service. Under those circumstances the incumbent could undermine the demand for a new company by making rate concessions. The introduction of measured service in New York city in 1894 decreased the charges for most users, making telephone service available to small users for as little as \$8 a month. The number of subscribers in New York city more than doubled, going from 9,000 to 21,000, in the four years following the introduction of measured service.¹²³

When the first wave of independents did manage to establish a presence in a major city they were usually ill-prepared to handle the complex financial and management practices and rate structures required of a large exchange. Both of the independent exchanges started in 1894 in cities with populations greater than 50,000 failed within five years. The Home Telephone Company of Baltimore, organized in 1896, offered rates less than half those of Bell but became insolvent after three years. It was sold to a new company which had to rebuild the plant and raise rates by 57 percent.¹²⁴ The same fate befell the independent exchange in Detroit.

In contrast, large urban exchanges that were the culmination of four or five years of prior development in the surrounding areas generally turned out to be the financially strongest and longest-lasting independent operating companies. Buffalo, St. Louis, Indianapolis, Kansas City, Louisville, and Minneapolis-St. Paul all followed that pattern. A competing exchange was not established in Buffalo, New York, until 1901, but by mid-1896 the Electrical Review reported that all of the principal towns surrounding that city were connected by independent systems.¹²⁵ Kansas City did not admit an independent exchange until 1902, but by 1897 independents were thriving in Leavenworth, Topeka, and Ft. Scott, Kansas; and St. Joseph, Carthage, Webb City, Joplin, and Nevada, Missouri; and many other smaller towns within 150 miles for whom Kansas City served as the regional center.

Thus, from 1898 to 1903 a wave of new competition swept into the urban centers. It was the Bell strategy in reverse—a case of the periphery advancing on the center.¹²⁶ In the intervening years the independents had gained more than access leverage in the country-side; they had also gained management and technical experience. Table 6-3 shows the starting dates of independent exchanges in cities over 50,000 in population. Of the cities over 100,000 in population, only Boston, New York, Washington D.C., Cincinnati, Milwaukee, and Denver managed to retain a

¹²² In Philadelphia, the franchising of the Mutual Automatic Telephone Company was quashed when politicians were accused of exchanging their influence for stock in the company. In Brooklyn, the city council franchised an independent company three times only to have it vetoed by the mayor each time. 29 ELECTRICAL WORLD (Aug.

19, 1894).

¹²³ A residential user paid \$8 to \$10 per month and 15 cents for the first 600 calls. EXCHANGE STATISTICS 1894, AT&T-BLA.

¹²⁴ 34 ELECTRICAL REVIEW 26 (Jan. 11, 1899).

¹²⁵ 29 ELECTRICAL REVIEW 36 (July 15, 1896).

¹²⁶ As an independent spokesman put it, where Bell had worked from the top down, the independents developed from the bottom up. Harry MacMeal, THE STORY OF INDEPENDENT TELEPHONY 26 (1934).

single telephone system throughout the competitive period. Of those, only Washington and Cincinnati refused to franchise a competitor; the other cities authorized a new entrant but the independent failed to raise the capital needed to build a competing exchange.

TABLE 6-3
STARTING DATES OF DUAL SERVICE IN CITIES OVER 50,000 IN POPULATION
Numbers in Parentheses indicate city's population rank in 1900 census.

1898	
(7) Cleveland, OH	(52) Wilmington, DE
1899	
(43) Atlanta, GA (21) Indianapolis, IN (12) New Orleans, LA (4) St. Louis, MO	(2) Chicago, IL (19) Minneapolis, MN (11) Pittsburgh, PA (68) Wilkes-Barre, PA
1900	
(27) Allegheny, PA (65) Duluth, MN (24) Rochester, NY (62) Savannah, GA (30) Syracuse, NY	(28) Columbus, OH (55) New Bedford, MA (64) San Antonio, TX (23) St. Paul, MN
1901	
(8) Buffalo, NY (45) Dayton, OH (38) Scranton, PA	(51) Camden, NJ (33) Fall River, MA
1902	
(40) Albany, NY (69) Harrisburg, PA (18) Louisville, KY (50) Reading, PA (26) Toledo, OH	(13) Detroit, MI (22) Kansas City, MO (3) Philadelphia, PA (48) Seattle, WA (56) Troy, NY
1903	
(36) Los Angeles, CA (54) Oakland, CA (60) Utica, NY	(37) Memphis, TN (61) Peoria, IL
1904	
(55) New Bedford, MA (63) Salt Lake City, UT	(70) Portland, ME

Quincy, Illinois, typified some of the causes behind the independents' advance into the cities. A city of 36,000 in 1900, Quincy sits on the western edge of Illinois on the bank of the Mississippi river. At the time of patent expiration, the 500 subscribers of the Bell exchange there could call Springfield (102 miles away) and Peoria (132 miles away), but no other places within the city's own county of Adams, nor any exchanges in neighboring Brown, Hancock, and Pike counties. New, independent exchanges grew up in those areas very rapidly after 1894. They

remained isolated for only a year, as in 1895 the Western Illinois Telephone Company of Augusta began to construct toll lines connecting the independents in the region. In January of 1896 the Western Illinois Co. obtained the city's permission to bring its lines into the building of a grocery supply company in Quincy, where a toll telephone was set up. From contemporary newspaper accounts it is clear that the line served small town merchants in the farm counties who ordered supplies from wholesalers in Quincy.¹²⁷ That short-distance service was very popular with the local merchants and farmers.

The convenience of the Quincy telephone line was noticed immediately by the wholesale merchants of Newark, Missouri (pop.400), a town 40 miles to the west. They began to raise money to construct a line crossing the Mississippi river linking Quincy, Newark, and thirty other points in Lewis, Knox, and Marion counties, Missouri. Word of the proposed new telephone line spread through the county newspapers and was received with great enthusiasm.¹²⁸

The money was raised by local stock subscriptions and by advance purchases of toll tickets. A submarine cable was laid before the end of the year. By March, 1899, the Western Illinois Co. owned exchanges at Macomb, Rushville, and Carthage, Illinois. It operated 700 miles of toll line in six counties and maintained toll stations at fifty-nine towns. Through its submarine cable across the Mississippi river it connected with points in Missouri and Iowa; another cable across the Illinois river at Beardstown linked users to the farming areas around Springfield.¹²⁹

Still, there was no independent exchange in Quincy itself, the largest city within 100 miles. As the Bell exchange there was closed to independent connections, the only way to obtain access to the independent systems surrounding the city was to install a private line and toll station on private business premises. The number of those private, independent toll stations in Quincy grew from one in 1896 to at least eight in 1903, illustrating the growing demand for independent connections.¹³⁰ Those private lines were more expensive than a subscription to an exchange, and were becoming increasingly difficult to set up because the lines had to pass over private property in order to avoid the need for a franchise. The burgeoning independent presence outside the city lent support to the idea of establishing a competing exchange. Several began to approach the city for a franchise. Soon Quincy was forced to debate the merits of dual service.

Independent control of a majority of telephone users outside a city did not guarantee that it would franchise a competing company. In cities where public sentiment was overwhelmingly against Bell (as in Indianapolis or Detroit), or where state laws made it possible to enter the city without a municipal franchise (as in St. Louis), there was little debate and only a year or two of preparation was needed. In other cities, (e.g. Chicago and Milwaukee) public debates about franchising a new company dragged on for years. Quincy was one of the latter cases.

¹²⁷ QUINCY HERALD, Jan. 10, 1896.

¹²⁸ QUINCY HERALD, Feb. 10, 1896.

¹²⁹ THE WESTERN ELECTRICIAN, Mar. 11, 1899, at__.

¹³⁰ Theodore Vail, *Telephone Pioneers of America*, in THE STORY OF THE TELEPHONE IN QUINCY (AT&T L&R).

Public discussion of dual service seems to have begun in 1899. Opponents praised Bell's "excellent service" and complained about the inconvenience of duplicating subscriptions for businesses.¹³¹ Supporters asserted the need to obtain access to "country lines."¹³² After five and a half years and at least three separate applications to establish competing exchanges, Quincy's City Council franchised the Quincy Home Telephone Co. on September 19, 1904. Quincy Home was the brainchild of Charles Wheat, a local promoter who managed to win the support of several prominent citizens. The company opened an automatic exchange system in the summer of 1906. It replaced many of the older independent toll lines with copper metallic circuits and arranged interconnection with the association of small independents. In the fall of 1906 it organized a separate company, the County Home Telephone Co., to acquire and connect independent lines in the farm areas. In the first year after the entry of the Quincy Home Co., the presence of a competing exchange did more to stimulate new users than to take subscribers away from Bell. The Bell exchange, which had been growing by about 300 a year since 1902, canvassed for new subscribers and grew at the same rate.

In larger cities, the dual service debate centered on rates. City councils approached competition as a way of controlling or reducing charges, often contrasting it with municipal rate regulation or measured service as a means to that end. Cities also used the threat of a new franchise to attempt to extract rate concessions from the Bell company. To the independent movement, of course, building an access universe comparable to Bell's was the paramount consideration. The state associations lobbied city governments to open their inhabitants to an independent exchange with the argument that businesses in the city would benefit from the availability of connections to their subscribers. In Oregon and Washington, independent promoters who had been blocked by city governments obtained franchises by means of the public initiative and referendum.¹³³ Still, an independent company attempting to enter a city was forced to make rates the basis of their franchise pitch, promising prices half that of Bell's and a variety of free services to the city government. The outcome depended on how satisfied the local business community was with the Bell service.

Between 1893 and 1906, nine different companies were organized to provide competing telephone service in the city of Chicago.¹³⁴ The early applicants (1893-1898) vanished with little to show for their efforts. After 1898, however, the prospect of competition could hardly be ignored. There were more than 300 exchanges unconnected to the Bell system in Illinois and Indiana

¹³¹ QUINCY HERALD, Mar. 20, 1899 (reprinted editorial from the *Chicago Evening Post*: "Of what advantage will a telephone rate half as large as the present be, if one has to have two telephones in order to keep in touch with the business world? That is a problem which is troubling a good many people just now. Of course the answer is that in time one company or the other would be forced out.")

¹³² "An exchange at Quincy with 200 or more of the principal business houses... would be of immense benefit to Quincy merchants, besides a matter of greatest convenience to the country merchants and farmers who do their trading almost exclusively in Quincy." Letter to the editor, QUINCY WEEKLY HERALD, Dec. 12, 1902, at 134

¹³³ 12 TELEPHONY 15-17 (July 1906).

¹³⁴ The Chicago Twin Wire Long Distance Telephone Company, 1893; the Cosmopolitan Electric Company, 1895; the Commonwealth Electric Company, 1897; the Independent Telephone Company, 1898; S. J. Heafield, 1898; Illinois Telephone and Telegraph, 1899; the Hyde Park District Telegraph and Electric Company, 1901; the United Telegraph, Telephone, and Electric Company, 1901; and the Manufacturer's Telephone Company, 1906. Illinois file, AT&T L&R.

clamoring for connections to the city.¹³⁵ There is also evidence that the business community thought Bell's telephone service was too expensive. A bill that slashed telephone rates in Chicago by more than half passed the Illinois House unanimously in 1899.¹³⁶ As the newspapers pointed out, the bill was a little more than a public relations gesture by the legislators; its rate reductions were so extreme that it was certain to be invalidated by the courts. But it did allow the politicians to appear as if they were doing something about telephone rates, which evidently were the source of widespread discontent in Chicago.

Three well-organized independent attempts to enter Chicago were mounted between 1899 and 1906. They resulted in one partial victory and two defeats. The Illinois Telephone and Telegraph Co. was franchised Feb. 20, 1899. ITT was the owner of the Automatic Electric manufacturing company. Using the slogan "Prompt, Private, Perfect," it offered automatic switching of the Strowger type and all single-line metallic circuit service. The company's rates were usage-sensitive, charging for each switch up to a maximum of \$85 for businesses and \$50 for residences, well below the Bell rates. Those rates were fixed as the maximum in its franchise. It is not clear when its service actually began, but by August 1906 it had about 6,000 subscribers.

ITT never lived up to its potential as a competitor of Bell, however. The financial interests backing the project were really interested in developing an underground subway system to transport mail and parcels. The telephone business was seen as an easier way to get the underground tunnel privileges needed for that purpose.¹³⁷ In 1905 it changed its name to the Illinois Tunnel Company. The Tunnel Co. had to keep up its telephone business to prevent its franchise from being invalidated, but never aggressively developed it. It also failed to connect with the independent toll lines and ex-changes outside Chicago until 1911.

The United Telegraph, Telephone, and Electric Co. was franchised to serve Hyde Park before that neighborhood was absorbed by the city of Chicago. Its exchange at 47th and Cottage Grove operated 600 telephones. In December 1900 an ordinance allowing the United Co. to extend facilities throughout Chicago was introduced in the City Council.¹³⁸ In 1906 another new company with solid backing from the independent movement, the Manufacturers Telephone Company, sought a franchise. In both cases the proposals led to lengthy hearings before the city council committee on gas, oil, and electric light.

The reports that emerged from those hearings tended to support the view that it was better to reduce rates through municipal regulation or by introducing measured service than by competition.¹³⁹ Both competing franchises were denied. An ordinance imposing detailed regulation of rates and service upon Bell's Chicago Telephone Co. was passed November 6, 1907.¹⁴⁰ The

¹³⁵ S. P. Sheerin, quoted in the CHICAGO RECORD-HERALD, June 27, 1901.

¹³⁶ The Western Electrician, Mar. 25, 1899, at 174; THE WESTERN ELECTRICIAN, Apr. 8, 1899, at 201.

¹³⁷ Illinois Tunnel Co, memorandum dated Dec. 20, 1902, Boxes 65 and 1357, AT&T-BLA.

¹³⁸ Hot Telephone Talk, CHICAGO RECORD-HERALD, June 27, 1901.

¹³⁹ Report of the Special Committee on Telephone Rates and Service. Presented to the City Council of the City of Chicago, Mar. 2, 1903; Hugo S. Grosser, Telephone Service and Rates, Report of the Committee on Gas, Oil, and Electric Light to the City Council of Chicago (Sept. 3, 1907).

¹⁴⁰ Chicago City Ordinance of Nov. 6 1907, text in Box 65, AT&T-BLA.

prevailing attitude was summed up by a *Chicago Daily News* editorial of 1903, which opposed dual service as a “scheme to fool the weak-minded” but supported action to reduce rates. “There is no reason why [the Chicago Telephone Co.] cannot be compelled to give fair rates to the people when it comes asking for a renewal of its franchise [in 1909]. If that company will not consent to be reasonable let the city go into the telephone business itself.”¹⁴¹

Indianapolis, on the other hand, authorized a competing telephone company very quickly. In 1898 there were only 2,286 subscribers in the city of 169,000, and the service of the Bell company in that city was generally considered to be poor. A long history of disputes over rates had marred relations between the telephone company and the state’s citizens; yet the company’s franchise made no provisions for rate control and contained no expiration date. In March 1898 the New Telephone Company obtained a franchise, but the city Board of Public Works compensated for its lack of control over the Bell exchange by attaching important restrictions to it. The New Company franchise fixed maximum rates at \$40 for business and \$24 for residences, 55 percent and 50 percent of the respective Bell rates. The franchise expired after twenty-five years and became void if the new company was consolidated with or purchased by a competitor.¹⁴² That competition was conceived as a method of rate control is clear from the franchise itself, which stated that “the principal consideration for the granting of the franchise... is and will be the securing of a reduction of telephone rates to the citizens.”¹⁴³ By January 1906, the New Company was serving 9,354 subscribers while the Bell exchange had grown to 7,670 subscribers. Thus, despite user fragmentation, a telephone subscriber in Indianapolis had access to four times more users after competition than before it.

Contrary to the trend in the rest of the country, dual service declined in the South after 1898. Due to cheap construction, unrealistically low rates, and a lack of regional cooperation and interconnection, independents in Mississippi, Louisiana, and parts of Virginia, Alabama, and Kentucky were decimated by bankruptcy and Bell acquisition after 1900.¹⁴⁴ The Cumberland Co. was particularly active in gobbling up financially exhausted independents, acquiring twenty noncompeting exchanges and six competing systems in Mississippi, Louisiana, and Kentucky between January 1900 and April 1901. The competing New Orleans exchange was one of the properties acquired.¹⁴⁵

Those failures portended financial problems that were to haunt the urban independent systems. In large exchanges, the independent promoter’s calculation of the profits that could be made at lower rates had overlooked two critical considerations: depreciation and the diseconomies of growth. In the first year or two of operation, the new exchange performed well and appeared to make profits and even pay dividends. After four or five years, the company learned that the “profits” and “dividends” of the preceding years had not been profits at all, but should have been

¹⁴¹ CHICAGO DAILY NEWS, June 8, 1903.

¹⁴² Patrick O’Neill, *Franchising the New Telephone Company*, paper delivered at the Midwest Journalism Association Conference, 7 (1988).

¹⁴³ /d.

¹⁴⁴ Lipartito 129-34 (1989).

¹⁴⁵ Cumberland Telephone & Telegraph Co., acquisition of independent telephone companies, Box 1336, AT&T-BLA.

retained to renew the exchange's physical facilities.¹⁴⁶ They also learned that their costs increased as they added subscribers, making their initial rates inadequate. Compounding the problem, low rates were often locked into the franchise. By 1906 the independents in St. Louis, Cleveland, Indianapolis, Pittsburgh, Toledo, Madison, and many other cities had been forced to swallow their rhetoric and ask for rate increases of 20 to 50 percent.¹⁴⁷ Others began to engage in acts of financial legerdemain, such as issuing new bonds to pay for the old ones before they matured, in a desperate attempt to raise the capital needed to renew and expand. Access competition demanded that they expand and become more universal to remain competitive, and as the Bell system had learned a decade before, expansion demanded huge amounts of investment capital.

Access Competition and Rates

Telephone prices generally consist of two parts: a charge for access and a charge for usage. Pricing after 1894 was deliberately constructed to minimize the access cost barrier in order to encourage large numbers of new subscribers to join (or, in the case of Bell, to retain existing subscribers). From 1894 to 1900, the average monthly rate for local exchange service dropped by more than half. It was not unusual for Bell operating companies to temporarily set their rates at \$1 per month, or even to provide service for free, in cities where an independent exchange had taken away many of their subscribers.¹⁴⁸ Rate reductions occurred in part because competition from independent manufacturers forced the national Bell organization to lower royalty payments on Western Electric manufactured telephone sets from \$11.48 per telephone to \$2.18 from 1893 to 1899.¹⁴⁹ But reduced royalties accounted for only 42 percent of the cost reductions per subscriber.¹⁵⁰ The companies also were forced to operate more efficiently and to offer new classes of service which made a telephone subscription more affordable.

In nearly all cases the independents positioned themselves as the low-cost provider. A comparison of rates in over 471 competing exchanges by the Bell system in 1913 found that Bell's exchange rates exceeded the independents' in 9 percent of the cases.¹⁵¹ In the early years that did not necessarily mean that the independent's equipment was lower quality and their service inferior. A memo from the president of the New York Telephone Company in 1902 noted that the amount of capital invested per Bell telephone was \$328.20, whereas for independents the capital per phone was only \$192.30. He concluded:

...in nearly every instance the independent plants are new and represent the latest developments in telephone equipment, while in most cases the Bell plants are old. The Bell companies also have a larger number of phones on party lines while the independent phones are almost all on complete metallic circuits.¹⁵²

¹⁴⁶ *The Financial Side of Independent Telephony*, 11 TELEPHONY 14-18 (Jan.1906) (review of FREDERICK DICKSON, TELEPHONE INVESTMENTS, AND OTHERS). Dickson, President of the Cleveland-based Cuyahoga Telephone Company, actually argued in defense of the absence of depreciation charges.

¹⁴⁷ 12 CUMBERLAND TELEPHONE JOURNAL (1906), AT&T-BLA; O'Neill, *supra* note 40, at__.

¹⁴⁸ Lipartito 120 (1989); Gabel 88-97 (1987).

¹⁴⁹ Weiman and Levin, *Preying for Monopoly? The Case of Southern Bell Telephone Company, 1894-1912*, 102 J. POL. ECON. 113 (1994).

¹⁵⁰ *Id.*

¹⁵¹ Bell and Independent Exchange Rates, 1912-13, Box 29, AT&T-BLA.

¹⁵² President of New York Telephone Co. to President Fish, Mar. 25, 1902. AT&T-BLA.

In 1909 AT&T conducted a study that compared telephone penetration levels and rates in twelve cities without competition and twenty-seven cities with competition.¹⁵³ The study found that the average development in non-competitive cities was only 8.2 telephones per 100 population, compared to 11.2 stations per 100 in cities with competition. The cover letter transmitting the report to President Vail concluded “it seems that with competition development is somewhat greater than without. Of course part of that greater development is to be ascribed to the lower rates prevailing under competition.”¹⁵⁴

The need to maintain a large subscriber universe also affected the structure of the technology. Both contestants began to offer inexpensive two-party, four-party, and sometimes even eight and ten-party lines to increase their subscriber universe.¹⁵⁵ The object was to get as many subscribers onto the system as quickly and as cheaply as possible. From 1894 to 1906 the ratio of subscribers to exchange circuits in the Bell licensee companies plummeted from one to one-half; in some cities the ratio was as low as one-third. One particularly novel attempt to respond to competition by broadening access was the development of the “Kitchen Telephone” by the California Bell licensee. The kitchen telephone was a very low-priced, compact instrument capable of making outward calls only. Unlike other residential telephones at the time, which were placed only in halls or dining rooms, they would be placed in the kitchen, “conveniently located for the use of the servants ... through which to order supplies from the butcher, grocer, coal dealer, and other tradespeople.”¹⁵⁶ Though the model in mind here is clearly one of an upper class home, by the end of the competitive period, the telephone had become commonplace among the middle class, reaching 70% penetration in some parts of the country (see chapter 12).

Dual Service in the Country

Around 1900 a new force entered the telephone competition, a development as important in its own way as the initial wave of independent competition. Huge numbers of farmers began to buy their own telephones and wire and set up country telephone systems. Farmer lines were basically party lines which passed through five to twenty houses. Many were built by cooperative organizations which drew on their own member-subscribers for capital and operating labor. Subscribers were expected to maintain their own part of the line, the poles on their property, and their own phone. Advice on how to construct them was disseminated to millions of farmers through periodical publications such as the *Farm Journal*. To the large number of Americans who lived on farms, those neighborhood party lines provided welcome relief from isolation. According to one source, “from the day the second telephone is put on [the line] for about two months there is never a time when the line is not busy.”¹⁵⁷ Once one line was established in a farming area, “telephone

¹⁵³ Walter S. Gifford, AT&T Statistician, Aug. 10, 1909, *Statement Showing Growth in “Bell” and Independent Telephone Development Together With Changes in Exchange Rates in Various Cities of the United States Arranged by Five Year Periods from 1894 to 1909*, AT&T-BLA.

¹⁵⁴ *Effect of Competition on Development and Rates*, C.G. DuBois, Comptroller, AT&T, to Theodore Vail, President, AT&T, Aug. 20, 1909. AT&T-BL98.

¹⁵⁵ Party Line Development, 1898-99, Box 1258, AT&T-BLA.

¹⁵⁶ *Kitchen Telephone Service*, advertising flyer, Sunset T&T Co., 1895, Box 1278, AT&T-BLA.

¹⁵⁷ 10 CUMBERLAND TEL. J. 13 (Jan. 1904).

contagion” struck the whole community. Nearby farms, hearing tales of its success, decided to build one of their own.

Initially, each small farm line had its own organization. Its business had to be submitted to a vote of all of the members. As the lines proliferated throughout a region, those organizations made arrangements to interconnect their lines at someone’s house. Farmhouse “nodes” usually were not exchanges with switchboards but simple serial connections. They were run by farm wives or daughters who could be relied on to stay nearby to listen for the signal bell. If a person on one farm line wanted to talk to someone four farm lines away, he or she had to signal and make a connection through four different homes. Making a connection could become a long and socially interesting process. “I know men ... who cannot communicate with people in their neighborhood because the people that keep up the home exchange don’t like some of the people in the other neighborhood,” complained one telephone company employee.¹⁵⁸ As the use of the telephone in the area spread, those small cooperatives often combined and adopted a corporate, commercial form of organization.¹⁵⁹ Commercial rural systems averaged about eight telephones to a line; the mutual and farmer systems averaged about twenty-four telephones to a line.

The telephone Census of 1902 documents the initial phases of a massive increase in the number of rural telephones. According to the census, there were 5,979 tiny farmer lines and rural mutual systems in 1902, and another 15,598 rural lines run on a commercial basis.¹⁶⁰ Rural lines accounted for more than a quarter of a million telephones in the United States, about 11 percent of the total. As the social historian Claude Fischer has shown, during the next ten years telephone penetration in the farm areas caught up with and surpassed that of the urban areas.¹⁶¹ The growth of farm lines had begun to alter the long-standing rural/urban imbalance in the distribution of telephones.

As the farm lines blossomed, they were drawn into the access competition. Farmers wanted connections to markets and merchants in the cities; the telephone companies wanted to obtain a competitive edge by controlling access to rural subscribers. Independent and Bell alike took note of what came to be known as “the farm line proposition.” That referred to the negotiations over which system the farm lines would choose to interconnect with. The once-neglected farmer became a highly sought after prize. One Bell manager who was particularly active in urging his local managers to go after the farmers said, “I say to you managers that whenever you have the farmers tied on to your exchange you have got the merchants where you want them.”¹⁶² Another Bell manager, decrying the lack of rural development of the Bell system in the Rocky mountain area, warned that if the independent got the farmers, “he has anchored his exchange.”¹⁶³

Those rural lines are generally counted by economic historians as part of the independents’ “market share,” but a large percentage of them—perhaps half—had no vested interest in competing

¹⁵⁸ *Ibid.*

¹⁵⁹ 76-77 TELEPHONE CENSUS 1907.

¹⁶⁰ ELECTRICAL INDUSTRIES CENSUS, 1902, table 13.

¹⁶¹ Claude Fischer, *The Revolution in Rural Telephony*, _ J. Soc. HIST. 5 (1987).

¹⁶² 10 CUMBERLAND TEL. J. 12 (Jan. 15, 1904).

¹⁶³ Pickernell to G. Y. Wallace, President, Rocky Mountain Bell, Mar. 27, 1905 (cited in Chappelka, 1956).

with Bell. Their goal was to bring the benefits of the telephone to their areas at the lowest possible rate. They would agree to connect with whoever offered the best terms, which might be Bell, the independent, or neither. Rural telephone systems proved to be as independent of the Independents as they were of Bell. When they became dissatisfied with the toll charges imposed on them by a connecting exchange, they would frequently disconnect their line and set up their own terminus in the same town. Whereas the organized independents almost never entered into direct competition with each other, the farmer lines didn't care who they competed with. In some cases four different switchboards operated in the same community due to disagreements over connecting charges.¹⁶⁴ That type of competition so exasperated the organized independent movement that their associations tried to get manufacturers to refuse to sell equipment to independent companies that initiated competition when another independent was already adequately serving the community.¹⁶⁵ From a competitive standpoint, the farmers were not part of the organized independent movement, but truly independent "swing voters" who had to be courted by both sides.

It was the presence of access competition that gave the farmers their leverage over the telephone companies. Dealing with the farmers was extraordinarily difficult for both telephone interests because there were no standard terms of trade. Each farm line had to be negotiated with on an individual basis, and the farmers were very demanding. Bell and many urban-based independents probably would have preferred to ignore them. The competition for subscribers, however, forced both Bell and the independents to seek out the farmers and offer favorable terms for interconnection. In 1900, for example, the New York and Pennsylvania Telephone Co., a Bell licensee, issued a general order announcing that "during the current year it is the intention of the company to push the development of telephone service in the rural districts."¹⁶⁶ The New York and Pennsylvania Telephone Co. also developed two special rural line contracts, one to establish a small switching station in farm houses, the other to connect farm lines to a toll station along the Bell lines. Not coincidentally, the Company's territory in western New York and northern Pennsylvania was overrun with competing independents. The (Bell) Cumberland Company was also active in courting rural areas in response to competition. To farmers who built and maintained their own lines, the Cumberland Co. offered connections to its exchanges for only \$2 per year.¹⁶⁷ That low rate prompted the Mississippi Independent Telephone Association to charge Bell with predatory pricing before the state Railroad Commission.¹⁶⁸

In addition to expanding the access universe of the telephone companies, interconnection agreements sometimes provided capital or maintenance for farmer lines that had grown beyond the capacity of the local organization to manage. Farm lines were easy and inexpensive to establish, but once they grew and achieved a wider scope of interconnection, the farmers rarely had the time to maintain them or the capital to upgrade them to higher technical standards. When it became necessary to consolidate the management of many small, separate lines into an integrated system, a shift from a mutual to a corporate form of organization usually had to be effected. That could

¹⁶⁴ 3-31 Chappelka 78 (1956).

¹⁶⁵ *Id.*

¹⁶⁶ General order #34, Feb. 14, 1900, Box 1330 AT&T-BLA.

¹⁶⁷ *Report on Tennessee*, 11 CUMBERLAND TEL. J. (Mar. 15, 1905).

¹⁶⁸ 10 CUMBERLAND TEL. J. (Oct. 15, 1904).

involve some form of capital assistance from one of the two telephone interests. In other cases, the farmers would simply sell their lines to Bell.

Bell's response to competition

Bell embraced a variety of tactics in response to independent competition. Correspondence between the national organization and the licensee companies reveals that five basic methods were employed: 1) the adoption of “fighting” rates, i.e., temporarily lower prices for local exchange access in order to drive the independent from the field;¹⁶⁹ 2) buying out competitors; 3) improving and extending service; 4) interfering with the franchising of independent companies; and 5) spreading unfavorable publicity about independent companies in order to scare away customers and financiers.¹⁷⁰

Although evidence can be found that each of those tactics did some damage to the independents in isolated circumstances, ultimately national and local Bell management came to understand that improving and extending service was the most powerful response to competition. Price wars produced nothing but financial losses for the licensee companies.¹⁷¹ Rate cuts were more expensive for Bell than for its rivals because the independents' costs were generally lower.¹⁷² Besides, rate cuts from Bell were utterly lacking in credibility, as people would not easily forget seventeen years of monopoly prices. Buying out competitors was a highly expensive proposition, too, although it was employed in a few strategic circumstances. Successful independents, however, had little incentive to sell, and by 1898 there were far too many of such for Bell purchases to make much of an impact. Blocking franchises worked in a few large cities,¹⁷³ some of them of great strategic importance, but the growth of independent-controlled exchanges in the surrounding areas

¹⁶⁹ For typical correspondence of that sort see C.E. Yost, President, Iowa Union Telephone Company, to C. J. French, American Bell, Apr. 18, 1899, AT&T-BLA; E. B. Field, General Manager, Colorado Telephone Company, to C. J. French, Aug. 28, 1895, AT&T-BLA. French, the national organization's person in charge of competitive tactics, advocated “fighting” rates lower than the opposition's as a temporary expedient.

¹⁷⁰ Chappelka (1956) 195 discusses the variety of competitive tactics used by ABT in the early years of competition.

¹⁷¹ American Bell's Annual Reports from 1899-1907 note repeatedly that competition had forced many licensee companies to reduce their rates to unremunerative levels and adversely affected their financial condition. See ABT ANNUAL REPORT 9 (1902); ABT ANNUAL REPORT 12 (1906). In 1902, President Fish wrote to C. E. Yost, “the plans of meeting the opposition by reducing rates has, I believe, rarely if ever succeeded.” Cited in Chappelka (1956).

¹⁷² Mr. Jackson, President of the Central Union Company, wrote to President Hudson, ABT, in 1899 complaining that in medium-sized towns of 10-20,000 population the independents were charging annual flat rates of \$24 (Business) and \$12 (residence) for single-party metallic circuit lines. “We cannot meet these rates, and cannot sell our metallic service at the present rate of \$60-66 per annum in exchanges of that size.” Cited in Chappelka (1956).

¹⁷³ Bell lobbied city governments to prevent franchising of competing companies, and when that failed they loaded the franchises with restrictive provisions that made life difficult for the competitor. Bell's political efforts paid off most heavily in Washington D.C., where the influence of the Chesapeake and Potomac Company on Congress was strong enough to ensure that authority for competition was shelved in 1900. Lobbying efforts by the General Manager of Bell's Colorado Telephone Company prevented a competing Denver franchise in 1901, and in 1902 the Vice President of the Colorado Company helped elect the Governor of the state. In Scranton, Pennsylvania, Bell interests defeated three pro-competition ordinances in four years. From 1896-1899 pro-Bell politicians in Kansas City buried several competing franchise authorizations. In Scranton and Kansas City, however, an independent company eventually was franchised.

maintained constant pressure on cities to franchise an independent. The effort by Bell's public relations agents to discredit the independents could only work in areas where people had no direct knowledge of independent telephony, such as New England and New York. In most areas, independents had a track record and support from local capital, local merchants, and local politicians. Bell's survival as a system could not rely on any of those methods.

Toll Line and Exchange Development

As the other tactics failed, Bell managers increasingly came to understand that its own underdevelopment was the root of the problem of independent competition. Increasingly, Bell's main competitive advantage came to be seen as its ability to offer comprehensive service within a given region. Although independent exchanges and telephones often outnumbered Bell in a given territory, Bell still had more exchanges than any individual independent company. With its coordinated business management and superior access to capital, it was in a better position than the independents to expand, interconnect, and integrate the operations of many dispersed exchanges. In effect, Bell began to try to beat the independents at their own game. The "opposition" had stolen a march on the Bell system by offering access to a larger number of local and regional points. Now Bell would expand and integrate its operations so that it could offer users an even larger bundle of regional connections than the independents. Expanding their toll lines to improve connectivity among Bell exchanges would "crush the opposition," according to one licensee company manager.¹⁷⁴ The President of AT&T, Frederick P. Fish, put it more delicately in 1903: "it is upon your toll facilities that you must depend for holding your own against the opposition."¹⁷⁵

The renewed Bell emphasis on exchange and toll line development is often misunderstood as a strategy based on superior long-distance transmission technology.¹⁷⁶ In that view, Bell exploited new technology such as loading coils¹⁷⁷ to create ultra-long-distance connections which the independents lacked the technological wherewithal to match. That misconception is based on the ambiguity of the term "toll lines." Contemporary usage referred to interexchange connections within the licensee companies' territories as *toll lines*, and the longer distance, intercity lines of AT&T as *long lines*. The toll lines which the Bell managers saw as their salvation were *not* the long lines of the AT&T Company, but regional connections within a 100-mile radius, which were usually supplied by the local operating companies. Bell's toll lines utilized the same basic technology that was available to the independents; AT&T had no controlling patents on the technology needed to make connections of that length.¹⁷⁸ The real source of competitive advantage

¹⁷⁴ C. J. Glidden, President, Michigan Telephone Company, to President Hudson, ABT Co., Jan. 28, 1899. AT&T-BLA.

¹⁷⁵ President Fish, ABT Company, to G. Y. Wallace, Rocky Mountain Bell, May 25, 1903. AT&T-BLA.

¹⁷⁶ FAULHABER, TELECOMMUNICATIONS IN TURMOIL: TECHNOLOGY AND PUBLIC POLICY 2-3 (Ballinger 1987). Faulhaber stresses the technological advantage achieved by the loading coil and that "the linchpin of Vail's strategy was to gain control of the technology."

¹⁷⁷ See NEIL WASSERMAN, FROM INVENTION TO INNOVATION: LONG DISTANCE TELEPHONE TRANSMISSION AT THE TURN OF THE CENTURY _ (Johns Hopkins University Press 1985). Wasserman's account of the application of loading coils makes it clear that it did not play a significant role in the competitive battle.

¹⁷⁸ In correspondence dated Apr. 3, 1903, President Fish of AT&T admitted that the company held "no controlling patents on long distance telephone apparatus or systems. [L]ong distance lines of some commercial value [could] be constructed and operated by anyone." Fish to C. H. Cutting, Apr. 3, 1903. Cited in Chappelka (1956). See also Thomas Lockwood, AT&T, to Theodore Vail, Aug. 8, 1908. AT&T-BLA.

was *comprehensive coverage* of a particular region corresponding to the community of interest of the majority of telephone users. To be sure, the scope of access desired by different types of users varied greatly. But the best way to satisfy all possible users was to create a comprehensive, universal network.

The demand for telephone connections between points over 200 miles apart was still restricted to a tiny minority of users. No more than 5 percent of all telephone calls were to points more than fifty miles away.¹⁷⁹ For communication over long distances (say, 500-1,000 miles), the telegraph was still the dominant and by far the most economical service. As late as 1909, a telephone businessman wrote that while ultra-long-distance telephoning “appeals most strongly to the imagination,” it was still “occasional” and “of little commercial or social importance.”¹⁸⁰ Long lines business was profitable, but it had always been in Bell’s control; in fact, Bell’s pursuit of that market to the exclusion of most others prior to 1894 was the reason it had left itself vulnerable to competitors. The new emphasis on intensive toll line development within the licensee companies’ territories was actually a sharp departure from the old Bell vision. It was, however, a logical and indeed unavoidable response to access competition.

Prodded by competition, the Bell licensee companies opened approximately 3,500 new exchanges in cities with populations under 10,000 between 1894 and 1907.¹⁸¹ That was three times the number of public exchanges they had opened in the previous seventeen years. Between 1902 and 1907, Bell’s wire mileage grew by 164 percent, which was actually a faster rate of expansion than the independents.¹⁸² Table 6-4 documents the bulge in the growth rates of Bell system physical plant during the competitive period. Between the year 1898, when the new strategy of expansion began, and the financial panic of 1907, which temporarily dried up capital resources, Bell plant grew by an average of more than 17 percent per year, double the earlier rate. In 1899, 1900, and 1906, the annual rate of growth exceeded 22 percent. A 1909 statement by a Southwest Bell representative confirmed that the expansion was a product of access competition. “We have scraped along for the past ten years,” he said, “building exchanges and toll lines that we ought not to have constructed except for the purpose of causing the service to be more valuable than that of our adversary.”¹⁸³

¹⁷⁹ A graph showing the volume of toll calls as a function of distance was prepared by Doolittle for the New York and Pennsylvania Telephone Co. for 1900. For cities with exchanges, 98 percent of all calls were to points within 50 miles. For toll stations in small towns, the percentage was somewhat smaller—about 95 percent. Box 1330, AT&T-BLA.

¹⁸⁰ Gansey Johnson, Columbus Citizens Tel. Co., 17 TELEPHONY (Jan. 2, 1909).

¹⁸¹ TELEPHONE CENSUS 1907.

¹⁸² *Id.*

¹⁸³ 14 TELEPHONY (Jan. 1909) emphasis added.

TABLE 6-4
BELL SYSTEM PLANT EXPANSION, 1885-1912

Year	Total Bell Plant	Increase	% Increase
1893	\$73,136,242	---	^8.20
1894	\$77,731,161	\$4,594,919	6.28
1895	\$87,858,500	\$10,127,339	13.03
1896	\$95,241,646	\$7,383,146	8.40
1897	\$104,487,524	\$9,245,878	9.71
1898	\$118,123,841	\$13,636,317	13.05
1899	\$145,511,290	\$27,387,449	23.19
1900	\$180,699,800	\$35,188,510	24.18
1901	\$211,780,200	\$31,080,400	17.20
1902	\$250,013,200	\$38,233,000	18.05
1903	\$284,567,800	\$34,554,600	13.82
1904	\$316,520,600	\$31,952,800	11.23
1905	\$368,065,300	\$51,544,700	16.28
1906	\$450,061,400	\$81,996,100	22.28
1907	\$502,987,900	\$52,926,500	11.76
1908	\$528,717,000	\$25,729,100	5.12
1909	\$557,417,146	\$28,700,146	5.43
1910	\$610,999,964	\$53,582,818	9.61
1911	\$666,660,702	\$55,660,738	9.11
1912	\$742,287,631	\$75,626,929	10.19

^average annual growth rate, 1885-1893

Source: FCC Telephone Investigation Report, 1939

Within the national Bell organization, Thomas B. Doolittle of AT&T was the most consistent, committed advocate of responding to competition with the development of systemic connectivity. Doolittle was the inventor of hard drawn-copper wire and opened one of the first commercial exchanges. Practically from the beginning of the Bell system, Doolittle had taken a special interest in the toll line business. His interest came not only for its potential earning power but as a means of protecting the business from the ‘dangers’ of competition. In 1891 he received permission from AT&T to devote all of his time to it and began to travel through the country studying the operating conditions of the licensee companies. As Doolittle and his staff passed through the territories, they studied traffic patterns and volume, rates, and the operating procedures used in making up toll connections. When Doolittle began his work, the toll facilities of the licensee companies generally were poorly developed and inefficiently run. The management of the national company and that of the licensee companies were not well coordinated. As one of his reports observed, operating company managers were suspicious of “the Boston influence.”¹⁸⁴

¹⁸⁴ Doolittle to Vail, January 29, 1908, AT&T-BLA.

Working patiently for fifteen years, Doolittle spearheaded the administrative rationalization of the interconnection process and the growth of toll connectivity in the Bell system.

Doolittle's arguments for toll line development were based on a clear, explicit grasp of the demand interdependence of telephone service. His records of toll calling receipts convinced him that the average revenue that could be expected from a place increased as it was connected to more places. That in turn enabled him to recommend extending toll lines to smaller and smaller towns.¹⁸⁵ In an effort to convince the Boston management to invest in exchange and toll line development, he prepared a diagram illustrating the increased traffic over a toll trunk line that would result from connecting groups of tributary towns.¹⁸⁶ Doolittle's grasp of demand interdependence made him an advocate of exchange as well as toll line development. When people were attached to an exchange they could receive incoming calls in addition to placing outgoing calls. That increased the scope of service that could be offered to users in other cities. His reports on the licensee companies from 1896 to 1902 always contained long lists of towns where small exchanges should be placed.

In promoting the development of small exchanges, Doolittle pioneered the theory and practice of "subsidizing" local exchange access with long-distance revenues. The company would gain by establishing inexpensive exchange service in small towns even if the exchange itself lost money on a "stand-alone" basis, he argued, because giving users in other locations access to subscribers in the smaller towns would stimulate increased use of the toll lines. Oftentimes the access rates for residences and small town exchanges were kept artificially low in order to create a larger subscriber universe which would stimulate long-distance usage. Doolittle's reasoning must have influenced President Fish, who wrote in 1902:

it is at least worth considering whether or not cheap exchanges in the small towns do not add enough to the toll business to make them a proper investment, even if there is no profit in the small exchanges.¹⁸⁷

That access competition produced "cross subsidies" from toll usage to exchange access is particularly noteworthy, since it is commonly assumed by economists that such practices are a product of governmental rate regulation and would not exist in a competitive market.

But it was access competition, and not merely the desire to enhance toll traffic, that propelled the Bell system to extend access at lower rates in order to stimulate usage and expand its scope. The degree to which Bell expanded even to the most economically unattractive rural areas, was evident in 1907 correspondence between G.Y. Wallace, the President of Rocky Mountain Bell, and the national organization:

"We opened a number of small exchanges in Utah-not remunerative-but helped us in our fight for supremacy. Our actions were the virtual undoing of Utah Independent Telephone Company."¹⁸⁸

¹⁸⁵ Doolittle to Fish, March 22, 1904 Box 1330, AT&T-BLA.

¹⁸⁶ Doolittle to Davis, June 4, 1896, Box 1285, AT&T-BLA.

¹⁸⁷ President Fish to C.E. Yost, August 30, 1902.

¹⁸⁸ G.Y. Wallace, Rocky Mountain Bell, to T.N. Vail, AT&T, November 7, 1907, AT&T-BLA.

In the same letter, Wallace reported building twenty exchanges and “unremunerative” toll lines connecting them in Wyoming, and claimed that the superior access had forced the opposition to give up. Similarly, competition in the South was overcome when Edward J. Hall, the head of Southern Bell, managed to increase Southern Bell’s capital resources by thirty-fold between 1897 and 1906 to invest in toll line construction and in upgrading local exchange circuits from grounded to metallic to make them more compatible with the toll network.

The expansion of the network increased the complexity of making connections. AT&T responded to that challenge by pioneering a method of routing, handling, and accounting for calls known as “center checking.” Center checking centralized the responsibility for routing and accounting for toll calls at designated exchanges.¹⁸⁹ When implemented, every operator in the region knew where to transfer toll calls headed to a specific destination, and the operators at the toll center knew how to get the call to its destination as directly and quickly as possible. Rationalizing the process of toll interconnection reduced the amount of time consumed by making a connection and resulted in great savings in plant facilities.¹⁹⁰ The rationalization process also made it possible for the licensee companies to exploit “phantom circuits,” a method of creating a third voice circuit out of two metallic circuits.

Rate rationalization was another important achievement of Doolittle’s. He went about systematically simplifying and reorganizing the licensee companies’ toll tariffs by replacing charges based on route mileage with a more uniform airline mileage basis for setting rates. Here again competition was the spur to efficiency. Doolittle’s reports identify the competitive losses caused by the “border problem,” the inefficiencies in interexchange service caused by Bell’s division of the country into separate territories under different managements. He noted that if two towns were only fifty miles apart but were located on opposite sides of a border separating two licensee companies, a caller could end up paying the rate for a 150 mile call due to the way the call was transferred between the two Bell companies. Independent competitors were taking advantage of such rate discrepancies, offering more direct, cheaper service. In line with his drive to rationalize toll organization, facilities planning, and rates, Doolittle brought the managers of AT&T, the licensee companies, and independent connecting companies together at conferences which established how traffic should be routed and which company’s lines should be used.

The competitive advantage derived from the Bell organization’s emphasis on toll connectivity can be appreciated by contrasting Bell’s systematic approach to that of the independents. Prior to their consolidation into regional systems, most independents relied on state associations to coordinate toll connectivity. The lack of a central management authority continually handicapped their attempts to coordinate toll service. In November 1904 Telephony Magazine observed that it was “the exception rather than the rule” that “we are able to offer competition on messages of over 100 miles.” In some cases the problem was poor construction, in other cases it was roundabout routing, in still others it was inconsistent or uncoordinated operating procedures. In a speech before the International Telephone Association, a prominent independent telephone operator summarized the independent movement’s managerial problems:

¹⁸⁹ A complete ‘center-checking’ matrix for the city of Harrisburg, Pennsylvania from 1903 can be found in Box 1330, AT&T-BLA.

¹⁹⁰ Doolittle, 1907 Annual Report, Box 2020, AT&T-BLA.

This is our strength ... we are better able to give satisfactory local exchange and “short haul” long distance service than companies managed and owned by directors and stockholders hundreds of miles away. Long distance service, however, under this kind of management is not satisfactory. Here is where we are weak: one company believes in a three minute time limit, another in five. One says one half cent per mile is enough; another three-fifths cent. This company’s lines are of copper, that one’s mostly iron. This company uses a code designed by its own traffic manager, that one the code of its state association, and the next one no code at all, and so on. What is the result? Confusion, bad service and dissatisfied customers.¹⁹¹

The problem, clearly, was organization rather than technology and in particular the comprehensiveness of toll interconnection within a region.

Doolittle felt that his work was not appreciated or used appropriately by the licensee companies until about 1904. As he admitted in retrospect, “a vast amount of laborious work was performed, which resulted in a report that was not understood, and in many cases, not even read ...” By 1904, however, he felt that he had gained the confidence and cooperation of the licensee company managers. Competition had forced them to pay attention. Toll lines, Doolittle stressed again and again, were the Bell system’s most effective weapon against competition because they expanded the scope of the network. Doolittle’s efforts helped to reverse the independents’ incursions into the short-haul toll market. In 1902, independents handled 37 percent of the toll calls. By 1907 that had declined to 24 percent.

Sublicensing independent exchanges

As the wave of dual service competition continued to gather momentum, both Bell and the independents struggled to weave their exchange holdings into an integrated system offering access to as many cities and towns within a 200-mile radius as possible. As part of that process, the Bell system was forced to liberalize considerably its no-interconnection-with independents policy. It began to expand its access to rural areas by “sublicensing” or interconnecting with non-competing independent exchanges.

Conventional histories present Bell’s refusal to connect with the independents as a harsh and powerful competitive tactic. More generally, theories developed by antitrust economists tend to classify such “refusals to deal” as inherently monopolistic. An established system which denies access to or makes itself incompatible with its competitors is, according to that doctrine, suppressing competition. Treatments of telephone history also tend to see the eventual interconnection of Bell and the independents as a product of regulatory intervention alone. In fact, the Bell system’s most powerful strategic ploy proved to be interconnecting with certain independents, and that policy change was made in response to market rather than political pressures.

¹⁹¹ TELEPHONY MAGAZINE, November 1904.

Between 1894 and 1902, the national Bell organization adhered to a policy of strict exclusion. Independent companies could not be connected to Bell exchanges or toll lines, even when they occupied territory remote from any Bell exchange and were not competing with Bell. Bell refused to purchase equipment from independent manufacturers and refused to sell Western Electric equipment to the independents. *The independents made their most rapid competitive gains in that period.* Their growth occurred because of, rather than in spite of, the no-connection policy. Bell was simply unable to keep up with the demand for telephone service in thousands of small towns. In 1901 there were still 112 cities greater than 5,000 in population (12 percent of the total) with no Bell exchange; in smaller incorporated places with a population between 500 and 5,000 there were Bell exchanges in only 1,775 of the 5,447 (32 percent of the total).¹⁹² In those conditions, the effect of the noninterconnection policy was to cut off Bell from the majority of telephone users in the undeveloped areas, and guarantee its competitors exclusive access to every exchange built independently of the Bell system. In the states of Indiana, Ohio, and Illinois, the independents greatly outnumbered Bell and were on the verge of achieving the kind of critical mass that could result in mass desertions of Bell exchanges.

By 1901 it was clear even to the distant Boston managers that absolute exclusion of independent companies had been a costly mistake. Some managers of the licensee companies began to consider exchanging traffic with independent exchanges that did not directly compete with those of Bell. That policy was known as “sublicensing” because it involved a licensee company extending the connecting privileges of the Bell license contract to independent companies within its territory. Two licensee companies that had been particularly hard hit by competition actually had begun to implement that policy on their own.

The national organization moved more slowly. Unlike other adjustments in Bell practices made in response to competition, sublicensing involved revising some of the fundamental assumptions underlying the license contract. The primary object of the license contract was to secure profits and control for the national organization while harnessing local initiative and capital. But how could the same level of control be maintained when interconnecting with independent companies? If Bell was to interconnect with noncompeting local exchanges, should it require them to lease Bell instruments, as it did of its traditional licensees? If so, what would induce those independents to lease Bell instruments when it could obtain independently manufactured telephones at a lower price? If not, how could it maintain the uniform technical standards it desired? Since Bell would have no ownership control over the connecting company, there was also the risk that sublicensed companies might break the connection contract later. On September 25, 1901, President Fish sent out a letter to the top executives of AT&T and ABT soliciting their opinions on those questions.

All of them agreed that the time for some form of sublicensing had come. AT&T Chief Engineer Joseph Davis admitted that the Bell Co. had had no idea how widespread the demand for telephone service would prove to be at the time the perpetual license contracts were drawn up in the early 1880s:

¹⁹² Joseph Davis to President Fish, October 23, 1901, AT&T-BLA.

[If] it could have been foreseen what an extensive development of the telephone business would be required to meet the needs of the people, and the amount of capital involved, it would have been good policy on the part of the ABT Co. to have encouraged its licensees to sublicense to local people the right to furnish service in country districts and villages and towns . . . , and to have supplied telephones for this purpose at very moderate rental. If this had been done the field for opposition companies would have been very much curtailed and we would now have friendly instead of hostile people in such places.¹⁹³

Davis's comment underscores the fact that universal service in the modern sense was never part of AT&T's original conception of the business. Never in their wildest dreams did the early Bell managers think that telephone service could be demanded by, and profitably extended to, as many people and places as turned out to be possible.

E. J. Hall, Vice President and General Manager of AT&T, George Leverett, AT&T General Counsel, and Thomas Sherwin, the ABT Co. General Auditor, all agreed that Bell should insist on leasing its own telephones to sublicensees rather than selling them or permitting them to use independently manufactured telephones. Interconnection with users of other telephones was objectionable on three grounds. First, it reduced the Bell system's control over its technical standards. Using only Bell phones promoted uniformity and compatibility, while leasing encouraged operating companies to turn in equipment as it became worn or obsolete, allowing the system to maintain better standards of communication. Second, the Bell system had publicly opposed physical interconnection laws on the grounds that independent phones were of lower quality than theirs, hence their use over the Bell system would impair the quality of the service. It seems fairly clear that President Fish and the others who made that argument knew that it was untrue; the quality of the major independent brands was equal to Bell's.¹⁹⁴ The real reason for opposing physical interconnection was the property rights argument outlined in the previous chapter. But having used the other argument publicly, they knew that connecting with independent equipment now would obviously contradict it and make them look dishonest and might thereby lend support to compulsory interconnection. Last, but not least, Bell knew that leasing telephones was far more profitable than selling them outright.¹⁹⁵ Leverett suggested that the requirement to use Bell phones could be made more acceptable to the independent companies if Bell offered to furnish them below cost, or even at a rate that was purely nominal.²⁴ Davis, on the other hand, believed that while every effort should be made to induce independents to use Bell telephones, the benefits of "extending the field of the Bell interests" via interconnection more than compensated for any disadvantages that might accrue from the use of non-Bell telephones.²⁵

What most impressed the Bell managers were the competitive advantages to be gained by sublicensing. Interconnection would allow Bell to gain access to small town and rural locations without building and operating what were likely to be unprofitable exchanges. The small exchanges so connected could serve as feeders to the Bell toll system. As it extended Bell connections to unserved areas, it would also take connections away from the exclusive control of

¹⁹³ *Ibid.*

¹⁹⁴ President Fish to Kilgore, February 24, 1902, AT&T-BLA.

¹⁹⁵ Thomas Sherwin to President Fish, October 22, 1901, AT&T-BLA.

competing independents. Potential competitors, Leverett observed, would be coopted by the new policy:

telephone companies established in regions which we do not occupy ... become starting points for attacks upon our system in other places where such opposition is extremely undesirable. [I]f people are willing to venture their own money and do business in a territory we have not occupied, we should regard them and endeavor to have them in fact as allies, and not as competitors.

The new policy was ratified late in 1901; henceforth, licensee companies could sublicense independent exchanges under a standard form of contract with the blessings of the national corporation.¹⁹⁶ The new sublicense contract demanded three conditions for interconnection: the independent exchange could not be in direct competition with a Bell exchange; it could use only Western Electric telephones; and it had to agree to connect with only Bell toll lines. Officially, Bell charged its sublicensees \$2 per year per instrument. In actuality, the licensees deviated from those conditions according to the exigencies of the competitive situation.¹⁹⁷ The beleaguered Central Union Co. connected with noncompeting independents from 1904 on regardless of what instruments they used.¹⁹⁸ Wisconsin Telephone gave its sublicensees ten years free use of Western Electric telephones until pressure from the national organization forced it to conform to the standard contract.¹⁹⁹

Under the terms set by the national organization, sublicensing progressed, but slowly (see table 6-5) Some licensee companies unilaterally relaxed the contract terms in order to attract more independent users into their fold. The Central Union company, for example, liberalized its terms in 1904, allowing sublicensed exchanges to keep using non-Bell telephones. The number of sublicensed exchanges doubled in one year. By 1907, the Central Union owned and operated 310 exchanges and 188,000 telephones, while its sublicensees operated 777 exchanges representing 192,000 telephones (see table 6-6) In other words, the majority of telephone users in that territory were connected into the Bell system through independent exchanges.²⁰⁰

¹⁹⁶ General Managers Letter Book #632, October 31, 1901, AT&T-BLA.

¹⁹⁷ President Fish to G.W. Wallace, Rocky Mountain Bell, June 20, 1903, AT&T-BLA.

¹⁹⁸ Atwater, *History of the Central Union Company*, (1913) p. 136-7.

¹⁹⁹ R. Gabel, 1987.

²⁰⁰ Central Union Co. Annual Report, 1907, AT&T-BLA.

TABLE 6-5
 SUBLICENSING: INDEPENDENT TELEPHONES
 CONNECTING WITH BELL, 1901-1906

Dec.31,	Number of Independent telephones			Percent Connecting
	Connecting	Non-connect	Total	
1899	10,000	328,000	338,000	3
1900	20,000	500,000	520,000	4
1901	47,961	692,000	739,961	7
1902	84,021	969,845	1,053,866	8
1903	120,936	1,124,000	1,244,936	10
1904	167,213	1,348,000	1,415,213	12
1905	246,337	1,596,000	1,842,337	13
1906	297,218	1,862,000	2,159,218	14

Source: Chief Statistician's Division, AT&T Co.

TABLE 6-6
 SUBLICENSING IN THE CENTRAL UNION
 COMPANY TERRITORY, 1902-1907

<i>As of Dec.31,</i>	1902	1903	1904	1905	1906	1907
Sublicensed Exchange	194	213	253	513	623	777
Central Union Co. exchanges	229	227	275	295	316	310
# sublicensed phones (000)	---	---	---	130	160	192

Source: Minutes of Central Union Co. Board meeting, March 11, 1907

Sublicensing was a powerful weapon in a battle between exclusive networks. It not only provided Bell with connections to the small locations Bell was uninterested in serving, it also removed those exchanges from the independent orbit. Sublicensing could also be used to withdraw from dual service competition without losing access to the city's telephone users. In mid-sized cities where the independent exchange had established a commanding lead in subscribers, Bell would offer to pull out if the independent would agree to become a sublicensee. If the independent agreed, Bell gained access to the preponderance of subscribers in the city while relieving itself of the need to maintain a facility under the rigors of competition. The independent gained access to Bell's toll lines and respite from competition, a chance to raise its rates. Thus, what appeared to be an independent success suddenly became a setback; a whole group of subscribers was snatched out from under them. Such was the case in Middletown, New York, whose independent exchange had 1,000 users to Bell's ninety. The Middletown independent entered into a sublicense contract with Bell's Hudson River Co. in January 1904.²⁰¹ The same thing happened in Emporia, Kansas, whose

²⁰¹ AMERICAN TELEPHONE JOURNAL (Jan. 28, 1905).

independent had 1200 subscribers to the Bell company's 131. The Emporia independent was sublicensed and the Bell exchange closed down in 1905.

The organized independents immediately recognized that sublicensing threatened to disintegrate their movement. Their publications and associations assailed the practice in the strongest terms. "You cannot be an Independent company and connect in any way with the Bell," James Hoge, President of the National Independent Association wrote in the pages of *Telephony*. "You cannot serve two masters. You must choose between the people and a greedy corporation."²⁰²

In December 1902 the convention of the Interstate Independent Telephone Association in Chicago was forced to deal with the problem at length.²⁰³ A delegate from Illinois moved that companies using Bell telephones be disqualified from membership. An Iowa delegate opposed the participation of "anybody in any way connecting with the Bell companies under contract." Connection with Bell lines destroyed the push for independent growth, added an Ohio delegate. In response, the owner of an exchange in Ashland, Kentucky, pointed out that his was the only telephone exchange in town. The steel mills and iron works there demanded long distance connections to New York and Chicago, which could only be obtained over Bell lines. He claimed that Bell did not enforce the exclusive connection feature of the contract in his territory; they allowed him to send traffic over their lines even though he was connected to other independent companies. His company, he claimed, was "independent from the ground up," but if it could make an arrangement with the Bell companies for long-distance connections and thereby keep a competing Bell exchange out of the city, he believed it was good business policy.

A committee was appointed and charged to make a report on the issue. Its recommendations made a slight concession to those independents facing circumstances like the Kentucky exchange, but basically came out strongly against any form of cooperation with Bell. Operating companies or individuals using Bell apparatus tend to "demoralize and destroy the independent movement" and should be barred from membership in the national, interstate, or state associations. Only companies that connect their toll lines and exchanges with independent companies should be eligible for membership.²⁰⁴ The resolution passed unanimously.

The progress of sublicensing has been documented before by scholars such as Langdale (1978), but its significance in the context of access competition and its implications for standard accounts of universal service have not been fully appreciated. Despite Bell's later claims that universal service in the modern sense was its policy from the beginning, Bell ultimately obtained most of its access to small town and rural America through interconnection agreements with independent companies. More importantly, its decision to "reach out and touch" the rural areas was not a product of its own commitment to universal coverage, but a policy forced upon it by the exigencies of access competition.

²⁰² 11 TELEPHONY 314 (May 1906).

²⁰³ WESTERN ELECTRICIAN 426 (Dec. 13, 1902).

²⁰⁴ "We deplore individuals or companies connecting lines and exchanges with Bell licensee companies, ... as we believe that no such relation should be permitted, except, possibly, in isolated cases, which arrangement should be passed upon and authorized by the state association, ...the executive committee of the interstate association, or the advisory board of the national association, the authority in each case to be granted only by a 2/3 vote." *Id.*

Each of the preceding sections demonstrates how access competition promoted a universal telephone infrastructure by placing a premium on a network's scope. Had the competitors been interconnected, on the other hand, the incentives to pursue universality would have been greatly weakened. Independent competitors would have found it much easier to establish service in the urban areas already developed by Bell, and could have concentrated on simply undercutting Bell's price. The Bell System might never have undertaken the massive capital investments required to enlarge its exchanges in outlying areas and its network of toll lines, as those investments would not have given it a competitive advantage over the less extensive networks of the independents. Likewise, the independents would have had no incentive to construct alternative toll networks to connect independent exchanges. Incentives to restructure the technology to cheapen the cost of access would have been less powerful. Neither Bell nor the commercial independents would have needed to be in any hurry to reach out to the rural areas and smaller towns because with interconnection it would not have mattered which system reached them first.