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DUAL SERVICE: THE ANATOMY OF SUBSCRIBER FRAGMENTATION

FOR THE TEN YEARS BETWEEN 1902 and 1912, competing telephone exchanges operated in more than half of all American cities over 5,000 in population. When dual service peaked in 1904, it existed in 483, or 60 percent, of the cities with a population greater than 5,000. In terms of the total number of competing exchanges in cities of all sizes, dual service reached its apogee in 1911, when it existed in 2,290 places.

Because we are all familiar with universal interconnection and rely on it heavily in our everyday life, we tend to assume that its absence was simply a mistake – a problem crying out for a regulatory solution. But we are in no position to assess the significance of homogenized telephone access unless we know something about what things were like when it didn't exist. This chapter attempts to portray the reality of dual service as it affected telephone users of the period. The first section examines the way subscribers divided themselves between the two systems in a single urban telephone exchange, that of Louisville, Kentucky, in 1910. The second section examines the fragmentation of intercity telephone access. Maps showing regional exchange access in the Los Angeles area, the state of Indiana, and the state of New York have been prepared to display graphically the extent to which dual service affected intercity telephone calling in a region.

Dual service at the exchange

The analysis of subscriber fragmentation patterns in a dual system is especially rewarding from the standpoint of social theory. Much like the language barriers in a bilingual community, dual service divided communities by communication. Some users were confined to one of the two systems, others were “bilingual” or duplicate users. Unlike language, however, the division of the public into two telephone systems reflected consumer choice rather than cultural inheritance. By heightening our awareness of who was connected to whom, by illuminating peoples choices about to whom it was and was not important to have telephone access, subscriber fragmentation patterns provide a fascinating road map to the organization of urban society.

How did dual service work? In 1910 the telephone was not yet the dominant mode of communication for the majority of the people living in cities, although it was rapidly becoming so. Only 20 percent of the people in a large city had telephones in their homes. The rest of the public, if they used telephones at all, relied on public stations, which may or may not have been pay

telephones. Drug stores and saloons, for example, had a very high subscription rate because they were customarily telephones that could be used for free by the people in a neighborhood. Virtually all large businesses had telephones, especially if they were national or interstate in scope. About 50 to 75 percent of the smaller businesses used the telephone, the rate varying widely depending on the type of business. All of those adoption patterns had changed radically since 1894 and were still in flux in 1910. In that context, the presence of two incompatible systems created inconveniences, but they were accepted as part of the process of growth and experimentation, just as incompatible bank cards and computer models seem unobjectionable today.

To provide some historical perspective, it is useful to compare the telephone system with the city directories of the period as a communications medium. City directories listed the names, occupations, and street addresses of all the residents and also contained listings of the city's businesses, services, and institutions. Like its successor, the telephone directory, those publications were both a source of useful information and an advertising medium. Their publishers made money by selling subscriptions to the public and display ads to businesses. City directories had been an established and profitable genre of publication for at least seventy years. Every major city had one; some of the bigger publishers, like Polk's, supplied several cities.

After 1920, the *street* directories of the 1800s and early 1900s were gradually displaced by *telephone* directories and yellow pages. Every function that the city directories had served was absorbed by "the phone book." There was one important difference, though: the telephone and the automobile had radically redefined the nature of urban space. A directory that emphasized location was of little use when the bulk of urban commerce was organized around real-time telecommunications. The most important thing to know was not where people or businesses resided but how to get in touch with them by telephone. Communications access was primary; the street address, secondary.

In 1910, *city directories still sold more subscriptions than the telephone exchange*. Many businesses (not all) listed their telephone numbers in their directory ads, but for most of the public the really important information was where things were located. Dual service was thus a characteristic of an urban communications system in transition. Although rapidly emerging as dominant, the telephone had not yet absorbed and eliminated older media such as the telegraph and the city directory.

For many businesses, subscribing to both the Bell and independent exchanges was a simple way to get around the fragmentation caused by competition. As those advertisements from the Louisville, Kentucky, city directory of 1909²⁰⁵ show, duplicate subscriptions were treated as a routine part of doing business (see figure 7-1). Both numbers were listed in the advertisements, and many businesses arranged to have the same telephone number on both the "Home" (the independent) and the "Cumberland" (the Bell licensee company) exchanges. Their duplication, of course, made it unnecessary for many smaller subscribers to do so, for the latter were guaranteed access to those businesses regardless of whether they were Bell or Home Co. subscribers.

²⁰⁵ 39 Caron's Directory of the City of Louisville (1909).

FIGURE 7-1

Senn & Ackerman Brewing Co.

BRANCH CENTRAL CONSUMERS CO.

1710 West Main

Cumb. Phone West 452
Home Phone 452

LOUISVILLE, KY.

BREWERS AND BOTTLERS

—OF—

Strictly High Grade Beers

PHIL ACKERMAN, Manager

Schaefer-Meyer Brewing Co.

BRANCH CENTRAL CONSUMERS CO.

Cor. Logan and Lampton

Cumb. South 468
Home 468

LOUISVILLE, KY.

BREWERS AND BOTTLERS

—OF—

Straight Brews Only

CHAS. A. SCHAEFER, Manager

The decision to duplicate or not can be taken as an indication of who did and did not value, and of who could and could not afford, universal telephone access. As one might expect, different categories of users show very different rates of duplication. Fortunately, the Bell Labs Archives possesses a document with detailed data about duplication and subscription patterns in one city. In 1910, a lawyer for the independent competitor of Bell in Louisville and the surrounding region broke down all of the city of Louisville's telephone subscribers into 214 categories and compiled a list showing how many members of each category were Bell subscribers, Home Co. subscribers, or duplicators.²⁰⁶ The tables which follow are based on the data in that list. They yield interesting insights into the way telephone communication patterns and social structures were related to the dual telephone systems. In some cases it was possible to determine the telephone penetration rate for a certain category of businesses by counting how many were listed in the city directory and relating that number to the number of telephone subscribers in that category. In many cases, however, that method proved unreliable because it was not clear that all of the businesses in a specific category were listed in the city directory.

The city of Louisville was served by both The Cumberland Telephone and Telegraph Company, a Bell licensee, and the Louisville Home Telephone Company, a subsidiary of the independent Central Home Telephone Company. In 1910, the city had 16,263 telephone subscribers. Sixty percent of the phones were residential and the rest were businesses. The independent company enjoyed a moderate advantage, with a thousand more users than the Bell Company. 2,923 users subscribed to both the Bell and independent exchange. The aggregate duplication rate was 18 percent. That number is not very meaningful by itself, however. A breakdown of the subscribers shows that the duplication rate follows a hierarchy, with some groups duplicating at very high rates and others hardly at all. That hierarchy of information flow appears in some form in all social organization. The demand for communication is concentrated among a small number of large users. Those users make up a disproportionate amount of the volume of calling and also tend to demand communication over a broader geographic scope. Thus, among banks, railroads, hotels, and the suppliers of wholesale farm supplies like plows, seed, and fertilizer, both the rate of telephone subscription and the rate of duplication were very high (see table 7-1). All of the businesses in that category had telephones, and 75 to 100 percent of them duplicated. Businesses with a duplication rate over 75 percent accounted for only 1.5 percent of the total telephones in the city of Louisville, but made up 7.5 percent of all duplicate subscriptions. As those enterprises were generally large, capital-intensive, and highly dependent upon widespread communications access, a duplicate subscription was just an additional cost associated with doing business, not much different from ordering an extra telephone extension or another line from a single system.

In the middle of the hierarchy were smaller businesses who used the telephone frequently but whose markets and suppliers were more localized. Retail businesses and professional services, such as physicians, dentists, coal dealers, druggists, and attorneys, drew their customers from more than one neighborhood but were not really citywide in scope. That class of user duplicated at a fairly high rate, but not as often as the larger businesses (see table 7-2). Despite widely varying

²⁰⁶ Cumberland Telephone and Telegraph Co., acquisition of Central Home Telephone and Telegraph, Kentucky. Box 39, AT&T-BLA. Letter of Thomas Tracy to U.N. Bethell, Vice President, AT&T., Feb. 11, 1911.

levels of telephone subscription there was a relatively consistent duplication rate in the range of 30 to 50 percent. For those users, duplication was more of an economic burden than it was to the larger enterprises at the top of the communications hierarchy. Telephones in drug stores, it should be noted, functioned as free public telephones for the community, accounting for both the 100 percent subscription rate and the relatively high level of duplication.

The relative dominance of the Home Co. in Louisville made it much more likely that middle level subscribers who used only one phone would be independent subscribers. There are, however, interesting exceptions to that rule, such as lawyers and insurance companies. Whereas single-phone businesses such as coal dealers, butchers, and plumbers favored the Home Co. by ratios of five or six to one, in the aforementioned professions the Bell Co. was almost even. The disparity could be explained in a number of ways-the data by itself being insufficient to rule out several options. One possibility is that those involved in law and finance had a greater need for long-distance connections to Cincinnati and other major cities controlled by Bell. Another explanation is that certain lawyers and insurance companies formed a community of interest with other Bell users and saw little need for connection with Home Co. subscribers. The lower rates of the independent company must also be kept in mind.

The final class encompasses what might be called the neighborhood level of social organization (see table 7-3). Those users stood at the bottom of the communications hierarchy, in that there were large numbers of users with highly localized uses for the telephone and a relatively low volume of calling. In addition to residential users, it included smaller scale businesses-bakers, barber shops, tailors, and carpenters-and local recreational and cultural institutions, such as saloons, churches, and bowling alleys. Here the duplication rate is consistently low, averaging about 10 percent. Many of the residential duplications were business-related; e.g., physicians and dentists who needed to maintain access to their clients at all times. On the whole, that class of subscribers used the telephone over a limited local area and had less interest in universal access.

Once again, an uneven division of various subscriber categories suggests that subscription choices reflected other social boundaries. There is a marked bias toward the Home Co., for example, among "working class" institutions like bowling alleys, billiard halls, and saloons. The figures for residences and churches, on the other hand, are not so lopsided. That suggests that at the bottom of the hierarchy telephone users were divided by neighborhood and/or economic status. The wealthier sections of town went for the Bell system, which had higher rates and whose advertising tended to project an image of solidity and respectability. Those of more modest means responded to the independent's lower rates and, perhaps, its appeal to localism.

Unfortunately, no statistical breakdown of residential subscribers by neighborhood or economic status exists with which to support that hypothesis. There is, however, an interesting document dated December 3, 1909, concerning the Bell and independent exchanges in Quincy, Illinois. It is a field report on the state of competition in Quincy written for the Central Union Telephone Co., a Bell licensee. It states:

I find that the Central Union Co. is well thot [sic] of by the large majority of substantial business houses and of the better class of resident subscribers, while the

Quincy Home Telephone Co. receives their greatest support from the interest affiliated with the political and labor associations in Quincy. Our subscribers are of the better class, those more able to meet their bills promptly, while the Quincy Home Telephone Co. have the poor class and are running great chances on collecting their accounts.²⁰⁷

A report out of St. Joseph, Missouri, also noted that the independent exchange had attracted a large number of subscribers considered undesirable by the Bell system. The Bell manager there went through the independent company's directory and polled all of its subscribers by telephone. It discovered that eighty of the telephone users who claimed to have switched companies because of problems with Bell were listed as "No Good" on Bell's cash ledger. The report also counted 102 Home Co. subscribers as "undesirable" on account of their being "colored."²⁰⁸ In other communities, the independent, backed by prominent local citizens, may have attracted the "better class." Which telephone company attracted which group is not as important as the fact that the division of the telephone-using public followed other political, social and economic divisions.

TABLE 7-1
DUPLICATION RATES, LARGE-SCALE BUSINESSES

	Both Phones	Home only	Bell only	Duplic rate %	Subscr. rate %
Telegraph Cos.	4	0	0	100	100
Mill Supplies	7	0	0	100	100
Gas, Electric light	4	0	0	100	100
Fast Freight Lines	11	1	0	92	100
Railroads	21	2	2	87	100
Banks, Trust Cos.	25	2	2	86	100
Express Cos.	6	1	0	85	100
Fertilizer Mfrs.	8	1	1	80	100
Hotels	21	6	0	78	100
Laundries	26	7	1	76	?

²⁰⁷ Central Union Telephone Co., form dated Dec. 3, 1909: *Quincy Home Telephone Co.*, AT&T Legal and Regulatory Dept. records, Regulatory History Project.

²⁰⁸ *Extract from the Monthly Narrative Report-St. Joseph*, May 17, 1911, Box 17, AT&T-BLA.

TABLE 7-2
 DUPLICATION RATES, MEDIUM-SCALE BUSINESSES

	Both Phones	Home only	Bell only	Duplic rate %	Subscr. rate %
Hay, Grain, Feed	34	36	3	54	?
Druggists	83	69	3	53	100
Coal Dealers	46	42	9	47	100
Insurance	65	46	36	44	?
Dentists	35	44	3	42	63
Liquor Dealers	43	56	18	37	?
Plumbers	25	45	1	35	74
Attorneys	85	109	90	30	78
Buchers	19	47	7	26	?
Dry Goods	15	36	6	26	21
Groceries	182	466	62	25	?

TABLE 7-3
 DUPLICATION RATES, NEIGHBORHOOD LEVEL

	Both Phones	Home only	Bell only	Duplication rate %	Subscription rate %
Billiard Halls	1	5	0	16	?
Bowling Alleys	1	5	0	16	?
Carpenters	11	55	9	14	50
Barber Shops	1	6	1	12	?
Bakers	9	61	9	11	39
Saloons	64	487	19	11	87
Tailors	8	60	9	10	?
Churches	3	12	14	10	?
Residences	900	5,449	3,971	9	20

As a tool of citywide commerce and communication, then, dual service required large-scale, high-volume users to take out duplicate subscriptions. Business duplication gave both Home and Bell subscribers telephone access to a broad range of the city's institutions and services. As one moved down the scale of social organization from the regional and metropolitan levels to the neighborhood and the home, the rate of duplication progressively declined. In the middle of the hierarchy, there were small businesses who wanted and often needed universal service, but for whom a duplicate subscription represented a significant additional cost. At the lower levels of that hierarchy, where there were large numbers of small users, dual service noticeably restricted the degree of social integration. But it did not do so arbitrarily or randomly. Different classes and neighborhoods divided themselves into communities of interest with a high degree of self-contained communication. There was, of course, always a chance that one would not be able to call an acquaintance or a business. Public telephones on streets and in drug stores and groceries,

however, gave people a chance to use the other system. The lack of interconnection between the two systems was less of an impediment to the telephone users of 1910 than it would be now, precisely because telephone usage patterns and urban organization had not adapted to the possibilities of universal service.

If one of the two competing exchanges controlled less than 35 percent of a city's subscribers, as many as half of its subscribers might be duplicators. In St. Joseph, Missouri, for example, Bell subscribers outnumbered Home Co. subscribers by three to one. The 1,048 duplicate subscribers represented only 12 percent of the Bell list, but accounted for 40 percent of the independent subscribers. In Philadelphia in 1907, where Bell had 95,000 subscribers and the independent only 15,000, 65 percent of the independent subscribers were duplicators. A small market share was not necessarily fatal as long as new subscribers were joining the network at a rapid pace. If the smaller system had a significant pool of what were called "exclusives," i.e. nonduplicating subscribers, it could attract new subscribers and make it worthwhile for business subscribers to duplicate. Once rapid growth in the overall number of subscribers stopped, however, large disparities tended to reinforce themselves over time. More and more subscribers gravitated to the dominant system and the minority exchange's base of "exclusives" began to shrink.

In smaller cities, access competition made it possible for organized groups of telephone users to boycott one service in favor of the other. Group decisions to patronize one system were sometimes motivated by a desire to achieve coordination economies but more commonly arose to protest and punish a rate increase. The instigators could be boards of trade, merchants associations, or groups of physicians, grocers, or druggists.²⁰⁹ Because their decision affected the calling habits of other users, the organizers placed notices in the newspapers advising readers "We only use the Home Telephone" or "Call us over the Home." Or they issued cards with that message and distributed them to their customers.²¹⁰

A particularly effective mass shift of users to one system took place in Paducah, Kentucky, after a Bell rate increase. On June 1, 1911, virtually all of the city's retail merchants ordered their Bell phones taken out and the independent company's phones installed. The grocers, lumbermen and coal dealers kept the Bell phone until July 1 only because the swamped independent exchange did not have the capacity to serve them until then. The number of Bell subscribers decreased by 700 in two months.²¹¹ In an attempt to minimize the damage, Bell kept the names of many of the boycotters in its directory. Advertisements attacking the Home Company appeared in the paper, and five full-time salesmen were sent out to offer \$1 a month service to residences. Groups of doctors and dentists responded with newspaper notices informing the public that they were no longer Bell subscribers and denying rumors that they planned to return to the Bell exchange (see figure 7-2).

²⁰⁹ In one Indiana town the President of Bell's Central Union licensee attempted to break a boycott of its telephone system organized by local grocers by operating competing grocery stores. Sabin to Fish, May 19, 1902. Box 1333, AT&T-BLA.

²¹⁰ 13 TELEPHONY 109 (February 1907).

²¹¹ Powers, Paducah Home Telephone Co, to Thomas Tracy, June 15, 1911. Box 39, AT&T-BLA.

Dual service at the inter-exchange level

The presence of two nonconnected telephone exchanges had a more arbitrary effect on intercity calls. At the local level, the subscribers could gather a fairly accurate idea of to whom they were choosing access when they selected one system over the other. The need for toll connections was often less predictable and the factors determining whether Bell or the independent was dominant in a particular community were not necessarily the same as those in their own city. After 1907, legislatures, courts, and utility commissions began to enforce interexchange connection of Bell and independent systems even when they tolerated dual service at the local level.

The maps on the following pages are representations of telephone fragmentation patterns in three areas between 1894 and 1913. The cities selected for mapping were the State of Indiana in 1889, 1907, and 1912; the Los Angeles area in 1898, 1907, and 1912; and the State of New York in 1894, 1902, 1907, and 1912. Cities are represented by circles. The size of the circles is proportional to the number of telephone subscribers in the city. The circles are tone-coded to show which telephone interest controlled the city's exchange. A gray circle shows that the city was controlled exclusively by Bell. A white circle indicates an independent exchange. A black circle indicates a Bell-connecting, sublicensed exchange. In dual service cities, pie charts indicate what share of the telephone subscribers were controlled by the Bell exchange (gray) and the independent exchange (white).

The map does not represent which cities could be actually be called by a Bell or independent subscriber. In the Indiana and Los Angeles area maps, the area displayed is small enough that it is safe to assume that both Bell and independent subscribers in any exchange shown could call all or most of the other exchanges shown. That is not true of the New York State map, however. A subscriber to the independent exchange in Buffalo, New York, in 1911, for example, could make connections to the independent system in Utica, but probably could not make long-distance connections to Albany, even though there was an independent exchange there. The access universe offered by today's telephone system is perfectly homogeneous. A user in any city can call the same people and locations as a user in any other city. That was not the case between 1894 and 1920. When a telephone system is imperfectly interconnected, the points accessible to a user are different for every city. The system had an individual "perspective," as it were: which cities could be called depended on where one was calling from and the network to which one subscribed. That poses complex problems in data collection and mapping representation which have been avoided here.

Another important limitation of the mapping is that with a few exceptions it does not extend to exchanges communities with populations less than 5,000. There were, of course, a huge number of such exchanges, but data about them was sparse and unreliable. For that reason, the maps drastically underrepresent the significance of sublicensing, an activity which tended to be concentrated on the smaller exchanges.

With the exception of the independent exchange in Los Angeles, which did not make any interstate connections, the range of communication of both Bell and independent subscribers may have extended beyond the geographic area shown. A more extensive map, however, would have

imposed even more difficult data requirements. The limitation is justifiable, moreover, because the maps do show the area that would have been most important to subscribers in the selected cities. All the available evidence suggests that the ability to place calls to points more than 300 miles away was a negligible factor to telephone users at that time.

The concept of “telephone access” is not unambiguous. Documents in the Bell archives show that around 1900 it was fairly common for Bell operators to manually repeat messages over long-distance circuits if the speakers’ voices were too faint to be heard unaided.²¹² In a purely technical sense, the speakers were inaccessible to each other, but the intervention of a human “repeater” allowed a conversation to take place. Both Bell and the independents often placed public toll stations in cities where they lacked exchanges; thus, although all the exchange subscribers in that city could not be reached by one of the two systems, residents were able to place outgoing calls on either system. It was also possible for independent exchanges to be connected physically by long-distance lines but still be inaccessible. If the call had to pass through an excessive number of switching offices to get to its destination, conversation may have been impossible. Each transfer increased attenuation and waiting time, and beyond a certain number of transfers placing a call was either physically impossible or so inconvenient as to be worthless. That was more of a problem with the independents than with Bell, for after 1900 the Bell system began to consciously organize the relationship between local feeder lines and through circuits in ways that avoided those problems.

The maps graphically display developmental patterns that are described in greater detail in the narrative. It is apparent from the 1894 maps that prior to the expiration of the patents, the Bell system concentrated its development on major cities and neglected small towns. That pattern is particularly evident in the Indiana map. From 1894 to 1913 the Bell system dramatically extended its system. The maps show that many new exchanges were established in smaller towns and that Bell entered into interconnection arrangements with independents in other areas. The sublicensed independent exchanges are color-coded black. The maps show that after 1906 successful independent exchanges which had attained a dominant share of a city’s subscribers were induced to join the Bell system, thus decreasing the scope of independent access. The Utica independent exchange was cut off from connections to independents in and around Albany when the independent in Auburn was bought out by Bell, and other exchanges that once formed part of the independents’ link between Utica and the cities to the east were sublicensed. In the Los Angeles area, independent exchanges that had beaten their Bell rivals in exchange competition were sublicensed and brought into the Bell system.

The maps provide some interesting clues about the extent to which user convergence on a single network affected the Bell- independent competition. The maps show clearly that when convergence did take place it was quite localized. Either it was confined to a single city, such as Fort Wayne and its immediate suburbs, or, when a major urban center such as New York was involved, it occurred over a radius of about fifty to eighty miles. It did not occur over the nation as a whole or even over an entire State. The Southern California map, for example, shows that despite

²¹² On the use of human repeaters, see Doolittle to Cochrane, Jan. 16, 1901, *Hudson River Telephone Co.-Toll Requirements*, Box 1330, AT&T-BLA, at 8. Doolittle observed that many of the cancelled calls were from “women who do not seem to talk loud enough and [who] declined to have the messages repeated.”

the Bell system's connections to northern California and neighboring states, the independent exchange in Los Angeles was able to hold onto half of the city's subscribers for an extended period of time. The Los Angeles independent did not make any interstate connections and for most of its existence had no access to San Francisco, Oakland, or points north. Telephone communication patterns may have been increasingly interdependent at the regional and local level, but long-distance telephone connections over a 100-mile area did not seem to have a significant influence on the majority of local exchange subscribers.

Prior to 1898, the Bell system had established very little presence in Indiana's small towns. By 1898, the Fort Wayne independent exchange controlled the majority of that city's subscribers. By 1913, that lead had become an overwhelming one. From 1906 to 1913, Bell sublicensed many of the independent exchanges in Fort Wayne's vicinity, giving it access to those cities and denying it to the independents. While Bell's lack of access to the surrounding territory made it possible for the Fort Wayne independent exchange to grow rapidly at Bell's expense, once Bell improved its position in the surrounding areas it failed to erode the independent's dominance in Fort Wayne. With the bulk of telephone communication being local, the expanded short and long-distance connections offered by the Bell system were not enough to overcome the inertia associated with the Fort Wayne independent's near-monopoly control of local exchange service.

The situation is quite different in the regions surrounding the major urban metropolis of New York. There convergence effects seem to have been felt over a fifty to 100 mile radius. Bell's monopoly control of exchange service in New York city seems to have had a stultifying effect on independent exchanges over an eighty mile radius, affecting independents in Northern New Jersey (not shown on the map) and well into New York state. That can be interpreted as evidence that the formation of large urban centers created a regionally interdependent communication pattern. We will never know whether dual service would have been viable in the nation as a whole had there been a competing exchange in New York city. But it is clear that the absence of competition in New York thwarted dual service competition in the surrounding areas.

The map data conflict with the common belief that Bell's superior long-distance technology was instrumental in defeating the independents. The patented technologies would have given Bell an advantage in providing calls over 200 miles in length. Such ultra-long-distance connections were a negligible force in leading to convergence at the local level. The demand for long-distance connections would be concentrated on a small number of users rather than evenly distributed over many users. That kind of demand structure can sustain dual systems. When the communication patterns of a minority group are strongly concentrated on a small number of users outside the majority network the tendency to converge on a single system can be nullified. The maps provide some empirical support for that viewpoint. In many cities one of the local exchanges controls 75 to 90 percent of the subscribers. That did not, however, lead to total elimination of the competing exchange in all cases. A small sliver of the subscriber pie remained with the minority exchange. Those diehard subscribers were business users who wanted long-distance connections that the dominant system did not offer. In Fort Wayne, for example, the near-total dominance of the independent did not lead to the loss of all Bell subscribers. The demand of the Bell remnant was concentrated on long-distance points that could not be reached through the independent system.

For the majority of subscribers, however, making calls to places over 100 miles away was a rare event. If the Bell system had the only long-distance connections to a city and a subscriber was attached to the independent system, he went to the Bell central office, where there were special booths set up to handle toll calls, or to a public toll station somewhere in the city. Behavioral evidence from the early 1900s indicates that that fragmentation of toll calling was not then perceived as unthinkable as it would be now. A Mr. Schleicher, the Bell manager at Mt. Carmel, Illinois in 1904, noted that the only toll lines of the competing exchange in his city ran to a nearby farmer system:

Supervisor: Are the patrons of the Home Company complaining of inability to get outside connections?

Mr. Schleicher: Well, no, sir.

Supervisor: They inconvenience themselves by coming into our office?

*Mr. Schleicher: Yes, sir. I had toll business last month amounting to \$250. They will inconvenience themselves by walking three or four squares to our office.*²¹³

A vivid (but probably not typical) account of that process is contained in the correspondence of Thomas Doolittle. On an inspection of the Bell facilities in Middletown, New York, in 1901, Doolittle observed that poor Bell service had left its exchange with only eighty-nine subscribers to the independent's 400:

It must be remembered that the 400 opposition subscribers have to come to our office to get long line service. At the time of my visit there were six people standing in a dark place less than six feet square, with no place to sit, and all waiting for a long distance connection. I entered the booth to make a call for Albany, and felt compelled to step outside pending the making up of the connection, on account of the offensive odor of the place.²¹⁴

Apparently, to merchants, farmers, and other businesspeople-to whom long-distance telephoning was necessary but not routine, going to the Bell office to place a call seemed no more unusual than going to the post office to mail a letter.

²¹³ 10 CUMBERLAND TEL. J. (Jan. 15, 1904).

²¹⁴ *Hudson River Tel. Co.-Toll Requirements*, supra note 8, at 14.