

The Early Competitive Era in Telephone
Communication
1893 ---- 1920

By Richard Gabel
Director
Planning and Analysis Division
Office of Telecommunication
Department of Transportation

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I. Introduction

There is no general theory of public utility regulation. What often passes for theory is a reconstruction of historical events woven into a pattern of generalization to meet contemporary issues. Thus the the thesis that "Regulation is the law's substitute for competition" is the legend on the wall of the Michigan Public Service Commission's hearing room.^{1/} There is scant evidence that those who exploit the slogan have examined the differential impact of market competition and regulated monopoly on price, market development and innovation. While market competition provides no assurance of price benefits to a using public, rapid technical and operating innovation, it certainly has provided a more ready climate for such developments than has regulated monopoly. The available historical evidence indicates that, at least in the communication industry, regulation has served to stabilize price and earnings of the carrier, stymied innovative rate structures, and protected the carriers from competitive inroads from private manufacturers and suppliers.

The possibility of introducing additional competition in the rendition of communications services has recently come to the fore.

*Director, Planning and Analysis Division, Office of Telecommunication, U. S. Department of Transportation. The views expressed do not necessarily reflect the opinions of the Department or any element thereof.

Ancient lore is revived to still the attempt. Private microwave suppliers have threatened the monopoly of the Bell System over supply of inter-city toll services.^{2/} The use of the computer as a switching device offers the possibility of substitution for established common carrier services.^{3/} These are two of several developments in technology which could alter the market structure of the communications industry. Potential changes in market structure almost invariably breed new explanation, or as here, recrudescence of old ideology. In a dissent to the Presidential Task Force report on Communications Policy, the Director of the Office of Telecommunications Management stated:

"Experience going back some seventy years has demonstrated that competition in the provision of local telephone service was inherently inefficient and led to poorer quality service at higher cost."^{4/}

The history of the period of communications competition in the United States, roughly the years 1893 to 1920, is apparently not too well known. It will be the purpose of this paper to outline the major consequences of this segment of domestic economic history and, at least, to question the contention raised by the DTM.

As noted in the previous citation, the view is widely held that the existence of competition in communication led to inherently "inefficient" and "higher cost" telephony. The conclusion is arrived at by a series of logical inferences. The Independent telephone industry began in 1893 with the expiration of the Bell System patents on the telephone handset. From its inception and until about 1913 there was

limited interconnection between independent and Bell exchanges. Refusal to interconnect was, of course, a tool employed in the competitive battle for domination of the industry. Interconnection refusal was not limited to the strictly duplicating situations, but was extended to distinct service areas where Bell had never chosen to provide telephone service. When competition took the form of overlapping exchange areas between rival companies^{5/} the impact on plant requirements was severalfold. A subscriber desiring telephone services with access to all users, was required to obtain two separate telephone instruments; a separate subscriber loop had to be furnished from the telephone instrument to the central office with a separate central office line served by switchboard operators.^{6/} There clearly must have been some duplication of facilities and investment under this arrangement. However, the degree of "inefficiency" and "higher cost" has never been demonstrated, nor is it necessarily demonstrable.

Early Bell System telephone development took place at the business core of large urban communities.^{7/} Territorial extension by the competing Independents was for the most part, to contiguous, but non-overlapping geographic areas.^{8/} The provision of distribution plant must have been largely complementary, rather than parallel. For the small central offices which prevailed at the time, there were no significant differences in cost per line for separate as against combined switching facilities, and, in the absence of interconnection, could not have materially affected total investment.^{9/} Dual services, in the absence of interconnection of the rival companies at the central

offices, necessarily required dual telephone instruments. The instrument and its associated wiring probably made up less than ten percent of the average investment per station.^{10/} Any vigorous examination of the affect of competition on communication costs would also have to have knowledge of the capacity, and rate of utilization of facilities prior to and subsequent to the inroads made by the Independents.

A characteristic of telephone service is that it must be planned for and constructed in anticipation of future demand. A common lament of the Bell System at the time (reflected in reports to shareholders) was that their own facilities were continually inadequate to meet market demand or were not physically located where demand had developed.^{11/} It can be conjectured that where Independents did make inroads into Bell territory and literal duplication of service areas was created, it was largely due to (1) unavailability of Bell plant, or (2) the promotional efforts and attractive pricing offered by Independent operating companies.

In evaluating the charge that telephone competition engendered "inefficiency" and "higher cost"; several considerations must be borne in mind. All competition involves some redundancy of plant facilities and work effort. The question is does the pressure of competing market forces produce a better ^R of cheaper product than a single supply service? The evidence is clear that under a regime of monopoly supply, during the period 1879 - 1893, the system was stagnant. The competitive period, following expiration of the Bell patents in 1893 - 94, resulted in the most

rapid rate of growth of service in the history of the industry as well as a substantial reduction in the price for business and residential telephone service. This does not satisfactorily nor completely answer the question whether competition was either "inefficient" or "high cost". We see continuous evidence of plant redundancy within the Bell System - duplication and triplication of exchange cable facilities, establishment of second and third wire centers within a few years span of opening an initial office. This evidence merely attests to the lack of omniscience of a highly centralized, carefully planned telephone organization. Just as Bell spokesmen would argue that a second cable on the pole line does not represent "inefficiency" or "high cost", the independents could insist, during the competitive era, that during a period of extremely rapid growth (created by their existence) all facilities were "efficient", "necessary" and provided at reasonable cost.

The infusion of competition did force a substantial disruption to the operations of the Bell System. Profitability, rate levels and rate structure, the whole innovative process were markedly affected by the coming of competition. The Bell System did not take this assault lightly. It changed tactics and practices. Ultimately, the company appealed for state intervention - the regulatory process - to stabilize and normalize competitive forces. For this recount, we turn to the next section.

II. Historical Account

1. The Period of Monopoly, 1879-1893^{12/}

From 1879, until the expiration of the basic Bell patents in 1893, the Bell System enjoyed a complete monopoly in the telephone field. Under such monopoly it was able to control the rate of expansion of the telephone industry, the location and direction of service development as well as the charges for rendering telephone service. The price set for service yielded handsome earnings. At the end of 1894 equity ownership of Bell stockholders consisted of \$20 million of common stock and \$18 million of accumulated surplus. Of the \$20 million common stock, \$5 million represented original stock (for which \$500,000 in cash had been paid) and \$15 million of subsequent issues. During the same period, stockholders received approximately \$25 million in dividends. Over the entire period, declared dividends averaged over 15% annually, while the actual return on investment was near 46 percent.^{13/}

Monopoly pricing had its counterpart in restricted growth. Bell initially contemplated telephone for use only as private line service, but soon saw the advantage of exchange service. Rate levels prohibited rapid expansion or development. Central offices were usually located in rented space in the center of the business - industrial area of the larger urban communities with service primarily directed to business customers located within a mile of the wire center. Residential, suburban, and rural service went largely undeveloped. Service was

provided by use of iron wire or on grounded circuits with local battery power source.^{14/}

During the period of patent monopoly little attention was paid to public relations. The System's energies were directed toward reaping large profits. The attitude of the corporation was characterized by "arrogance and indifference."^{15/}

2. The Competitive Period: Development of Service

Although the Bell interests had preempted many of the lucrative and populous sections of the country during the years of absolute patent monopoly by obtaining franchises and establishing telephone service, numerous independent telephone companies, as well as a few independent telephone manufacturing companies sprang up through the country immediately after the expiration of Bell patents in 1893-4. These concerns vigorously pursued the promotion of telephone service in many regions not yet reached by the Bell System. Elsewhere they entered into competition in territories where Bell already served. A major effect of the advent of telephone competition was the stimulation and growth of telephone service. An abbreviated summary of telephone development over the period 1876-1920 is shown in Table I.

Table I

Total Telephones in U.S. at Dec. 31 for selected years

1876 - 1920

Year	Total Telephones	Year	Total Telephones
1876	2,593	1901	1,109,073
1880	47,880	1904	2,005,247
1884	147,715	1908	4,364,629
1890	239,336	1912	7,431,074
1895	309,502	1916	9,893,610
1900	855,911	1920	12,601,935

Source: "Proposed Report, Telephone Investigation"
FCC, Table 32, pp 143-4.

Perhaps a clearer image of the effect of competition on telephone development is a comparison of the rate of station growth during the period of patent monopoly and the years immediately subsequent thereto. This information is shown in Table II.

Table II

Percent Increase in Number of Telephone Stations

1885 - 1906

(Period of Patent Monopoly)	Year	% Inc. in No. Stations
	1885-95	6.3
	1895	14.5
	1897	17.2
	1899	34.5
	1901	27.0
	1903	18.7
	1905	24.3
	1906	21.4

Source: Abridged from "Report on Control of
Telephone Communications Vol VI - Effect
of Control Upon Telephone Service and
Rates" p. 131

In 1893, seventeen years after the origin of telephone communication, there were 266,431 Bell - owned stations in the United States. Ten years later, following the advent of competition, there were 1,317,000 Bell - owned stations. During the same 10 year period, the independents, starting with no stations, had developed 1,054,000 stations in the United States. During the period 1902-7, the development of independent properties kept pace with the development of the Bell System. At the end of 1907, the Bell System owned 3.1 million stations, compared to 3.0 million stations owned by independents.^{16/}

In 1907 the Morgan banking interests obtained control of the Bell System and replaced President Fisk with Theodore Vail.^{17/} Vail substantially reversed a number of policies of the Bell System including a policy of acquiring the opposition by purchase, while attenuating internal growth. One effect of the reversal was a rapid relative diminution of independent stations. After 1907 the independents proportion of the total industry stations continued to decline until it reached its present ratio of about fifteen percent of total industry telephones.^{18/}

The extent of service competition in telephony which occurred during the early period of expansion is indicated by the following. According to a special report of the Census of 1902, out of 1,051 incorporated cities in the United States with a population of more than 4,000, 1,002 were provided with telephone facilities. The independents had exclusive service in 137 of these cities, the Bell interests in 414 cities, while the remaining 451 communities, almost half, were receiving service from two or more companies.^{19/}

The growth which characterized this competitive era was both intensive and extensive. It was intensive in that it was marked by higher saturation of development, particularly residential services, than had been attempted during the period of patent monopoly. It was extensive in that service was extended for the first time to suburban and rural areas. This vigorous pursuit of new markets was, in large part, made possible by substantial reduction in rates.

3. Telephone Competition: Rates

With the advent of competition, the rates charged by the Bell System during its period of patent monopoly were substantially reduced. Average revenue per Bell station dropped from \$88 in 1895, the first year of competition, to \$43 per station in 1907.^{20/}

The effect on rates within the Bell System was not limited to exchanges with direct competition but was extended to exchanges where Bell retained exclusive service. Table III summarizes data on comparative exchange rates submitted by Bell management to its stockholders. Note that between 1894 and 1909 exchange rates for telephone service in Bell exchanges were reduced about the same in exchange areas which did not have competitive situations as those which did. President Vail used this observation to conclude that it was not the competitive forces which were leading to price reduction, but cost savings initiated by the company.^{21/} This turns the question slightly. What motivation did the System have to generate cost economies absent market competition? There is no evidence of comparable performance during the period of patent monopoly.^{22/}

Table III

Comparison of Annual Exchange Rates for Bell Exchanges With and
and Without Competition, 1894 - 1909

	1894	1909	
		<u>Bell</u>	<u>Independents</u>
<u>Exchanges Without Competition</u>			
Business Service	68.10	36.00	N.A.
Residential Service	56.00	23.75	N.A.
<u>Exchanges With Competition</u>			
Business Service	78.65	41.25	37.15
Residential Service	65.00	22.80	23.25

Source: AT&T Annual Report to Stockholders, 1909, p28
and chart p25

4. Telephone Competition: Development of the Art

During the period of Bell monopoly, the technical activities of the company were not concerned primarily with, or organized for, development of the art through its own forces. Rather, effort was given to the purchase of patents for the purpose of extending company control in the field of telephony.^{23/} Prior to 1907 little or no attention was given by the Bell System to what came to be known as "fundamental research."^{24/}

The major developments in the art, up to this point, can be said to have been initiated outside the Bell System. The Strowger switch, which made possible the advent of automatic telephony, was invented by an undertaker and manufactured by several of the independent manufacturers.^{25/} The use of dial telephone service was resisted by Bell leadership.^{26/}

The loading coil was developed by Professor Pupin of Columbia University around 1905. The load coil tremendously improved the quality of telephone transmission, actually making possible, for the first time, a system of long distance telephone.^{27/} Perhaps the most significant technical development of the period was Lee De Forest's development of the vacuum tube in 1914, another major innovation from outside the Bell System.^{28/} There were numerous other developments of the art during this period, but they can be considered more as refinements to toll and exchange service, than as major technical breakthroughs.

When Vail reassumed the Presidency of the American Company in 1907, he shifted company emphasis from patent purchase and development, to the creation of a technical and research staff capable of "occupying the field":

"One of the first things that was fully developed in our minds was the necessity of occupying the field ... Just as soon as we started into the district exchange system we found that it would develop a thousand and one little patents and inventions with which to do the business which was necessary, and that is what we wanted to control and get possession of. So from the very commencement we had our experimental department, so-called - whose business it was to study the patents, study the development and study these services that either were originated by our own people or came in to us from the outside.^{29/}

The objective of dominating the field and asserting technical leadership in the telephonic and allied arts has served the company well down to the present day. J.E. Otterson, of the company restated and amplified the Bell System objective in the following words:

A primary purpose of the AT&T Company is the defense and maintenance of its position in the telephone field in the United States. Undertakings and policies must be made to conform to the accomplishment of this objective.... The AT&T Co. is surrounded by potentially competitive interests which may in manner or degree intrude upon the telephone field. The problem is to prevent this intrusion ... the best defense is to continue (research) activities in 'no man's land' and to maintain such strong engineering, patent and commercial situations in connection with these competitive activities as to always have something to trade against the accomplishment of other parties....30

The Bell System now enjoys a controlling position in the field of wire telephony. It is surrounded by other industrial fields such as satellite communications and the computer application to switching and information storage. The strong financial and technical resources of the Bell System, and particularly the research policy initiated by Theodore Vail, underlies its defense against any threatened invasion.

5. Airing the Dispute Over Competition

Despite the greater availability and reduced rates for telephone service, there was public criticism of the duplicate service situations, particularly from the business community. Much of the criticism was stimulated by the Bell System. The independents were not loath to build their own "back - fires." The first annual report to stockholders of Theodore Vail was reproduced and distributed widely to press and public organs. It treated the theme of telephone competition at length:

"Duplication of plant is a waste to the investor. Duplication of charges is a waste to the user... the public must pay double rates for service, to meet double charges on double capital, double operating expenses and double maintenance..^{31/}

In two widely disseminated reports, the independents prepared a response to President Vail. They are quoted at some length to obtain the flavor of the controversy.

"Previous to 1895, when independent telephone began, it was next to impossible for a small town to even get a toll station established. The style and efficiency of the transmitter was the same throughout the (Bell) monopoly and the circuit conditions had undergone little or no change, the lines being mostly grounded circuits or iron wire. Operators' service was given very little attention ... they failed to properly appreciate conditions peculiar to varying localities (battleship construction in small towns and rural areas). Exorbitant rates The independents introduced party line service ... reduced rates ... extended toll lines among independent companies...

"There is an advantage for a large number of people in having the telephone service of a large city divided into parts, as the charge for a single telephone of a given class on either of these divisions can be lower than it could in a system serving the whole city ... The (Bell) companies have seldom kept pace with the demand and they are seldom able to lay out their plans to the best economic effect, because they cannot foreknow the localities of growth....

Duplicate investments are mostly in the business districts nearest the exchange where cable units by reason of short length and most economical size are cheapest. Switchboards, if not connected, are cheaper separated than combined. Two pole lines may represent waste when they are parallel with no more of a load than can be borne by one. They may have no element of waste with a greater load or when shared with other wire - using companies. Of the subway and conduit systems only that smaller portion is waste which is represented by the costs of opening and repaving the streets. The costs of interim wiring and instruments are duplicated in proportion to the duplication of telephones..^{31/}

[Columbus, Ohio is cited as an illustration of the effects of competition.] The Citizens Telephone Company (independent) began agitation for a franchise late in 1898 when Central Telephone (Bell) had less than 1900 telephones with rates at \$96 for business and \$48 for residence service, plus an additional charge for distance beyond one mile from the exchange. The rates in the city today (1908) are respectively \$54 and \$27 for Bell business and residence main line telephones At the present time each company has in the neighborhood of 12,000 telephones. [Author goes on to compare the accessibility of 24,000 stations for about the same total charges as 1900 stations were available ten years previously.³²]

The public airing of this controversy over the relative benefits and disadvantages of telephone competition may have had some effect on the informed public. But as in many industrial battles over markets, the effective weapons were financial and economic. To understand this turn, we must examine the Bell System response to competition.

III. Bell Reaction to Competition

The loss of its patent monopoly in 1893 and the incursion of competition was followed by the Bell System by efforts to destroy or mitigate the effects of the competition. Tactics employed for this purpose differed markedly during the tenure of President Fisk, up to 1907, and those initiated by President Vail thereafter. In the early period competition was met through rapid expansion of Bell service. In the later period, 1907 - 1920, when the Baker - Morgan financial interests had obtained control of the company, competition was allayed by purchase and absorption of independent propriet²es. In addition to a change in method of expansion, other devices were employed. These

are discussed below. The change in rate of expansion of telephone service is shown in Table IV below.

Table IV

Annual Rate of Growth in Bell Telephone Stations
and Plant Investment, 1885 - 1912

Period	Average Percent Increase in No. Telephone Stations	Average Percent Increase in Plant Investment
1885-1894	6.3	8.2
1895-1906	21.5	15.0
1907-1912	9.6	8.5

Source: Tables 33 and 34 "Walker Report".

A. Early Competitive Era, 1894-1906

During the period 1894 - 1906 the Bell System resorted to a variety of practices to supplement its expansion policy in meeting the independents. These were: (1) an active propaganda campaign; (2) refusal to connect with certain independent companies; and (3) refusal to sell telephone instruments to non-Bell companies.

1. Bell Reprisal: propaganda campaign

Bell System propaganda against the independents took many forms. Its objective was to undermine independent interests with the public, the bankers, with legislatures and with present or prospective investors.^{33/} The success of this campaign appears to have been considerable against the larger independent telephone companies. However, the smaller mutuals and independents, which grew directly out of local community needs and were less dependent on central capital markets were apparently less affected by the propaganda efforts.

2. Bell Reprisal: Interconnection

A stronger means of curbing the independent movement was Bell System's refusal to connect with independent telephone systems for long distance telephone service. Since Bell was the pioneer in the toll field, refusal to connect with independents confined them within the limits of the particular territory served. The independents early recognized this weakness of their position and attempted, in 1899, to form an independent long distance network. The extensive financing required for such an undertaking was to be organized through a consortium including the William Whitney interest.^{34/} At the request of Mr. Morgan of the banking firm, Whitney withdrew as financial sponsor of the undertaking and it collapsed shortly thereafter.^{35/} It is significant that the Baker-Morgan group shortly thereafter used the Bell properties as the nucleus in forming a strong communications system including both the Bell System and Western Union Telegraph Co.^{36/}

3. Bell Reprisal: Refusal to Sell

Another weapon employed by the Bell System in fighting independents was refusal, until 1908, to sell telephone equipment to non-Bell companies or on the open market. This policy had several effects. It encouraged the establishment and growth of independent telephone manufacturing concerns following the expiration of Bell patents. The three most important independent manufacturers were established during this period: Kellogg Switchboard and Supply,

Stromberg-Carlson and the Automatic Electric Company.^{37/} The existence of the independent telephone manufacturing firms encouraged competitive product development. Development of automatic dial service, the supplanting of local magneto by common battery service, development of full manual multiple operator service, a number of refinements in relay manufacture are traced to the efforts of independents during this period.^{38/} Independent innovations in harmonic ringing and signalling systems led to later problems when Bell partially reversed its position on interconnection - problems of system compatibility arose once the Bell System sought interconnection with the independents.

The refusal of the Bell System to sell telephone apparatus to independents failed to solve the competitive problem. The American Company therefore attempted to acquire control of Kellogg and Stromberg - Carlson. Both attempts ultimately failed through intervention of public authorities. Both acquisitions were set aside on grounds that they would create monopoly in the manufacture of telephone equipment.^{39/}

B. Late Competitive Era, 1907-1920

The advent of Morgan control of the Bell System in 1907 precipitated ~~in~~^A abrupt change in the Bell System policy toward independents. This reversal was evidenced by a reduction in the rate of Bell System expansion and a policy of buying up independent properties. As Table IV indicates the average rate of growth of Bell stations in the early

period of competition, 1895-1906 was 21.5%: for the years 1907-1912 the annual rate of expansion dropped to 9.6%.

Rapid market expansion cost heavily in investment dollars. This was even more serious under conditions of declining price levels; revenue increases lagged investment growth. In successive reports to stockholders, President Fisk lamented the decreasing profitability resulting from competition.

... in certain localities, rates too low to cover current expenses and necessary allowances for renewal have been^{40/} offered to meet similar rates offered by competitors.

And again in 1904:

In some places in the country, particularly where there has been the demoralizing effect of unintelligent competition, the rates are at the present time too low.^{41/}

In his last annual report, President Fisk repeated the theme:

The unintelligent view of our competitors as to what rates for service are possible have created conditions in some portions of the country, under which neither they nor the Bell companies are getting proper returns for the service rendered.^{42/}

President Fisk's critical remarks about the "unintelligent competition" were stimulated by real events. During the period of patent monopoly, the company enjoyed an average return on investment of nearly 46 percent.^{43/} For the competitive years 1900 - 1906 net earning on average net investment dropped to the vicinity of eight percent.^{44/}

To meet the competition, as noted above, President Fisk initiated a program of rapid plant expansion. Bell System assets nearly quadrupled

from 1895 to 1905, from \$120 million to \$453 million.^{45/} The need for what, at that time, were tremendous additional capital resources, led to control of the Bell System by the Baker - Morgan financial interests, and the replacement of Fisk by Vail.^{46/} President Vail, in addition to slowing the rate of company expansion, introduced other major policy changes which effectively challenged the competitive situation. These changes were distinct from the early competitive era and are discussed under: (1) policy of acquisition; (2) interconnection; (3) sales to independents; and (4) regulation.

1. Late Competitive Area: Acquisition Policy

With the curtailment of its own rate of internal expansion, the Bell System, beginning in 1907, launched an aggressive program of acquiring independent telephone properties. The effect of this change in policy is demonstrated by the shift in ratio of telephones of the two segments of the industry. In 1907 the independents owned 3.0 million stations; while Bell owned 3.1 million stations. By 1912, there were 3.6 million independent stations and 5.1 million Bell stations.^{47/} The proportion of independently owned stations decreased progressively until about 1940.

The independent telephone interests resisted the acquisition policies of the Bell System. Complaint was made to the Attorney General George Wickersham. The independent interests were joined in charging anti-trust violations by the Postal Telegraph - Mackey interests. The Bell System had succeeded in acquiring control of

Western Union Telegraph company. The physical consolidation of Bell System and Western Union properties threatened to undercut Postal Union markets.^{48/}

As a result of these complaints, AT&T Vice-President Kingsbury met with the Attorney-General and concluded in December 1913, an agreement which became known as the Kingsbury Commitment.^{49/} Under this agreement, the Bell System agreed not to acquire control over any competing company. It agreed to connect its system with other telephone systems where the independent companies met Bell System equipment requirements. The commitment did not restrict the Bell System from acquiring non-competing telephone companies. Between 1913 and 1917 the Bell System acquired by purchase over 241,000 stations from the independents and sold 58,000 stations.^{50/} ~~C~~uring the war years, 1918-1919, the Post Office Department assumed control over all telephone properties. These were the only years when the Bell System sold more stations than it purchased.

The competitive situation created by the Kingsbury Commitment proved unsatisfactory to many independents, in that they were unable to dispose of their properties at favorable market terms. Therefore, the independents joined Bell in seeking passage of the Willis-Graham Act of 1921, permitting the merger or consolidation of competing telephone companies.^{51/} Passage of the Willis-Graham Act was construed by the Bell System as termination of the Kingsbury Commitment.^{52/} Bell again undertook an aggressive policy of acquiring independent properties. Activity in this respect on the part of the Bell System created apprehension among independents. After some negotiations, the

Bell System sent a letter to F.B. McKinnon, president of the United States Independent Telephone Association which became known as the "Hall Memorandum". Dated June 14, 1922, the agreement stated the Bell System position relative to acquisitions. The Bell System agreed "to make no purchase of, or consolidation with independents unless demanded for the convenience of the public or unless special reason existed making the transaction desirable for the protection of the general public or Bell System property."^{53/} With these exceptions, the Bell System has made such acquisitions of independent properties as it saw fit.

2. Late Competitive Area: Interconnection

Until the Kingsbury Commitment was entered into in 1913, the Bell System, in varying degree, refused to interconnect with independent exchanges, for long distance service. President Vail explained the Bell System hostility to interconnection: "Offering a connection with a so-called competing exchange ... is offering a different service, except so far as they connect the same subscriber, and there it is of no benefit, as either one would serve the same subscriber, and there it is of no benefit, as either one would serve the purpose."^{54/}

The independent telephone companies resisted interconnection as well and were active in opposing state legislation which would compel physical ties between competing telephone companies. This viewpoint was expressed by F.B. MacKinnon, President of the U.S. Independent Telephone Association ~~of~~ before a joint Congressional committee as follows:

Rep. Huddleston: How does it (compulsory interconnection) ruin an exchange?"

Mr. MacKinnon: "If an exchange which is now operating successfully is obliged to give up its entire toll systems and its connections to another exchange in the same town and which has no money invested in that toll system, it may be that other exchange ... can take away the subscribers of the other exchange.^{52/}

The successful competitor strives to become the surviving monopolist.

It is futile to reflect on what could have been. In view of the opposition by both segments of the telephone industry to interconnection of competing facilities, and the general laissez-faire attitude of public authorities, the likelihood of achieving interconnection was remote. Despite inadequate financial resources (partly due to Bell pressure), with full interconnection during the early years of competitive rivalry, it may be hazarded that the structure of the telephone industry would have been more equally balanced. There is little question but that interconnection would have relieved subscribers of the burden of dual instruments and separate directories and lessened the public demand for forced consolidations. The Bell System watchword "Universal Service" could have been achieved without "one system, one policy."

It may be that the extensive financial resources of the Bell System, its banker support would, in any event, have overwhelmed the struggling independent industry. The independents were fragmented and frequently fought as bitterly among themselves as they did against the Bell System. By the time Vail assented to granting interconnection

to non-competing independents, the relative decline of this segment of the industry was evident. It was a decline brought on by Bell's aggressive acquisition policy and the financial difficulties being experienced by the Independents. In part, the inability of independents to secure additional capital is explained by reluctance of bankers to finance closed systems, that is exchange areas without access to the outside world through toll inter-ties. The critical years in which the legislators might have acted, 1893 - 1907, public policy was disinterested. Policy, in an issue of this sort, is made through the clash of competing interests. Since both segments of the industry opposed interconnection at the time, a salient opportunity was lost.

3. Late Competitive Era: Bell Sales Policy

As noted earlier, the refusal of the Bell System to sell telephonic equipment to non-Bell companies proved a failure as a weapon in fighting the independents. With the advent of banker control of the Bell System in 1907, this policy was reversed and sales to independents and on the open market were permitted. There were several reasons for change in company sales policy to independents. At the time (1907), the Bell System patent situation was such that the company had no exclusive patent protection which would preclude independents from developing satisfactory central office, outsideplant or station equipment.^{56/} The vigorous development of independent telephone manufacturers concurrent with the growth of independent telephone operating companies attested to this fact. By 1907 there were about as

many independently owned telephone stations as Bell-owned stations. The independents constituted a sizeable market for Western Electric, the wholly Bell-owned manufacturing subsidiary. Western sought a share in the independent market in competition with the independent manufacturing firms.

In addition, there were future advantages in undertaking the sale of Bell-Western equipment to the independent operating companies. Vail initiated a deliberate policy of acquiring independent operating properties and absorbing these into the Bell System. The installation of Bell System equipment into independent plant made for compatibility and uniformity of equipment and rendered such acquisition more attractive upon consolidation with Bell properties. ^{57/}

4. Late Competitive Era: Regulation

Possibly the most significant policy reversal initiated under Vail's tenure as AT&T President in 1907, was with respect to support of public regulation. Right through the period of patent monopoly (1873-1893) and the early years of competition (1894-1906) the Bell System opposed government intervention and regulation of the telephone business. This view was wholly consonant with the prevailing industrialist viewpoint. Bankers however, require more stability and rationality of operations than can be evinced by a cutthroat competitive environment. President Fisk was ousted and Vail re-instated as president of Bell System by the Baker-Morgan banking groups. The large eastern banks had been key witness to the creation and operation of the Interstate Commerce Commission, had observed federal regulatory efforts to

reduce rail carrier intransigency which produced "price wars". The ICC was "making good" in its efforts to stabilize markets and price structure in the railroad business, without invasion of private managerial prerogatives. Vail early saw the possibilities of effecting normalization and stability in the telephone industry.

The opening signal of this reversal of viewpoint was the discussion of "Public Control" in the 1907 Annual Report to stockholders:

It is contended that if there is to be no competition, there should be public control.

It is not believed that there is any serious objection to such control, provided it is independent, intelligent, considerate, thorough and just, recognizing as does the Interstate Commerce Commission in its report recently issued, that capital is entitled to its fair return, and good management or enterprise to its reward.^{58/}

Two years later Mr. Vail was somewhat more equivocal:

Although there have been abuses in corporate management ... yet it must be admitted that the tremendous development of utilities in this country as compared with other countries, ... is to a certain extent due to the lack of proscriptive restrictions.

We believe that if there is to be control, there should be protection... We believe that management or operation by a body without any accountable responsibility (i.e., regulatory commissions) would be prejudiced to the best interests of the service and of the public, and destructive of property...^{59/}

By 1910 President Vail could see the broad picture:

It is not believed that all this (integration of service) can be accomplished by separately controlled or distinct systems nor that there can be competition in the accepted sense of competition. It is believed that this can be accomplished to the reasonable satisfaction of the public

with its acquiescence, under such control and regulation as will afford the public much better service at less cost than any competition or government-owned monopoly could permanently afford....

If there is to be state control and regulation, there should also be state protection - protection to a corporation striving to serve the whole community from aggressive competition which covers only that part which is profitable A public utility giving good service at fair rates should not be subject to competition at unfair rates This supervision should stop at 'control' and 'regulation' and not 'manage', 'operate' nor dictate what the management or operation should be...."

Regulation is a two-sided coin: on one side lies the aspect of public protection - profit limitations, obligation to provide service at non-discriminatory rates, etc. The other side of the coin bears the aspect of utility protection - bars to competitive entry, exclusive franchise, right of eminent domain, etc. With an insight that was to serve Bell corporate interests well, Vail anticipated the limited inroads that public regulation could have in obtaining the first series of objectives, and the extensive benefits conferred by the second. Real power would always rest with those responsible for management of telephone operations. Vail was always ^{insistent} consistent on the distinction between "regulation" and "management". While the program of acquiring independent properties was being pursued unabated, the objective of "Universal Service, One Company, One Policy" could not be achieved without political intervention. Hence the promotion of regulatory authority by utility commissions.

The Bell System objective of substituting regulation for the rigours of market competition were met. In 1910 the Congress enacted the Mann-Elkins amendment to the Interstate Commerce Commission Act. A portion of the amendment conferred regulatory authority over interstate telephone companies on the ICC.^{60/} Between 1910 and 1920 thirty-one states established authority for regulating intrastate operation of telephone companies.^{61/}

The history of the federal enactment is peculiar in that the original legislative proposal was intended solely to confer jurisdiction on appeal from ICC decisions over railroad matters to a Commerce Court. In 26 parts to the hearing before the House Interstate and Foreign Commerce Committee, there is no testimony or mention of the communications industry.^{62/} The original bill, as reviewed by Committee, was amended on the floor of the House to confer authority on the ICC over "telephone, telegraph and cable companies."^{63/} Representations of the Bell System with regard to this legislation were undertaken informally. The position of the independent industry was favorable, as reflected in a letter from J.B. Ware, Secretary of the National Independent Telephone Association to Senator W. Alden Smith of Michigan.^{64/}

It is not unlikely that the Bell System shared the view of Samuel Insull, Chicago utility executive, when he told the National Civic Federation that he preferred "to help shape the right kind of regulation rather than have the wrong kind forced upon him."^{65/}

With clear-minded dedication, the Bell System did "help shape the right kind of regulation." During these years it established legislative consultants to "help and advise" state and federal legislators and to maintain continuing liaison with regulatory commissioners and their staffs. In the twenty-four years (1910-1934) that the ICC regulated telephone companies, the Commission dealt with telephone rates in four cases. None of these cases involved issues of major importance. "The Commission undertook no general rate investigations of communication companies, it acted only on the basis of such complaints as were brought before it.... In the absence of serious pressure to exert its power in the communications field, regulation went largely by default."^{66/}

We have the vision of hindsight. President Vail after four years experience with the law enlarged on his regulatory experience in addressing his shareholders:

Regulation and control by commissions have become a permanent feature of our economic laws. The few years' experience has brought out prominently good and bad features, but it has demonstrated ... a satisfactory solution of the economic problem ... will soon bring order and security out of the present uncertainty and a bulwark against future economic disturbance.... The Bell System has no cause for complaint, protest or criticism as to its relations with ... commissions ... right and reason have been the controlling influence in the conclusions reached.^{67/}

III CONCLUSION

In a sense all business enterprise is a flight from competitive, non-profit positions. Business firms either attempt to avoid or to

evade competition. Avoidance of the penalties of competition, the no-profit stigma, may be attained by superior efficiency or through product innovation. Evasion of competition can be fostered by the attenuation of the competitive process. The latter requires substantial control over supply and price. Confronted by the vigorous competitive inroads of independent operating companies, the Bell System sought to evade competition by acquiring the opposition, limiting its market and its services, and by espousing the development of governmental regulatory functions. The public service commissions, which stabilized rates and earnings, adapted the norms of business policy urged by the System, imposed strictures on the "unintelligent opposition" to meet the needs of the company. Whatever innovations were later adopted by the company were built upon a solid foundation.

A thesis has been posed that telephone competition during the years 1893-1920 has been neither "inefficient" nor "costly", but, on the contrary, its benefits sharply outweigh its costs. It was not the competitive market process alone which destroyed the structure which allowed competition. It was as much the public inroads through regulatory policy. This history is irreversible in that private telephone monopoly is established and institutionalized. In the absence of countervailing interest, the viewpoint of private monopoly has become melded with and espoused by public regulatory authority. Contemporary rationale for communications monopoly has not moved far ahead of Theodore Vail; the words are different, results and objectives

remain the same. On grounds of "systemic integrity", "economies of scale" and "unitary planning" arguments have been set forth to extend the present market structure.^{68/} Over the long run, dynamic technology may provide more effective control over communication prices and products than unaided regulation.

Revolutionary shifts in technology, aggressive innovation will be aborted if they do not bear the support of thoughtful public policy. The Presidential Task Force on Communications Policy has suggested that domestic communication satellite service be treated as a regulated monopoly.^{69/} It maintains that spectrum shortage, the limitation in number of orbital "parking slots" necessitate a single, multiple purpose satellite system. Any policy must operate within existing technical constraints. But policy making only begins at this stage. What organizational forms will permit the greatest development of the art, the widest play of operating alternatives, the most deliberate impetus to novel and experimental application of satellite technology? In a sense we are at the same threshold policy makers were faced with in 1893 with the opening of an industry. Today, like then, decisions once made, are not easily reversed.

Footnotes

1. "Profit, Performance and Progress, A Study of Regulated and Non-Regulated Industry for Bell System Use", p. 64 (N.Y., 1952)
2. See MCI case, FCC Dockets 16509-16519.
3. Computer utility inquiry, FCC Docket 16979.
4. Dissenting Report of General James O'Connell to Communications Task Force Report, Appendix A, P. 11 (GPO., Washington, D.C., 1968)
5. In 1907 overlapping territory was estimated at twenty percent. But this was only about one-third of all exchanges. G.R. Johnson, "Some Comments on the 1907 Annual Report of AT&T (Int'l, Indep Tel. Assoc., 1908).
6. The duplication of subscriber directory services must have been a source of annoyance to business customers.
7. AT&T Annual Report to Stockholders, 1910, pp. 23-24.
8. Johnson, G.R., op. cit.
9. Simpson, Floyd. Journal of Land and Public Utility Economics. In 1902 the average switchboard served 225 lines, Census of Tel. & Tel., 1902, Table 37, p. 33.
10. Investment per station at the turn of the century was about \$200. AT&T Annual Report to Stockholders, 1911, p. 17 shows average plant per exchange station from 1895 to 1911. Investment in station equipment is estimated at about \$20 per station.
11. AT&T Annual Reports to Stockholders, 1900-1907.
12. This section is based on the narrative set forth in "Proposed Report Telephone Investigation", Chapter V, F.C.C. Pursuant to Pub. Res. No. 8 (74th Cong.) (Wash., D.C., G.P.O. 1938). Hereafter referred to as the "Walker Report."
13. "Financial Control of the Telephone Industry", Exh 2096 -F Chapter 3 FCC Investigation of the Telephone Industry and "American Tel & Tel Co., Corporate and Financial History", Exh 1360-B, Vol II, p; 360, 365-368, 377, Sch 26-A and Table 25, FCC Investigation.
- ✓ 14. Casson, H.N. "The History of the Telephone", pp 168-9 (Chicago F A.C. McClury, 1910); Census of Telephones, 1907, p. 14 Department of Commerce and Labor.

15. Long, Norton E. "Public Relations Policies of the Bell System, A case Study of Modern Industry" (Ph.D. dissertation, Cambridge, 1937).
16. U.S. Census of Electrical Industries, Telephone and Telegraph, 1932, cited in Walker Report.
17. "Financial Control of the Telephone Industry", Exh 2096-F FCC Investigation of the Telephone Industry.
18. As of 12/31/68 the Bell System had 87 million telephones, while the independents served 17 million telephones.
19. Bureau of the Census "Telephones and Telegraphs, 1902," Bulletin No. 17 cited in H. Doc 340 (76-1) p. 132.
20. Op Cit., "Report on Control of Telephone Communications" Vol. VI, p. 131.
21. AT&T Annual Report to Stockholders, 1909, pp. 25-29.
22. Walker Report, Chap 7, p. 203; Chap 8, pp 243-250.
23. "The Engineering and Research Departments of the Bell System" Exh 1951 - B, FCC Telephone Investigation.
24. Walker Report, Op. cit. p. 207.
25. Ibid, p. 300.
26. Theo. Vail in the 1913 Report to stockholders: "It has frequently been asserted that the Bell System did not employ automatic switchboards because of patents controlled by others ... It is not automatic for the subscriber as he does all the manipulations in the making of a connection"
27. Doherty, W.H. "The Bell System and the People Who Built it" Bell Lab Record, March 1968 pp 77-83.
28. Ibid, Feb. 1968, Bell Laboratories Record; Walker Report, op. cit., p. 415.
29. Testimony of Theo. Vail in W.U. Teleg. Co. vs American Bell Co., 187 Fed 425 cited in Walker Report, p. 203 footnote 7.
30. Memorandum of J.E. Otterson dated Jan 13, 1927 cited in Walker Report, op. cit., p. 235.

31. AT&T Annual Report to Stockholders, 1907, pp 18-19.
32. Ainsworth, J.H. and Johnston, G.R. "A Discussion of Telephone Competition" (Ohio Indep. Tel Assoc., Feb. 1908); Johnson, G.R. "Some Comments on the 1907 Annual Report of AT&T" (Int'l Indep Tel Assoc, Sept. 1908).
33. "AT&T Co. - Corporate and Financial History," Exh 1360-A, p 244 et seq FCC Investigation of Telephone Industry.
34. "Financial Control of the Telephone Indsutry," Exh 2096-F Chapter 4.
35. Commercial and Financial Chronicle, Vol 69, p. 1151, cited in Walker Report.
36. Op. Cit., "Financial Control..."
37. It is of interest to note that today Kellogg is a subsidiary of IT&T, Stromberg-Carlson of General Dynamics and Automatic Electric is controlled by the General Telephone System.
38. Gary, Theodore B. "The Story of the Independent Telephone Industry" (circa 1935).
39. "Control of Independent Telephone Companies," Exh 2096-D, Chap III, pp 19-26.
40. AT&T Annual Report to Stockholders, 1900, p. 12.
41. AT&T Annual Report to Stockholders, 1904, p. 10.
42. AT&T Annual Report to Stockholders, 1906, p. 12.
43. CF Sources footnote 13 supra.
44. "AT&T Co., Corporate and Financial History" Exh 1360-B, Table 84, p. 425.
45. Ibid, Exh 1360-A, Table 7, p. 52.
46. "Financial Control of the Telephone Industry" Exh 2096-F.
47. U.S. Census of Electrical Industries, Telephone, and Telegraph, 1932.
48. Op cit., "financial Control ..."

49. The Kingsbury Commitment is reproduced in the 1913 AT&T Report to Stockholders, pp. 24-26.
50. Walker Report, Table 35, p. 156.
51. 42 Stat c. 20. Legislative history of the Willis-Graham Act in in the I.C.C. official library. Congressman Winslow (Mass.):
"The bill was brought to the attention of the Committee by those representing a very large majority of independent telephone companies of the United States. They claim difficulty in getting financing, their credit impaired and threatened with bankruptcy." Cong. Rec. June 1, 1921, Vol 61 pp. 1982-94.
The absence of discussion of the "inefficiency" of competition is noteworthy. The act was construed as a "bail out" proposal during a period of widespread economic adversity.
52. Walker Report, p. 158.
53. Ibid.
54. AT&T Annual Report to Stockholders, 1909, p. 24.
55. "Consolidation of Competing Telephone Companies", Joint Hearings before Senate and House Interstate Commerce Committee (67-1) on S. 1313, May 9, 1921, p. 6.
56. Walker Report, P. 154.
57. This thesis is developed in "Control of Independent Telephone Companies", Exh 2096-D, Vol III of "Control of Telephone Communications."
58. AT&T Annual Report to Stockholders, 1907, p. 18.
59. AT&T Annual Report to Stockholders, 1909, pp. 34,36.
60. 36 Stat 544.
61. H. Report 109 on S. 1313 67th Cong. 1st Session.
62. Hearings before House Commerce Committee on HR 17536 (61-2) Jan 18 -. March 25, 1910.
63. Legislative History of Man=Elkins amendments to ICC Act, filed in Interstate Commerce Commission reference room.

64. Cong. Rec. May 27, 1910, p, 6973. "We do not ask the Government to fight our battles, but we do ask for protection against outrageous methods of warfare which are detrimental to to the public welfare ... The Bell interests have in spots furnished service at less than cost, and in many instances without cost for months, and ... years ... We are not afraid of supervision; we believe in regulation."
65. Ralph M. Easley to Geo. M. Perkins, June 9, 1909 from National Civic Federation papers cited in "The Corporate Ideal in the Liberal State, 1900-1918" by J. Weinstein (Beacon Press, Boston, 1968) p. 87.
66. Fainsod, M., Gordon, L. and Palamountain, J.C. "Government and the American Economy", p. 374 (Norton, J.H., 1959).
67. AT&T Annual Report to Stockholders, 1914, pp. 47 and 49.
68. Final Report - President's Task Force on Communications Policy, Dec. 7, 1968, Chapter 6 "Domestic Common Carrier Industry" (GPO, Washington, D.C.)
69. Ibid, Chapter 5 "Domestic Applications of Communication Satellite Technology."