UNITED STATES EARLY RADIO HISTORY THOMAS H. WHITE	
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While the telegraph was mainly limited to transmitting Morse Code and printed messages, the invention of the telephone made distant audio communication possible. And although the telephone was mostly used for private conversations, there was also experimentation with providing home entertainment. In 1893 a particularly sophisticated system, the Telefon Hirmondó, began operation in Budapest, Hungary -- one of its off-shoots, the Telephone Herald of Newark, New Jersey, did not meet with the same financial success.

ELECTRIC TELEPHONE

In 1946, William Peck Banning wrote that "historians of the future may conclude that if there was any 'father' of broadcasting, perhaps it was the telephone itself". After the invention of the telegraph, numerous inventors worked to transmit audio along wires, initially with limited success. The first to finally achieve quality sound reproduction was Alexander Graham Bell -- <u>Bell's Articulating Telephone</u> from the 1876 edition of the annual *Journal of the Society of Telegraph Engineers* introduced the invention to British readers. (This review noted that "one cannot but be struck at the extreme simplicity" of Bell's invention, and eventually home telephones became easy enough to use so that a four-year-old could operate one, as reported in <u>"Children Cry For It"</u> from the March, 1908 *Telephony*.)

The development of the telephone in the 1870s and 1880s included adapting it to distribute entertainment and news. In the January, 1908 issue of *Telephony*, C. E. McCluer reviewed some of his early experiences, including hearing experimental musical concerts in 1876, which were transmitted along commercial telegraph lines for the entertainment of the operators on the wire, as recounted in <u>Telephonic</u> <u>Reminiscences</u>. At the 1881 Paris International Electrical Exhibition, Clément Ader demonstrated the transmission of music from local theaters using telephone lines.

Ader's use of dual lines also introduced the phenomenon of stereo listening -- at the time referred to as "binauriclar auduition" -- reviewed by The Telephone at the Paris Opera, which appeared in the December 31, 1881 issue of *Scientific American*. Edward Bellamy's influential 1888 utopian novel, Looking Backward: 2000-1887 (home music extract), included a future where, via telephone lines, individual homes had access to music 24-hours a day. A couple years later, an American Telephone and Telegraph Company executive, in Extension and Improvement of Telephone Service from the September 20, 1890 The Electrical World, reviewed efforts to establish a mealtime music service, noting that while there were problems with the sound quality, they were hopeful that "When we have overcome this difficulty we shall be prepared to furnish music on tap." (While most were intrigued by this possibility, not everyone was favorably impressed, and in the same issue of the magazine a reviewer warned of the potential intrusiveness of the idea, fearing "a vista of dreadful possibilities" that might "make incipient deafness bliss", in Music on Tap.) In the October 9, 1890 The New York Times, Music Over the Wires also reviewed AT&T's development plans, with hopes that ultimately "the lines used in the daytime for business affairs will at night carry music, lectures, and various oral entertainments to all the cities of the East". Arthur Mee, in the September, 1898 The Strand Magazine, suggested in The Pleasure Telephone that a telephonic entertainment system, operating throughout Great Britain, had the potential to "make millions merry who have never been merry before" and would revolutionize British society, to "make all classes kin".

In spite of the varied attempts to set up telephone-based news and entertainment services, none achieved long-term success in the United States. The major problem was weak signals, for until the mid-1910s there were only very limited means for quality amplification. In the May, 1916 The Electrical Experimenter, Hugo Gernsback's What to Invent--Tele-music predicted that "An 'industry' rivaling the moving picture business can be created when some genius perfects a means supplying telephone subscribers with all kinds of music". Actually, at the time this article appeared, most of the needed technical advances were already in place, for AT&T engineers, lead by Dr. Harold Arnold, had recently taken Lee DeForest's crude Audion amplifier and perfected it into a much more effective device, making possible more sensitive microphones, quality line amplification, and better loudspeakers, that finally made the establishment of home entertainment distributed by telephone-lines practical. In view of these advances, in the April, 1919 *Electrical Experimenter* Gernsback returned to the topic of entertainment by telephone distribution, predicting in Grand Opera in Your Home that individuals would now welcome "spending 50 cents or even a dollar for the privilege, and at that he would think he was getting it cheap because he, with his entire family, would hear the music in his own home without having to travel to and from the opera". But, ironically, the same vacuum-tube advances that made telephone-based services practical also doomed them, because an additional development, vacuum-tube radio transmitters, also made radio broadcasting practical, with the added benefit that programs could be more widely distributed at minimal cost.

Meanwhile, Well Clay, blissfully ignorant of the radio broadcasting boom already beginning to gain momentum, mused in the July 9, 1921 edition of his weekly

Telephony column, <u>Sundry Snapshots Along the Trail</u>, about the possibility of using telephone lines to distribute concerts to regional audiences. Even more exuberant was AT&T engineer R. W. King, interviewed in the December 11, 1921 *The New York Times*, who, after reviewing the nationwide telephonic links that were now possible, was moved to <u>Predict Audiences of 50,000,000 Soon</u> for telephonic distribution, although most of the audience would be located in scattered auditoriums. The February, 1922 *Science and Invention* covered the same topic in <u>If President Harding Spoke to 120,000,000 People</u>, noting and illustrating the fact that President Harding would have to grow to a monsterous height of 173 feet (53 meters) if he wanted to personally address this massive audience, instead of using the more practical system of vacuum tube amplifiers and telephone lines. However, in the end, instead of auditoriums, the long-distance telephone lines would actually be used to link radio stations together, to form national networks that allowed citizens to listen to the distant speeches in the comfort of their own homes.

PARIS THEATROPHONE

Although most of these early entertainment and news efforts were experimental or onetime-only events, a few on-going services were established, mostly in Europe. The first permanent telephone-based entertainment service, which grew out of Clément Ader's earlier work, appears to have been the *Theatrophone*, organized in Paris in 1890. A short note in the August 30, 1889 *The Electrical Engineer*, <u>Theatrophone</u>, reported on plans to build the system for Parisians and make it attractive enough to "catch their ears and their centimes". <u>The Theatrephone</u> in the June 21, 1890 *Electrical Review* briefly noted that the new service was now close to being put into operation, and a first-hand account of the innovation appeared in the August 29, 1891 issue of the same magazine, reporting that <u>The Theatrophone in Paris</u> was "certainly more amusing than the weighing machines and pull-testers that so overcrowd our waiting-rooms everywhere". <u>The Theatrophone</u> section of Charles Henry Cochrane's 1896 book *The Wonders of Modern Mechanism* reviewed the system's organization, which allowed individual subscribers to choose which theater programs they wished to listen to.

BUDAPEST TELEFON HIRMONDÓ

However, the most influential telephone-based service would be the *Telefon Hirmondó*, set up by inventor Tivadar Puskás in Budapest, Hungary, which began operation on February 15, 1893, just a month before Puskás died at the age of 49. (A <u>short note</u> in the May 12, 1893 *The Electrical Engineer* announced the untimely passing of an inventor who had hoped to one day "arrange a telephone system to be heard by millions of speakers at once".) Two early reviews of Puskás' innovation appeared in *The Electrical World*: Telephonic News Distribution in the March 18, 1893 issue, followed by Telephone Newspaper on November 4, 1893. Two years later, a detailed review of its operation, <u>The Telephone Newspaper</u>, ran in the September 6, 1895 *The Electrical Engineer*, with the author noting that the service, featuring continuous news reports, plus entertainment, including original fiction sometimes read by the authors themselves, was considered "almost indispensable" in the capital, although "the idea had encountered considerable ridicule" at first. In contrast, in an early attack on the

electronic media by the written press, the September 28, 1895 issue of Harper's Weekly opined that "If all this really happens at Pesth, and not in the moon" then "Pesth must be the finest place for illiterate, blind, bedridden and incurably lazy people in the world" and "it would not appear, however, that a telephone newspaper is of value as a time-saving device". Five years later, Thomas S. Denison's The Telephone Newspaper, from the April, 1901 edition of World's Work, reported in detail on a personal visit to the Telefon Hirmondó's offices. Frederick A. Talbot's article about Budapest's "newspaper of the future", A Telephone Newspaper, appeared in the August 8, 1903 issue of The Living Age, and in 1908 W. B. Forster Bovill wrote about a first-hand encounter with the service in a hotel in Hungary and the Hungarians: Telephon Hirmondo extract. Meanwhile, in the May, 1904 issue of Telephone Magazine, Dr. Alfred Gradenwitz wrote about an idea that Danish inventor Valdemar Poulsen had proposed about The Use of the Telegraphone in Telephony, suggesting that "a special application" of his recently invented magnetic wire-recorder would be to continuously repeat news and music transmissions for telephone newspaper subscribers. Over the years, the existence of the *Telefon Hirmondó* was constantly being rediscovered. Why I Believe in Government Radio--Hungary's "Telephone Newspaper", from the October, 1922, Popular Science Monthly reviewed Robert B. Howell's impressions of the now 28-year-old service.

LONDON ELECTROPHONE

In 1895, another telephone-based system was established, in London, England, organized along the lines of the Paris *Theatrophone*. A technical overview of The Electrophone, by J. Wright, appeared in the September 10, 1897 The Electrical Engineer, which noted that "one can sit comfortably at home in all weathers and listen to the latest comedy, opera, or tragedy, as the case may be, by the payment of a purely nominal rental". The service soon claimed Britain's Queen Victoria as a listener, according to The Queen and the Electrophone, from the May 26, 1899 The Electrician. In the October 5, 1901 *Electrical Review*, Electrophone in England reported that "the popularity of the electrophone is increasing", with a decrease of the subscription charge from \$50 to \$12 per year. The August 5, 1898 The Electrical World reported that the company was in the process of installing receivers at "the principal hospitals free of charge, beyond the cost of installation". And two decades later, the same free service was provided to some jolly chaps photographed recuperating in a London hospital, as reported in British Wounded Hear London's Favorites via Telephone, which appeared in the August, 1917 The Electrical Experimenter. In early 1923, there were reportedly around 2,000 Electrophone subscribers in the London area, and Entertainment by Wireless: The Future of the Electrophone from the January 10, 1923 London *Times* speculated about the effect the introduction of organized radio broadcasting would have on the service. Although a company director was reported to be optimistic, in truth the *Electrophone* service was doomed, and two years later its thirty-year run came to a close. Not that it would be unmissed -- years later a nostalgic review in the May 9, 1957 London Times, Theatre-Going By Telephone, remembered that "There was something very satisfying about listening to a live broadcast from a real theatre, by actors and actresses playing to and having contact with their own audiences" which radio and television broadcasting could not match. And in the mid-1920s a new service

arose in numerous British towns, "wireless relay exchanges", where subscribers could listen to radio broadcasts, received at a central location, over telephone lines, avoiding the need to purchase an expensive radio receiver.

U.S. DEVELOPMENTS

When the Telefon Hirmondó was reviewed by W. G. Fitz-Gerald in A Telephone Newspaper in the June 22, 1907 Scientific American, its editor noted that the service had been in operation for 14 years, and "I have often marveled why a country like America with its amazing enterprise and development has not produced a 'Telefon-Hirmondo' of its own". However, telephone-based news and entertainment services did not prove economically viable in the United States. In the July 5, 1890 Electrical *Review*, Wanted, a Theatrophone had suggested adopting the Paris system in the U.S., including its five-minute news reports, predicting that "We should imagine that a similar venture would meet with great success in New York, especially with the addition of the news message service, as the craving of Americans for 'news' is known to be insatiable." A short notice in the March 23, 1907 issue of *Electrical Review*. The "Tellevent", announced the formation of a Detroit company to "supply subscribers at their homes with the latest happenings of the world, with special music, performances at theatres, concerts and churches", but it is not clear if this service ever went into operation. In his 1904 book, "Flame, Electricity and the Camera", George Iles noted the absence of audio services in the U.S., and suggested this was due to the impossibility of making a permanent record, thus "This is why the ticker, which prints the news in thousands of American offices and clubs, has never been ousted by the Budapest plan of a continuous news service by telephone."

TELEPHONE HERALD COMPANIES

The most ambitious U.S. attempt to duplicate the Budapest service took place in 1911-1912. Manley M. Gillam organized the United States Telephone Herald Company, based in New York City, with plans to set up local affiliated *Telephone Herald* news and entertainment services, closely modeled after the *Telefon Hirmondó*, in cities thoughout the country. A short announcement in the October 30, 1909 *Electrical Review and Western Electrician*, <u>The New Telephone Newspaper</u>, teased that "pretty soon we'll be able to flop over in bed mornings, turn on a telephone-like arrangement and listen to a summary of news from all over the world without getting up out of bed". In the September 9, 1910 New York Times, <u>News Bulletins By 'Phone</u> reviewed a demonstation of the proposed service given by company president Gillam.

However, apparently the only affiliated system to ever actually go into commercial operation was one operated by the New Jersey Telephone Herald Company -- a company organized by Manley -- in Newark, New Jersey. On October 22, 1911, the *Times* reported in <u>Your Newspaper by 'Phone</u> on the pending introduction of the Newark *Telephone Herald* service, and three days later the newspaper reviewed the first day of operations, in <u>500 Get the News by Wire at Once</u>, while <u>The Telephone</u> <u>Newspaper--New Experiment in America</u>, by Arthur F. Colton in the March 30, 1912 issue of *Telephony*, also covered the hopeful introduction of the new service. In 1912,

the family of Roger Garis, then a schoolboy, subscribed to the Newark *Telephone Herald* service -- he later remembered the "great thrill to pick up the small receiver and hear a voice telling about world events" which "was such a novelty that I could scarcely wait to get home from school and listen to it". Roger Garis' father, Howard Garis, was a writer, and one day Roger Garis was startled and excited to hear one of his father's "Uncle Wiggily" stories being read over the *Telephone Herald* -- the events are recounted in an extract from <u>My Father was Uncle Wiggily</u>. The elder Garis went on to write a series of original children's stories for reading over the system, forty of which were later collected into two books published in 1912, beginning with <u>Three Little</u> <u>Trippertrots--Adventure Number One</u>. However, although popular with its subscribers, the Newark system was not a financial success, with its death announced and short life reviewed in <u>Phone Newspaper Service</u> from the April 13, 1912 *The Publisher's Weekly*, and <u>Broadcasting in 1912</u>, written by G. C. B. Rowe, which appeared in the June, 1925 issue of *Radio News*.

During this time additional affiliated Telephone Herald companies were established throughout the United States, although none appear to have survived long enough to inaugurate actual commercial operations. In News is Told Through 'Phone from the August 24, 1911 Los Angeles Times, W. A. Grimes, president of the recently incorporated Southern California Telephone Herald Company, claimed that demonstrations of the system would begin shortly in Los Angeles, California, and this was followed in the September 3, 1911 issue of the same newspaper by an Advertisement for the Southern California Telephone Herald Company which informed local residents that "You Want The Telephone Herald". However, even if they did, there is no information that this system progressed past the promotional stage. In contrast, a year later a Telephone Herald affiliate in Portland, Oregon advanced at least to the point that it conducted demonstration transmissions. In the June 27, 1912 Oregon Daily Journal, an Advertisement for the Oregon Telephone Herald Company advised the public of the free daily demonstrations and solicited subscribers to the proposed service, which was "The Acme of Modern Civilization", costing five cents a day, and promising "Never a Dull Moment" for a service "Always on Tap!". A second Advertisement for the Oregon Telephone Herald Company, in the June 30, 1912 Oregon Sunday Journal, stated that regular service would begin on "about October 1st". However, it does not appear that the Portland Telephone Herald ever actually got beyond the demonstration stage. And it would be the next decade before individual radio stations began to match the full range of programs offered to *Telephone Herald* subscribers.

TEL-MUSICI AND MAGNAPHONE

George E. Webb was associated with a variety of innovative telephone projects, beginning with the *Tel-musici* of Wilmington, Delaware, a pay-per-play phonograph service, where, as reported in <u>Distributing Music Over Telephone Lines</u> from the December 18, 1909 *Telephony* and <u>Phonograph Selections by Telephone</u> from the April, 1910 *Popular Mechanics*, home and commercial subscribers called a central office to request tunes played back over their phone lines. Webb went on to develop an improved loudspeaker called the Magnaphone, which he envisioned would be used for

a wide variety of applications. A short notice in the September 21, 1912 Electrical Review and Western Electrician, Phonographic Music Transmitted by Telephone, announced that a recorded music service had been inaugurated by The New York Magnaphone and Music Company, while a review of the new service, Music and News on Tap as Bellamy Foretold Long Ago, from the September 15, 1912 New York Times, asked "Does it strike you as desirable to have the world brought to your ear, with no more effort on your part than the turning of a switch and the drawing up of a comfortable chair?" Edward Lyell Fox's Bring the "Talkies" to Your Home, from the August, 1913 Technical World Magazine, enumerated a range of potential applications, from basic public address systems for train stations and baseball stadiums, to a multichannel sound system for movie theaters, and even as a remote speaker for audio sent over telephone lines from a central location for movies viewed at home. "Magnaphone" in New York Makes Pictures Talk, by Dr. L. K. Hirshberg, reported in the June, 1913 Modern Electrics on a demonstration of talking movies using the device, while a review of the Magnaphone in the January, 1913 The World's Work, The Talking Ticker, emphasized the possibilities of telephone-distributed news and entertainment, declaring that "There is a talking ticker now, a machine that will entertain and instruct you for twelve hours on a stretch with the gist of the day's political speeches, baseball scores, election returns, and any other news that seems important." But this apparently was another case where the technology once again fell short of commercial success, as the January 22, 1913 New York Times Public Notice--Magnaphone reported that the New York Magnaphone and Music Company was canceling a contact for running underground lines for its music and information service.

OTHER DEVELOPMENTS

While program services such as the *Théâtrophone*, *Telefon Hirmondó*, *Telephone Herald*, and *Electrophone* operated on daily schedules, on occasion the standard phone system was also used for distributing entertainment, news, and advertising. Scattered reports included:

- The April 19, 1884 issue of *Scientific American* featured a reprint from the New Haven, Connecticut *Register*, which reviewed an innovative system of providing continuous time signals to telephone subscribers. Moreover, as <u>Time</u> by <u>Telephone</u> explained, the special signals could be selectively blocked for persons not paying for the service by "an attachment called the confuser".
- <u>Opera by Telephone</u>, from the June 14, 1884 *Scientific American* reviewed entertainment transmitted to the King and Queeen of Portugal.
- <u>Music Over the Telephone</u>, from the September 6, 1884 *Electrical Review*, reported a concert given to surrounding exchanges in Dallas, Texas.
- <u>Telephone News and Comment</u> from the June 3, 1897 *Electrical Review*, which included a short notice about activities in Mobile, Alabama, including "phone parties", where "a number of subscribers are all connected in one circuit, and can fire away as if all in one room".

- <u>Church Services by Telephone</u>, from the July 26, 1902 *Electrical World and Engineer*, which reviewed activities in Washington, Indiana.
- William Maver, Jr's <u>Widening Applications of the Telephone</u>, from the February, 1907 *Cassier's Magazine*, which noted in some rural areas it was the practice for the local phone company to set up "general calls" for such things as "musicales" and regular evening transmissions of time, weather, news, and market reports.
- <u>The Telephone in Opera and Church Service Transmission</u>, by C. E. Fairbanks, which appeared in the September 10, 1910 issue of *Telephony*, provided a short history of previous activities dating back to 1878, plus an overview of current possibilities.
- In the February, 1918 *Telephone Engineer*, <u>Indiana Company Gives News</u> <u>Service</u> reported on the Greenfield, Indiana's telephone company's new "Telephone Announcement Service", which phoned weather forecasts, market reports and the correct time to outlying rural customers -- along with some commercial announcements. The magazine suggested that "This form of advertising will help the local business which some glittering display advertisement is now pulling to the cities."
- <u>Church Service by Telephone During "Flu" Ban</u>, which reviewed activities in Muncie, Indiana, from *Telephony* for January 4, 1919.

Setups for the widespread dissemination of election results by the Chicago Telephone Company were reported in both <u>Telephoning Election Returns</u>, from the November 21, 1894 *Electrical Review*, and, eighteen years later, <u>Distributing National Election</u> <u>Returns by Telephone</u>, by M. D. Atwater in the November 9, 1912 *Telephony*. The telephone also began to be used for newsgathering. <u>The "Electrophone"</u>, from the November 21, 1903 issue of *Western Electrician*, reported that the London *Daily Mail* had used long-distance telephone reception to speed the text of an out-of-town speech into print. Meanwhile, the Press Associations, long the users of telegraph lines to distribute news items to their member newspapers, also started to expand into telephone distribution, according to <u>News By Telephone</u> from the June 20, 1914 *The Literary Digest*.

MARKETING AND ADVERTISING BY TELEPHONE

There were even some early reports of the telephone being used for direct marketing, for example, an article in the September 12, 1903 *Western Electrician*, <u>Advertising by</u> <u>Telephone</u>, reported that a Fairmont, Minnesota store found telephone soliciting much more effective than "sending clerks or errand boys" to inform potential clients about buying opportunities. <u>Canvassing by Telephone</u>, from the December 10, 1910 *Electrical Review and Western Electrician*, reported about an electric power company's

practice of calling potential customers at home, noting that "Regarding time of calling it is suggested that between 8 and 9 is preferable, owing to the fact that the head of the house is generally in at that time and a sufficient length of time has elapsed after the evening meal." But, happy as the companies might be about this innovation, some of the targets of their calls were not as pleased, according to <u>Housekeeper Objects to</u> <u>Telephone Advertising</u>, from the February 20, 1909 *Telephony*, as one subscriber complained that, because of telephoned sales pitches, "My telephone is far more of a nuisance to me than it is a convenience." The telephone was also employed in the political sphere, used for "get out the vote" calls according to <u>Telephone Help Election</u> <u>Day</u> from the June, 1908 *Telephony*, which suggested that this approach should be adopted by "all up-to-date political managers who want to reach the people in the right way and at the right time". Recorded political speeches were also played for prospective voters, as noted by <u>Campaign Speeches by Telephone</u> from the October 3, 1908 *Telephony*.

TELEPHONIC RADIO STATION RELAYS

In the end, there would turn out to be few cases where the telephone would actually be used for direct distribution of programming, although it would play an important role in connecting radio studios to remote sites, and especially for interconnecting radio stations into national networks. Moreover, in later years, there were a few cases where telephones services were used to retransmit radio programs to subscribers. A prime example of this sort of hybrid system was developed in Fredonia, Kansas, reviewed by J. A. Gustafson in Kansas Company Uses Radio as a Developer of Revenue from the December 16, 1922 Telephony, and Radio Service Given Over the Telephone, by Thomas F. Gilliams, which appeared in the March, 1925 Radio News -- at the time of the latter article, the system was also being used to originate local programming, such as church services, avoiding the expense of having to build and operate a radio station. An article by Grayson L. Kirk in the May, 1923 Radio Broadcast reviewed a local telephone company's system in Dundee, Michigan, designed as an entertainment utility for Supplying Broadcasts Like Gas or Electricity. This review wondered "Who will say how many Dundees, all over the country, will be adopting this system of municipal radio within the next few years?", but the answer would be "not very many", at least in the United States, although scattered audio transmission systems would be continue to be used throughout Europe. (In Great Britain, beginning in the 1920s, hundreds of "Relay Exchange" systems were set up to provide local radio reception over telephone lines. These were required by law to only retransmit received radio programs, and were prohibited from producing their own programs or connecting to other sources such as local theaters).