

Short History of Western Union Telegraph Company

Invention of the first successful magnetic telegraph resulted from an inspiration, received in October, 1832, by Samuel F. B. Morse, distinguished American painter, returning from Europe on board the small ship "Scully". It was twelve years later, on May 24, 1844, after Morse had completed his invention and had overcome some of the skepticism of Congress and the public, that the first public telegraph message, "What Hath God Wrought", was sent and the business of sending messages by telegraph began.

Organization of a number of companies operating short telegraph lines followed and over 50 telegraph companies were in operation in the United States in 1851, seven years after the first message was sent. Almost all of these companies were licensed by owners of the Morse patents, but a few used other devices, of which some were later adjudged infringements on the Morse patents. One of these was the House Printing Telegraph which printed in plain Roman letters instead of dots and dashes.

Lines to operate the House system between New York and Boston and between New York and Philadelphia were built prior to 1850. On April 1, 1851, a group of Rochester men led by Hiram Sibley, Ezra Cornell, and Samuel L. and Henry R. Selden acquired rights to extend the House system throughout the United States and incorporated the New York and Mississippi Valley Printing Telegraph Company.

This company constructed a line from Buffalo to Louisville but did not extend it to St. Louis, as planned, due to the lack of stock subscriptions. The proposed capitalization of the company was \$360,000, but it was impossible to sell more than \$170,000. In spite of the most careful management, the company went into debt \$15,000 in its first three years, but displayed its determination by purchasing the Lake Erie Telegraph Company lines from Buffalo to Detroit and Cleveland to Pittsburgh in 1854.

The new company was in far better condition than most of the thirteen other companies operating in the five states north of the Ohio River, suffering the disadvantages of multiplied and in-harmonious management, doubling rates when messages passed to other lines, and giving slow and unreliable service. Two of these lines were sold for debt, and the others were in such an impoverished condition that the principal owners approached the New York and Mississippi Valley Company in 1854 and 1855 with offers of sale.

This consolidation was effected, and the combined companies were given the name, Western Union Telegraph Company, indicating the union of the Western lines in one system, by act of the New York State Legislature April 4, 1856. With protection from competition, elimination of duplication and freedom to use the simpler and more economical Morse devices, Western Union made great strides. In 1861 the company built the first line to the Pacific Coast. In 1866, it

absorbed the other two sizeable companies, the American Telegraph Company and the United States Telegraph Company, and moved its headquarters from Rochester to 145 Broadway, New York City. The company which had started out with 550 miles of wire then had 75,686 miles of wire and 2,250 offices.

Gradually, through purchase, lease or stock ownership of 538 telegraph and cable corporations and properties, and by the construction of lines, Western Union became the national telegraph system, embracing practically every community in the United States, and through 25,000 offices furnishing over 80 percent of the telegraph service in the country. The Western Union land lines, together with its cable system and connections, form the most comprehensive telegraph system in the world.

The greatest period of development in the company's history has been the last two decades. Additions and betterments to the plant aggregating \$192,600,000 in that period increased the book value by 140 percent. The company's annual revenues from its land-line and cable systems increased from \$33,900,000 in 1910 to \$133,200,000 in 1930, nearly 300 percent. The working force grew in the same years from 33,000 to 60,000.

All important cities in the country are now connected by direct trunk circuits equipped for automatic machine operation, and aerial lines in congested centers have been superseded by underground construction. Twenty years ago iron wire was in general use; today 70 percent of all wire is of copper. Extensive pneumatic tube systems connecting main and branch offices have been installed underground in all of the larger cities.

The wire mileage of the company increased to 153,000 miles in 1875, and to 1,949,000 in 1930, but the increase in the capacity of the system was even greater due to improvements in the art of telegraphing. The automatic multiplex telegraph, introduced in 1915, permits the transmission of as many as eight messages simultaneously over one wire, four in each direction, at high speed.

Such messages are written by operators on keyboards similar to those of typewriters. As the keys of the instruments are struck, holes are punched in a narrow moving paper tape. Letters of the alphabet and other characters are represented by combinations of five holes in the tape. The tapes pass into transmitters, and the impulses caused by electrical contacts through holes in the tapes flash out over the wire. Upon reaching the other end of the wire, the impulses are translated back into characters and printed on tapes which the operators gum to message blanks.

Four sending and four receiving machines may be attached to each end of a wire connecting two cities, and from two to eight messages, depending upon traffic requirements, passed over the one wire simultaneously. By means of an automatic control device the sending and receiving operators can instantly communicate with each other, should it become necessary during the transmission of a message.

More than 90 percent of the Western Union's annual total of over 200,000,000 messages is handled by the automatic method. In 1910 nearly 90 percent of the business was handled by Morse. The Multiplex system, which is ideal for lines between important centers where traffic is heavy and constant, but not so well suited to shorter circuits where traffic is light. The Simplex Printer system was developed for use on such circuits.

The Simplex Printer is a compact machine, a trifle larger than an ordinary typewriter and weighing less than seventy pounds. It is also operated from a keyboard similar to a typewriter keyboard, but unlike the Multiplex, which employs a perforated tape for transmission, it sends signals direct over the telegraph line to a Simplex printer at the other end of the wire. The Simplex message also is printed on a tape, and is gummed to a message blank for delivery.

Installation of thousands of these Simplex printers in the offices of Western Union customers has practically added that number of new, direct-wire offices to the 25,000 telegraph offices of the company. The printer in the customer's office is connected directly with a similar machine in the city telegraph terminal, and messages are sent back and forth, making deliveries between the two points practically instantaneous.

In 1930 Western Union completed and occupied its new twenty-four story building occupying the entire block bounded by Hudson, Worth and Thomas streets and West Broadway, New York City. This established under one roof the largest telegraph center in the world.

Some idea of the magnitude of the company's operations may be drawn from an example, citing one of the company's large services. The Commercial News Department of Western Union recorded and distributed in 1930, over the thirty-one separate ticker systems it operates, transactions in stocks, bonds and commodities estimated at more than \$90,000,000,000. This sum is approximately equal to the total annual expenditures of every man, woman and child in the nation. On the largest of these thirty-one ticker systems, that reporting sales on the New York Stock Exchange, the company in 1930 completed installation of new high speed tickers at a cost of several million dollars.

Under contracts with a number of air lines, Western Union makes reservations and collects fares, at no extra cost to the customer, for seats on airplanes. The company inaugurated in 1930 an air express parcel service at high speed and low cost between sixteen Eastern cities. Through arrangements with individual gasoline stations, and chains of stations, the company has made it possible to send telegrams from many thousands of points along the nation's highways.

*Business, the greatest user of telegraph service, has in recent years begun to realize the sales value of the yellow blank, and firms in all lines of trade use the telegram to speed up sales, purchases, deliveries, collections and in other phases of their businesses.

Some 5,000,000 special occasion telegrams are sent annually over Western Union lines on the special blanks provided for Christmas, St. Valentine's Day, Easter, Mother's Day, Father's Day, Jewish New Year and Thanksgiving. Within a few months after the company began offering special blanks for Birthdays, Weddings, Anniversaries and general Social Messages, 1,000,000 or so of these types of greeting messages were sent. Thus the telegram has grown greatly both in business promotion and in social uses.

In 1882 Western Union entered the cable business by leasing from the American Telegraph & Cable Company two trans-Atlantic cables which that company had laid between Penzance, England and Canso, Nova Scotia, with land wire connections between Canso and New York. The lease, for fifty years, would have expired in 1932, but Western Union purchased the cable company in 1930, and thus acquired the cables.

In 1911 Western Union leased a complete trans-Atlantic system of five cables, and subsequently laid three loaded or permalloy cables, one to England and two to the Azores, making ten in all, which with cables to Cuba and one to Barbados, connecting there to South America through the Western Telegraph Company, constitute the main arteries of the Western Union cable system. The company's cables to the Azores connect with those of the German Cable Company and the Italian Cable Company, thereby providing direct connections with Germany and Italy.

In 1926 the company acquired a controlling interest in the Mexican Telegraph Company, which owns and operates two submarine gulf cables between the United States and Mexico and connecting land lines into Mexico City. For the care of the cables the company has built two ocean-going cable ships, the "Lord Kelvin" and "Cyrus Field".

From 1866, when the first successful trans-Atlantic cable was laid, until 1924, no material change in the design of ocean cables had been made. In general they differed only in size and weight. Western Union inaugurated a new era in cable development by the use of a revolutionary and brilliant development of the laboratories of the American Telephone and Telegraph Company. In 1924 an untried design of cable was laid between New York and Horta, Azores, in which the single copper conductor was wound with a wafer-thin ribbon of metal known as "permalloy," which at slightly increased cost greatly increased the capacity for transmitting words. To utilize such large capacity requires that the cable be operated in a number of separate channels, each used as an individual unit, and since there were more circuits than were needed for the company's use, two in this cable to Horta were leased to another company.

Cables similar in design, but embodying in succession still further improvements, were laid between New York and Penzance, England and between Newfoundland and Horta, Azores. Each of the three permalloy cables can transmit a total number of words equal to the combined capacities of the company's seven cables of older design. The cable between Newfoundland and Horta, while utilizing the new alloy, was designed by the engineers for simultaneous operation in

both directions (duplex), and it has been so operated at a speed of 1400 letters per minute each way, establishing the highest record thus far for any trans-ocean cable,

While the use of permalloy is open to all, thus far Western Union alone of the trans-Atlantic cable companies has laid cables of this unique design, and we believe the economies in operation resulting from their use will successfully meet competition between North America, Great Britain and Europe.

The company maintains and operates offices in twelve cities in Great Britain and Ireland, and maintains twelve branch offices located in convenient sections in the city of London. There one finds a complete Western Union organization patterned after its organization in the United States including the khaki-clad Western Union messengers.

The company operates in Paris and Havre, France, also in Antwerp and Brussels in Belgium. It maintains its own office in Amsterdam, Holland. In Germany it is associated with the Deutsch-Atlantische Telegraphengesellschaft (DAT) whose submarine cables join us at the Azores. Direct service is enjoyed between New York and Emden. At that point, the DAT is provided with land-line wires to the principal industrial and manufacturing centers in Germany. Additionally, the company operates the only submarine cable from New York direct into Berlin. In Italy, it is associated with the Italcable Company, whose system connects with Western Union at the Azores. The Ital Company also maintains offices in the principal cities in Italy.

Western Union operates a combination of land-line and submarine cables to Havana where they connect with companies serving the West Indies. The company operates land-line - submarine service from New York to Bridgetown, Barbados where a through connection is had with the Western Telegraph Company serving all countries on the South American continent.

The company's submarine cable system totals 30,757 nautical miles. It controls and operates the Mexican Telegraph Company whose systems extend from Galveston in Texas through the Gulf of Mexico serving Tampico, Vera Cruz, Mexico City and Salina Cruz on the west-coast. In Canada the company has contractual relations with the Canadian National Telegraphs by which that-company originates and terminates traffic for the Western Union system.