AUCTION SALE!

On Saturday, January 23, 1915, we will have a genuine auction sale at which everything offered will positively be sold to the highest bidder, terms cash. This will not be a sale at which we will ask 19c for 25c article, but our auctioneer, Jack Jester, will sell to the one offering the most money, no matter how much. For the week following the auction sale we have selected quite a few rare bargains.

$35.00 Bed Room Suits, made of best grade Oak, nicely polished, 3 pieces	$22.00
$30.00 Buffets, with French-beveled Mirror	24.00
6-foot Extension Oak Table, round or square, 3 leaves to each one	5.00
5-Spindle, Braced Dining Room Chairs, set	4.73
Rockers to match chairs	.99
1 No. 7 Excelsior Cook Stove	12.50
1 $8.00 Coal Stove	5.90

Amoskeag Apron Gingham, yd	5¾c	10c Flannelette, yd	6c
15c Dress Gingham, yard	12½c	15c Percale, light, yd	12½c
10c Heavy Outing Flannel, yd	7c	Androscoggin or Hill Muslin, yd	6¾c
8c Unbleached Muslin, yard	5c	15c Longcloth, yd	9c
50c Acme Corsets	39c	50c Flannelette Waists	35c
25c Knit Underskirts	15c	50c Knit Underskirts	29c
Wright's Health Underwear	55c	25c Bed Ticking, yd	19c
$1.25 Lace Curtains	85c	$2.00 Ladies' Dress Skirts	99c

$2.50 All-Wool Bed Blankets	$1.75
$1.50 Full-Lined Stable Blankets	1.19
Raincoats, Men's or Ladies, guaranteed rainproof, $8 ones for	4.90
$7.00 Dickey's All-Wool Kersey Suits	4.75
$15.00 Ladies' Coats or Suits	7.50
$1.50 Large Comforts	.90
$18.00 Axminster Rugs, 9x12, beautiful patterns	10.50
$5.00 Wool Fibre Rugs, 9x12	3.19
Oilcloth Patterns, 2 yards square	.75
8-Day Clocks	1.50
85c Alarm Clocks	.49

Corn-Field Beans, quart	9c	Dried Evaporated Peaches, lb	7c
3 5c pkg. Celluloid Starch	9c	10c cans Pet Milk	7c
3 5c Sticks Stove Polish	9c	Dried Apples, lb	6c
City Lard by the can	9c	Codfish, lb	5½c
3 lbs. Buckwheat	9c	Porto Rico Molasses, gal	35c
2 10c pkg. Currants	9c	Horse Molasses, gal	15c
5 lb. Hominy	9c	Rat Traps, No. 0, dozen	$1.19
3 pkg. Searchlight Matches	9c	1 Riding Saddle	3.75

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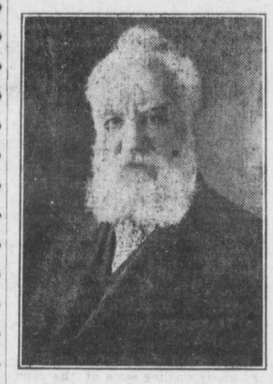
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TALKING FROM ATLANTIC TO PACIFIC

DIRECT TELEPHONE LINE COMPLETED FROM NEW YORK TO "FRISCO"

The Inventor of the Telephone and His Associate Converse Across Continent

Less than forty years ago, Alexander Graham Bell, standing in a little attic at No. 5 Exeter Place, Boston, sent through a crude telephone, his own invention, the first spoken words ever carried over a wire, and the words were heard and understood by his associate, Thomas A. Watson, who was at the receiver in an adjacent room. On that day, March 10th, 1876, the telephone was born, and the first message went over the only telephone line in the world—a line less than a hundred feet long. The world



DR. ALEXANDER G. BELL
Inventor of the Telephone

moves a long way ahead in the span of one man's life. On Monday afternoon, January 25th, this same Alexander Graham Bell, sitting in the offices of the American Telephone & Telegraph Company, at New York, talked to this same Thomas A. Watson in San Francisco over a wire stretching 3,400 miles across the continent and part of a system that includes 9,000,000 telephones, connected by 21,000,000 miles of wires.

In that same memorable year of 1876, Dom Pedro de Alcantara, Emperor of Brazil, visiting the first telephone exhibition at our first great national show the Philadelphia Centennial, picked up the receiver, listened as Professor Bell talked at the other end of the room, and amazed at the wonder of the thing, cried out: "My God—it speaks." Had Dom Pedro lived to see the Pan American Exposition he could have heard Professor Bell talking to him, not merely from the other end of a room, but from the other side of a continent.

The Pan-American Exposition itself planned to celebrate the completion of the Panama Canal and the joining of the Atlantic and Pacific oceans, will mark a still closer welding of the East and West. When its gates are thrown open on February 20th, San Francisco will not only be nearer to New York through a shortening of its water ways, but will be in constant and instantaneous touch with it through the medium of speech. It is a curious fact, too, that this second great feat of engineering, this other canal, this even more intimate connection between the two seaboards, has been completed in the same year. Quietly, almost unnoticed but steadily and bravely, while the gigantic steam shovels were cutting their way through the earth in the South, the engineers of sound and electricity were weaving their magic webs through the air and pushing on toward the Golden Gate. Their work has been less spectacular, it has excited little attention but these men have met obstacles as hard to overcome as the Culebra slide, and they have conquered them. The long dreamed-of Transcontinental Line is no longer a dream. New York can talk to San Francisco.

The Transatlantic Line Open

Monday, January 25, 1915, has taken its place among the momentous dates in the annals of science and human progress. On that day, in the presence of groups of prominent men on either coast the Transcontinental telephone wires were given their first public test, and the completion of the line was formally celebrated. Distinguished men in the offices of the Pacific Telephone & Telegraph Company in San Francisco conversed freely with distinguished men on the Atlantic seaboard, and one more great chapter in the history of telephony was finished as Bell, sitting in the offices of the American Telephone & Telegraph Company in New York, talked to Watson across a continent.

There was no hitch in the programme or any doubt as to the immediate success and practicability of the new line. Those who talked over the telephone did not raise their voices above the usual conversational pitch and the replies came back from across the continent clear and instantaneous. There was no more effort, delay or indistinctness than in talking across a table. Professor Bell says that he thought out the telephone in Salem. A fitting place for its conception—there is witchcraft in it, and the most blase of business men in the offices of the American Telephone & Telegraph Company on Monday felt something akin to uncanniness at the thought that his voice had gone across thirteen States, shot over prairies and through forests, hurtled through cities, climbed the Rockies, skimmed across the desert and reached the Pacific coast, and the answer had come back to him in an eye-wink.

A Dramatic Moment

There have been few more dramatic moments in the history of science than when the venerable Professor Bell lifted the receiver from its hook and called to Watson, the friend and fellow-workman of his youth, in far away San Francisco. There was a wonderful story in that first "Hello," a marvelous tale of miracle-working, of heroic struggle and sublime achievement. Few men have seen so great a dream come true, probably no two men before, in all the history of the world's discoveries and inventions, ever lived to see such magnificent results from work in which they had been the pioneers. Hardened telephone users as all of those present were, and accustomed to big events as most of them were, a hush that was tinged with awe, an almost solemn silence, fell on the assemblage as the great inventor talked to his associate. Every one felt that he was taking part in an epoch-making event, that, in the future, school children would be made to learn January twenty-fifth as one of the big dates in the world's scientific, commercial and political history, one that ranked with that other day when "What wonders hath God wrought" was flashed over Morse's wire.

In the Space of a Lifetime

Most wonderful of all, perhaps in the minds of those present at the opening of the new line was the fact that this achievement, the crowning glory of so vast and complex a system, had taken place within the space of a man's lifetime. On March 10th, 1876, Professor Bell, working away at the simple telephone he had invented, called to his comrade, "Mr. Watson, come here, I want you," and Watson heard that first of all telephone messages over the wire. In New York on January 25th, 1915, the same voice was talking and, in San Francisco, the same ear was listening, as on that spring day thirty-eight years ago, but under what different conditions! Then the struggling young inventor and his associate had just succeeded in producing the only telephone in the world and in talking over a few feet of wire. Ahead of them were years of ridicule for their invention, indifference to their plans and opposition to their efforts. On this other great day they saw their simple contrivance as part of a vast system joining together the country's greatest and most distant cities and serving the uses of 100,000,000 people. Not many men have seen so great a fulfillment of their early ambitions, no other invention has ever taken so great a stride in so brief a time.

It *has been* a tremendous stride, for when Bell invented that first feeble receiver, it was the beginning of telephones. There had been nothing like it or anywhere near like it in all the ages. It was a creation—as far as scientific apparatus was concerned, it was made out of nothing. More than that, this crude instrument—just capable of transmitting speech the length of a room—was all Bell gave to the art of telephony, but it was enough. The American Telephone & Telegraph Company and its associated companies have done the rest.

The Real Problem

Just what this "rest" means can be fully appreciated by those only who know the difficulties to be overcome by the telephonic engineer and the subtlety and delicacy of the forces with which he has to deal. The very minuteness of things makes his task herculean. Instead of having to figure on immense weights and masses, he is baffled by infinitesimally small fractions. His energies are devoted to conservation, and conservation of the most intense kind.



THEO. N. VAIL
President American Telephone and Telegraph Company

It was, perhaps, little more difficult to string wires from Denver to San Francisco than from New York to Denver, but the actual construction of the line was the least of the engineers troubles. His real problem was to make the line "talk," to send something 3,000 miles with a breath as the motive power. In effect the voyage of the voice across the continent is instantaneous; if its speed could be accurately measured, a fifteenth of a second would probably be nearly exact. In other words a message flying across the continent on the new Transcontinental Line, travels, not at the rate of 1,100 feet per second, which is the old stage coach speed of sound, but at 56,000 miles per second. If it were possible for sound to carry that far, a "Hello" uttered in New York and traveling through the air without the aid of wires and electricity, would not reach San Francisco until four hours later. The telephone not only transmits speech, but transmits it thousands of times faster than its own natural speed.

But, while the telephone is breaking speed records, it must also guarantee safe delivery to these millions of little passengers it carries every few minutes in the way of sound waves created at the rate of 2,100 a second. There must be no jostling or crowding. These tiny waves, thousands and thousands of varying shapes, which are made by the human voice, and each as irregular and as different from the other as the waves of the sea, must not tumble over each other or get into each other's way, but must break upon the Pacific coast just as they started at the Atlantic, or all the line fails and the millions of dollars spent upon it have been thrown away. And in all this line of just one pin-point of construction is not as it should be, if there is one iota of imperfection, the miles of line are useless, and the currents and waves and sounds and words do not reach the end as they should. It is such tremendous tries, not the climbing of mountains and the bridging of chasms, that make the Transcontinental Line one of the wonders of the ages.

The engineer in telephony cannot increase his motive power. A breath against a metal disk changes air waves into electrical currents and these electrical currents, millions of which are required for a single conversation, must be carried across the continent and produce the same sound waves in San Francisco as were made in New York. Here is a task so fine as to be gigantic. In his "History of the Telephone," Herbert N. Casson says that the energy set free by cooling one spoonful of water just one degree, would operate a telephone for ten thousand years. It was to nurse and coax this baby current of electricity three thousand miles across the continent, under rivers and over mountains, through the blistering heat of the alkali plains and the cold of snow-capped peaks, that has taken the time and thought and labor of the brightest minds of the scientific world.

Solving the Problem

Never has been such a skilful and patient lot of trained nurses, though, as this invalid of a current has had. Beginning with that first timid step in Boston, thirty-eight years ago, they have led the weakling on, mile after mile, to city after city, till it has reached the other coast.

Who did it? Who made this wonderful achievement possible? Ten thousand men, beginning with Bell and Watson tinkering away at that first crude telephone in an attic, forty years ago. It



THOS. A. WATSON
Dr. Bell's associate in inventing the Telephone

has taken an army of thoughtful, conscientious, patient men, keen of brain and skilled of hand, striving day and night for the one great end—the perfection of a system and the conquering of time and space. In office, laboratory and shop, under the earth, high up in the air, they have thought and experimented and toiled, always aiming toward this idea of universal service.

There has been no isolated problem, literally as well as figuratively the development and perfection of the system has been "all along the line." The fight, this new "Winning of the West," has not been a duel, to be won by a single inventor struggling for the solution of some one big problem, but a battle, a campaign, in which thousands have helped to overcome a thousand hindrances and imperfections and difficulties.

When the telephone left the hands of Bell and Watson, it was "an essentially perfected instrument" in the eyes of the law, that is, it did what was claimed for it—it talked—but that was all. The diaphragm was simply an animal membrane tied around a piece of wood and in touch with a magnet. From this acorn the oak of the Bell System, nation wide, has grown. From this small beginning, the Transcontinental Line has been evolved, and it *has been an evolution*. In the words of President Theo. N. Vail, it is "the cumulative effect of improvements, great and small, in telephone, transmitter, line, cable, switchboard, and every other piece of apparatus or plant required in the transmission of speech." In all the 3,400 miles of the line there is no one spot where a man may point his finger and say, "Here is the secret of the Transcontinental Line; here is what makes it possible to telephone from New York to San Francisco." Rather, it is the perfection at every point that has brought this about. It is the development of the transmitter at New York that makes the receiver at San Francisco do its work so well; it is the improvements in the receiver at San Francisco that causes the transmitter at New York to perform its functions so admirably; it is the perfecting of every inch of line and every bit of mechanism between them that enables the instrument at New York to talk and that at San Francisco to hear.

The Magnitude of the Task

In spite, however, of the fact that, compared with the electrical problems, the mere engineering task of constructing the line may appear simple to the scientist, no one can run his finger over the route of the new line on the map without being impressed with the magnitude of the undertaking. The data and figures are tremendous. The line crosses thirteen States, it is carried on 130,000 poles. Four hard-drawn copper wires, .165 inch in diameter, run side by side over the entire distance, establishing two physical and one phantom circuit. One mile of a single wire weighs 435 pounds, the weight of the wires in the entire line being 5,920,000 pounds or 2,960 tons. This, of course, is the transmission wires alone. In addition to these, each physical circuit uses some 13,600 miles of fine hair-like insulated wire, 4-1,000 of an inch in diameter, for its loading coils.

Simply to string this immense amount of wire across the continent, to set the poles and insure insulation, to conquer the innumerable difficulties offered by land and water, forests, mountains, deserts, rivers and lakes, was in itself a task of no mean magnitude. The Panama Canal is hailed as one of the greatest achievements of the world's workers, as it is, but the almost invisible lines of the Bell System, considered simply as to labor and cost, constitute a monumental achievement.

The Canal was begun nine years ago and has cost $310,000,000; within the same space of time the Bell Company has spent twice that amount in its engineering construction work alone.

Two Leaders in the Work

The building of the Transcontinental Line depended on the solution of no one isolated problem nor will the glory of it be given to any one isolated individual, but there are a few names that will always stand out above the rest in connection with it. There must be great generals for armies that win such victories.

For many years this line from ocean to ocean has been the dream of Theodore N. Vail, president of the American Telephone & Telegraph Company, the goal toward which he has pushed and toward which he has steadily led his associates and the army of his employees. Not the dream of a dreamer, but the prophetic vision of a practical, forceful, capable man, a man of unlimited business energy and knowledge, who could see anything in telephony except impossibilities. He not only cannot see them, but will not admit that they exist; he does not find the word "impossible" in his dictionary of engineering terms. Almost from the beginning of the telephone, his energy and enthusiasm, his dauntless optimism and ambition in everything relating to its perfection and promotion, and his idea of "universal service," have dominated the company and made enthusiasts of every one connected with it in great things or in little.

At his side through most of these years has been a slightly built, lithe, keen-eyed man, who never has to be told but once when a great thing is to be done. A nod, and a line goes to Denver; a word, and it stretches to the Pacific coast. That is John J. Carty, Chief Engineer of the American Telephone and Telegraph Company. A leader among the scientific men of all nations and honored by their rulers for his distinguished services in engineering accomplishment, his wide knowledge, his keen judgment and his indomitable energy have combined to make him one of the great factors in telephone achievement and advancement. He is a wizard of the wires. Long ago he said this great thing could and should be done, and through the great banks of silence that separated the East from the West, this Goethals of electricity has been cutting his way, year by year, until the great canal of human speech is done.

Others have played big parts in this drama of human endeavor and achievement, and thousands have given their share of thought and labor, but, whoever is forgotten or remembered, the names of Vail and Carty will be linked with this new triumph of science as long as man talks to man.

There has been no greater achievement in the history of the Bell Company, none in the history of telephony, few in the history of the world. The gain to science is great. Immeasurably more precious, however, is that to the nation, and incalculably greater are the benefits to commerce and society. What the Transcontinental means to the future of the country, what it will bring about by drawing the East and West closer together, how much of increased prosperity and happiness these thousands of miles of wire will insure, no man can gauge.

What It Means to the Country

One of the most prominent of the guests who talked over the longest of long distance telephones at the celebration said:

"I thought I had gotten over wondering at the miracle of the telephone, but what I have just done amazes me as much as the first words I heard over the wires many years ago. Even now I can hardly conceive that it is possible. I have talked over long distances many a time before, but this is far beyond the limit. Chicago I am used to, even Denver; but this talking from the Atlantic to the Pacific gives one a thrill. It appeals to the imagination—it is a theme for poets.

"What it means to the country, it is impossible to estimate. For one thing, it is a final blow to sectionalism—it has put a seal on the fact there is no longer East and West, North and South. Not even the railroads or the new canal have done or can do so much toward bringing the States closer together and uniting them more firmly, not only in commerce, but in thought and language. Provincialism will become rarer and rarer, localisms, dialects—all such things that depend on isolation—are getting to be an impossibility in the United States, and the telephone has been the greatest agent in bringing about this desirable condition. It is hard for people to get very far apart when they are in such constant touch with each other, and I know of nothing which is doing more to strengthen the bonds between individuals and communities than the network of wires the American Telephone & Telegraph Company is spreading over the country. So much importance do I attach to this idea, that, extreme as the statement may seem, I believe quite firmly that, had the telephone system reached its present perfection previous to 1861 the Civil War would not have occurred. The wires would not have let the North and South drift so far apart."

Universal Service

The new Transcontinental Line is a concrete exemplification of the possibilities of universal service and a justification of the arguments for a single system. Under no other plan would such a line be possible. This line, 3,400 miles long, and joining the Atlantic and Pacific, is part of the great Bell System of 21,000,000 miles of wire, connecting 9,000,000 telephone stations located everywhere throughout the United States. Comprising this system are the American Telephone & Telegraph Company and its associated and connecting companies, thousands of them, giving instant and perfect communication among 100,000,000 people.

The opening of this line is the culmination of the Bell idea of universal service—in presenting it for the use and convenience of the public, the American Telephone & Telegraph Company renders an account of its stewardship. It has fulfilled its promise and, not only in itself, but as an earnest of what is to follow in future development, this nation-wide line proves that it is the intention of the American Telephone & Telegraph Company to make it possible for every man who can talk, to talk over the telephone to every man who can hear.

The telephone was born here and it has reached its greatest perfection here; under no other conditions, except such as exist in the United States, could it have come to its highest development. With its dozens of telephone systems, Europe has no long-distance line to compare with this. The Transcontinental Line is a culmination of an art that was born in the United States, the high water mark of a science that was created and has been developed entirely by American genius and enterprise. It is the highest achievement of practical science up to today—no other nation has produced anything like it, nor could any other nation. It is *sui generis*, it is gigantic—and it is entirely American.

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