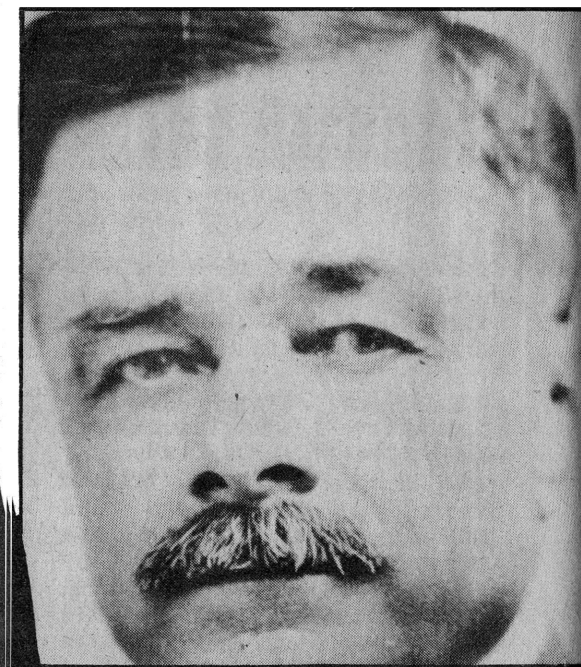


# THEODORE VAIL— HE MADE THE TRANSCONTINENTAL PHONE A REALITY!

By SAM BLOOM



Theodore Vail (left), President of AT&T, came up with the idea of a coast-to-coast phone hook-up. Vail asked chief engineer John J. Carty (above) to develop a repeater amplifier. Carty said it couldn't be done, but did it!

**O**VER A CRUDE telephone transmitter in his attic in January 1876, Alexander Graham Bell spoke to his assistant, Thomas A. Watson, who was at the receiver end, in back of the ground floor shop.

It was the beginning of the most eventful happening in history. Bell didn't dream that in a little less than half a century he would be sitting at another transmitter, at another place, talking to the same Mr. Watson, in the opening of the first transcontinental hook-up.

The mine owners out west took to the telephone like bee to honey. In no time at all the big Comstock Lode operators in Virginia City, Nevada, used it to replace signal bells.

Yet, a test had to be run of the instrument.

ON JUNE 17, 1914  
THE FIRST TRANSCONTINENTAL  
TELEPHONE LINE

WAS COMPLETED AT THIS POINT ON THE BORDER  
OF NEVADA AND UTAH. CONSTRUCTION FORCES OF  
THE BELL TELEPHONE COMPANY OF NEVADA AND THE  
MOUNTAIN STATES TELEPHONE AND TELEGRAPH  
COMPANY MET HERE, MAKING THE LAST SPLICES IN  
THE WIRES WHICH JOINED EAST AND WEST IN VOICE  
COMMUNICATION FOR THE FIRST TIME.

It was from Professor Jessup's room on C Street, opposite the Savage Mines in Virginia City, that Mrs. Barretta and Miss Pierce were to play a piano duet. It was to set the wires humming all the way to the Washoe Club Rooms, a quarter of a mile away.

"I'm scared," said Mrs. Barretta, nervously. "I never did anything like this before. I know I won't be able to play a note."

"I feel the same way," cried Miss Pierce, "I hate to be made a fool

of. I think it best that we leave now." "Ladies," Jessup's brow was heavily beaded with perspiration, "you can't leave now. If you do, you will be accused to cowardice. Besides, if this test is successful, you will help to create history."

Thus stated, the women lost no time calming down. Their musical presentation went off as scheduled, floating right on down to the Washoe Club Rooms.

The *Virginia City Chronicle* reported, "Last evening, at a trial of

the telephone at the Washoe Club Rooms, the piano duet of Mrs. Barretta and Miss Pierce came across plainly from over a quarter of a mile away. Mr. Ed Pierce then sang a solo. Every tone came through distinctly. After that, conversation was carried on for nearly two hours. The test was a huge success."

The first telephone operating in the west ran from the office of the Consolidated Virginia Mines to the 1,550-foot level of the tunnel. On November 15, 1877, the *Virginia*

**Theodore N. Vail believed a transcontinental telephone system could become a reality. And he also knew that John J. Carty was the man who could do it. Together they linked the West to the rest of the continent via telephone**

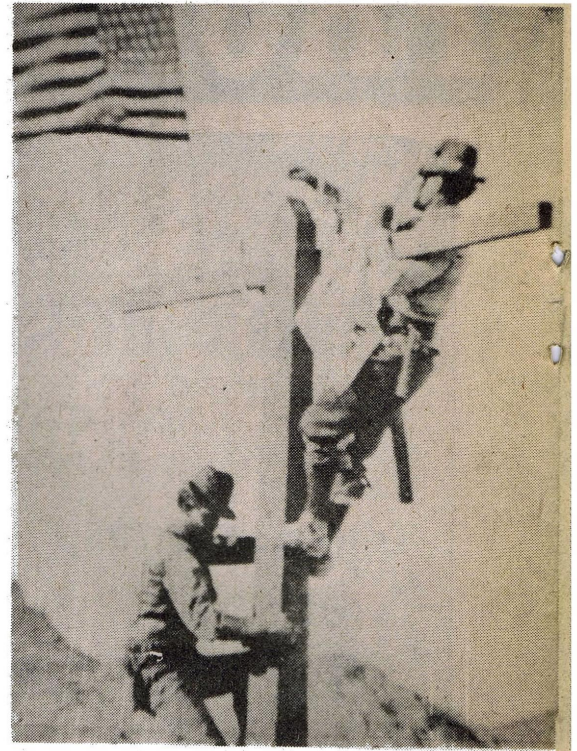
THEY BUILT  
THE WEST





Fulfilling Vail's dream meant men had to pit speed and endurance with almost impossible conditions, facing dust storms, rain, snow, below zero weather and scorching heat. Model-T Fords were brought in for desert use (above) after the tractor broke down and the man talked of quitting. The heroic deeds of the crews included having to set up poles (below) in one of the wettest springs in Nevada's 30-year history.

The American flag is in place on the final pole at the Nevada-Utah state line, and a workman prepares to put up a flag with the transcontinental hook-up date emblazoned on it.



*City Chronicle* heralded the event. "The telephone was a complete success... It has created a stir among the mine operators."

Indeed, so many miners used them a switchboard was developed for local calls. While nearby Reno was still experimenting with it, Virginia City had already established the first telephone exchange in the west. Miners were rapidly using phones to re-

place their now outdated signal bells.

On November 21 the Virginia and Gold Hill Water Company tried something new. They talked over telegraph wires for longer distances. A telegraph wire was run from the Water company to Lake Tahoe Station, some 30 miles away. The *Chronicle* jubilantly reported, "conversations can now be carried on for great

distances with perfect ease."

Too, the rich mine owners found it to their liking. Indeed, they backed it so solidly the telephone advanced in sharp spurts.

Up until 1910 records were somewhat blurred. There was no orderly direction, only chaotic patterns to satisfy individual needs. It took the president of American Telephone and Telegraph, Theodore Vail, to come up with the idea of a coast-to-coast hook-up.

The big stumbling block was to get a repeater that would give constant voice amplification for distance. He approached his friend, chief engineer John J. Carty, with the idea.

"It will take the telephone," said Vail, "out of the breast-feeding stage all the way into adulthood, in one big sweep."

"Yeah," said John, skeptically, "but how do you intend to do it? A repeater amplifier is way out. It can't be done."

"It's vital to our whole system," said Vail, his voice vibrating like a man with a vision. "If it can be done at all, you're the man to do it."

"You're crazy, Ted," said Carty,



## THEODORE VAIL

"you're only gonna make a fool of yourself."

"I'll take my chances. I just know it could be done. I want you to start on it right away."

Carty and his special group of scientists worked hard in their laboratory. But, mostly, all experiments came to a dead end. After many months and yet no nearer to a solution Carty was disgusted enough to call the whole thing off. He cornered Vail.

"Ted," he said, "you'd better forget this crazy scheme of yours. It won't work."

But Vail persuaded him to stick with it a little longer. "I know you're going to hit it one of these days."

Carty went back to his laboratory and many more frustrating months. But then it suddenly happened. He developed a repeater from a vacuum tube! This was the only amplifier to make coast-to-coast telephone calls possible.

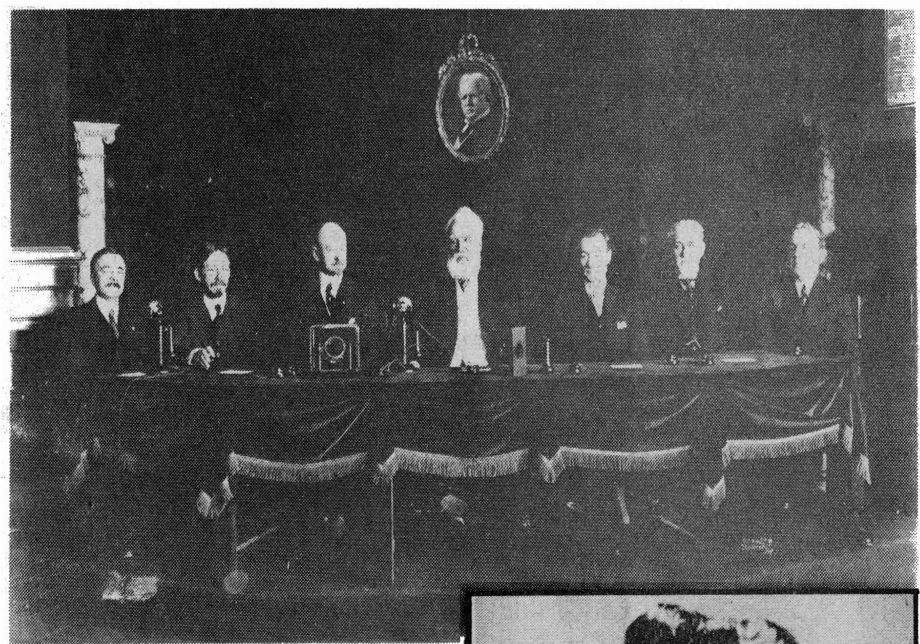
By 1911 long distance lines had been laid between New York and Denver. Limited service had already begun between Denver and Salt Lake City.

Vail's dream still had a long way to go to become reality. There was the matter of stringing lines across 400 miles of barren desert between Nevada and Utah. It meant hauling wood great distances, besides getting together a crew that could sustain hardships.

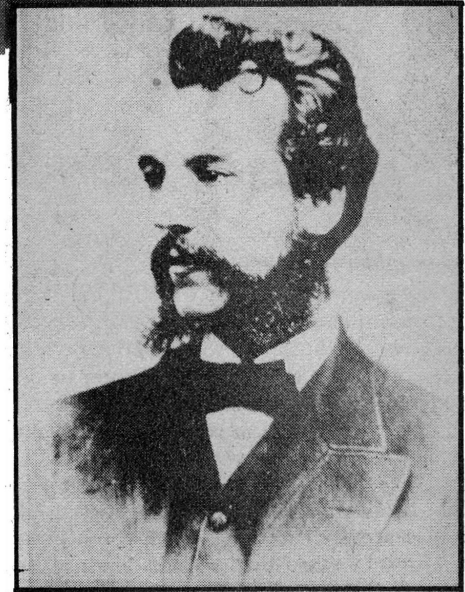
The Pacific Telephone set up the Bell Telephone Company of Nevada as a holding company for this dramatic effort. The final link-up was to coincide with the opening of the Panama Pacific International Exhibition in San Francisco in the summer of 1914. This was to be the big moment.

Men had to pit speed and endurance against almost impossible conditions. Facing dust storms, rain and snow, below zero weather and searing heat, it was one of the most heroic deeds ever accomplished by pioneers, easily matching those of the emigrants hacking roads through the west.

Too, digging holes for the telephone poles was a slow process. Some other means had to be found. Getting the job done in time for the exposition called for new innova-



**Gathered for ceremonies in 1915 opening the first transcontinental phone line (above) are phone officials and New York government leaders. Carty is at left and Alexander Graham Bell at center. Above Bell is picture of Vail, who was recuperating from a fall. Bell at 28 (right) in 1876 invented the telephone.**



tions. Engineers had to find a way to overcome this obstacle. And they did!

After many hours spent in the laboratory, two automatic diggers were developed which could bore holes 16 inches in diameter, and four feet, six inches deep where soil conditions permitted. The poles were square redwood timbers 18 feet long.

How to get them to the desert was another problem. Raw redwood trees had to be cut down and hauled in from the forests of northern California. The logs were brought in to sawmills where they were cut to pole-size. Shipped to San Francisco by sea, they were then loaded onto railroad gondolas for the trip to Nevada.

On November 10, 1913, three survey crews staked out a line between Wadsworth, Nevada, and Wendover, Utah. The following spring stakes were firmly planted over 400 miles of desert and mountains.

Over 100 workmen, 14 wagons, 116 horses, four motor trucks, three automobiles and one crawler tractor cluttered up the construction site at the Nevada sector. The poles had to be carried to each stake, for nowhere was the line built near enough to the railroad for easy distribution.

In an unseasonable fall, crews working their way through the desert

were caught in the worst snowstorm in Nevada's history. Fierce winds swirled flying sand, lashing the faces of the men. And the tractor stopped dead in its tracks!

One of the workers (his name has long since been forgotten) shouted angrily to his boss, Paul Klein, "Damn it, Mr. Klein, we can't keep this up. We can't get too far without a tractor in this kind of weather. The men are talking of quitting. You'll have to come up with something real quick."

"I know it's not easy," said foreman Klein, "but give us a little more time. I'm sure we'll come up with a solution."

"Time is running out," grumbled the worker, "something will have to be done, and in a hurry."

Indeed, it meant the difference between going on or calling it off. Dispatching a messenger to the home office explaining his predicament, Klein got back favorable news. Model-T Fords were on their way! As Paul Klein later described it:





**Newsman and officials gather around the final pole to watch the splicing of wires connecting San Francisco to New York by telephone. More than 100 people witnessed the event that made headlines around the world. The impossible was now a fact!**

"Sand knocked out the tractor just a short while after it was put in operation. The men were grumbling and it looked like mutiny was in the air. But I was able to keep them together a little longer. Sending a messenger to the head office with the bad news brought exceptional results. It seems that someone thought of Model-T Fords, and we didn't get them a day too soon. They went just about everywhere. On one clear day we managed to put up 144 poles, a record I'll always be proud of."

There were days when holes had to be drilled through solid rock by hand, to set the poles. Worked lagged with the changing seasons. Extreme unseasonal weather seemed to follow them around. In one of the worst springs—it was the wettest in 30 years—streams were flooded and sections of the desert became swamps. Stakes were buried under rising water. Building roads on high ground, the crew had its hands full changing the direction of the water flow.

Mired down in soft sand, workers were talking about laying down their tools again. But Klein was a smooth talker and his impressive zeal kept them in line.

The floods over, weather brought in an influx of mosquitos east of Elko. Swarming out of the sagebrush in countless numbers, horse blankets had to be made from barley sacks to prevent the horses from being eaten alive. And the men made nettings for their own protection.

A hot sun that almost brought temperatures to the boiling point seared the crews as they neared Wendover, Utah. At the start of the project there was an abundance of water. Now water had to be transported 20 miles, to quench the thirst of men and animals. There were several cases of rattlesnake bite, but fortunately, the victims recovered. Replacements were high, but there were no lives lost.

Finally, it was over. On June 17, 1914, crews of the Bell Telephone of Nevada joined those of the Mountain States Telephone and Telegraph, who had made their way building lines west of Salt Lake City. More than 3,400 miles of telephone lines had been strung across the continent!

The historic meeting took place at the desert border of Wadsworth, Nevada, and Wendover, Utah. It attracted worldwide attention, making headlines in all the newspapers. Over a hundred people came down to witness the final splicing of wires, the 'Golden Spike' of the telephone.

Both crews set the redwood poles in place, tamping the ground around it. Two flags were then nailed to the crossarm. One was the American flag. The other had these letters emblazoned on it:

S.F. — N.Y.

Toll Line

Completed

June 17, 1914

Two wagon teams crossed under the last pole while a movie cameraman clicked away. Linemen from both companies completed the final splice as 130,000 telephone poles ran through 13 states, four strands of copper wire stretching across them, to complete the coast-to-coast link-up.

Foreman Klein described the crew's reaction this way:

"When the final hook-up had been made on top of the 10-foot long cross-arm, we all partook of a big feast of roast duck and other goodies. The dining tent was on the Utah side. But since it was a dry state, the path was well grooved to the Nevada tent, where champagne flowed like water. We carried on for three days."

On a cold, wintry day in New York City, Alexander Graham Bell officially inaugurated the opening of the intercontinental telephone line. He simply repeated the same words used in his attic on that eventful day in 1876.

"Mr. Watson, please come here. I want you."

At the other end of the line in San Francisco, his former assistant, Thomas A. Watson, laughed.

Also listening in was President Woodrow Wilson on a separate hook-up in Washington. American Telephone and Telegraph president Theodore Vail was at the other end of the line at Jekyll Island, Georgia, where he was recuperating from a fall.

Watson's voice was clear and distinct. "Thanks for the invitation, Mr. Bell. But now it would take me a week to get there."

Vail's dream had become a reality. But it was the wealthy mine owners of the west who added fuel to his burning idea. ●