



## THE SPEED OF WORDS

FROM THE TIME THE UNITED STATES OF America had been established as an independent nation, people became impatient for increasingly faster exchange of thought. As their commercial life grew more complicated and scattered, they became determined to reduce the time that elapsed between a question asked and the answer received. They wanted to bring about a meeting of minds with the least possible delay. To achieve more perfect service, many of them gave their lives. Great feats of daring were performed. By the middle of the cen-

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ture following the famous midnight ride of Paul Revere, the Thirteen Original Colonies had expanded westward to the Pacific Ocean—to California and gold. Suddenly, in the short space of a single year, that sparsely settled region became a rich and populous territory clamoring for admission to the Union. But in 1850 it was a long way for news to travel—between New York and the Golden Gate. One fine spring day, the Clipper Ship *Sea Witch*, riding at anchor in New York Bay, was about to set sail for distant California. . . .

MR. DELANO: Flood tide's beginning to slacken, Captain Fraser.

CAPTAIN FRASER: All right. Mr. Delano. Man the windlass and heave short.

MR. DELANO: Aye, aye, sir. . . . Now then, boys, heave away on the windlass breaks; and strike a light. It's duller than an old whaler's brass work.

MR. DELANO: 'Vast heaving, boys. . . . The anchor's a-peak, sir.

CAPTAIN FRASER: Very good, sir.

MR. DELANO: Aye, aye, sir. . . . Aloft there some of you and loose sails! Set royals and skysails. . . . Leave staysails fast! Clear those ensign halyards, lad. . . . Hey, you in the red shirt! Lay down out of that!

SAILOR: There's a boat put out after us from the Battery, Captain. They're pulling for us real hearty.

CAPTAIN FRASER: They'd better pull hard. Once the "Sea Witch" gets the wind in her sails, nothing can catch her but Davy Jones.

SAILOR: There's a man in that dinghy waving at us, sir.

CAPTAIN FRASER: Likely he's just one of those legal sharks from some sailor's boarding house. . . .

MR. DELANO: (*off*) All right, boys! Sheet home the topsails. . . . Look out for the clew lines, Boat-swain! Ease 'em down!

VOICE: Aye, aye, sir.

MR. DELANO: Foretop! Overhaul your buntlines! Look alive. . . . Belay that starboard main sheet. . . . Now long pulls on your topsail halyards!

VOICE: The anchor is hove to, sir.

MR. DELANO: Bring it to the rail.

VOICE: Aye, aye, sir.

SAILOR: Lord, but she's beautiful, Captain!

CAPTAIN FRASER: Nothing finer, nor faster afloat, lad.

MESENTER: (*hailing off*) Ahoy! Sea Witch, ahoy!

SAILOR: Ahoy! . . . It's the man in the dinghy, sir.

MESENTER: I want to speak to Captain Fraser!

CAPTAIN FRASER: I'm Captain Fraser. Lay along side. We're getting under way . . . Throw him a tow line.

SAILOR: Aye, aye, sir.

MESENTER: Message from the Secretary of State to the Governor of California Territory. Can you hear me?

CAPTAIN FRASER: Very well.

MESENTER: Tell the Governor of California that Congress will admit California to the Union as a Free State.

CAPTAIN FRASER: Very good, sir.

MESENTER: Safe voyage, Captain.

CAPTAIN FRASER: Thank you, sir. . . . Cast him off, sailor.

SAILOR: Aye, aye, sir.

CAPTAIN FRASER: Mr. Delano. Brace the yards to the wind.

MR. DELANO: (*off*) Aye, aye, sir. . . . Run up the jibs, boys. . . . Lively on that mizzen topsail halyard . . . Belay the cat and fish tackle . . . All right you longshoremen . . . Over the sides. Lively! Overhaul the gear, boys. Strike a light, somebody. Under way, sir. . . .

Driving hard southward in all weather, past the equator into the Antarctic winter, the *Sea Witch* rounded Cape Horn, carrying every stitch of canvas possible day and night. Every mile of it, an ocean race against other great Clipper Ships somewhere at sea, racing for California, the land of gold and opportunity. . . .

VOICE: Land ho!

SAILOR: The Golden Gate, Captain Fraser! The Golden Gate!

CAPTAIN FRASER: Very good! . . . Well, Mr. Delano, I doubt if many of the ships that left port ahead of us are in before us. Ninety-seven days from Sandy Hook is fast time.

MR. DELANO: Ninety-seven days is a record, sir. It'll take good sailing and better luck to beat it, sir.

CAPTAIN FRASER: It's been a good crew and you've got everything out of them. Pass the word forward the company'll give all hands a bonus.

MR. DELANO: Aye, aye, sir. Shall I make the long boat ready, sir?

CAPTAIN FRASER: Yes. Man it with the lustiest lads aboard. And have it in the water before the anchor. I've got a message for the Governor of the new State of California.

Ten years later—California was a great commonwealth. But San Francisco and New York was still weeks apart. By fastest stage coach route through the Southwest, it took almost a month for news to travel from coast to coast. Then, on March 26, 1860, the New York *Herald* carried the following announcement:

"To San Francisco in 8 days by the Central Overland California and Pike's Peak Express Company. The first courier of the Pony Express will leave the

Missouri River on Tuesday, April 3rd, at 5 o'clock P.M. and will run regularly weekly hereafter, carrying letter-mail only."

The first lap of this relay between the Atlantic Seaboard and St. Joseph, Missouri, was by telegraph. But the line ended at St. Joseph. There Johnny Frey impatiently waited for the signal that would start him on the first run of the Pony Express. A crowd of excited well wishers was gathered around Frey and his restless horse. . . .

JOHNNY FREY: Whoa, boy. Take it easy. You'll soon have plenty of chance to run . . . This pony's a beauty, Al. And you've got him in great condition.

AL: He's got to be in top form, Johnny. Look at the crowd that's come to see you ride off on him. Listen! I just heard the train whistle. The mail's on time!

JOHNNY FREY: Good. . . . You ought to be riding today, Al, instead of staying here in St. Joseph looking after ponies.

AL: But I'm studying to be a telegraph operator, and you can't practice that on horseback. . . . Whoa, boy!

JOHNNY FREY: Who'd want to? This is better pay.

AL: Maybe my job'll last longer than yours. The telegraph's got as far as St. Joseph already.

JOHNNY FREY: The other end's 2,000 miles away.

AL: They'll cut down that distance until you boys won't have any farther to ride than across the street there.

JOHNNY FREY: Well, right now us riders have got to get a lot of words to Carson City. . . . Hold his head, Al. I'm mounting up. . . . Whoa, boy! Let go, Al. The mail pouch must be waiting at the post office by now.

AL: Wait for the starting signal, Johnny.

JOHNNY FREY: Maybe the cannon won't go off. I don't want to lose a second.

MR. RUSSELL: (*coming up*) Hey, there! Hold that courier. Wait.

JOHNNY FREY: Who's that?

AL: The big boss himself—Mr. Russell.

JOHNNY FREY: Gee.

MR. RUSSELL: Are you Johnny Frey?

JOHNNY FREY: Yes, sir.

MR. RUSSELL: Here's a message just came in by telegraph from Washington. It's from President Buchanan to the Governor of California. Guard it well.

JOHNNY FREY: With my life if necessary, sir.

MR. RUSSELL: Frey, as the first courier westward bound on the Pony Express, I and my partners, Majors and Waddell, wish you good luck and god-speed.

JOHNNY FREY: It's a real honor to ride for you, sir.

AL: There's the cannon, Johnny!

JOHNNY FREY: Let loose his head.

AL: Good luck!

MR. RUSSELL: Good luck, Frey!

JOHNNY FREY: Thanks—Goodbye! I'm off!  
(*horse gallops away*)

Johnny Frey galloped madly off on the first run—75 miles—on 3 horses. Just two minutes was allowed to change his mount—but by loosening the mail pouch before he reached the station and tossing it to the agent before he dismounted, the time could be cut down to 15 seconds. At the division point, the next rider would be ready and waiting. . . .

1ST AGENT: Here he comes. Look at that kid ride!

HASLAM: And right on time. Here, hold my horse. I'm mounting up.

JOHNNY FREY: Hello, boys.—Whoa there!

AGENT AND HASLAM: Hello, Johnny! How'd it go?

JOHNNY FREY: All's well on the road. Here's the mail pouch, Haslam. Catch!

HASLAM: Got it.

JOHNNY FREY: And watch this telegram. It's from the President.

HASLAM: It's safe with me. . . . Let go his head, Hank. . . . Come, boy.

On through the wild Indian country by day and by night rode the daring riders on the fleetest horses America could breed—as far as Red Buttes Division Point, where another famous rider was waiting to carry the pouch to Three Crossings. His name was William F. Cody—better known to history as “Buffalo Bill.”

2ND AGENT: Here he comes, Bill— He’s running late.

BUFFALO BILL: I’ll make it up. . . . Steady, boy. . . . This horse is sure raring to go!

2ND AGENT: Better take my rifle along. I saw a couple of Indians to the west this morning.

BUFFALO BILL: The rifle’s too heavy. I won’t have time to shoot it out with them, anyway. (*hoof beats come up*)

2ND AGENT: That rider looks all tuckered out.

BUFFALO BILL: Looks like he’s been in trouble. Never mind me. Grab his horse.

RIDER: Here you are . . . the mail!

2ND AGENT: I’ll take the mail pouch, kid. What happened?

RIDER: (*gasping*) Indians . . . raided last station . . . stole all the horses . . . killed the agent. . . .

2ND AGENT: Easy, son. I’ll help you out of the saddle.

RIDER: Never mind me . . . take the mail . . . this message from the President.

BUFFALO BILL: I got it, son. Run, Pony! We’re late.

2ND AGENT: Look sharp for Indians, Bill!

Buffalo Bill galloped away and just nine days and two hours after Johnny Frey had galloped westward out of St. Joseph, Missouri, a great crowd was gathered in the streets of Carson City, Nevada, near the post office and telegraph terminal. The crowd was waiting for the arrival of Buffalo Bill and the end of the first run of the Pony Express. A great cheer went up as Buffalo Bill galloped up to the post office. The message from the President to Governor Downey was safely delivered. Speed and endurance of man and beast . . . courage and devotion to duty . . . brought the Atlantic and Pacific shores within nine days of each other.

But in the fall of 1860, while the Pony Express was relaying messages across the lonely deserts of the west, this once marvelous speed began to seem an intolerable delay. Edward Creighton, an engineer, undertook to survey a telegraph route between California and the Missouri River. The Pacific Telegraph Company, incorporated by the legislature of the Territory of Nebraska, broke ground on July 4th, 1861. Four working parties were sent out from central points with a thousand oxen hauling poles and wire. They had thirteen months to do the job; but they had completed the entire two

thousand miles of line by November. And on the 15th of that month in the year 1861, little more than a year after Johnny Frey's first run on the Pony Express, the first telegraph message was sent across the country. And this message, sent to President Lincoln by Chief Justice Stephen J. Field of California, spelled the finish of the Pony Express. At this time Lieutenant Maury was making a survey of the ocean depths for the United States Navy. Cyrus W. Field, a man of vision, read the report. The report showed that between Newfoundland and Ireland, the ocean bottom was a plateau at no very great depth. The thought came to Field—"Why not carry a telegraph line across the ocean?" . . . But his desire to do this was stronger than any cable he could find, as his partner in the venture pointed out. . . .

MR. BLOCKLEY: Field, your cable broke twice in 1857 and many times in 1858.

CYRUS W. FIELD: Nevertheless, Mr. Blockley, I propose we try again—and again—until we succeed.

MR. BLOCKLEY: Now look here, Field. I've backed you up a dozen times, but all these repeated failures. . . . Well, I think we've dropped enough money to the bottom of the Atlantic.

CYRUS W. FIELD: We had it working for three weeks in 1858.

MR. BLOCKLEY: It'll have to last longer than that

to get our money back. And I won't throw more good money after bad.

CYRUS W. FIELD: But we've improved our cable and have better equipment to lay it. I'm convinced we can succeed. But if we quit now we are sure to fail.

MR. BLOCKLEY: The whole thing's nothing but a pipe dream. I won't even hear it discussed. You're a fool, Field. And a fool and his money are soon parted. That won't include me this time. Good day to you, sir!

Blockley's withdrawal did not stop Field, though Field was forced to use English money and a ship from the English navy. Still, it was a difficult task. In 1865, after laying 1200 miles of new cable, the ship gave a lurch and the cable broke. But Field kept on, and in the summer of 1866, they were able to grapple the cable, splice it and carry it the remaining 600 miles to Newfoundland. At last the trans-Atlantic cable was successfully completed. One day a curious meeting between Cyrus Field and Mr. Blockley occurred in Field's office. . . .

CYRUS W. FIELD: Well, Blockley, this is unexpected. What can *I* do for *you*?

MR. BLOCKLEY: If you knew what it costs my pride to come here—but I'm in trouble. Desperate.

CYRUS W. FIELD: Compose yourself, man.

MR. BLOCKLEY: Compose myself! Field, unless I can reach my agent in London before the next packet arrives—I am a ruined man.

CYRUS W. FIELD: Well, the trans-Atlantic cable is for everyone's use.

MR. BLOCKLEY: But at present rates, it would cost me nearly \$7000 to send my instructions. I can't possibly put my hands on so much cash.

CYRUS W. FIELD: What do you want me to do?

MR. BLOCKLEY: Send that message for me. I'll pay you back twice over in a month.

CYRUS W. FIELD: You're sure it won't be sending good money after bad?

MR. BLOCKLEY: Please don't remind me of that. I've bitterly regretted my lack of faith in you and the cable.

CYRUS W. FIELD: Is your message ready?

MR. BLOCKLEY: Yes.

CYRUS W. FIELD: We'll send it at once.

MR. BLOCKLEY: You've saved my entire fortune! How can I ever repay you?

CYRUS W. FIELD: By subscribing to the cost of laying a new cable, American owned and operated.

MR. BLOCKLEY: Done! And gladly!

But the telegraph was neither quick enough nor convenient enough. Not everyone knew the Morse

Code. Business men had to use messenger service to the terminals, and replies were not always prompt. A conversation from office to office might take many hours, even days. Then, on March 10th, 1876, on the top floor of a boarding house on Exeter Place in Boston, Alexander Graham Bell was working with his assistant, Thomas Watson. Bell had been making experiments, hoping to be able to transmit the human voice by wire. Watson had built a new transmitter according to Bell's instructions. . . .

ALEXANDER BELL: Now, Mr. Watson, if you will take this receiver down the hall to my bedroom—and fasten it to the other end of the wire—

THOMAS WATSON: I will, Mr. Bell. Shall I move these batteries first? Are they in your way?

ALEXANDER BELL: No, they're all right—nothing but water and a little acid. And close all the doors between. I want a real test.

THOMAS WATSON: I won't be long. (*door closes*)

ALEXANDER BELL: Let me see—what shall I say—something that will be a real test—something unexpected—I'll—(*sound of batteries falling—glass breaking*) Those confounded batteries—Mr. Watson!—come here!—I want you—Mr. Watson, come here, I want you—(*door opens*)

THOMAS WATSON: (*astonished*) Mr. Bell, I heard every word you said!

ALEXANDER BELL: I wasn't testing the instrument! I knocked over the batteries and spilled the acid on my clothes! I was calling you—

THOMAS WATSON: But I heard—every word—distinctly—through the telephone!

The telephone slowly but surely spread its wire over the country. Soon after 1880, hard drawn copper wire was invented. By 1902, the first long-distance cable was in use between New York and Newark, ten miles away. But already ways and means were found to send words without the use of any wires whatever! . . . By wireless. On December 12th, 1901, American newspapers carried the thrilling headline: "OCEAN SPANNED BY WIRELESS." . . . An enterprising reporter sought out Thomas A. Edison. . . .

REPORTER: Mr. Edison, my paper wants a statement from you.

THOMAS A. EDISON: What about?

REPORTER: Marconi's great achievement. . . . In St. John, Nova Scotia, he has received the call signal "S" sent from Cornwall in England.

THOMAS A. EDISON: I don't believe it. He's only experimenting to pick up calls from trans-Atlantic liners on the Grand Banks, 300 miles out . . . Cornwall is 1700 miles from Nova Scotia.

REPORTER: Here is a message we got from him.

It says: "Confirm that signals were received here Thursday and Friday direct from Cornwall. Receiving wire suspended by a kite. Signed, Marconi."

THOMAS A. EDISON: Well, since Marconi has stated over his own signature that he has received the signals from England, I believe him, and I think he'll carry it to a commercial success. It's a great achievement, and he's a great experimenter . . . and that's signed, Edison!

The very next year, 1902, in Fairmount Park, Philadelphia, an inventor named Nathan B. Stubblefield gave the first public demonstration of an instrument which sent the voice through the air without wires. His voice was heard a mile away. But, fearing to tell his secret to the world until his patent had been granted in 1908, he lost the fame that comes from acclaimed priority. Nevertheless, the wireless and radio developed side by side. In 1909 came the first famous rescue by wireless. Jack Irwin, a radio operator at Siasconset on Nantucket Island picked up "C.Q.D.," which was then the distress signal, from the S. S. *Republic*, which was going down with 1500 people on board.

The United States Navy began to build the first high-powered radio station at Arlington near the National Capitol. Dr. Lee De Forest invented the "audion," or vacuum tube, and the modern age of speed and communication was on its way. Invention



followed invention at a breathless pace. In 1915, a message was broadcast from Arlington and picked up in Paris, and in Honolulu, 5000 miles away.

On December 8, 1929, came the first historic conversation between a voice at sea and a voice on shore. In 1930, by short wave radio, a voice encircled the entire globe. It traveled in relays from Station W2XAD in Schenectady, New York, via Honolulu, to Java and Australia, thence across the Pacific to North America, and back again to Schenectady . . . in just one-eighth of a second!

Today, the human voice can be heard via the radio from the north and the south poles. Sports commentators can bring us play by play descriptions of games being played thousands of miles from our hearing. Police squads can be directed to the capture of fleeing criminals. Weather reports can be relayed instantly to all parts of the world, reports of disasters can be flashed without the waste of a second, to waiting rescue parties. Aeroplanes can be landed in the dark, in dense fog, and in blinding storms by directions given from landing fields. Surgeons on shore have actually directed operations at sea! The human voice has now found the ends of the Earth!