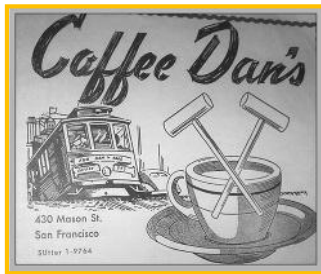




It Happened on Green Street: The Genius and his Gang

They stood for a second at Powell and O'Farrell streets. With one quick motion she smoothed her crepe dress and set her strappy, embroidered heels on the chute. Whoosh! She disappeared, sliding into the darkness. Looking snazzy with his cloverleaf lapel and brown alligator shoes, he whooshed down right behind her. They landed in Coffee Dan's¹— a "ham andegger" also referred to as a blind pig, blind tiger, or speakeasy in 1927.



A stone's throw away, in apartment 401 at 891 Post Avenue, Dashiell Hammett rat-a-tat-tatted on his typewriter, composing detective short stories about Sam Spade, Continental Op, and others.²



Farnsworth (right) and his gang.

A bit further away on Green Street in Cow Hollow, Philo T. Farnsworth and his "Lab Gang" were partying. Made up of Philo, his wife Pem, his brother, and a handful of assistants, the lab gang cut loose on the weekend with friends and neighbors and worked hard during the week, especially at night. Farnsworth was experimenting with the electronic transmission of images, creating a technology based on an image dissector tube he called the "Orthicon." With the assistance of the gang, he was inventing television.

Early Years



Farnsworth and his orthicon tube.

Back in the summer of 1921 at 14, Farnsworth was tilling hay furrows with a horse-drawn plow on the family farm in Rigby, Idaho, when he had a brainstorm. As he crossed the field, harrowing row after repetitive row, he seized on the idea that electron beams could work the same way, scanning images and data line by repetitive line. He diagrammed his idea for an electronic tube for his chemistry teacher across four blackboards. Until then engineers had been developing television using mechanical systems; Farnsworth's idea was original but it would take a few years to be developed.

¹ Now a legit bar at 430 Mason Street, called "Slide."

² A plaque marks the building. Not far away (between Pine and Bush near the Stockton tunnel) is Dashiell Hammett Alley.



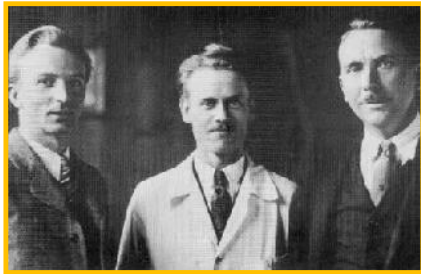
Farnsworth lived his first twelve years in a cramped log cabin near Beaver, Utah with his Mormon parents and four siblings. With the move to Rigby in 1918, he encountered electricity for the first time and began showing aptitude in electronics. He repaired the farm's mechanical and electrical equipment and revived a dead electric motor by re-winding its armature to turn his mother's hand-cranked washing machine into an electrical one. One day he came across a pile of old science magazines in the attic left by the previous farmer. Farnsworth devoured them, astonished to learn about the existence of invisible particles called electrons.



Cabin in Beaver, Utah where Farnsworth was born and spent his first 12 years.

Five years later, with the family in Provo, Utah, and 17-year old Farnsworth studying at Brigham Young University, his father died, causing him to leave college and help support the family. He took a battery of tests for the U.S. Naval Academy in Annapolis, Maryland, scored the second highest in the country, and was accepted as an Officer Candidate. Once there, he learned that the Academy would own the patents on anything he invented and obtained an honorable discharge.

Back in Utah, Farnsworth partnered in a radio repair service with friend and neighbor Cliff Gardner in Salt Lake City. Though the business failed, Farnsworth was able to study at the University of Utah and, through a job employment service, he made a connection that changed his life. He met George Everson and Leslie Gorrell, professional fundraisers from Southern California who offered him a job in their mass-mailing business. Upon hearing about his idea for electronic television, they scrapped that offer and made another: They would put up \$6,000, secure more investors, and go into business. Farnsworth agreed and they acquired funding from Crocker Bank and William T. Crocker, its president (and grandson of "Big Four" Charles Crocker). In 1926 they established Crocker Research Laboratories. Farnsworth married Gardner's sister Elma, nicknamed Pem, and they boarded a Pullman coach for San Francisco to set up a lab there.



Farnsworth flanked by partners Everson and Gorrell.



Pem and Philo Farnsworth on their way to San Francisco.

The lab gang had competition in their quest to create television. In 1925 in London, Scottish engineer John Baird had given the first public demonstration of a working mechanical television system. Closer to home, in Pittsburgh, Vladimir Zworykin was pursuing his own version of using an electronic image scanner he'd created and named the Iconoscope. Even though it was non-functional, in 1923 Zworykin had applied for a patent.



The Lab Gang worked long and hard to perfect Farnsworth's image dissector camera tube: The Orthicon. On September 7, 1927, they backlit a glass slide with an arc lamp. They turned on the orthicon and it performed the world's first electronic television transmission: a single straight line.

"...his mind and five pairs of hands caused a highly evacuated, glass tube to flicker with an eerie light. Then just a simple line. Phosphorescent proof of trained electrons jumping through his hoop, and the first of rapid fire innovations which became the device we now recognize as modern television."

Philo T. Farnsworth website



Soon the news began to leak out. Following refinements, Farnsworth was ready to demonstrate his invention to the press in 1928. With a wink to the pressure by his financial supporters to turn a profit, the first image he transmitted for the press was a dollar sign. After further development, in 1929 Farnsworth was able to remove the motorized generator component, making his television system entirely electronic. That year his system transmitted the first human image, a 3-and-one-half-inch image of Pem, her eyes closed due to the blinding beam. Pem was more than a picture model; she sketched all the company's technical diagrams in the early years, helped make the image tubes, and was an integral member of the Lab Gang. Farnsworth always gave her credit,

saying, "My wife and I started television."

By 1934, Farnsworth's appliance was ready for the public. He demonstrated it at



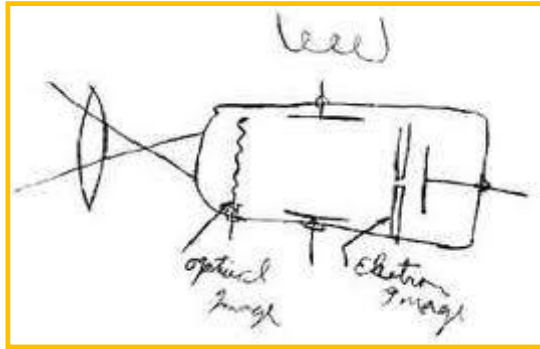
Transmitting from the roof of the Franklin Institute.

the Franklin Institute in Philadelphia, where he was working for Philco. Collier's Weekly got wind of his device in 1936 and raved, "One of those amazing facts of modern life that just don't seem possible—namely, electrically scanned television that seems destined to reach your home next year, was largely given to the world by a nineteen-year-old boy from Utah ... Today, barely thirty years old he is setting the specialized world of science on its ears." That same year the Berlin Olympics were broadcast using some of his image dissector cameras.

Farnsworth made other inventions during his years at Philco: a fog piercing beam to guide ships and planes and a milk sterilization process that relied on radio waves. In 1932 when Philco forbade him—a dogged workaholic—from attending his son's



funeral. He became depressed and alcoholic and divorced Pem. Other woes centered around patents. RCA had offered him \$100,000 in 1931 with the



stipulation that he work for them. Zworykin, who had visited the Green Street lab once, accepted a job for RCA. They sued Farnsworth for patent infringement. His chemistry teacher and the sketches he made of the image dissector tube when he was 14 eventually turned the case in his favor, confirming him as the inventor of television. After exhausting all appeals, in 1939 RCA was forced to pay him one million dollars and use his patents.

In 1933 Farnsworth parted ways with Philco, worked for a few other companies,

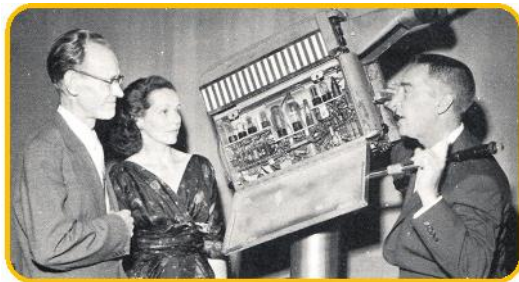


then formed his own, Farnsworth Television & Radio Corporation, in 1938. Over the years he had trouble getting funding, and in 1951 he sold his company to International Telephone and Telegraph (ITT). He went to work for them in Fort Wayne, Indiana, where his cellar lab was called "the cave." In it he originated a number of new devices and concepts relating to radar, infrared, and fusion: a defense warning signal, an infra-red telescope and night vision devices, radar calibration tools, submarine detection

equipment, and fusor (a small nuclear fusion device). ITT photographer Art Resler, who documented Farnsworth's work, remarked, "Philo was a very deep person – tough to engage in conversation because he was always thinking about what he could do next."

His not so humble opinion of TV

For all his efforts, Farnsworth didn't think much of the medium he helped create and regretted working on it. His son Kent paraphrased his opinion on television, "There's nothing on it worthwhile, and we're not going to watch it in this household, and I don't want it in your intellectual diet."



Philo and Pem with Gary Moore on "I've Got a Secret" in 1957.

In 1957 Farnsworth made his first appearance on television Gary Moore welcomed him to his quiz show, "I've Got a Secret." Like every guest on the show, Farnsworth, as Mr. X, whispered into Moore's ear and his words were instantly broadcast across the country, "I invented electronic television." No matter how

many questions the panel asked, they couldn't guess who he was. Watch the segment here: <https://www.youtube.com/watch?v=HHy04aN0jfl> Sherry hyperlink



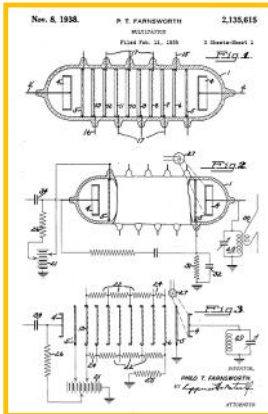
Final Years



When he died in 1971, Farnsworth owned more than 300 patents, over 165 in television alone. In 1981, California's Park and Recreation agency placed a plaque honoring Farnsworth as "The Genius of Green Street" at the Lab Gang's lair at 202 Green Street. The scenic "Farnsworth Steps" take you from Willard Street (just above Parnassus) up to Edgewood Avenue. You can view a statue of Farnsworth at George Lucas's Letterman Digital Arts Center in the Presidio (pictured left).

Epilogue

Pem Farnsworth remained friends with her ex-husband, championing for his



Diagrams for one of Farnsworth's many patents.

recognition for many years and writing a book, *Distant Vision: Romance and Discovery on an Invisible Frontier* in 1990 and accepting an honorary award from the Academy of Television Arts and Sciences in 2002 at 96 years old. The Academy videotaped an interview with her in 1996. Pem recalled viewing the 1969 moon landing with Phil (Farnsworth).

Interviewer: "The image dissector was used to send shots back from the moon to earth.

Pem: Right.

Interviewer: What did Phil think of that?

Pem: We were watching it, and, when Neil Armstrong landed on the moon, Phil turned to me and said, "Pem, this has made it all worthwhile."