

## Philo T. Farnsworth

by Kenneth W. Miller

To say that the name is not a household name is definitely an understatement, but in 1930, at the age of twenty-four, Philo T. Farnsworth was granted the patents that are the basis of modern television. In fact, Philo Farnsworth was sixteen in 1922, when he diagrammed his plans for electronic television on a blackboard in his high school in Rigby, Idaho.

In 1926, Farnsworth began developing his ideas into an operational system in a laboratory in San Francisco, California. At the time, similar efforts are under-way by V. K. Zworykin at RCA Laboratories in Camden, New Jersey. Mechanical scanning television was, of course, already in existence, but Zworykin and Farnsworth were developing systems involving electronic scanning. Zworykin had the facilities and finances of RCA at his disposal, but Farnsworth worked independently with a small staff on a fraction of Zworykin's budget. There were countless problems to be solved and Farnsworth made advances in a variety of fields. After mastering the special glassblowing problems, there were details like making a photoemissive coating only one molecule thick on the face of his scanning tube. Farnsworth eventually earned more than 165 patents covering the entire spectrum of engineering and physics, and including the fundamental television patents for scanning, synchronizing and focusing.

After high school, lacking the funds to attend college, Farnsworth spent a short time

in the Navy until his father's death in 1924. He then returned to help support his mother, and managed to attend classes at Brigham Young University. But before long his part-time job ran out, and he moved to Salt Lake City to open a radio repair shop. However, the shop was not a success, so Farnsworth went to work for Community Chest. His employer was George Everson, a professional fund raiser who administered Community Chest campaigns throughout the Western states. Everson was impressed with Farnsworth's ideas for electronic television, and arranged the \$5,000 Farnsworth thought it would take for a working model.

Farnsworth moved to Southern California, where he would have access to the California Institute of Technology. But after a few months the \$5,000 was gone and Everson had to stump for more money. Farnsworth now estimated that he needed an additional \$12,000. So, a somewhat wiser Everson started looking for \$25,000. That support finally came from W. W. Crocker of Crocker Bank and other investors in San Francisco. Farnsworth then moved into a loft owned by Crocker Bank at 202 Green Street in San Francisco to continue his work.

The air of secrecy that surrounded the experiments led to a raid by police, who found the strange glassworks, but not the still they expected. Then, only one year after moving into the laboratory on Green Street, Farnsworth succeeded in transmitting electronically-scanned video images. It was the fall of 1927, and he had just turned twenty-one years old. A slide



with a hand-painted triangle was placed in front of the crude camera, and a few yards away the blurred outline of the triangle appeared on a one-and-a-half-inch screen. After this beginning, Farnsworth quickly improved the quality of the picture and succeeded in transmitting a film clip of Mary Pickford combing her hair, in a scene from "The Taming of the Shrew."

In September 1928, the original budget of \$30,000 had been overrun by 100%, and it was time for a public demonstration. The Mary Pickford clip was included in the demonstration, and it was said that she combed her hair a thousand times that year, in demonstrations of Farnsworth's television. Farnsworth caught RCA by surprise when he applied for a patent for the system.

Farnsworth's lab had a number of impressive visitors in

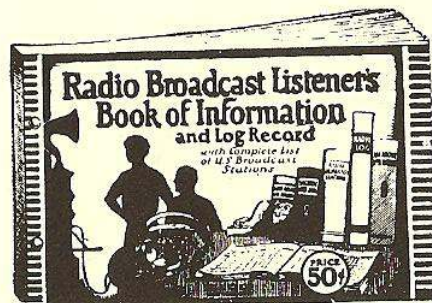
those days, including Zworykin himself, who expressed great admiration for what he saw. RCA was becoming painfully aware at this point that they would have to deal with Farnsworth, as dreams of a completely independent RCA electronic television system went up in smoke. It wasn't until 1941, however, that Farnsworth won a long-standing suit with RCA, which awarded him the basic patents. RCA's patent attorney is said to have had tears in his eyes when the royalty agreements were signed.

Farnsworth's San Francisco days came to an end in 1931, when his company reached an agreement with Philco for the production of television receivers. The agreement included the stipulation that Farnsworth move his lab to Philco headquarters in Philadelphia. In 1938 Farnsworth's Television Laboratories bought Capehart



Radio and began plans to produce their own television sets. The company became Farnsworth Television and Radio Corporation, based in Ft. Wayne, Indiana. In 1948 the sets came off the line, but proved an immediate failure. By 1949 the company was bought out by ITT, and Farnsworth became President of the Farnsworth Research Division. He remained with ITT until his retirement in 1967, and on March 11, 1971 he died in Salt Lake City.

Farnsworth was one of an almost extinct breed. In an age of corporate research and large budgets, he was the romantic maverick inventor working by his own wits, with independent financing and limited budgets. It's saddening that he never escaped relative obscurity. Only with the coming of the 50th anniversary of his 1928 demonstration, has some recognition been given Farnsworth. Ceremonies in late 1978 included one at Foothill College in Los Altos, which featured a re-creation of the original setup and demonstration. In addition, a plaque was placed on the building at 202 Green Street, where Farnsworth helped give birth to modern television, more than 50 years ago.



The preceeding is based largely on the book by George Everson, titled The Story of Television: The Life of Philo T. Farnsworth, (NY, Norton, 1949), as quoted in Erik Bar-nouw's The Golden Web, (NY, Oxford University Press, 1968). Also a magazine article, "Tom Swift in San Francisco," by James Minton (November, 1972, San Francisco Magazine).