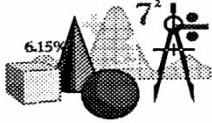




SPARKS

Daytona Section Newsletter
October 2022

<https://r3.ieee.org/daytona/>



EVENTS, ARTICLES, SECTION OFFICERS

FUTURE EVENTS

Expert Panel: Women in Aerospace and Aviation

October 26 @ 4:00 pm - 5:00 pm

Learn from women engineers who work in the fields of aerospace and aviation to find out the stories behind their career success! This Women in Aerospace and Aviation Panel features four ERAU Alumna (Katherine Ghelarducci – Structural Analyst at KSC, Caeley Looney – Mission Analyst at L3 Harris, Angie Gonzalez – Principal Systems Engineer at Northrop Grumman, Mineris Figueroa – Project Manager at Northrop Grumman. Event is in coordination with IEEE Daytona Women in Engineering and IEEE Daytona Section – IEEE membership not required for attendance.

VENUE

Room: COAS126, Bldg: College of Arts and Sciences, 600 South Clyde Morris Boulevard, Embry-Riddle Aeronautical University, Daytona Beach, Florida, United States, 32114

The WIE Affinity Group is actively seeking members to attend meetings (most of them will be virtual) and to volunteer for upcoming events. The Group's mission is to build a local community of engineers and "to facilitate the recruitment and retention of women in technical disciplines."

For more information please contact: Helen B. Hernandez, Ph.D., Secretary/Treasurer, IEEE Daytona WIE Affinity Group, hhernandez@ieee.org

ELECTIONS

Elections for our 2023 Daytona Section Officers will be held in December. We are always looking for new volunteers to help our Section thrive. Experience as an officer is not needed, new ideas and a willingness to help are the primary requirements. All members in good standing are welcome to participate. Contact any of our officers listed on the last page of the newsletter for more information.

PAST EVENTS

THE OCTOBER 7TH WOMEN IN ENGINEERING JOB SEARCH GUIDANCE PANEL

Just a thanks to everyone who attended, the meeting was a great success. It was a lot of fun and good advice was shared.

FUTURE EVENTS

LIFE MEMBER AFFINITY GROUP

The Daytona Section Life member Affinity Group is planning for a set of tours for its members. Notices will be sent once the tour dates and times are finalized.

LM Chair - Ron Gedney (rgedney@aol.com)

LM Vice Chair - Marty Oksenhorn (moksenho@yahoo.com)

ANOTHER TALE FROM THE OLD PROFESSOR

The Dropouts: An Inventor's Trilogy

Part 2 The Boy Who Invented Television

Philo, "Phil", Farnsworth was born in 1906 on a farm in Utah in a home that was one step up from a log cabin. Phil's uncle bought a ranch in Idaho and employed Phil's father to help manage the ranch. A fourteen-year-old Phil migrated with his family and all their belongings including a herd of cattle to Rigby, Idaho. The Farnsworth's new house, unlike their old house, was wired for electricity provided by a Delco farm generator. The generator also provided power for farm equipment.

Phil was absolutely fascinated by the generator and the electrical devices. At the young age of 14, Phil was the member of the household to repair the generator when it acted up. His talent for electrical and mechanical systems was becoming quite clear.

When Phil entered high school, he was somewhat disappointed that the prescribed freshman courses were not satisfying his passion for science, primarily electrical. He requested that he take chemistry which was not a freshman course and was denied. He turned to the library and self-education to quench his thirst for scientific knowledge at which he was quite successful.

His fantastic knowledge of science was discovered by the chemistry teacher who became his mentor and played a very pivotal role in his life years later. Before entering high school, Phil had been devising a method of all-electronic television. The transmission of images over telephone lines had been attempted in the very beginning of the 20th century but all the early efforts involved mechanical scanning of the image. Phil realized that mechanical scanning would never be able to transmit motion but only static images of poor resolution and was obsessed with developing an all-electronic television system.

After graduating high school, Phil joined the Navy where he hoped to gain an appointment to the Naval Academy. He had one of the highest scores on the entrance exam and his chances of gaining an appointment were high. But Phil learned if he became a Naval officer any patents that he might obtain from his television efforts would be the property of the US government. Phil decided immediately that he would not pursue an Academy appointment and finish his term of enlistment.

Then tragedy struck. His father died of pneumonia. He was able obtain an honorable discharge from the Navy based on the fact that he was the main source of income for his widowed mother. This was actually a very important change for Phil. He could now pursue his ideas on television and retain ownership of his patents.

Phil enrolled in Brigham Young University but dropped out before completing a degree. Fortuitously, Phil met a couple of potential investors who after hearing of his fantastic plan to invent all-electronic television agreed to provide some funding. This was the beginning of Phil's inventing career.

Inventions, patents, several changes of laboratory locations followed, and by 1927 he had a working model. Phil's television was far superior to others who would develop television. Most were still banking on mechanical scanning.

Wireless telegraphy paid a significant role in WWI. One of the major sources of wireless equipment and services was the Marconi Wireless Telegraph Company which was headquartered in Great Britain. Soon after the cessation of hostilities, the US government determined that suppliers of critical war materiel could not be based in a foreign country even a close ally. At the time, General Electric, GE, was a major manufacturer of wireless equipment and was selected to take possession of all the patents of the Marconi American subsidiary.

A new subsidiary of GE, the Radio Corporation of America, RCA, not only inherited the patents of American Marconi but many of its key staff, which included David Sarnoff, a Russian

immigrant. Sarnoff was another dropout; having ended his formal education at the 8th grade. Thus, RCA was born as a monopoly and Sarnoff intended to keep it that way.

The aggressive Sarnoff rose up the ranks of RCA including a position as the “keeper of the patents”. Sarnoff acquired patents from other companies and by the time the Golden Age of Radio was in full swing during the mid-1920’s, virtually all radios manufactured paid royalties on RCA’s patents.

Sarnoff became aware of Farnsworth’s television research and his patents and wanted them for RCA which was also working on television but was still using mechanical scanning.

RCA sent their top television researcher, another Russian immigrant, Vladimir Zworykin from their research department in Camden, NJ, (my birthplace), to visit Phil in his San Francisco laboratory. Zworykin praised Phil’s genius and Phil was happy to show Vladimir many of his inventions during his three-day stay. Paraphrasing Mark Anthony, Vladimir wasn’t there to praise Phil, he was there to steal as much information as he could.



Farnsworth with an early television receiver

This was the beginning of a decades-long battle between the RCA juggernaut and the lone inventor.

RCA’s monopolistic aggressive tactics led to many legal cases, Congressional action against large corporations and changes made to patent law.

Phil’s struggle with RCA dragged on for so long that many of his patents had expired before he was victorious in court. In one case, RCA argued that Phil’s initial patent for electronic television was anticipated by a Zworykin patent. Phil had to prove his television ideas predated Zworykin’s patent application and needed a witness who could testify on Phil’s behalf. There was only one possible witness and that was Phil’s chemistry teacher from high school who testified that Phil

described his idea for television before Zworykin filed for his patent. As fortune would have it, the chemistry teacher had made a sketch of Phil’s idea which was presented in evidence resulting in a victory for Phil.



Sarnoff on the cover of Time Magazine, July 23, 1951, with a television picture tube to the right of his head.

This was Sarnoff's second appearance on the cover of Time. This first was July 15, 1929 where he was identified as "Radio's Sarnoff".

Phil was a workaholic and put his work over his health. But Phil's ordeal with RCA made a bad situation worse and was probably a factor in his untimely death at age 64.

Dr. Al Helfrick, a.k.a The Old Professor



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2022 DAYTONA SECTION OFFICERS

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