



Donald L. Carpenter; an excellent person & a great scientist

Umran S. Inan^(1,2)

(1) Stanford University, Stanford, California, USA, e-mail: inan@stanford.edu

(2) Koç University, Istanbul, Turkey; e-mail: uinan@ku.edu.tr

Donald Leland Carpenter was born on January 3, 1928 and was 91 years old when he passed away on February 5, 2019. I feel very fortunate to have had the opportunity to know him as a person, as a mentor and a colleague over the course of my 36 years at Stanford University.

Don was a truly excellent person with a giving, generous and embracing personality. He valued people and his friendships with them over and above all else and was truly dedicated to uplifting careers of others in his collaborations with them. He was an avid runner, so much so that his knees were rather damaged by the time he reached his old age. He was an outdoors man, very much an Oregonian and a Californian. He had a passion for languages and spoke several languages fluently.

Don's education was one of a rare kind. He studied international politics at Willamette University followed by a Master's degree in Political Science from Columbia University. He then discovered his true calling later in life, when he received MS and PhD degrees in Electrical Engineering from Stanford University during 1960s. He was a Professor (Research) at Stanford University for 40+ years, a career he truly enjoyed.

Don would often mention the fact that he did not have a formal training in Physics and indeed he probably could not work with Maxwell's Equations to derive the propagation equations for the electromagnetic signals that he so effectively worked with. Yet his understanding of the pits and falls of whistler-mode propagation in the ionosphere and the magnetosphere was deeper than most scientists who have had such formal training. His most important and the best-known discovery in the early 1960s was the plasmopause, affectionately known as 'Carpenter's Knee', which is the outermost edge of the last dense layer of the Earth's atmosphere. He discovered the presence of the plasmopause by looking at hundreds of hours of ground-based whistler data on 35 mm films records viewed on hand-rolled lightboxes. Don authored or co-authored 90+ publications and was Associate Advisor for tens of PhD students at the Stanford VLF Group and provided excellent support and mentorship to many more. He was awarded the John Dellinger Medal by the International Union of Radio Science and was elected a Fellow of the American Geophysical Union in 2002.

In this paper, I will try to review the diverse research and contributions of Professor Donald L. Carpenter, my dear friend, mentor and colleague.