By Dr. H. Paul Shuch,* N6TX

# DR. SETI'S STARSHIP

## Searching For The Ultimate DX

## Six Degrees of SETI Separation

As this column is being written, we are about to witness the final flight of the NASA SpaceShuttle. How can one possibly associate the Space Shuttle with SETI, the electromagnetic Search for ExtraTerrestrial Intelligence? It's a long, convoluted path, so stay with me.

I'm sure every space enthusiast of appropriate age remembers exactly what he or she was doing when the *Challenger* shuttle exploded; it's one of those pivotal moments in history that's indelibly etched in our memory banks. Following that disaster, a panel of experts was convened to investigate. The person on the Rogers Commission who first figured out, and then demonstrated, the connection between low temperatures and O-ring deformation was CalTech professor Richard Feynman. That brilliant physicist and Nobel laureate (like many brilliant American physicists of his generation) had spent the years of World War II at Los Alamos, New Mexico, developing the first atomic bomb. There he worked for Enrico Fermi, best known to the SETI community for the famous Fermi Paradox . . . but I digress.

In a volume of Feynman's memoirs in the late 1980s I remember reading a passing reference to someone named Tukey, whom he had known in graduate school at Princeton University. The name rang a bell, so I went back to a book given to me by my uncle, the late Bayesian statistics authority Ward Edwards of Uuniversity of Southern California, when I was in grad school. The title was *Exploratory Data Analysis*, and the author was John Tukey, a noted statistician at Princeton, the very same Tukey of whom Feynman wrote. (That book informed and inspired some of the analytic tricks I employed in my doctoral dissertation . . . but I digress.)

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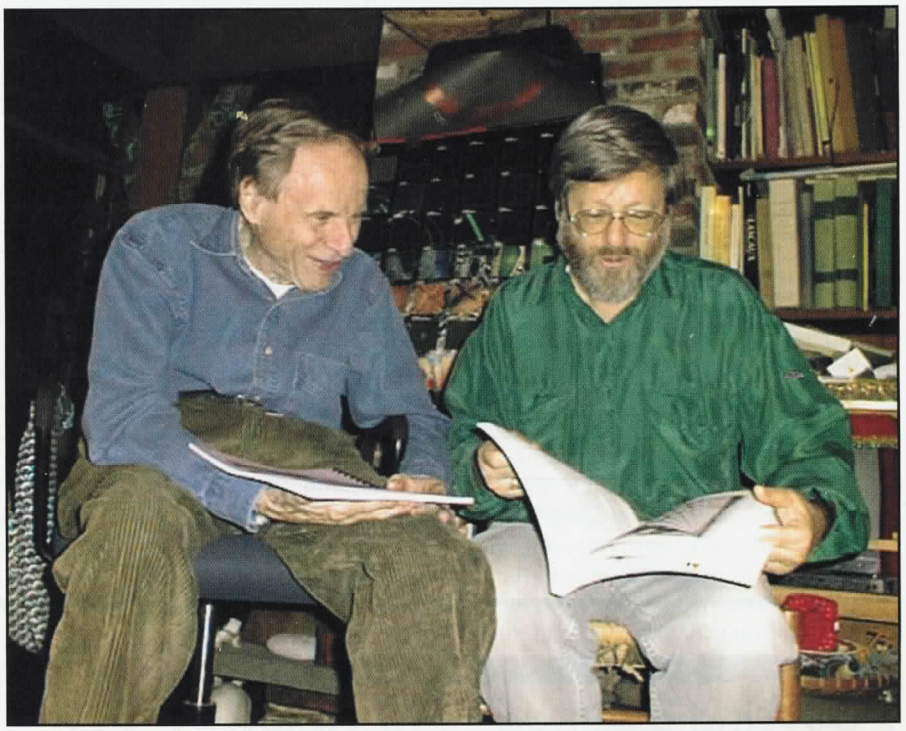

*The author exchanging ideas with SETI elder statesman Prof. Philip Morrison in 1997. (Phylis Morrison photo)*

It was Tukey, I later learned, who had developed the Fast Fourier Transform (FFT), the algorithm that has been, until recently, the primary signal analysis tool of observational SETI. I first learned about the FFT in a landmark textbook on the Fourier Transform written by Ron Bracewell of Stanford. Bracewell was an Australian radio astronomer who co-authored the very first radio astronomy textbook, and later became very involved in SETI research . . . but I digress.

One of the things that motivated Bracewell's interest in SETI, it turns out, was the seminal article "Searching for Interstellar Communications," by Cocconi and Morrison. Phil Morrison, as I'm sure you know, went on to become the father of modern SETI science, and a mentor to many SETIzens, including me. He was also a veteran of the Manhattan Project at Los Alamos, and somewhere along the line had gotten to know Tukey. Interestingly, Morrison, Feynman, and quite a few other Los Alamos scientists went on to become staunch pacifists, and proponents of nuclear disarmament . . . but I digress.

I could go on (digressing), but I think you can see the pattern here. From Challenger to Feynman to Tukey to Bracewell to Morrison, it all points to SETI. It's a case of convergent influences, quite common to all intellectual pursuits, and I'm sure you've seen similar connections elsewhere. The point is, SETI is so highly interdisciplinary a field of study that you can get there from just about any conceivable starting point, and from wherever you started, you arrived at this page for a reason. SETI science needs your skills and background, whatever they may be.

73, Paul, N6TX