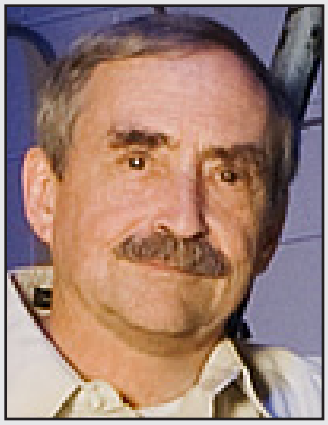
G. K. GILBERT AWARD

Presented to
Peter H. Schultz



Peter H. Schultz
Brown University

Citation by David A. Crawford

I first met Pete Schultz nearly 28 years ago when I was an undergraduate in his planetary geology class at Brown University. He was a new faculty member then but had already made fundamental contributions to planetary science. Before arriving at Brown he had authored or co-edited four books including a book based on his dissertation entitled "Moon Morphology" where he demonstrated his artistic and observational skills and applied both to the impact process. Since then he has contributed to our understanding of virtually every solid body in the solar system.

Soon after receiving his PhD, Pete worked with Don Gault on seismic modification of surface features due to large impacts, the beginning of a prosperous scientific collaboration. In a well-regarded paper, he and Don argued that because much of the ejecta from large impacts would be clouds of low-density, low-speed debris, their re-impact would spread across the surface, rather than be buried and re-mixed within secondary craters. Another paper with Don on "Atmospheric Effects on Martian Ejecta Emplacement" is an often cited seminal work. Continuing this work with his students, Pete has changed our picture of the crater-atmosphere interaction by categorizing it into regimes dependent on particle size, crater size and atmospheric density.

Pete has greatly expanded our understanding of oblique impacts. His laboratory studies have characterized the fate of the projectile, the evolution of ejecta and the contribution of frictional shear heating to melting. With students and colleagues, he has developed pioneering techniques to probe the high speed impact process using magnetics, piezoelectric gauges, spectroscopy, particle imaging velocimetry and numerical modeling calibrated by experiments.

In work with Paul Spudis, he helped extend our knowledge of the lunar volcanism time scale. They recognized that dark-haloed craters in the lunar highlands reveal subsurface mafic units and the degradation of small lunar features and crater statistics demonstrate that basaltic eruptions occurred as recently as 0.8 Ga.

In work with Marcelo Zárate and colleagues he led the effort to discover and characterize impact glass strewn fields within Argentine loess deposits. Results have been used to redefine the ages of sedimentary deposits, interpret the paleomagnetic record and re-assess the paleontological record.

Pete has received the Barringer Medal from the Meteoritical Society, the Distinguished Scientist Award from the Hypervelocity Impact Society and a medal of achievement from the National Academy of Sciences in Argentina. He is the science coordinator for the NASA-Ames Vertical Gun. As co-investigator on planetary missions Deep Impact, LCROSS and Stardust/NExT, he applies his knowledge of the impact process, backed by experiments, to mission design and interpretation. As director of both the Northeast Planetary Data Center and the NASA/Rhode Island Space Grant Consortium, he supports K-12 science education in Rhode Island.

Pete, your contributions to planetary science are more numerous than a short citation like this can convey. You are a deserving recipient of the G. K. Gilbert award because of your insight, creativity and contributions to planetary science, the field of impact cratering and the community. Congratulations and thank you!

Response by Peter H. Schultz

Since 3rd grade, I wanted to combine a love for art, astronomy, and geology. Sixty years later I'm receiving this award for being able to do just that, which seems a bit surreal. Although others may be more deserving, I'll accept this award on behalf of my students, colleagues, and my wife (my students call her St. Barb), who has put up with a workaholic for 50 years.

Funny how careers start. My path was like many…a certain teacher, a 3rd grade teacher (Miss Jackson) who had a passion for geology. Encouraged by my father (a biochemist) and mother (an artist), I marveled at the dioramas in the Field Museum (Chicago) and discovered my first trilobite in the coal pits of Illinois. While most kids sold lemonade, I tried selling plaster casts of my trilobite at 75 cents…not a big seller. But looking at the Moon through a telescope changed all that. My visceral response to actually seeing another world (not just a photograph) drew me into astronomy. That latent interest in fossils, though, attracted me to geology classes at Carleton College (Northfield, MN). Passionate teachers there rekindled my imagining Earth's past. After that, I always carried two geology texts while flying cross-country, just to understand what was passing below.

In the end, I entered graduate school in astronomy at the University of Texas, Austin.

During a chance encounter on an airplane, everything changed. I was reading about the upcoming Apollo mission, and the gentleman sitting next to me asked to look at the article. His name was J. Hoover Mackin. To my surprise, he was part of the upcoming Apollo mission and asked me to look through boxes of Lunar Orbiter photographs. Mackin challenged me about surface processes and taught me the difference between rational and empirical approaches. Through astronomy, I learned physical approaches; through geology, I recognized the importance of building a reservoir of next questions.

After Mackin's untimely death, both Bill Muehlberger and Harlan J. Smith (my formal advisor) encouraged my graduate studies. In my second year, Harlan sent me to a Gordon Research Conference (alone) where I met my future mentors and colleagues. One of them, Don Gault, showed movies of his hypervelocity impact experiments using the Ames Vertical Gun Range that seemed like kinetic dioramas: he watched craters form, not just their aftermath. Years later we would have a long and fruitful collaboration.

So what have I learned? First, remember the usefulness of useless information. Second, the smallest discoveries can have the biggest implications. Third, serendipity can be as important as a well-defined path. And fourth, talk to the person next to you. Planetary geology is my passion, new discoveries still keep me up at night…a curse may I wish for all my students.

I am humbled to be honored among other first-generation planetary explorers, in the company of mentors and colleagues. And I feel fortunate to be able to continue this journey with my past and current students, including a special colleague, Dave Crawford, as my citationist.