Pergamon

DEEP-SEA RESEARCH
PART II

Deep-Sea Research II 45 (1998) 569–572

Dedication to Peter M. Williams

E.R.M. Druffel[a,*], A.F. Carlucci[b], J.E. Bauer[c], K.L. Smith[b]

[a]*Department of Earth System Science, U.C. Irvine, Irvine, CA 92697, USA*
[b]*Scripps Institution of Oceanography, U.C.S.D., La Jolla, CA 92093, USA*
[c]*School of Marine Sciences, College of William and Mary, Gloucester Pt., VA, USA*

Received 27 May 1997; revised 15 September 1997; accepted 22 September 1997

Peter M. Williams was a pioneer in the field of marine organic chemistry for thirty-five years. He died on 26 December 1994 of complications from emphysema. We dedicate this special volume of *Deep-Sea Research* to his memory and as a commemoration of the vast amount of research inspired by his creativity and ideas, many of which were far ahead of their time.

Research accomplishments of Peter Williams included:

- Performing the first isolation of individual organic compounds from seawater.
- Making the first determination of the stable carbon isotopic composition of dissolved and particulate organic matter in the sea.
- Performing the first radiocarbon dating of seawater organic matter.
- Serving as a leader and major contributor to an interdisciplinary study on the formation, composition and alteration of sea surface films.
- Publishing, over three decades, results of the most comprehensive studies to date on the distribution and cycling of dissolved organic carbon (DOC) in the world's oceans.

As John Hedges aptly expressed in his letter nominating Peter Williams as a Fellow of the American Geophysical Union: "Who else can so accurately describe their research interests simply as 'Marine Chemistry'?"

Pete, as he was known to his friends, graduated in 1949 with a B.S. in Chemistry (*magna cum laude*) from Washington and Lee University in Lexington, Virginia. At the age of 22, Pete started his career in science as a Junior Research Chemist with Smith, Kline and French Laboratories in Philadelphia in 1949. He would probably insist that his interest in science began long before that, perhaps in the woods surrounding his

* Corresponding author. Fax: 001 714 824 3256; e-mail: edruffel@uci.edu.

PII: S0967-0645(97)00008-3

uncle's farm in Connecticut where he hung pieces of potassium metal from the maple trees, and delighted in the small fires that ignited when it began to rain.

He was drafted into the U.S. Army in 1951 and served with the medical corps stationed in eastern France. After two years as a laboratory technician at the Citrus Experimental Station, later to become part of U.C. Riverside, Pete enrolled in the chemical oceanography program at Scripps Institution of Oceanography. He earned an M.S. in 1958 and a Ph.D. in 1960 from U.C.L.A., which was the degree-granting university for Scripps at the time. His doctoral dissertation, conducted under the advisorship of Professor Ed Goldberg, was entitled *Organic Acids in Pacific Ocean Water.*

After graduation, he, his wife Elizabeth, and their two children, Kristen and Michael (prior to Megan's birth), moved to Canada where Pete took a position as an Assistant Professor at the Institute of Oceanography at the University of British Columbia. In 1963, he accepted an offer from John Strickland to return to La Jolla and become part of the newly formed Food Chain Research Group (FCRG). The FCRG was a component of the Institute of Marine Resources, a system-wide University of California research unit, headquartered at Scripps. Pete did most of his pioneering and classic works during his tenure with the FCRG. After it was disbanded in 1989, Pete became associated with the Marine Research Division at Scripps.

Pete had an extremely productive research career, both as an individual and as a collaborator. Over the years Pete worked with colleagues in the FCRG and at other institutions, with post-doctoral and visiting researchers and with graduate and undergraduate students. If we judge Pete on the accomplishments of his post-doctoral researchers and students, he rates second to none.

Pete cared more about building up others' reputations rather than his own. He did not care about furthering his name, his accomplishments... though there were many. He was concerned with doing a superb job of answering extremely tough geochemical questions. He never cut corners. And he always said, "I do not know", when something eluded him. He did not feign knowledge that he did not have, a refreshing attribute in academia.

Those of us who had the privilege of working with Pete on a day-to-day basis saw his insight and creativity. He was full of ideas, at times expressed with wit and, at times, with pessimism. Most often, his hunches were proven correct. When Pete gave us a result or a number, it was trusted – without question.

Scientific controversy, however, did not escape Pete over his long and illustrious career. Over a 25-year period, he reported seawater DOC concentration values from various marine environments. These values were generated using several combustion techniques (e.g., persulfate oxidation and UV-irradiation). However, a new method published in the late 1980s and based on high-temperature combustion gave DOC concentration values considerably higher than those published by Pete. Pete, always philosophical about controversy, grinned and said "for 25 years I've been publishing the wrong numbers". However, after further studies by many investigators, Pete's earlier results were validated. His commentary on the possibility of 25 years' worth of data being potentially wrong? "Oh, well, I guess it could have been worse. I could have been shuffling papers in some dead-end office job that whole time!" That was Pete!

Even today, respect for his work continues to grow like that for an artist whose work is seen as ahead of its time. Pete always submitted that one's life work is as transient as one's life, and the most we can hope for is to provide one more stone, firmly placed, on which others can step.

John Farrington said recently of Pete's impact on the field of marine chemistry, "I marvel at the fact that it has been difficult to formulate a major interpretation that Pete has not already stated or anticipated in his 1965 paper (on the biogeochemistry of lipid compounds in sea water)".

An excerpt from a letter that Susan Henrichs wrote for his memorial in January of 1995, reads: "To me, Pete was like fresh-baked bread; crusty on the outside, soft and warm inside. He was never one to call a spade a long-handled digging implement. But he was consistently supportive and kind, in his way, to junior scientists, reserving most of his impatience for individuals with a size-twelve ego and a size-two soul. His professional legacy lies not only in his published work, but in the present and future accomplishments of colleagues he has enriched and encouraged".

Pete Williams was the only person to be honored by election to AGU Fellow posthumously. Induction into this prestigious group occurred at the AGU/ASLO Oceanography meeting in San Diego in February 1996, when the certificate was given to Elizabeth Williams. He truly embodied the criteria for an AGU Fellow: "eminence in a branch of geophysics and unselfish cooperation in research". The citation for Pete's award was "for outstanding contributions to an extraordinary range of studies addressing the oceanic carbon cycle, and for unselfish cooperation in interdisciplinary studies of the marine environment". In the recommendation letter for Pete's fellowship, Cindy Lee said, "Peter Williams is not only one of the giants of chemical oceanography but a warm and kind human being".

An event that shed a great deal of light on Pete Williams as a person happened in the late 1970s. Pete called Ellen Druffel at the Mount Soledad ^{14}C Lab, asking if there was an interest in collaborating on the ^{14}C dating of some deep-sea sediments. Once she agreed, he said he'd be right up with the samples – and that he wanted to help. He arrived with his brown grocery bag full of glass jars, each individually wrapped 3 times with baggies and twist ties, all full of sediment he had dried in his kitchen oven at home to avoid contamination from radiotracers at Scripps. He put them carefully on the counter and said, "Okay, what do you need help with?" This was surprising; she had expected him to drop off the samples and collect results in a few months. She told him the first thing they needed to do was to make dry ice slushes, thinking that this would scare him off. To her amazement, he agreed, followed her to the dry ice bin, and proceeded to take over this basic task. This was an odd scene: a world famous Scripps marine chemist making slushes at the direction of a second-year chemistry graduate student. She learned then that Pete was not happy unless he was in the lab, turning dials and playing with samples. Indeed, Pete never actually "retired" *per se*, but continued to conduct hands-on research in the lab and at sea at an age far past that of most practicing oceanographers.

He, more than anyone we know, had an uncanny ability to get on with life, no matter the diversion, detour or disaster. He was a gentleman, with a heart of pure gold and with a penchant for survival despite severe health problems in later years.

We offer a quote by Lao Tsu:
A leader is best
When people hardly know
That he exists.
Less good when they
Praise and obey him,
Worse when they
Fear and despise him.
But of a good leader,
When his aim is met,
His dreams fulfilled,
They will say:
"We did this ourselves!"

Pete indeed let us think that we contributed, in large part, to all the work that we conducted alongside him. But it was through his tutelage and nurturing that we learned how to do science in a creative, eclectic way. We owe him a great deal. For this, and for his ever-present friendship, we are grateful for the opportunity, and indeed the privilege of having known him.

Students and postdoctoral researchers of Pete Williams are:
Jim Bauer
Ken Buesseler
Ellen Druffel
Dave Erickson
Dennis Hansel
Susan Henrichs
Dan Repeta
Peter J. Le B. Williams