A Remembrance of Prof David Jenkins (1935-2021)

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Our profession lost one of its greats this year: Dr. David Jenkins, Professor Emeritus at the University of California at Berkeley, passed away on March 6, 2021. Dr. Jenkins, aka the “Floc Doc”, is remembered as a wonderful friend and colleague, for his love and dedication to his family, and as a leading light of our profession over an amazingly active career spanning six decades.

David was well known internationally for his groundbreaking work in wastewater treatment processes, notably with respect to improving our understanding of activated sludge bulking and foaming, as well as his humor, friendship, and generosity. He spent much of his career traveling the globe, always with his wife and partner Joan at his side, helping wastewater plants troubleshoot their processes and making friends. He leaves an extended academic family, as well an extensive network of fans, colleagues and friends charmed by his quick wit, sharp intellect, and encyclopedic knowledge of chemistry and microbiology. Each year, there are many Berkeley faculty who are chosen for membership in the National Academy of Engineering, including David in 2001, but only a handful receive the Berkeley Citation Award. David was particularly proud of receiving this award in 1999.

David was born into a wastewater legacy to Olive and Samuel H. Jenkins in 1935. His father is also a legend in our field, having devoted his career to cleaning up the Thames and other polluted rivers and advancing his profession. Samuel’s work is honored by the International Water Association Samuel H. Jenkins Outstanding Service Award (which David himself received in 1992!).

Throughout his career, David and his wonderful wife Joan were an inseparable team. David was rarely without her as he traveled the world to conferences, speaking engagements, and consulting projects. David was devoted to his wife, children and his grandchildren. His students became members of David’s extended family and continued to see David, Joan, and their family on a regular basis.

David earned his PhD in Public Health Engineering, from King's College, University of Durham, England, and he began teaching at UC Berkeley in 1963 in the Department of Civil Engineering. One of his most visible contributions was that he literally wrote the book on activated sludge settling, one of the most problematic processes in biological wastewater treatment. Written with Glen Daigger and Mike Richards, the Manual on the Causes and Control of Activated Sludge Bulking and Foaming is still a “must have” reference for practitioners and academics found on treatment plant bookshelves around the world. David spent considerable time finding real life proof/solutions to illustrate the technical ideas in the manual, which was the key to its success and use by everyone from academics, design engineers, and plant operational staff.

One of David’s greatest legacies is his tireless activity in educating academics and practitioners about how to deal with treatment challenges such as nutrient removal and activated sludge bulking and foaming. David led workshops around the world on filament identification and control, including an annual course in Perugia, Italy with the late Dr. Valter Tandoi, where he embraced participants from all nationalities. He liked nothing better than visiting a treatment plant or analyzing data sets to help troubleshoot problems. He loved spending time with operational staff, and he always stressed they were the key to any plan’s success: if they did not buy into the solution, it was not going to work. He firmly believed in teaching treatment plant operators how

to identify problems in their processes and find creative solutions. The words, “Dr. Jenkins was here and helped us out” will continue to be heard at plants around the world for years to come.

David was a genius at rearranging plant infrastructure for selector installation and the master of practical solutions. He always started from first principles and questioned everything from the data to the plant operational philosophy. As a colleague, you could also count on David to bring a broad perspective, founded on the fundamentals, building on the capabilities of the entire team, and with a tenacity to get to the heart of the matter.

In the early days of enhanced biological phosphorus removal (EBPR) research, David was famous (or infamous!) for challenging the idea (EBPR) was even occurring, suggesting a chemical mechanism instead. As an expert in chemical phosphorus removal, and a chemist by education, he considered the data available at the time and contended that biologically induced chemical precipitation was occurring, rather than the accumulation of phosphorus directly by what we now call phosphorus-accumulating organisms (PAOs). These initial assertions were often the source of humor, but they spurred research demonstrating that the fundamental removal mechanism was biological in nature. As further data became available, David became one of the leading proponents for the biological mechanism and contributed key knowledge concerning the operating mechanisms and supporting the design of practical systems. For example, he was the first to publish data on PAO kinetics and the effect of temperature on PAO maximum specific growth rate that is still used today. This was classic “David”: be driven by the data, think broadly, avoid preconceptions, and focus on solving problems.

David’s legacy as a mentor is extraordinary. It was said you couldn’t swing a dead cat at a WEFTEC conference without hitting a former Jenkins student. He graduated over 40 PhD students during his career, many of whom have gone on to be leaders in engineering practice and in academia. He would do anything for his students - it was not uncommon for new arrivals to stay at David and Joan’s house when they arrived in Berkeley, and perhaps for longer should funding become tight. David connected his students with the most influential people in the field through conferences and collaborations, and would bring students along to consulting jobs at local wastewater plants.

David’s mentoring went well beyond academic advice, and included an invitation to be part of his extended family. He was a tough critic, but always added the words “I am sure you will figure it out” at the end. You left meetings inspired to be your best, and the confidence that “If David thinks I can do it, I can”. His legacy lives on through the life lessons he passed on over his long career. Each of his students, now spread across the globe, follow the framework and principles that David laid down, and they in turn are passing on David’s legacy to their students/colleagues, just as practitioners pass on his knowledge to the next generation.

David and Joan’s beautiful house, high in the Berkeley hills and looking out over the Golden Gate Bridge, has been the rendezvous point for gatherings of all types and has hosted an uncountable number of amazing discussions. Dr. Takashi Mino discussed phosphorus removal in the living room. First year grad students discussed the meaning of life in the front yard. Strangers became friends in the kitchen. Student research meetings might be in the living room over a strong cup of tea and a “digestive biscuit”, perhaps augmented by a lesson in filament ID on his microscope downstairs. After the research discussion, one might wander his backyard telling jokes, learning how to prune a tree, or gathering lemons.

David and Joan welcomed all warmly and affectionately into their home, including hosting students for holiday dinners and their famous annual ‘Spaghetti Parties’, featuring a hot tub and late nights where graduate students new and old bonded. The Jenkins home was open to all.

We conclude with a personal remembrance by another legend in our field, the late David Stensel, Professor Emeritus at the University of Washington, who tragically passed away even as he was helping to write this memorial for Professor Jenkins. “I first met David (Professor Jenkins) when I was a graduate student at Cornell in 1970. He was a young fiery intellect who set us straight on luxury uptake. So it seemed. I had since read all his earlier papers on this and they were certainly fundamental and logical.... David and I enjoyed good wine often and he introduced me to Napa Valley. His friendship with myself and Orrie [Albertson] continued and we three had many good trout fishing trips at a place near Kemmerer Wyoming. On one of those David was reeling in a fish and he was standing on a bank about 6 feet above the water. The fish got off the hook just before getting up and I watched David jump in after it. He was an adventurous guy and I also found that he played rugby in England.

“Over the years we had many wonderful times and discussions; walks with him at Berkeley discussing Bio P removal and in many consulting engineering experiences together that were quite unique including the conversion of the Phoenix 23rd Ave. plant to BNR selector in 1988, along with Orrie and Wes Eckenfelder. On one of my trips to visit him, while I was in industry, he met me at the airport and he had a book dealing with fundamental physical and chemical aspects of foaming. From this I realized how academic life is a tremendous opportunity for continuous learning in many areas, and that had a big influence on my moving into academia. David was truly gifted and I loved his way of saying things and his frankness about getting things right. He loved being with people and whenever I saw him over the years was always so friendly and open. He left a big imprint on me and as I know many others. A unique and wonderful person.”

David knew how to live life to the fullest, and to bring us all along with him. His greatest lesson may be that we all need to support each other. He had little time for those who were in it for themselves, but would do all that he could for those focused on the common good. He only required that one pay it forward, and in doing so helped those around him become better people.

Rest in peace, Floc Doc, and thank you for the knowledge, wisdom, and friendship you brought to the world. We look forward to the day when we can again share a tea, a biscuit, a laugh, and a good long story.