

Walter H. Graf 1936-2017

A well-known and distinguished colleague has passed away. Walter Graf was known in the hydraulics community as an expert mainly in sediment hydraulics, having significantly contributed to the current understanding of two-phase mixtures in the fluvial environment. For a long time he has been closely affiliated with the International Association of Hydro-Environment Engineering and Research (IAHR) having often participated in its biannual World Congresses. He is also remembered for his many outstanding papers on



the above and other topics, published mainly in the IAHR Journal of Hydraulic Research, and in the ASCE Journal of Hydraulic Engineering.

Walter Hans Graf was born on March 7, 1936, at Baden close to Vienna, Austria. He obtained his engineering degree in 1959 from Technical University of Vienna, and his PhD degree in 1963 from the University of California, Berkeley CA. Until 1968 he then was assistant professor at Cornell University, Ithaca NY, from when he acted as associate professor and Hydraulic Laboratory Director at Lehigh University, Bethlehem PA. From 1973 until his retirement in 2001, he was professor of hydraulics and Hydraulic Laboratory Director at the former Civil Engineering Department of Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland.

Prof. Graf's research activity was wide-spanned. His first papers deal with the roughness behavior of open channel and pressurized pipe flows. He collaborated from the mid-1960s with Prof. Hans A. Einstein, the famous hydraulician in sediment engineering, investigating among other sand-water mixtures. Another paper written with Prof. James A. Liggett deals with unsteady flow effects in rivers. Graf then took an interest in sediment transport in conduits, involving a fixed boundary surface in contrast to rivers. He was awarded the 1973 Freeman Fellowship. Once at EPFL, Graf expanded his research to reservoir sedimentation. Shortly later, he became in addition interested in turbidity currents of lakes, notably Lake Geneva. In parallel, he always pursued his

researches in fluvial hydraulics, leading for example to the 1997 Karl Emil Hilgard Hydraulic Prize of ASCE for a paper entitled Velocity and turbulence distribution in unsteady open channel flows, co-authored by one of his PhD students.

Graf is and will remain known in the hydraulics community for his books. His *Hydraulics of sediment transport*, published in 1971, is considered the first full account on this topic. Graf masterly highlights the various facets of this up to then mainly experimental approach. The second edition followed in 1984; it was devoted to his first wife, who sadly passed away during jogging around 10 years ago. In 1991, Graf and Prof. Mustafa Altinakar published *Hydrodynamique*, and shortly later presented the two volumes of *Hydraulique fluviale*. One of the reviewers correctly stated that this work successfully merges the European and American pedagogical methodologies. In 1998, the two colleagues published the book *Fluvial hydraulics*. Graf and Mortimer in addition edited the book *Hydrodynamics of lakes* (1981), and Graf edited the *Lake and reservoir hydraulics* (1987) during the IAHR World Congress held then in Lausanne. During the 1999 Graz IAHR World Congress, Graf was awarded the IAHR Honorary Membership.

Prof. Graf was a highly independent person, sometimes not easy to access. He had an open opinion on many things, both technical and human. He is remembered for his sitting in his office at EPFL, with the pipe in his hand and talking on a topic of common interest. He was often seen at Conferences and counted to these who received many invitations to foreign universities, where he would deliver a lecturing program, and discuss technical problems with PhD students. His last public appearance was during the 2014 River flow Conference, held in Lausanne. From then, his health became poor, leading finally to his death on June 27, 2017, at Pully, Switzerland.

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