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In Memoriam

## In Memoriam - Graham de Vahl Davis



It is with great sadness that we announce the passing of Emeritus Professor Graham de Vahl Davis on 24th December 2019. Graham was a passionate man with great intellect and wit. He had a great many interests ranging from his research in computational fluid dynamics (CFD) and heat transfer to communal engagement and leadership, family, arts, culture and travel. He never missed answering a single email and always gave prompt and full support and guidance to his colleagues and friends. His rich voice made a strong impression in formal meetings and discussions. Graham had a presence that we will never forget.

Graham was born on the 11th of May 1931 in Sydney. He began his studies at Cranbrook, but afterwards his parents moved him to Scots College, where he spent his entire 13 years. After high school, Graham went straight to Sydney University, where he received his Honours degree in Engineering in 1952. Following his graduation, Graham moved to Melbourne for his first job with Caltex Oil, a year later winning a PhD scholarship to Cambridge. After he completed his doctorate in mechanical engineering at the age of 24, he was employed by the Australian Atomic Energy Commission and sent to the United Kingdom Atomic Energy Research Establishment at Harwell, near Oxford, to work as a computational fluid thermodynamics engineer. In 1960, he joined the School of Mechanical and Industrial Engineering at the University of New South Wales, rising up the ranks to full professor, and then Emeritus Professor at UNSW. At UNSW, he taught fluid dynamics, thermodynamics, heat transfer and especially CFD/HT for all of that time. He was highly regarded as an inspirational lecturer and enthusiastic, dedicated and respected supervisor to his many PhD students. He also contributed strongly to the administration of the School in many roles, serving one term as its Head.

From the mid-1960s, computational fluid dynamics and heat transfer were Graham's principal topics of research. He was a pioneer in CFD use in Australia and developed the largest and best known research group in the country. Graham worked to a large extent on problems in which the flow is wholly buoyancy-driven, or in cases where buoyancy causes a significant modification to a

forced flow. Such problems occur over a wide spectrum of applications. He was responsible for the development of the widely used method of the false transient for achieving rapid steady solutions of the CFD/HT equations. He was dedicated to obtaining valid and accurate numerical solutions. He was a pioneer in the concept of bench-marking in CFD, and the author of one of the most widely cited papers on this topic. He was the author of the textbook *Computational Methods in Engineering and Science*, as well as the author or co-author of more than 150 books, papers and other refereed publications on the application of CFD/HT to a wide range of problems of theoretical and practical importance. The topics he studied included combined radiation and natural convection in cavities; steady and unsteady natural convection in low-Prandtl number liquids; phase change problems; natural convection in a solidifying liquid, with applications to metal casting and crystal growth; heat transfer in an annular cavity in the presence of a magneto-hydrodynamically driven flow, with applications to the design of lasers. Professor de Vahl Davis was a Member of the Order of Australia (AM) and was made a Fellow of the Australasian Fluid Mechanics Society as well as a Fellow of the Australian Academy of Technology and Engineering for his life's work. He was awarded the Centenary Medal, Commonwealth of Australia in 2003.

For many years, Professor de Vahl Davis was a major leader in the International Centre for Heat and Mass Transfer. He held the post of President from 2011 to 2014 as well as Vice-President and Member of the Executive Committee. He was the President of the Assembly for International Heat Transfer Conferences and the Conference Co-Chair for IHTC-13. He was the founding Editor of the journal *Computational Thermal Sciences*. He initiated the Computational Heat Transfer Symposium and serving as the Co-Chair of CHT-01, -04, -08 and -12 symposia. An award in his honour was established at these ongoing scientific events. He was also a Member of the Board of Governors, Technion-Israel Institute of Technology, Haifa, Israel as well as a Member of the Editorial Advisory Boards of half a dozen international journals in computational fluid dynamics and heat transfer. His contributions to the heat transfer community were outstanding and he paved the way for many researchers who looked on him as a mentor in both research and service.

Graham married Vivianne Ashkanasy in August, 1953 and they left shortly thereafter for his scholarship studies at Cambridge. This was the first of their many travels together, and Graham could always remember and recount fascinating events from many of his travels in intricate detail. When they returned at the end of November 1957, they had eight-month-old Shelley. Nicola was born in December 1960. Her death in March 2010 was a staggering

blow for both Graham and Vivianne. After the death of his wife Vivianne in 2011, in the last seven years of his life, Graham had his loving companion, Professor Bettina Cass.

On behalf of the editors of this journal and the world-wide heat transfer community, we offer our condolences to his partner Bettina Cass, his daughter Dr Shelley (Rochelle) Alexander and grandchildren Joel Alexander, Rob Alexander, Shoshana Blum, Sruli Bookey and Gershon Bookey as well as his great-granddaughters Naomi, Esther and Mimi.

Graham's love for learning, his wide-ranging interests and his intellectual and enthusiastic approach have been inspirational to his family, friends and colleagues. His passion, wisdom, commitment, humour, kindness as well as his leadership and guidance in the heat transfer community will be greatly missed by many friends and colleagues around the world, including:

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