

Obituary



Fenton Pillow
1921–2006

Fenton Pillow, Professor of Applied Mathematics at the University of Queensland from 1964 to 1986, died in Brisbane on 1 April 2006, a few days after his 85th birthday.

A tireless advocate of hard applied mathematics, especially of continuum mechanics, and most especially of viscous fluid flow, Fenton built on his experiences at the Universities of Sydney, Melbourne and Toronto to help develop an undergraduate program of courses at UQ with a Pass and an Honours stream. The Honours stream was particularly strong, and those students who pursued it successfully got a wonderful grounding in classical methods and models.

Fenton will be remembered with affection by former students and colleagues for his impish humour and good fellowship, which came to the fore over a beer or two during the 'aftermath' at the UQ Staff Club, following the traditional Friday afternoon seminar. These started at 4 pm, and often the bulk of the audience sweated in restless anticipation on a hot Queensland afternoon as 5 o'clock came and went, and questions continued from Fenton to the speaker about matched asymptotic expansions.

Albert Fenton Pillow was born in 1921 in the Belgian Congo, where his father was working as a mining engineer. The family moved back to Geelong in 1924, and Fenton was educated at Geelong College and then the University of Melbourne, from which he graduated with BA Hons in 1942.

His research career began at the Aeronautical Research Laboratories in Melbourne in 1943. At ARL he carried out both experimental and theoretical work under the direction of George Batchelor on compressible flow, hydrodynamic stability, and the low-turbulence wind tunnel. When Batchelor left for Cambridge in 1945, Fenton took charge of the Fluid Motion Group, being joined later by Harry Levey, who sub-

sequently took a chair at UWA. Fenton's research from this period appeared in a number of technical reports, including a long review of research on hydrodynamic stability.

In 1947 Fenton began PhD studies at Trinity College, Cambridge, again under Batchelor's supervision. His thesis treated three problems of physical significance, all of which were approached by the use of singular perturbation theory, in its infancy at that time. These problems, which set a framework for his later work, dealt with heat regenerators in the unsteady state; the free convection cell in two dimensions; and the formation and growth of shock waves in the one-dimensional motion of a gas. Of particular significance was his estimate, using boundary layer concepts, that the rate of heat transfer through a Bénard convection cell is proportional to the temperature difference raised to the $5/4$ power. This was not verified experimentally until 1975. All three thesis problems were difficult, and in each case Fenton's approach shows evidence of his physical insight and his skill with advanced mathematical techniques.

Fenton returned to ARL in 1950 to head a reconstituted Fluid Motion Group, and remained there until 1954 when he was appointed Senior Lecturer in Applied Mathematics at the University of Sydney under Keith Bullen. In 1957 he transferred to a similar position at the University of Melbourne under Tom Cherry. In 1959 he moved to the University of Toronto as Associate Professor, and became a full Professor there in 1962. His last academic move was to UQ in 1964 as Professor of Applied Mathematics.

After his PhD, Fenton's research mainly concerned the diffusion of heat and circulation in fluid flow, and his substantial 1964 paper on these topics in *J. Mathematics and Mechanics* further illustrates his style and skill. His final group of three papers in *J. Fluid Mechanics* in 1985 were in collaboration with PhD student Ross Paull. They provide new solutions of the Navier–Stokes equations, and give a thorough treatment of conically similar viscous flows, with conservation principles for ring circulation and kinematic swirl angular momentum.

An important contribution made by Fenton to applied mathematics lay in his supervision of research students. In the late sixties, it was not uncommon for academics to be appointed without PhDs, and Fenton supervised the PhD projects of four such recruits after they joined the Department at UQ. In all he supervised eighteen PhD students, including Ross and Allan Paull, both now involved in the Hyshot scramjet project which Allan directs.

On his appointment to UQ, Fenton secured from the Vice-Chancellor a remarkable deal that financed a visit to the Department each year for several months by a distinguished applied mathematician. Each visitor typically gave one of the advanced Honours courses, and Honours and postgraduate students, as well as staff, benefited from lectures and seminar series delivered by eighteen such notables in all, including Geoff Ludford, Richard Meyer, Julian Cole, Gerry Whitham and Keith Stewartson.

Fenton was charmingly disorganised and prone to minor accidents. One consequence was that his lecture and seminar presentations were sometimes chaotic. Humorous anecdotes abound, describing all manner of incidents.

The most famous is the wardrobe story, from Fenton's days as Head Tutor at Trinity College, Melbourne. The story is told in matchless style by Colin Rogers, and the reader is referred to him for the authoritative version, but in brief it is this: After a heavy night in the dining and common rooms, Fenton was left to turn off all the lights as he made his way to bed. Noticing one final light on at the far end of the billiard room as he passed down the passage to his bedroom, he dutifully wound his way through the tables and switched it off. Now in complete darkness, he found it more difficult to retrace his steps and, somewhat disoriented, he exited the billiard-room without realising it. Coming upon the door of the room opposite, he mistakenly assumed that he must have closed the billiard room door after entering, and was now opening that door back into the passage. In fact it was the bedroom door of a newly arrived and now rudely awoken resident, who lay cowering under the blankets as Fenton, believing he was in the passage, groped his way noisily and uncertainly through the bedroom, still in total darkness. Coming upon another door, and thinking it must lead from the passage to his own bedroom, Fenton opened it and stepped through. It was in fact the door to a large wardrobe, as yet unused by the new resident. Having shut the wardrobe door behind him and finding himself enclosed, Fenton panicked and pushed violently on the wardrobe walls and door in an attempt to escape, managing only to tip the wardrobe over on its face, with himself still inside. Violent thumping and banging ensued. It is not recorded who helped Fenton out of his predicament, nor how long it took the new resident to recover from his experience.

Fenton met his wife-to-be Jill Massey-Greene as a result of another accident — a happy and fortunate accident in this case — while skiing at Mt Hotham in 1957. They married and had four daughters, Libby, Jane, Louise and Heather, and one son, Richard. Jill and all five children survive him.

Tony Bracken and Vincent Hart

Department of Mathematics, The University of Queensland, Brisbane QLD 4072