OBITUARY

BASIL CAMERON RENNIE

Basil Rennie was born in London on 24 December 1920. He came from a long line of engineers, a family tradition that surfaced in much of his later mathematical work. He attended the University College School in London, where he obtained a Mathematical Scholarship at Peterhouse, Cambridge. After graduating in 1941, he found employment first with the Rolls Royce Aero Engine division, then with Austin Motor Works. In 1943 he joined the Fleet Air Arm of the Royal Navy as a radio mechanic, and he served in the Pacific Fleet until the end of the war. This was his first contact with Australia, and he seems to have liked what he saw.

After his service with the Navy, Rennie resumed his studies at Peterhouse and received a PhD in 1949. Given his strong practical bent, it is perhaps surprising that he chose lattice theory as the subject of his thesis; apart from an article [**1**] in the *Proceedings* of the London Mathematical Society (he became a member in 1947) and a small booklet [**2**] published at his own expense, he never touched lattice theory again. It was at Peterhouse that he took up rowing, an activity which became a life-long interest.

In 1950 Rennie accepted an offer of a senior lectureship at the University of Adelaide in South Australia. This was a time of considerable post-war expansion at the University, and its forward-looking Vice-Chancellor A. P. Rowe recruited a number of young and promising staff from overseas, some to leading positions. For instance, he established a Mathematical Physics department (unique in Australia) with the 30-year-old H. S. Green as its head, which became one of the most active research departments in Australia.

Basil Rennie's motives for moving to Adelaide had little to do with A. P. Rowe's dreams. What he perceived was a pleasant, somewhat rural, city with the placid Torrens river meandering peacefully through the backs of the University, just the right place to coach the rowing team of Prince Alfred College and to carry out experiments on a theoretically best shape of the hull of a sculling boat. He turned out to be an excellent teacher; his dry humour and total absence of formality or pompousness endeared him to his students (particularly the bright ones), who suddenly saw their classroom transformed into a little corner of Cambridge. I suspect that he was also a hit with the girl students but, alas, the engineering department had an attractive and efficient secretary by the name of Barbara Andrews, and before we had time to recover from the surprise, Basil and Barbara were married in 1951, barely a year after Basil made his appearance in Adelaide. Two boys, Alastair and Christopher, were born from this union.

Basil was not quite so popular with authorities in higher places, who were slightly perplexed by his rather unconventional, should I say eccentric, views on educational and other matters. For example, he had a slightly off-hand view of 'publication', a game that was beginning to unfold in Australia. In the words of Harry Burkill: 'I have certainly never come across a mathematician so unconcerned about reputation and appearances'. His disregard for reputation went even so far as to publish (on occasions) under the assumed name of David Cameron. Perhaps he felt embarrassed to publish too frequently under his own name in a journal (the *Mathematical*

Scientist) of which he happened to be editor. Refereeing a paper [**26**] which Basil submitted under this assumed name, David Elliott (who well knew the identity of the author) wryly remarked in his report: 'It is nice to see these young mathematicians who have just started on their publishing careers (this is only his second paper, is it not?) readily accepting constructive criticism of their papers'. Incidentally, the name 'David Cameron' was suggested earlier by Elliott himself. After Elliott had refereed Basil's first article submitted under an assumed name, Basil suggested that they should make it a joint paper. This did not seem appropriate to David, so he concocted this hybrid name.

By 1962 Basil was ready for new pastures, and took up a professorship in the comparatively new Air Force Academy at Point Cook, Victoria. His upbringing made him an ideal candidate for the job, the first mathematical chair at the Academy. But he had no intention to settle there, and after four years at Point Cook he moved on to the Queensland University College in Townsville (later to become the James Cook University of North Queensland), where he held the foundation chair of mathematics until his retirement in 1986. This was a happy and active period for Basil; it was in Townsville that he started publishing (in 1975) the *James Cook Mathematical Notes*, perhaps his greatest contribution to Australian mathematical culture. The *Notes* were published by Basil single-handedly (with able secretarial help from Barbara), and the style and spirit of the journal reflected vividly the editor's personality. Reading the *Notes* was like spending a pleasant mathematical outing on the river, where problems were tossed up and solutions presented, peppered with mathematical anecdotes and stories about Captain Cook (the patron saint of the University and the journal) or King Arthur's mob solving combinatorial problems and the like. No stuffiness, no pretensions, no pronouncements on editorial policy.

The *Notes* had a devoted readership both within and outside Australia (for instance, H. Kestelman, J. Hammersley and A. P. Guinard were frequent contributors, and sometimes even Paul Erdös). Basil's numerous and sometimes quite substantial contributions appeared anonymously, except of course if written in association with someone else, when he could not very well hide his own identity. The *Notes* had also a number of young readers from High School, who then themselves became keen contributors. Some of them (like Terry Tao or Mark Kisin) became successful competitors at the Mathematical Olympiad, although Basil himself never took part in the actual training of competitors.

After retirement, the Rennies moved back to Adelaide into Barbara's charming old family home in the foothills, and Basil continued to publish the *Notes* from home. After a while, he decided that it was not worth his while to collect subscription fees, and asked us to make instead a gift to an animal welfare society. 'The animals of the world will be grateful and so will I.' Basil died quite suddenly on 15 November 1996, and with him the *Notes* also passed away, to the great sorrow of their readers.

In his mathematical work, Basil's originality showed at its best when he used his remarkable practical sense to solve sometimes awkwardly difficult problems. Here are a few examples. What is the best design for the keel of a sailing boat? In [**28**] he gives an answer, and suggests a 'tunnel keel' which allows as much water as possible to pass through. Paraphrasing Archimedes, he says in the introduction: 'Give me a grip on the water and I will move the boat'. In [**25**] and [**26**] (as David Cameron) he offers a solution to the tomography problem (that is, to find out about the inside of a system through measurements on the outside) for electrical circuits with two-terminal linear components such as resistors.

In [**5**] he gives a good lower bound for the number of simple random walks of length n in k dimensions, by exhibiting clever examples of such walks. His flair for examples also shows in some of his work in 'pure' analysis. Is it true that the Riemann integrability of $f'^2+g'^2$ implies the Riemann integrability of f' and g' (the converse is fairly trivial)? Somewhat surprisingly, the answer is no, and he shows this by constructing a suitable counterexample. This kind of problem may have had its origin in class work. A strict classification into 'pure' or 'applied' mathematics does not seem to work for Basil Rennie, and with his passing away Australian mathematics has lost one of its more unusual personalities.

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Publications

1. 'Lattices', *Proc. London Math. Soc.* (2) 52 (1951) 386.
2. *The theory of lattices* (Foister and Jagg, Cambridge, 1951).
3. (with J. Michael) 'Measurability of functions of two variables', *J. Austral. Math. Soc.* 1 (1959) 21.
4. 'On the strength of sand', *J. Austral. Math. Soc.* 1 (1959) 71.
5. 'Random walks', *Publ. Hungar. Acad. Sci.* 6 (1961) 263.
6. 'On dominated convergence', *J. Austral. Math. Soc.* 2 (1962) 133.
7. 'On sequences of integrable functions', *J. Austral. Math. Soc.* 2 (1962) 295.
8. 'On a class of inequalities', *J. Austral. Math. Soc.* 3 (1963) 442.
9. 'An inequality which includes that of Kantorovich', *Amer. Math. Monthly* 70 (1963) 982.
10. (with A. J. Dobson) 'On Stirling numbers of the second kind', *J. Combin. Theory* 7 (1969) 116.
11. 'The error term in Simpson's rule', *Math. Gazette* 53 (1969) 159.
12. (with A. J. Dobson) 'Lexio statistical grouping of languages', *Search* 1 (1970) 198.
13. 'A theorem like Kirchberger's', *J. London Math. Soc.* (2) 2 (1970) 40.
14. 'Relative velocities without arrows', *Math. Gazette* 56 (1972) 122.
15. 'Chains and whips in the teaching of mathematics', *Math. Gazette* 56 (1972) 271.
16. 'Why flags flap', *Bull. Inst. Math. Appl.* 9 (1973) 259.
17. 'Repeated Riemann integrals', *Proc. Cambridge Philos. Soc.* 76 (1974) 187.
18. (with A. J. Dobson) 'Upper bounds for the lengths of Davenport–Schnizel sequences', *Utilitas Math.* 8 (1975) 181.
19. 'The Riemann integrability of $f'^2+g'^2$, f', g'', *Proc. Cambridge Philos. Soc.* 82 (1977) 275.
20. 'Designing a three-edged reamer (problem 80-17)', *SIAM Review* 22 (1980) 501.
21. 'Resistances in an n-dimensional cube', *SIAM Review* 22 (1980) 504.
22. 'On generalized functions', *J. Appl. Probab.* 19A (1982) 139.
23. (with H. Burkill) 'Almost periodic generalized functions', *Proc. Cambridge Philos. Soc.* 94 (1983) 149.
24. 'Algebra and images', *Math. Scientist* 10 (1985) 99.
25. (as David Cameron) 'Electrical circuit tomography', *Math. Scientist* 11 (1986) 11.
26. (as David Cameron) 'The square grid of unit resistors', *Math. Scientist* 11 (1986) 75.
27. 'Constrained least squares for image processing', *Math. Scientist* 11 (1986) 89.
28. 'Keels for boats', *Math. Scientist* 11 (1986) 95.
29. (as David Cameron) 'Euler and Maclaurin made easy', *Math. Scientist* 12 (1987) 3.
30. (as David Cameron) 'Summation of trigonometric series', *Math. Scientist* 12 (1987) 71.
31. 'Wave resistance of ships and boats', *Math. Scientist* 12 (1987) 53.
32. 'Fallacies in fluid mechanics', *Math. Scientist* 12 (1987) 97.
33. 'Kelvin's impulsive wrench', *Math. Scientist* 12 (1987) 101.
34. 'Kelvin's impulsive wrench with a free surface', *Math. Scientist* 14 (1989) 84.
35. (as David Cameron) 'Hydrodynamic detection of anomalies', *Math. Scientist* 15 (1990) 60.

In addition, there are over 60 articles which appeared, mostly anonymously, in the *James Cook Mathematical Notes*.

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