

Donald Hawkins Row, August 26, 1939 – March 29, 2023.

Don Row was a mainstay of the Mathematics Department at the University of Tasmania for more than thirty years from 1965 till 1997. He was an inspirational teacher whose research began in projective geometry [8, 15, 16, 17, 18] and migrated into matroid theory [10, 11] and structural rigidity [12, 13]. His student, Geoff Whittle, has, in collaboration with Jim Geelen and Bert Gerards, proved the most difficult theorems ever proved in matroid theory [9]. Moreover, two of his students, stimulated by Don's fourth-year course on matroids, went on to complete doctorates at Oxford under the supervision of Dominic Welsh.

Don was born in Ulverstone in North Western Tasmania. As a boy, he was a talented athlete. He played for Tasmania in schoolboy hockey. Don was also an excellent tennis player who once played in a Tasmanian tournament against Ken Rosewall, an eight-time winner of tennis's major tournaments. In 1956, he began an engineering degree at the University of Tasmania. After a year, having found engineering neither inspiring nor challenging, Don switched to mathematics and completed his honours degree in 1959. Don loved his honours year and, in particular, his interactions with M.L. (Mac) Urquhart, who really nurtured the honours students. The annual Mathematics Competition for Year 11 and 12 students in Tasmania is named after Mac.

In 1960, Don began a position as a Tutor in the Mathematics Department at the University of Melbourne where he stayed until 1965 when he moved back to the University of Tasmania as a Lecturer. One pivotal moment for Don in Melbourne occurred when he took over teaching a course from Fred Syer, who had become ill. It was a course in geometry that did not initially excite Don. However, teaching that course completely changed his perspective. Indeed, Don's Ph.D. thesis [14], which was completed in 1969 under the supervision of Barry Jones, was in projective geometry. Erich Ellers of the University of Toronto was a powerful influence on Don's thesis and his early research [8].

Don felt privileged to have attended the extraordinary 1970 *Research Week in Geometry* at Lakehead University in Northern Ontario. There he met Henry Crapo, who, with Gian-Carlo Rota, had just completed a book [6] on *combinatorial geometries*. These are the structures that are now called *matroids*. Don was energized by his interactions with Henry and he soon introduced an honours course at the University of Tasmania on combinatorial geometries. This course followed on from Don's third-year course on projective geometry. As a sign of how magnetic a teacher Don was, three of the seven students in the

1974 honours class chose to write their required theses under Don's supervision.

My first contact with Don was in 1971 in my very first lecture at the University of Tasmania. The lecture was part of what was then called Pure Mathematics I. When Don wrote his surname on the board, I misread it as "Roar". That error foreshadowed Don's ability to skillfully manage a large class that included many engineering students, some of whom did not warm to the beauties of pure mathematics. A decade later, Don and I collaborated with Kevin Prendergast on what is Don's most cited paper [10]. That paper considered the class of what are now called *nested matroids*. The main result characterizes the members of this class via the minimal non-members of the class. Nested matroids first appeared in a paper by Crapo [5]. They have many attractive properties and have appeared in numerous papers since (see, for example, [2, 4, 7, 23, 24]) often under different names including *Schubert matroids*, *generalized Catalan matroids*, and *freedom matroids*.

Don "admired the elegance and simplicity of combinatorial geometries" [19, p.vii]. He worked for a number of years on a book entitled *Geometry and our world*. The book takes a journey through the development of perspective drawing in the Renaissance, binocular vision and stereograms, and bar-and-joint mechanisms. Its last chapter shows how matroids arise naturally from the ideas that three collinear points are geometrically dependent, as are four coplanar points. The book encapsulates Don's vision of exposing the beauty of geometry to a broad audience. It was published in 2012 as a joint work with Talmage James Reid [19] under the publisher's preferred title *Geometry, perspective drawing, and mechanisms*.

Don was very active in the Mathematical Association of Tasmania in the 1970s and 80s, and he helped that group to thrive during that period. The group, which primarily catered to school teachers, held monthly meetings that featured talks including ones given by notable visitors such as Gustave Choquet and Kurt Mahler. Don also played a leading role teaching in-service courses to school teachers, which the Mathematics Department put on during school vacations for several years. In addition to Geoff Whittle, who finished in 1985, Don supervised the Ph.D. theses of Le Phuoc Tho and Constantine Lintzeris, who finished in 1974 and 1988, respectively. He also supervised the M.Sc. theses of Leigh Roberts, Kevin Prendergast, Waree Karot, Dirk Vertigan, Garn Cooper, and Robyn Gregory.

Don died in March, 2023 after a prolonged battle with prostate cancer. He is survived by his wife, Maggie, and their three children, John, Anne, and Ben. Much of my source material came from Maggie and



FIGURE 1. Don Row

from Barry Gardner, who was Don's colleague at the University of Tasmania for many years. I am grateful to both for their help in writing this obituary. The accompanying photo was also provided by Maggie.

Don stayed very active in retirement. He and Maggie became avid collectors of paintings, particularly focusing on those by Tasmanian artists. They published three books [20, 21, 22] through *Matroid Publications*, a division of their company *Matroid Constructions*. In addition, in 2013, Don, Maggie, and Caitlin Sutton curated [1] a very successful exhibition of 65 Tasmanian artworks that Don and Maggie had donated to The Allport Library and Museum of Fine Arts in Hobart [3].

REFERENCES

- [1] Allport Library and Museum of Fine Arts and Row, Don and Row, Maggie and Sutton, Caitlin and LINC Tasmania, *The Sunday Painters curated by Don Row, Maggie Row & Caitlin Sutton*, Allport Library and Museum of Fine Arts, Tasmanian Archive and Heritage Office, Hobart, 2013.
- [2] F. Ardila, The Catalan matroid, *J. Combin. Theory Ser. A* **104** (2003), 49–62.
- [3] Australian Broadcasting Corporation News, *Museum showcases its largest ever donation of artworks*, December 21, 2013, Accessed

- January 9, 2024, <https://www.abc.net.au/news/2013-12-22/museum-showcases-its-largest-ever-donation-of-artworks/5171458?>
- [4] Joseph E. Bonin and Anna de Mier, Lattice path matroids: structural properties, *European J. Combin.* **27** (2006), 701–738.
 - [5] Henry H. Crapo, Single-element extensions of matroids, *J. Res. Nat. Bur. Standards Sect. B* **69B** (1965), 55–65.
 - [6] Henry H. Crapo and Gian-Carlo Rota, *On the foundations of combinatorial theory: Combinatorial geometries*, Preliminary edition, The M.I.T. Press, Cambridge, Mass., London, 1970.
 - [7] Henry Crapo and William Schmitt, A free subalgebra of the algebra of matroids, *European J. Combin.* **26** (2005), 1066–1085.
 - [8] Erich Ellers and Don Row, Hyperfree extensions, *Abh. Math. Sem. Univ. Hamburg* **37** (1972), 46–49.
 - [9] Jim Geelen, Bert Gerards, and Geoff Whittle, Solving Rota’s conjecture, *Notices Amer. Math. Soc.* **61** (2014), 736–743.
 - [10] James Oxley, Kevin Prendergast, and Don Row, Matroids whose ground sets are domains of functions, *J. Austral. Math. Soc. Ser. A* **32** (1982), 380–387.
 - [11] J. Oxley and D. Row, On fixing elements in matroid minors, *Combinatorica* **9** (1989), 69–74.
 - [12] J. Oxley and D. Row, Panelling planar graphs, *Discrete Appl. Math.* **81** (1998), 109–122.
 - [13] Damien Palmer, Don Row, Roy Stee, and Simon Wotherspoon, Rigidity of octahedral-tetrahedral trusses, *Discrete Appl. Math.* **86** (1998), 249–262.
 - [14] Don Row, *Homomorphisms of projective planes*, Ph.D. thesis, University of Tasmania, 1969.
 - [15] Don Row, A homomorphism theorem for projective planes, *Bull. Austral. Math. Soc.* **4**(1971), 155–158.
 - [16] Don Row, Homomorphisms of sharply transitive projective planes, *Bull. Austral. Math. Soc.* **4** (1971), 361–366.
 - [17] Don Row, Ordered open planes, *Geom. Dedicata* **7** (1978), 139–140.
 - [18] Don Row, Almost-Baer subplanes of free projective planes, *Geom. Dedicata* **7** (1978), 399–401.
 - [19] Don Row and Talmage James Reid, *Geometry, perspective drawing, and mechanisms*, World Scientific Publishing Co., Hackensack, NJ, 2012.
 - [20] Don Row and Maggie Row, *Edith Holmes 1893–1973: a catalogue raisonné*, Matroid Publications, Hobart, 2009.
 - [21] Don Row and Maggie Row, *Fifty years of painting in Tasmania, 1925–1975*, Matroid Publications, Hobart, 2010.
 - [22] Don Row and Maggie Row, *Joseph Connor and the Sydney moderns*, Matroid Publications, Hobart, 2012.
 - [23] M. Sohoni, Rapid mixing of some linear matroids and other combinatorial objects, *Graphs Combin.* **15** (1999), 93–107.
 - [24] Dominic J. A. Welsh, A bound for the number of matroids, *J. Combin. Theory* **6** (1969), 313–316.

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