Bulletin of the AAS • Vol. 53, Issue 2

Donald Lynden-Bell (1935–2018)

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Published on: Jan 20, 2021

DOI: 10.3847/25c2cf.6cdc7189

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Donald Lynden-Bell died on Tuesday the 6th of February 2018.

Donald Lynden-Bell, who passed away at the age of 82, possessed one of the most lively and energetic mathematical minds of his generation. His contributions to astrophysics were profound and far-reaching, earning him in 2008 a share (with Maarten Schmidt of Caltech) of the inaugural Kavli Prize for Astrophysics; he was elected a Fellow of The Royal Society in 1978, awarded the Royal Astronomical Society's Gold Medal in 1993, appointed to the Chair of Astrophysics at the Institute of Astronomy Cambridge from 1972–1997, served several terms as its Director (alternating in that role for five-year stretches with Lord Rees of Ludlow, then Cambridge University's Plumian Professor at the Institute), served as President of the Royal Astronomical Society from 1985–87, and was appointed CBE in 2000 for “services to astronomy”.

Lynden-Bell (left) in Leiden in March 1992, to deliver the “Oort Lecture,” with Professor Oort himself. Photo copyright Mr. Bert Verhoeff, Leiden, reproduced by kind permission.

Donald flourished under top-quality mathematics teaching at school, at University (Clare College, Cambridge), and subsequently in graduate studies in the Department of Applied Mathematics and Theoretical Physics, thriving on good advice and revelling especially in solving problems. Post-graduate studies (leading to a PhD in 1960) took him deep into realms of stellar dynamics, a topic that dominated his research well into the future. As others have recounted in the many tributes which have already been paid in his honour, his academic achievements had — and continue to have — significant impacts. The idea (which he proposed in 1969, and was the first astronomer to do so) that most large galaxies harbour a super-massive black hole at their cores, has been amply verified by observation and is widely accepted as the source of the enormous energy radiated by quasars.

Donald exercised his abilities very actively, generous in sharing time with students through his fascination in every problem that demanded a solution. His was a genuine curiosity rather than an inquisitiveness, and many a conversation begun casually evolved into hours of vigorous discussions at a blackboard (a convenient medium, he claimed, because errors could be corrected readily as one went along). His methods, if sometimes slightly daunting to the more faint-hearted, sought to teach by

encouraging the student (or listener) to think proactively, by posing questions whose answers he may already have known but if not then the ensuing discussions kept both student and teacher hard at it.

Even so, there was nothing tyrannical in Donald's use of his knowledge. Endowed with a strong good humour, he shared jokes easily even when they went against himself. Amiable, a generous host, universally liked and respected, he did not stand upon dignity, despite his many academic achievements, and was uninterested in fine food or in buying expensive goods. As he cycled home from the Institute he "enjoyed [his] nightly encounter with the holly-bush" that caught many a cyclist off-guard at a sharp corner in the back path from the Institute. His laughter — as loud as his lectures — was a core component of social gatherings, and on one occasion (still remembered by those present), when playing a game of cricket with astronomers near the Observatories, he interrupted the proceedings — almost a sacrilegious act on British soil — in order to chase after a pet rabbit that had temporarily evaded captivity. He never seemed to mind being proved wrong; after all, it was eliminating all the blind entries that led one to the root of a problem. He was in essence unconventional, and disliked sight-seeing and most other forms of potted entertainment, probably because of the reduced initiative required of the observer, vastly preferring hiking in wild and often intractable terrain, or rock-climbing (when the need to confront and solve problems was surely acute).

Donald may have been born under a lucky star. His great-grandfather was acquainted with the astronomer John Herschel, and his father (an army Colonel) inherited a telescope with which he was easily able to inspire his son by demonstrating the wonders of the night sky. Being in the right place at the right time seemed somehow easy; positions in scientific departments opened up in Cambridge, then at the Royal Greenwich Observatory in Sussex, and then again in Cambridge as Professor at the Observatories (when he was in fact beginning to feel the need for experience in observational astronomy), at timings that seemed to chime fortuitously with his plans (if he ever really had any), but certainly with his choices. Inevitably, though, the Professorship at the Institute of Astronomy included administration, which he himself admitted was perhaps his least favourite aspect of duty as a research astronomer. An aspect of Donald's life that is somewhat less known was his deep commitment to the church. It is frequently — though not always correctly — assumed that science and religion are antithetical, but — as in his own field of astronomy — Donald was prepared to stand for what he believed in, unpopular though it might seem. He worshipped regularly at the Anglican church of St. Edward King & Martyr in Cambridge, and volunteered as sacristan, taking care to clean the chalice scrupulously after Holy Communion "to make sure all the lipstick was removed".

Donald's prowess in dynamical astronomy won him a nomination to deliver the annual "Oort Lecture" in March 1992 at Leiden University. Oort himself was still active then (and for another 6 months). Donald had strong admiration from those whose achievements formed the bases of his own research;

the photograph of Donald with Professor Oort, taken at Leiden during his visit, depicts well that admiration.

With his zest for communicating, discussing and thinking out loud, Donald gravitated to groups of like minds with whom to work, striking up partnerships abroad as well as nearer home. The trio known colloquially as “ELS” (Olin Eggen, Donald Lynden-Bell and Allan Sandage) achieved much during a partnership during the 1960s, arguing that the Milky Way originated through the dynamic collapse of a single large gas cloud, while the “Seven Samurai” (in which he collaborated with Sandra Faber, David Burstein, Alan Dressler, Roger Davies, Roberto Terlevich and Gary Wegner) flourished in the 1980s, perhaps the climax being the postulated existence of the Great Attractor — a huge, diffuse region of material about 250 million light-years away that results in the observed motion of our local galaxies. Away from the office (but never away from astronomy), Donald had also sought the company of four British “ex-pats” (Roger Griffin, John Hazelhurst, Wal Sargent and Nick Wolff) who had all gravitated to Caltech during the early 1960s — years when Britain had somewhat less to offer than did California to someone at the junior end of a career in astrophysics — and participated actively and happily in weekend outings involving hiking and visiting observatories in the deserts of South-West USA. For other sporting exercises he took on anyone willing at table-tennis or squash, and was renowned as being a serious champion at both, in part at least because his style was “like no other”, perhaps reflecting his non-classical approaches to so many questions of the dynamics of moving bodies. But he was a superb sportsman, and rarely happier than when someone took up the challenge to play against him, and won.

All of these traits are evident in Alison Rose’s recent documentary film [Star Men](#), in which four of those five British astronomers revisited some of their former hiking haunts in SW USA, and newer observatory installations too, and ruminated about technological progress, the stars, and life itself as it now appeared to them 50 years on. Donald’s equable nature, his sense of humour, his evident comfort with even deep personal questions, his streak of spiritual commitment, and his valuable balance of realism, now all very mature, shine through clearly.

Acknowledgements: *I am very grateful to Ruth Lynden-Bell and to Donald’s former colleagues Martin Rees, Paul Murdin, Keith Tritton, Wyn Evans and Roger Griffin (all in Cambridge) for graciously offering information. I have also drawn extensively from published tributes to Donald, including the autobiographical sketches which he himself wove into his major article, *Searching for Insight* [1]. I also thank staff at Leiden Observatory for hunting down the copyright holder of the photograph reproduced here.*

Citations

1. Lynden-Bell, Donald. (2010). Searching for Insight. *Annual Review of Astronomy and Astrophysics*, 48, 1–19. <https://doi.org/10.1146/annurev-astro-081309-130859> [↗](#)