

Professor Peter Alan Sweet

Peter Sweet was Regius Professor of Astronomy in Glasgow University from 1959 until 1982.

His pioneering research works on flows in stellar interiors and on magnetised plasmas are immortalised in the terms “Eddington-Sweet Circulation” and “Sweet-Parker Reconnection” and laid the foundations for future directions in these fields. In particular, the Sweet-Parker theory of magnetic energy release in solar flares, which have important terrestrial effects as well as being a key physics problem, is a widely used reference point for all subsequent work in this area of plasma astrophysics.

Sweet’s interests were reflected in some of the subsequent appointments to Glasgow staff – notably R.C. Smith (now at Sussex University) in stellar rotation, and R.M. Green and J.C. Brown in flare theory. Green further developed the Sweet-Parker theory while Brown (current holder of the Regius Chair and 10th Astronomer Royal for Scotland) led solar studies in the direction of combining theory and space mission data utilisation, at the same time forging (with Professor E.W. Laing) a productive Astronomy and Astrophysics union with the Plasma Physics Group in Natural Philosophy. This guaranteed the flourishing of Glasgow’s long-standing reputation in solar activity, which dates back to the “Wilson Effect” in sunspots, named after Alexander Wilson the first incumbent of the Glasgow Chair (founded in 1760). Glasgow doctoral graduates in solar physics are now to be found in many corners of the academic world, and are currently heavily involved in Nasa’s dedicated solar flare mission RHESSI on which Glasgow has Nasa Co-Investigator status.

While Sweet’s own direct research contribution became less visible after laying these foundations, he continued to be a giant intellect and major influence whose opinions were widely sought, and at times feared. When he and Professor T.G. Cowling of Leeds appeared at meetings together (for instance, the International Astronomical Union Symposium in Paris 1970), many a speaker was in trepidation as to which of them would question his or her ideas.

More importantly, Sweet’s astonishing mastery of mathematical physics and its applications, his perpetual search for both rigour and clarity, and his unrelenting patience as teacher and supervisor, were an unforgettable inspiration to generations and launched many a graduate into academia who might otherwise have been lost to the world of personal gain.

When N particle computer simulation codes were the new hot topic in plasma physics, Sweet took joy in devising codes showing the essential results on a pocket calculator with $N=8$ particles when others were boasting of using 100,000. (As an undergraduate, Hugo Schwartz, now of CTIO Chile, said “You haven’t had Professor Sweet yet? He’s the guy who writes in a scribble and speaks too quietly, but is the best teacher you could ever have”). Sweet’s brilliant stamp lies hidden on the subsequent work of many, and in his later active years he was even persuaded to allow his name on several further papers to which his input had been invaluable.

Born in 1921 in Beckenham in Kent, Peter Sweet was educated at Kingsbury County Grammar School, London, and was Wrangler 1942 on a Major Open Scholarship in Mathematics at Sidney Sussex College, Cambridge. After three years as Junior Scientific Officer in the Ministry of Aircraft Production, he returned to Sidney Sussex (where he took a master’s degree and where his PhD was supervised by Fred Hoyle).

Thereafter he was Lecturer in Astronomy, first from 1947 in the University of Glasgow, then from 1952 until 1959 at University College London where he was also Assistant Director of the Observatory, and a Visiting Fellow at the University of California at Berkeley 1957-58. During his subsequent 23 years in the Glasgow Chair, succeeding W.M. Smart, he was Dean of Science, 1973-75, and Senior Visiting Fellow at NASA’s New York Institute for Space Studies, 1965-66. He had married Myrtle Parnell (deceased) in 1947 with whom he had two sons Geoffrey and Robert.

By the time of his retirement in 1982 he had, with Professor John Gunn of the Department of Natural Philosophy, prepared the ground for the eventual creation (in 1986) of the now joint Department of Physics and Astronomy – one of the earliest departments so titled and now one of many across the UK.

Sweet’s teaching and research excellence stemmed from his perfectionism as well as his brilliance, traits which carried over into all his activities and consumed much of his time. The old University Gardens Observatory that Peter Sweet came to in 1959 had not been built for the staff and student numbers it soon had under his leadership, leading him into a major planning exercise for a new

observatory to be sited on Glasgow University's estate at Garscube, on the outskirts of the city, and decanting of staff from University Gardens to other accommodation. By the time the Garscube Observatory was completed and opened in March 1969 by the 7th Astronomer Royal for Scotland, Professor H. Brück, staff and student numbers had grown so much that Astronomy has since occupied twin sites.

In short Peter Sweet was a quiet man of enormous intellect whose teaching and research, both written and unwritten, was a great source of inspiration to many, and who made time for rigour and for others to an extent that few of his peers, past and present, can match.

J.C. Brown and A.E.Roy

Peter Alan Sweet: born 15 May 1921; BA, MSc, PhD (Cantab), FRAS; elected FRSE 7 March 1960 ; resigned FRSE 1989; died 16 January 2005.

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