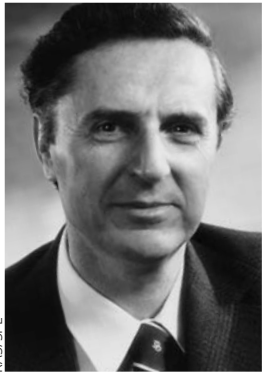


Obituaries



RAS/SPL

Sir Arnold W Wolfendale FRS (1927–2020)

Richard Ellis recalls the life of the eminent cosmic-ray physicist.

Arnold Wolfendale, a former president of the RAS and Astronomer Royal, and a distinguished cosmic-ray physicist, died on 21 December 2020, aged 93. This brought to a close a long career full of scientific achievement. An influential leader, persistent and energetic champion of many causes, his good humour and sensitivity to people less fortunate will be sorely missed.

Although Arnold Whittaker Wolfendale was born in Rugby on 25 June 1927, the family was proudly Lancastrian and soon returned to live near Manchester. Following a scholarship at Stretford Grammar, he entered the Physics Department at Manchester University in 1945 and was guided towards cosmic-ray research by the head of department, Patrick (later Lord) Blackett. During a trip to (now) Sri Lanka, the young student developed his enthusiasm for international travel and began a lifetime's commitment to forging scientific collaborations.

Arnold's early work focused on the momenta and charges of the incoming particles, first using a cloud chamber and later neon flash tubes. Initially an assistant lecturer under Blackett, he followed George Rochester to Durham in 1956, when the latter was appointed to the chair of physics. With characteristic determination, Arnold persuaded Manchester to release an eleven-ton electromagnet and began assembling a world-class team. They measured the energy spectrum of secondary muons and protons confirming, in a novel manner, the shape of the primary energy spectrum previously deduced from disparate data. An early highlight was a first successful search for atmospheric muon neutrinos with Indian and Japanese physicists, deep underground in the Kolar Gold Fields near Bangalore.

Astrophysics

In the late 1960s, Arnold recognized that particle physics was moving beyond the capability of a single department, and initiated a transition to astrophysics. Although Durham's first professor of astronomy, Temple Chevallier, had established an observatory in 1842, the chair lapsed after his successor, Ralph Sampson, became Astronomer Royal for Scotland in 1910. Arriving in Durham as a temporary lecturer in 1974, I witnessed Arnold's initiatives at first hand. He persuaded half a dozen staff to move into cosmology, astrophysics or instrumentation, and reinstated an astronomy chair coincident with the 150th anniversary of the founding of the university. I was appointed to this chair in 1985 and my vacant lectureship was awarded to Carlos Frenk. There are now more than 150 astrophysicists at Durham, including a group that has delivered innovative instruments to several 8m telescopes. Arnold witnessed this transformation continue well beyond his formal retirement in 1995.

Yet Arnold would be the first to admit he was not a mainstream astronomer, something he made clear in his article "Durham and the new astronomies" (Q/RAS 1992

33 311). His research contributions never strayed far from cosmic rays, turning from studies of their particle nature to locating their origin. Forging a strong link with theoretical physicists in the Eastern bloc, he exploited gamma-ray data from various satellites to demonstrate they originated via cosmic-ray interactions with interstellar gas in our galaxy. In 1968, he established the European Cosmic Ray Symposia which provided valuable opportunities for those behind the Iron Curtain to meet western scientists. Already an international figure, he was elected a fellow of the Royal Society in 1977 and became a council member (1980–82).

Arnold sincerely believed his role was science leadership. He was president of the RAS (1981–83), the Institute of Physics (1994–96) and the European Physical Society (1999–2001). He also chaired several important committees for the Science Research Council (and later SERC and PPARC). By his own admission, he could be "theatrical and abrasive"; not everyone enjoyed sparring with Arnold. He and I crossed swords several times, but he never let arguments spoil a relationship.

Arguably, it was this leadership that led to his appointment as 14th Astronomer Royal (1991–95) – which surprised Arnold as much as many others. A newspaper

"He had more letters published in the Times than anyone else in northern England"

headline at the time called him "The Dark Horse". This position gave Arnold his long-desired platform to lobby government, and there followed a barrage of

letters to the *Times* and politicians, usually on the importance of science and education. One analysis claimed that Arnold had more *Times* letters published than anyone else in northern England. Not everyone in Whitehall welcomed this unsolicited advice, something hinted at in a *Times* commentary. I was amused to discover that his primary-school headmaster commented that young Arnold was "the noisiest, most-to-say-for-himself boy in school"! Regardless of his forthright behaviour, he was knighted in 1995.

One had to know Arnold well to appreciate a willingness to belittle himself and place his achievements in an amusing context. I recall his delight when one of the library books a rogue student had discarded into the River Wear was his textbook *Cosmic Rays*. A lively raconteur and after-dinner speaker, he was guest lecturer on more than 35 cruises, covering topics as diverse as bird navigation, extraterrestrial life and religion. On the latter, he changed his views several times.

Arnold was equally active outside academia. As president of the Antiquarian Horological Society (1993–2014), he campaigned for recognition of 18th-century clock-maker John Harrison. He chaired a Cabinet Office committee that produced the Wolfendale Report (1995) which emphasized the shortage of science teachers and the need for public outreach. At Durham, he was a prominent citizen leading efforts to promote art and science, support for the elderly, and the local scouts.

Arnold's family life was supremely happy. He married Audrey (née Darby) as a graduate student; they met working over Christmas at the post office and were together until her death in 2007. Their twin sons, Colin and David, accompanied them on several conference trips and Arnold was adored by his five grandchildren. In 2015, he married Dorothy Middleton, an anthropologist, who survives him. ●

AUTHOR

Prof. Richard Ellis (UCL) worked under Wolfendale's guidance to establish the astronomy group at Durham (1974–93)



FURTHER READING

Profile: Prof. Sir Arnold Wolfendale FRS 2008 *Astron. & Geophys.* 49 4.11