

# Donald Metcalf

Molecular haematologist whose work helped advance cancer treatment

**Donald Metcalf (b 1929; q University of Sydney 1953), died from metastatic pancreatic cancer on 15 December 2014.**

When, as a young doctor, Donald Metcalf joined the Walter and Eliza Hall Institute of Medical Research in Melbourne in 1954, his new boss, Frank Macfarlane Burnet, was not pleased with Metcalf's desire to focus on cancer research. Burnet, who six years later would win the Nobel Prize in Physiology or Medicine, believed that cancer could not be prevented or cured. Anyone wanting to do cancer research was "either a fool or a rogue," he thought.

Metcalf eventually ignored Burnet's advice and started to pursue cancer research. He was banished to a secluded laboratory above the institute's "smelly animal house." It was there, in 1965, that he and Ray Bradbury of the University of Melbourne discovered that it was possible to grow bone marrow cells in plates of partly set agar jelly.

Indeed, Metcalf's initial observance of colony stimulating factors—described in a landmark 1966 paper and now commonly called CSFs<sup>1</sup>—was only a first step toward his ultimate goal of helping to improve treatment of cancer. He learnt that human urine was an excellent source for CSFs, and for a time buckets were placed in the lab WC for staff to deposit their

urine. Over the next two decades, Metcalf and his team succeeded in isolating four of the blood CSFs and found that their injection into animals increased white blood

cells. Metcalf speculated that CSFs could do the same for cancer patients developing white cell loss while undergoing chemotherapy. Using the foundation built from Metcalf's research, others would succeed in cloning CSFs, opening the door to mass production of CSFs, and clinical testing.

CSFs are now a standard component of cancer treatment and can also improve the success of bone marrow and peripheral blood cell transplants. Some 20 million cancer patients are estimated to have used CSFs during treatment, including Spanish opera singer José Carreras, who was diagnosed with acute myeloid leukaemia in the late 1980s.

In 1991, after his successful treatment, Carreras visited the Walter and Eliza Hall Institute to thank Metcalf personally for his key role in CSF research. In 1997, while passing through Melbourne again on a concert tour, Carreras sang "Happy Birthday" to Metcalf on his 70th birthday at a medical



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research fundraising event. Metcalf later admitted in an interview that he "wasn't fearfully happy" about the event.

"I think it's a bit naive to think that it's me who did all this discovering and all this creativity," Metcalf said. "It really was several hundred people. And so I didn't isolate the genes. I didn't mass produce them. I didn't make that bottle of stuff that he was given. So why parade around saying: 'It was me . . .' You work at every step of the way but, you know, it was a team." Metcalf added about the Carreras birthday serenade at the fundraising event: "Anyway, it was for a good cause."<sup>2</sup>

Despite his modesty, Metcalf's key role in the understanding and development of CSFs is undeniable, as evidenced by the long list of international awards he received. His honours include the Albert Lasker Award for Clinical Medical Research, the Robert Koch Prize, the Bristol-Myers Prize for Distinguished Cancer Research, the Royal Medal of the Royal Society of the UK, and the Canada Gairdner International Award. In 1989, Metcalf shared the Alfred P Sloan Prize of the General Motors Cancer Research Foundation with Leo Sachs. Sachs had headed a group at Israel's Weizmann Institute that had also observed CSFs—independently of the Australian group and also in the 1960s.

Metcalf was born in Mittagong, about 130 km from Sydney. His father, of Scottish heritage, was a schoolteacher. Metcalf was a precocious child. He learnt to read at 3 years of age, entered high school when he was 9, and enrolled at the University of Sydney when he was 16. He completed his BSc (Med) in virology in 1951, and his MBBS in 1953.

After serving as resident medical officer at the Royal Prince Alfred Hospital in Sydney, he was awarded a Carden fellowship from the Cancer Council Victoria to conduct research at the Walter and Eliza Hall Institute of Medical Research in Melbourne. But because of Burnet's antipathy towards cancer research, Metcalf spent the first two years studying Vaccinia virus. In 1956 he moved to Boston for a two year fellowship at Harvard Medical School's Children's Cancer Research Foundation. On his return to Melbourne in 1958, he was named head of the institute's Cancer Research Laboratory.

Burnet stepped down as institute director in 1965 and was succeeded by Sir Gustav Nossal. Nossal named Metcalf as his assistant director and allowed him to move his cancer laboratory from above the "smelly animal house" into the main building. The lab was renamed the Cancer Research Unit.

Nossal, who remained institute director until 1996, said in an 80th birthday tribute for Metcalf that Metcalf's research attributes included tenacity, focus, and the diligence of 10 hour days at the microscope. "Don gradually established himself as the king of the new specialty of molecular haematology," Nossal says. "He knew everyone in the game and therefore everything that was going on."<sup>3</sup>

Metcalf, who during his career had turned down several lucrative offers from abroad in order to remain in Melbourne, officially retired in 1996 as cancer unit chief and assistant director of the institute. For the next 18 years, however, he would continue to spend long days in his laboratory, conducting experiments and writing papers. He was ultimately the author of more than 750 papers. He was awarded the (Australian) Prime Minister's Prize for Science in 2001, and in 2007 the American Association for Cancer Research Lifetime Achievement Award.

In August 2014, Metcalf was feeling tired and decided to take time off from the lab for rejuvenation. It did not help. After being diagnosed with metastatic pancreatic cancer he moved his microscope to his home so he could continue his work but also be able to spend his final days with his wife of nearly 60 years, Jo, and their four daughters. He did his last experiment in October, and died on 15 December 2014, surrounded by his family.

He leaves his wife and four daughters.

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References are in the version on [thebmj.com](http://thebmj.com).

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**Leslie Clifford Cowley**



**Retired general practitioner (b 1932; q Oxford/St Mary's Hospital, London, 1963), died from dementia on 23 October 2014.**

After his house jobs in the London area, Leslie Clifford Cowley returned to his birth place to join a general practice in Ramsey on the Isle of Man. In his early days he gave anaesthetics for minor operations, and always maintained an interest in coronary care and medical politics. For relaxation he enjoyed sailing in the Irish Sea and further afield, and farming on the family farm where he grew up. He was married to Diana, a nurse at St Mary's Hospital, for 50 years, and the couple had three children.

**Diana Cowley**

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**Peter Horsey**



**Former consultant anaesthetist Southampton University Hospitals (b1924; q St. Thomas' Hospital 1947; FFARCS), d 18 January 2015.**

In 1945, along with nearly 100 other London medical students, Peter Horsey volunteered to help at Belsen concentration camp in Germany after liberation. The Imperial War Museum holds the diary of his experiences. After qualifying he took a short service commission in the Royal Navy, serving in the East Indies. He returned to St Thomas' and specialised in anaesthesia, and in 1958 he was appointed consultant in Southampton. He set up the anaesthetic service for the new regional neurosurgical unit in 1965. His postgraduate teaching contributed to the foundation of

the medical faculty in 1968. He was chairman of the Southampton medical staff committee and served on several national committees. He leaves his wife, Rosemary; two daughters; and four grandchildren.

**M B Yorston, DJ Pearce**

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**Derek Thomas Francis Deakin**

**General practitioner (b 1930; q St Mary's Hospital, London, 1955; MRCS Eng, DObst RCOG), d 30 January 2015.**

Derek Thomas Francis Deakin joined a general practice in Ash Vale as a locum in 1957, stayed on as an assistant, and became a partner. The practice grew rapidly and a medical centre was built at Frimley Green: Ash Vale Health Centre opened in 1980. Derek had a particular interest in cardiology, as well as teaching medical students from St George's medical school. He retired from general practice in 1992, citing increasing bureaucracy and less patient contact time as contributory factors. His work was underpinned by his Christian faith, and in retirement he had more time to take an active role at Guildford Methodist Church, as well as travelling and walking. He leaves Sheila, his wife of 58 years; and two children.

**Philip Deakin**

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**Donald Arthur Edward Mowat**

**Former general practitioner Montrose (b 1929; q 1953; DOccMed), d 26 February 2015.**

After graduating Donald Arthur Edward Mowat rose to the rank of squadron leader in the Royal Air Force. After periods in general practice, Donald and his wife, Eileen, returned to Montrose with their three children in 1965, and he served as principal in general practice at the practice in 145 High Street. He set up the first purpose built



GP surgery in the town, which became the first GP training practice. In the 1990s Donald developed an interest in occupational medicine and later served as medical officer to Glaxochem through the decade. His service to the community was recognised by the Order of St John Priory of Scotland.

He leaves Eileen; three children; six grandchildren; and a great grandson.

**Anthea M Mowat**

*Cite this as: BMJ 2015;350:h1299*

**Sunil Kumar Mukherjee**



**Consultant physician in general medicine Nottingham City Hospital (b 1936; q Calcutta 1959; FRCP Lond, FRCP Ed), d 3 September 2014.**

Sunil Kumar Mukherjee was born in Bankura, West Bengal, India. He worked in Calcutta and his home town before moving to England in 1961. He trained in Weymouth, Halifax, Liverpool, and Manchester, and he took his membership exams in 1967. In 1968 he married Barbara, a nurse whom he had met while working on the wards at Halifax Infirmary. At Nottingham he was involved with studies involving elderly patients, which led to several publications and presentations, including one into Parkinson's disease, his specialty. He was involved in fundraising and chaired the multidisciplinary management team and the healthcare planning team for elderly people. Sunil spent many years teaching and examining students from Nottingham's medical school. He leaves his wife, two children, and four grandchildren.

**Anita Mukherjee**

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**Anne Baron Neil**

**Former community medical officer London Borough of Ealing (b 1923; q Leeds 1949), d 15 March 2014.**

Anne Baron Neil was born in Port Talbot, south Wales. After qualifying she moved to London with her husband,



Eric Neil, professor of physiology at the Middlesex Hospital Medical School. Anne worked for 35 years in paediatrics around Kensington, Fulham, north Hammersmith, Ealing, and Acton. Her remit included school clinics and special schools and then charring adoption, fostering, and child abuse teams. Her aim was always to work as a team, with all the agencies involved. She retired as a community medical officer in 1984. Anne raised two daughters when few women worked: her husband's reasoning was that it cost a lot to train a doctor. Predeceased by Eric, she leaves her two daughters and their husbands.

**Jane Havergal**

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**Alistair Kenneth Ross**

**General practitioner and senior partner Palmerston Street Surgery, Wolstanton, Newcastle-under-Lyme, Staffordshire; senior lecturer Department of Postgraduate Medicine, Keele University, Staffordshire (b 1927; q Glasgow University 1949; MBE, FRCGP), died from coronary heart disease on 14 January 2015.**

Alistair Kenneth Ross gained experience of general practice in Glasgow and London before arriving, with his wife, Margaret, in north Staffordshire, where in 1964 he joined the Palmerston Street Surgery. He developed a keen interest in education and the training of young general practitioners and later received an MBE for services to medical education. He came later to research, but when he did, it was with his usual energy and creativity. When Keele's new school of postgraduate medicine was launched in 1979, Alistair was appointed as the only GP in the school, and he set up innovative clinical studies still cited today for the originality of their findings. He leaves three children and three grandchildren.

**Peter Croft, Douglas Garvie, Michael Fisher**

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