

# Obituaries

## Sir Godfrey Hounsfield

Engineer who invented computed tomography and won the Nobel prize for medicine

Sir Godfrey Hounsfield invented the computed tomographic scanner, and thus made an incomparable contribution to medicine. An engineer, he conceived the idea of computed tomography during a weekend ramble in 1967. Initially it had nothing to do with medicine but was simply "a realisation that you could determine what was in a box by taking readings at all angles through it."

Back in his workshop at EMI research laboratories in Hayes, Middlesex, he began work on a computerised device that could process hundreds of x ray beams to obtain a two-dimensional display of the soft tissues inside a living organism. By recording on sensors rather than x ray film and taking multiple pictures from a rotating photon source, a series of "slices" could be photographed that showed the different density of tissues. By making a series of such photographs at close intervals, it was then possible to have a three-dimensional image. The mathematics behind this was phenomenal, and other more powerful and better resourced research teams had, unknown to Hounsfield, considered the idea and dismissed it as unworkable.

Soon he was practising on the head of a cow that a colleague obtained from a kosher slaughterhouse in east London, and he submitted his own brain for the first live human scan. The first patient was scanned in September 1971 at Atkinson Morley's Hospital in Wimbledon with the radiologist James Ambrose. The patient had a sus-



pected brain cyst of uncertain location. Dr Ambrose recalled that the scan gave a clear indication of its whereabouts, and that he and Hounsfield felt like footballers who had just scored the winning goal.

Within a few months Hounsfield had developed a machine that could produce detailed cross-sections of the brain in four and a half minutes. The Department of Health and Social Security evaluated the machine and was so impressed that it underwrote EMI's production of the first five machines.

In October 1972 a machine was displayed to an audience of 2000 at the Chicago meeting of the Radiological Society of North America, and Dr Ambrose's accompanying lecture received a standing ovation. By 1973 the first computed tomographic scanners were being used clinically, first for the brain and then, after modification, for whole body imaging.

Hounsfield, a non-graduate, received the prestigious MacRobert award from the Council of Engineering Institutions in 1972, a Lasker award and fellowship of the Royal Society in 1975, a CBE in 1976, a Nobel prize in 1979, and a knighthood in 1981. He shared the Nobel prize with the South African nuclear physicist Allan Cormack, who

had worked on similar lines and had published a paper in 1957 suggesting a reconstruction technique called the radon transform.

Hounsfield was the youngest of five children of a Nottinghamshire farmer, later describing the farm as a marvellous playground. He constructed electrical recording machines and nearly blew himself up using water-filled tar barrels and acetylene to see how high they could be propelled by water jet. At grammar school in Newark he excelled only in mathematics and physics. At the outbreak of the second world war he joined the Royal Air Force as a radar instructor, moving via the Royal College of Science to Cranwell Radar School. Air vice-marshal Cassidy was so impressed that after the war he got Hounsfield a grant to study for a diploma at Faraday House Engineering College.

In 1951 Hounsfield joined EMI to work on radar and guided weapons. From there he progressed to designing the magnetic drums and tape decks of early computers. He had no interest in power, position, or possessions. He was a modest man who lived modestly, enjoying country walks and his work. He worked long hours, and his colleagues stayed late because they enjoyed working with him. He had a sense of fun and he loved music. His colleagues found him enthusiastic, gentle, delightful, inspiring, "the nicest and most genuinely good person you could hope to meet." On receiving his Nobel prize his advice to the young was, "Don't worry if you can't pass exams, so long as you feel you have understood the subject." After his formal retirement he did voluntary work at the Royal Brompton and Heart hospitals.

His name is used to describe the brightness of tomograms, which are measured in Hounsfield units. He left his money to fund engineering research and scholarships. He died from a chronic and progressive lung disease, spending his last years in a nursing home. He was unmarried and unattached, and had no children. [CAROLINE RICHMOND]

*Geoffrey Newbold Hounsfield, engineer (b 1919, CBE, FRS), d 12 August 2004.*

### Advice

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## Robert Graham Crawford



*Former general practitioner Shipley, West Yorkshire (b 1912; q Edinburgh 1936), d 21 August 2004.*

Graham followed his brother, father, and grandfather into the medical profession. After house jobs he became resident radium officer at Bradford Royal Infirmary in the late 1930s. Following service in the Royal Air Force he was in partnership in Shipley until 1962. He then spent the next 20 years in public health medicine as senior clinical medical officer in Bradford. He was a reader in the Church of England for many years and was committed to the work of his parish church. Predeceased by his wife, Peggy, and his eldest daughter, he leaves two daughters and seven grandchildren. [MARY EMSON]

## Joy Edelman

*Former consultant physician with an interest in cardiology King George Hospital, Goodmayes, Ilford, Essex (b 1937; q London 1961; FRCP, DOBst RCOG), died from ovarian cancer on 10 July 2004.*

Joy's postgraduate training included a period at the National Heart Hospital, where she was a contemporary to some of the future stars of British cardiology. This was an exciting time at the beginnings of coronary angiography and open heart surgery. It was therefore not surprising that as consultant at King George Hospital in Goodmayes she set about developing local cardiology services. Even after retiring from her full time post, she helped secure the provision of a catheter lab, which she opened in 2003 in an expanded department, and which had been renamed "The Joy Edelman Department of Cardiology." Joy was involved in medical management locally and in medical politics regionally and nationally, chairing several BMA committees. [ANDREW DEANER]

## Gwilym Morgan Evans

*Former consultant obstetrician and gynaecologist Farnborough Hospital, Bromley, Kent (b London 1920; q Guy's Hospital, London, 1943; MD, FRCOG), d 10 February 2004.*

After military service and junior posts in London Tubby, as he was known, became senior registrar at Guy's. He then became the first exchange senior registrar to



Farnborough Hospital and was appointed a consultant there in 1955. He was on the postgraduate committee of the Royal College of Obstetricians and Gynaecologists for seven years, was regional adviser for 12 years, and was also appointed as honorary tutor in obstetrics by the academic board of Guy's. His main interests were rugby, gardening, wine, and travelling abroad to Europe and South Africa. Predeceased by his wife, Hazel, he leaves two sons and five grandchildren. [DAVID EVANS]

## Edward Guy Gordon



*Former consultant histopathologist Dudley and Stourbridge, West Midlands (b 1914; q Edinburgh 1941; FRCPath), d 14 May 2004.*

Guy trained as a pathologist in Southampton and Oxford. He spent his consultant career in Dudley and Stourbridge, first as a general pathologist, and then as a histopathologist, in his later years appointing specialists in the other main disciplines. Where he was once a single consultant pathologist, there are now posts for 15. Between the world wars, before becoming a doctor, he served in the merchant navy, travelling the world and developing a lifelong love of the sea. During the second world war he served in the Royal Air Force. Guy regularly raced his yacht in the Solent. Predeceased by his son, he leaves a wife, Doreen; a daughter; and four grandchildren. [JOHN L. CHRISTIE]

## Gareth David Rhys Jeremiah

*Specialist registrar in microbiology north west rotation (b London 1974; q Oxford/London 1998; BA), died from complications of cystic fibrosis on 5 January 2004.*

Gareth was diagnosed as having cystic fibrosis at the age of five months. He was the first student with cystic fibrosis to read medicine at Balliol College, Oxford. After



pre-registration posts at Guy's Hospital, London, and Furness General Hospital he was appointed a senior house officer in clinical microbiology at North Manchester General Hospital. Despite increasing ill health, the need for twice daily physiotherapy, insulin treatment, and increasingly frequent courses of intravenous antibiotics, Gareth remained cheerful, determined, and enthusiastic about his work and career, and he was appointed as a specialist registrar in microbiology on the north west rotation. But soon after taking up his post his health rapidly deteriorated. [M K HEATLEY]

## Leslie Joseph Temple



*Former consultant cardiothoracic surgeon Broadgreen Hospital, Liverpool, and visiting consultant thoracic surgeon Barrowmore Hospital, Chester, Nobles Hospital, Douglas, Isle of Man, and Machynlleth Hospital, mid Wales (b London 1915; q University College Hospital, London, 1939; FRCS, BA), died from an aortic dissection on 10 July 2004.*

Leslie Temple was appointed resident surgical officer at Wigan Infirmary, Lancashire, in 1941. He joined the Royal Army Medical Corps in time to operate in a field hospital on the Normandy beaches on D Day, and served in Belgium and India. In 1947 he was appointed consultant thoracic surgeon at Broadgreen Hospital, Liverpool, contributing to the treatment of lung cancer and tuberculosis in adults and children. He performed some of the United Kingdom's first open heart operations for mitral valve disease. A keen squash player and an avid hill walker, he once completed the three peaks—Snowdon, Scafell Pike, and Ben Nevis—within 24 hours. Predeceased by his wife, Barbara, he leaves two children and six grandchildren. [JOHN DRAKELEY]

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