Cambridge's 92 Nobel Prize winners part 3 - 1974 to 1989: from Nigerian dissident to CT scan pioneer

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By Adam Care

Throughout January the *News* has been rounding up all the Nobel Laureates affiliated to Cambridge University – which at 92 boasts more than any other institution in the world.

Now firmly into the modern age, we move from 1974 to 1989, and see a dramatic rise in the number of foreign scholars and scientists coming to Cambridge to push the boundaries of their knowledge.

Whether as undergraduates at the start of their careers, or distinguished professors heading up major departments, their achievements represent breakthroughs in every field of science, from atomic energy to electromagnetism, the evolution of stars to the development of essential medical technology, as well as hugely influential works of literature, drama and economic theory.

1.1974 Patrick White, King's College: Nobel Prize in Literature, for an epic and psychological narrative art

The first Australian to receive the Nobel Prize for Literature, White was born in Knightsbridge to Australian parents, and spent much of his childhood down under.

Considered one of the 20th century's most influential English-language novelists, he studied French and German literature in the 1930s, publishing a book of poetry during his time in Cambridge.

He went to write eight plays and 12 novels, including *Happy Valley*, *The Tree of Man* and *Voss*.

2. 1977 James Meade, Christ's/Trinity Colleges: Prize in Economics, for contributions to the theory of international trade

Meade, who was born in Swanage, Dorset, shared his Nobel with Swedish economist Bertil Ohlin, for their "pathbreaking contribution to the theory of international trade and international capital movements."

He served as Cambridge's chair of political economy for 10 years from 1957, before taking on a senior research fellowship at Christ's College. He retired in 1974, but went on to write four volumes of economic theory, before his death in Cambridge in 1995.

3.1977 Nevill Mott, Caius / St John's Colleges: Nobel Prize in Physics, for the behaviour of electrons in magnetic solids

4.1977 Philip Anderson, Churchill College: Nobel Prize in Physics, for the behaviour of electrons in magnetic solids

The grandson of Arctic explorer Sir John Richardson, Mott was born into a Cambridge family – his parents met working under Nobel-winning physicist JJ Thomson in the Cavendish Laboratory.

In 1954 he took on Thomson's former role as Cavendish Professor of Physics, where he worked alongside Anderson, an American scientist who went on to become Cambridge's professor of theoretical physics.

They shared their Nobel with fellow American John Hasbrouck Van Vleck, who participated in the Manhattan Project before turning his attention to the behaviour of electrons.

5. 1978 Peter Mitchell, Jesus College: Nobel Prize in Chemistry, for the energy transfer processes in biological systems

When Mitchell sat his scholarship examination to get into Jesus College his result was so bad it took a personal letter from his former headteacher to secure him a place.

However despite this setback he went on to flourish, accepting a research post in the Department of Biochemistry and gaining his PhD in 1951.

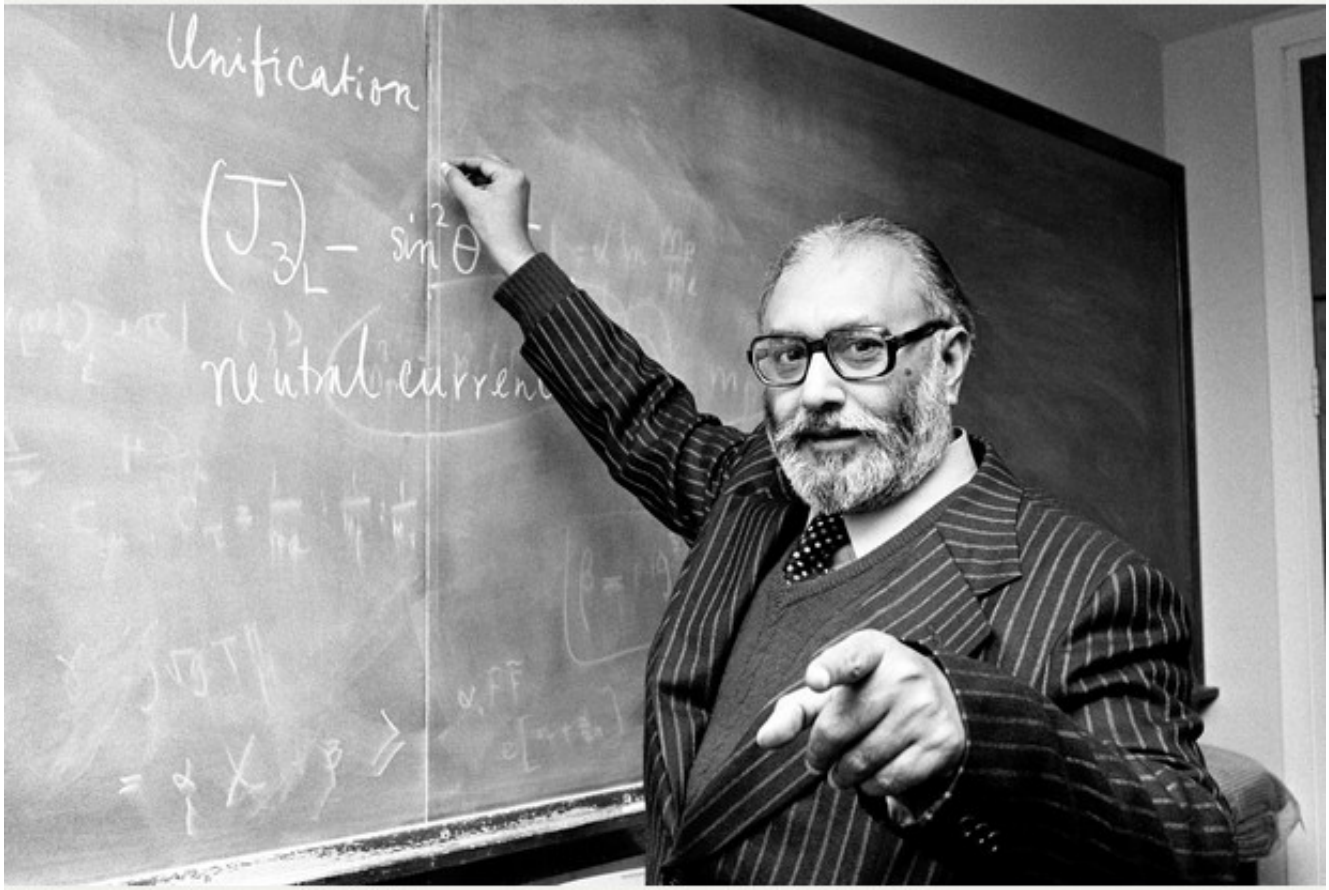
He left the university in 1963, directly supervising the conversion of a Regency manner house in Bodmin into a new biological research institute; where he went on to win his Nobel.

6. 1978 Pyotr Kapitsa, Trinity College: Nobel Prize in Physics, for inventing the helium liquefier

Born in the then Russian Empire, Kapitsa was 84 when he received his prize, for work conducted at the USSR Academy of Sciences in Moscow.

He came to Cavendish Laboratory in 1921, where he worked with Ernest Rutherford, and developed a new and original apparatus for the liquefaction of helium, before returning to his homeland in 1934.

7. 1979 Abdus Salam, St John's College: Nobel Prize in Physics, for electromagnetic and weak particle interactions



A devout Muslim, Salam often spoke of how the Quran's teachings inspired his scientific work.

Born in a poor Indian farming district now part of Pakistan, he gained the highest ever matriculation marks at the University of Punjab, and won a scholarship to read mathematics and physics at St John's.

In 1950 he received the university's Smith's Prize for the most outstanding pre-doctoral contribution to physics.

He used his share of the prize for the benefit of physicists from developing countries, not spending a penny of the prize fund on himself or his family.

8. 1979 Allan Cormack, St John's College: Nobel Prize in Medicine, for developing CAT scans

A mainstay of hospitals around the world computerised (axial) tomography scans take a series of x-ray images from different angles, and use a computer to put them together for a detailed cross section.

The technology that underpins them was developed by Cormack, a South African physicist, based largely in the US.

In his earlier career he worked as a research student at the Cavendish Laboratory, where he met his future wife during a lecture on quantum mechanics.

9. 1979 Steven Weinberg: Nobel Prize in Physics, for electromagnetic and weak particle interactions

Seven years after he received his Nobel Harvard University particle physicist Steven Weinberg was

appointed as Cambridge University's Dirac Lecturer.

A prominent public spokesman for science, he has written several books on the history and philosophy of science and atheism.

10. 1980 Frederick Sanger, St John's College and fellow of King's College: Nobel Prize in Chemistry, for the theory of nucleotide links in nucleic acid

11. 1980 Walter Gilbert, Trinity College: Nobel Prize in Chemistry, for the theory of nucleotide links in nucleic acids

Cambridge's only double-Nobel winner, Sanger received his second chemistry prize 22 years after his first.

According to his official Nobel biography, he felt receiving his first Nobel gave him "renewed confidence

and optimism" in his work, and allowed him to "obtain better research facilities and, even more important, to attract excellent colleagues".

He remained in Cambridge throughout his career, finally retired to a home in Swaffham Bulbeck in 1983, and died in his sleep at Addenbrooke's in 2013.

He declined the offer of a knighthood, but in 1986 accepted the award of an Order of Merit, which can have only 24 living members. The Wellcome Trust Sanger Institute in Hinxton is named in his honour.

A keen scientist from an early age, as a child Gilbert would skip lessons at his Massachusetts school and head to the Library of Congress to read about Van de Graaf generators and simple atom smashers.

After graduating from Harvard he spent two years in Cambridge as a student of Abdus Salam, before returning to the US.

12. 1982 Aaron Klug, Trinity College: Nobel Prize in Chemistry, for the structure of biologically active substances

Despite spending some 20 years working in Cambridge's Cavendish Laboratory, Klug continued to supervise undergraduates right through his career, saying "Ilike teaching and the contact with young minds keeps one on one's toes".

Born in Lithuania he grew up in South Africa, receiving its highest honour, the Order of Mapungubwe, in 2005.

13.1983 Gerard Debreu, Churchill College: Prize in Economics, for reforming the theory of general equilibrium

A French-born American citizen, Debreu worked for much of his career as professor of economics at the University of California, Berkeley.

However in the late 1960s and 70s he utilised his late leaves to visit universities in Leiden, Bonn and Paris, and came to Cambridge for a period in 1972.

In his breakthrough 1954 paper he provided a definitive mathematical proof of the existence of a general equilibrium, using calculus-based methods.

14.1983 Subrahmanyan Chandrasekhar, Trinity College: Nobel Prize in Physics, for the evolution and devolution of stars

15.1983 William Fowler, Pembroke College: Nobel Prize in Physics, for the evolution and devolution of stars

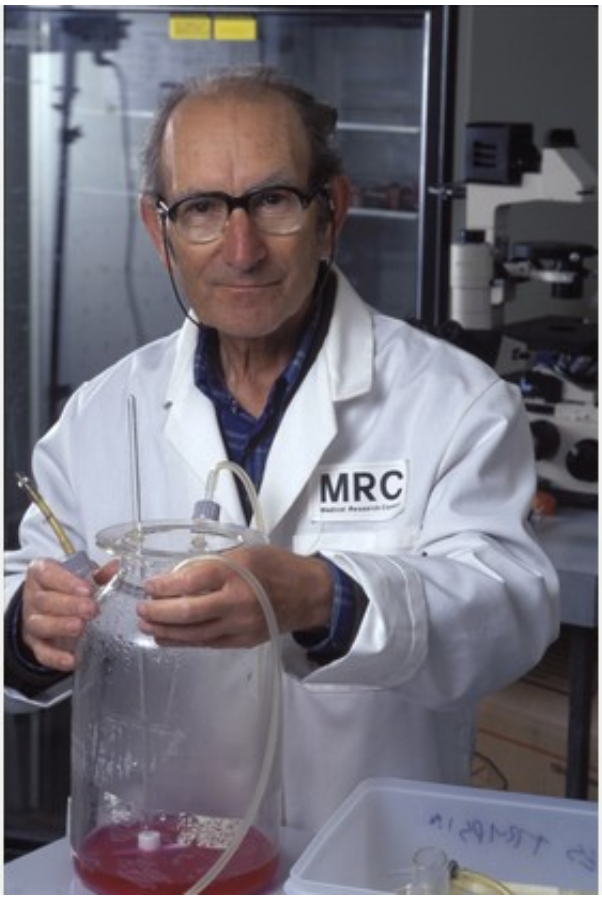
Home-schooled in India until the age of 12, Chandrasekhar studied in Copenhagen before gaining a PhD from Cambridge in 1933, where he formed "lasting friendships" withSir Arthur Eddington and Professor E.A. Milne, among others.

It was in Cambridge he developed his theoretical model explaining the structure of white dwarf stars, receiving recognition from the Nobel Foundation 50 years later.

In 1936 he moved to the University of Chicago, where he remained until his death in 1995.

Fowler was born in Pittsburgh, Pennsylvania, and first came to Cambridge on his sabbatical year in 1954, where he worked under astronomer Sir Fred Hoyle, who introduced him to cricket and rugby, and regularly took him mountaineering in the Scottish Highlands.

16.1984 Cesar Milstein, Fellow of Darwin and Fitzwilliam Colleges: Nobel Prize in Medicine, for developing a technique for the production of monoclonal antibodies



17. 1984 Georges Kohler Nobel Prize in Medicine, for developing a technique for the production of monoclonal antibodies

An Argentine and a German, Milstein and Kohler met at Cambridge's Laboratory of Molecular Biology, where they worked to develop a laboratory tool to help investigate the mechanism that underlies the diversity of antibodies.

While Milstein remained in Cambridge until his death in 2002, Kohler returned to Basel, where he became director of the Max-Planck Institute of Immunobiology.

18. 1984 Richard Stone, Caius College and fellow of King's College: Prize in Economics, for developing a national income accounting system

An undergraduate at Gonville and Caius in the 1930s, Stone worked as a London broker after graduating, but admitted he was "never cut out for a business career".

At the outbreak of war he joined the Ministry of Economic Warfare, where he worked with fellow Nobel Laureate James Meade.

In 1945 he returned to Cambridge as the first director of the newly-established Department of Applied Economics.

Sometimes known as the 'father of national income accounting', he developed a model to track economic activities on a national and, later, an international scale.

19. 1986 Wole Soyinka, Churchill College: Nobel Prize in Literature

A playwright and novelist, as well as a professor of comparative literature, Soyinka was held as a political prisoner for 22 months during the civil war in his native Nigeria.

An outspoken critic of successive Nigerian governments, as well as Mugabe's Zimbabwe regime, he has taught at the universities of Oxford, Harvard and Yale. He became an overseas fellow at Churchill College in 1973.

20. 1989 Norman Ramsey, Clare College: Nobel Prize in Physics, for developing the separated field method

A physics undergraduate at the Cavendish Laboratory under Thomson, Rutherford and Eddington, Ramsey spend most of his career as a professor at Harvard, specialising in atomic science.

He also held posts with NATO and the United States Atomic Energy Commission, and in 1982 chaired a US government committee that concluded acoustic evidence did not indicate the presence of a second gunman's involvement in the assassination of President John F. Kennedy.

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