

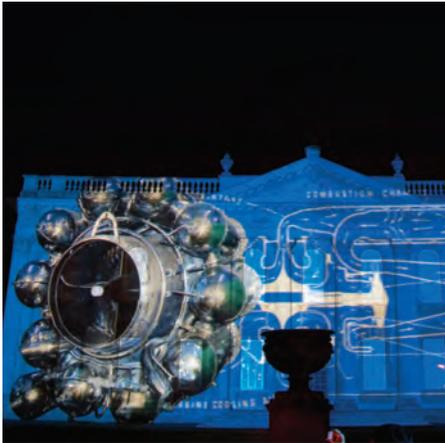
# CAMBRIDGE & its heritage

## A history of discoveries

Over the centuries, Cambridge discoveries and inventions have changed our understanding of human life, matter and the universe – and changed the way we live our lives.

**1687** Isaac Newton, the father of calculus and modern mathematics, publishes *Principia Mathematica*, his laws of motion and his law of universal gravitation.

**1812** Charles Babbage has his first ideas for a calculating machine and later starts work on his 'difference engine'. Although it is never completed this work heralds later inventions leading to the modern computer.



**1897** J J Thomson discovers the electron, laying the foundations for the whole of modern physics, including electronics and computer technology. Inventors use his work to develop devices such as the telephone, radio and television.



**1934** Flight Lieutenant Frank Whittle is sent to Cambridge as a mature student by the RAF and is encouraged to pursue his innovative idea of jet propulsion, patented three years earlier but ignored by the Air Ministry.



**1953** Francis Crick and James Watson discover the structure of DNA, unlocking the secret of how coded information is contained in living cells and passed from one generation to the next. Their discovery opens the door to the study of an entirely new science – genetics.

## 800 years: transforming tomorrow – A brief history of the University

### In the 13th, 14th and 15th centuries...

**Within a century of a handful of scholars arriving in the small fenland town of Cambridge, the Colleges were created: this medieval innovation allowed the University to grow as a national, then European, then international force.**

In **1209**, a group of scholars, seeking refuge from hostile townsmen in Oxford, congregated at Cambridge for the purpose of study. By **1226**, the scholars were numerous enough to set up an organisation, represented by an official called a Chancellor, and to arrange regular courses of study.

In **1284**, Hugh Balsham, Bishop of Ely, founded Peterhouse, the first College at Cambridge; over the succeeding centuries, another 30 Colleges would be founded. For instance, in **1441** Henry VI founded King's College, laying the first stone of the chapel in **1446**; and in **1546** Henry VIII founded Trinity College. The most recent College, Robinson, was founded in **1979**.

From the 14th century onwards, the University began to acquire property on the site today known as Senate House Hill and to build teaching rooms and other accommodation known as the 'Schools' – some of which survive today as the 'Old Schools', the University's central offices of administration.

Right from the start, there was friction between townspeople and students, and these 'town versus gown' disputes were to continue until the 19th century.

### In the 16th century...

**As the years passed, the University and Colleges acquired more land, power and independence, and their innovative teaching and learning began to attract scholars from all over England and Europe.**

In **1502**, the first endowed University teaching post, the Lady Margaret Professorship of Divinity, was established. Many scholars, such as Erasmus of Rotterdam, were attracted to the University and encouraged the 'new learning' in Greek and Hebrew.

In **1534**, a royal charter gave the University the power to license three stationers who were to print and publish works that it approved. This privilege eventually developed into the Cambridge University Press, the oldest academic publisher in the world, which printed its first book in 1584.

In **1536**, Henry VIII endowed five professorships, the Regius Professorships of Divinity, Hebrew, Greek, Physic and Civil Law, emphasising changes in teaching methods and setting an example for private donors.

### In the 17th and 18th centuries...

**The University began to demonstrate the characteristics that were to make it one of Europe's leading places of learning: mathematics came to the fore, and its library and research collections became increasingly important.**



In **1661** Sir Isaac Newton (1643-1727) first attended Cambridge. Together with his followers, he pursued diverse scientific investigations and the University saw a rapid expansion in the number of professorships in mathematics and the sciences, many of them made possible through

private donors. Mathematics came to dominate studies and eventually 'the Tripos' came to mean the examination in mathematics.

The first of the 10 great collections and museums of the University were established: Dr Woodward's **1728** bequest of a collection of fossils formed the basis of what became at first the Woodwardian Museum and later the Sedgwick Museum of Earth Sciences, while in **1762** the University's first Botanic Garden was endowed by Richard Walker. The University Library also expanded, while the Senate House was finally completed in **1730**.

### In the 19th century...

**The 19th century saw a period of great advancement for the University in an astonishing range of areas.**

An examination for the Bachelor of Laws in Civil Law first appeared in **1816**; a Classical Tripos began in **1824**; and in **1843** the first steps were taken towards a Theological Tripos.

The central administration of the University was strengthened and extended, but there was growing pressure for greater change. In **1847**, Prince Albert, the Prince Consort to Queen Victoria, was appointed Chancellor of the University and became an influential voice of reform. In **1850**, a Royal Commission was appointed to report on the two ancient universities of Oxford and Cambridge.

As a result of the Commission, in **1856** the Cambridge University Act was established, embodying the basic form of University governance that remains in place today. The Commission also heralded the introduction and examination of new studies: in **1851**, the Natural Sciences and Moral Sciences Triposes were approved; Triposes in law, history, theology, languages and mechanical sciences were in place before the end of the century.

In **1829**, the first boat race between Cambridge and Oxford took place and the first inter-university cricket match was contested – by **1939** they had become annual events. After **1851** organised sport became a well-established feature of undergraduate life.

In **1858**, the University of Cambridge Local Examinations Syndicate (now Cambridge Assessment) was established to administer exams for non-University students and to inspect schools, with the aim of raising standards in education. In **1869**, Emily Davies and others founded Girton College, the first residential university-level institution of higher learning for women.

In the sciences, William Cavendish endowed the University's new Cavendish Laboratory in **1870** for the study of experimental physics, while in the arts, Cambridge Footlights, now well-known as the launch pad for the careers of many actors, directors and comedians, was founded in **1883**.



### In the 20th century...

**The expansion of the University continued apace in the first half of the 20th century, with research frontiers constantly challenged and new ideas and innovations being introduced.**

Scientists at the University continued Cambridge's 19th century tradition of making major breakthroughs, and many were awarded Nobel Prizes. The Colleges and the University expanded to accommodate the rapidly increasing numbers of students; this included the development of the Downing Site

and the New Museums Site, and the foundation of Downing, Selwyn and St Edmund's Colleges.

Following the armistice in **1918**, the first Festival of Nine Lessons and Carols was held; it is now broadcast worldwide from King's College Chapel each Christmas Eve.

Postgraduate degrees were introduced in **1921**. In **1934**, the University Library moved to a new site across the River Cam; it has since become the largest open access library in Europe. Women finally gained full membership of the University in **1947**.

In the **1950s** and **1960s**, new areas of study developed, including veterinary medicine, and teaching and research facilities were again significantly expanded. Science and medicine continued to be a major focus: the building of the new Addenbrooke's Hospital provided the nucleus for a wide range of medically related departments. In the **1970s**, the Cavendish Laboratory moved to a spacious site in West Cambridge. In **1975**, Trinity College founded England's first science park on the outskirts of Cambridge. This was part of the impetus for the *Cambridge Phenomenon* – the successful growth of science-based industry, much of it deriving from University activities.

Such rapid expansion required extra resources and in **1989** the Cambridge Foundation was formed with the aim of raising £250 million over 10 years. In **1990**, the Royal Greenwich Observatory relocated to Cambridge, confirming the city among the world's leading centres for the study of astronomy and astrophysics. **1996** saw the opening of the new buildings for the Law Faculty and Judge Business School.

### The 21st century...

**The advances made at Cambridge continue to transform our understanding of today's world and our interventions in it, as the University contemplates its ambitions for the future.**

In **2000**, massive development began on a modern science and technology campus on the University's West Cambridge Site. On the Addenbrooke's Biomedical Campus, work started in **2003** on a state-of-the-art cancer research facility; this now houses the largest concentration of cancer researchers in Europe. The scale of these and other developments obviously demands intensive investment, and in **2005**, the University launched the Cambridge 800th Anniversary Campaign to raise £1 billion by **2012**.

In **2006**, the Registry of the University marked 500 years, one of the longest continuously held offices in UK higher education. In **2008**, Cambridge Assessment marked its 150th anniversary; appropriately it now offers qualifications in more than 150 countries. In **2009**, the University of Cambridge celebrated its 800th anniversary.

## Cambridge people

**Cambridge is its people and over the centuries many have contributed to advancing knowledge. To name but a few...**

**1503** Thomas Cranmer, aged 14, enters the newly endowed Jesus College. He later becomes the first post-reformation Archbishop of Canterbury, arranging Henry VIII's divorces, and is largely responsible for the *Book of Common Prayer*.

**1516** Desiderius Erasmus comes to Cambridge to work on his translation of the Greek New Testament and on textbooks that become the foundation of the 'new learning'.

**1620** Francis Bacon pioneers the scientific method in his work *Novum Organum*.

**1625** John Milton enters Christ's, where he studies until 1632. Five years later, on the death of his friend, Edward King, he writes *Lycidas*, recalling in pastoral terms their days together.

**1627** John Harvard becomes an undergraduate at Emmanuel. He later emigrates to America and in 1636 bequeaths his library and half his estate to the University that now bears his name.

**1661** Isaac Newton is admitted to Trinity College to study maths, optics, astronomy and physics. When the University closed due to the Great Plague, he returned home for two years and worked on the *Principia Mathematica*. Newton returned to Trinity in 1667 where he became a Fellow and was later appointed Lucasian Professor of Mathematics.

**1711** Richard Bentley completes his edition of the Latin poet Horace. His editing and interpretation of classical texts inspire generations of classics scholars.

**1784** The Rt Hon William Pitt is elected MP for the University at the age of 25, a year after becoming Prime Minister.

**1805** Lord Byron enters Trinity and starts writing his early satires and poems.

**1831** Charles Darwin is recommended by Professor John Stevens Henslow to join HMS Beagle as the naturalist on its scientific survey of South American coastlines. *On the Origin of Species*, his theory of natural selection, is published in 1859.

**1895** Ernest Rutherford, the father of nuclear physics, begins postgraduate study at the Cavendish Laboratory, pioneering the Rutherford Model for subatomic structure.

**1899** Lytton Strachey, Leonard Woolf and Thoby Stephen meet as undergraduates at Trinity and form the nucleus of what becomes the Bloomsbury Group.

**1903** Bertrand Russell publishes *Principles of Mathematics*, the same year as G E Moore publishes his influential *Principia Ethica*. In 1913, Russell and A N Whitehead publish the even more influential *Principia Mathematica*. Four decades later, Russell collects his Nobel Prize for Literature.

**1907** Jawaharlal Nehru, the first Prime Minister of India (1947–1964), enters Trinity.

**1911** Ludwig Wittgenstein begins his studies at Trinity College, starting his work on the foundations of logic and mathematical logic.

**1932** F R Leavis publishes *New Bearings in English Poetry*. His distinctive style of literary and cultural criticism influences generations of students in the 1930s, 1940s and 1950s.

**1939** Dorothy Garrod becomes Disney Professor of Archaeology, the University's first woman professor. Her notable excavations at Mount Carmel cast new light on the origin of our own species, *Homo Sapiens*, and our links to Neanderthal man.

**1954** Joseph Needham, already eminent in biochemistry, publishes the first volume of his *Science and Civilisation in China*, the start of a massive enterprise, vastly expanding our knowledge of China and its civilisation.

**1955** Sylvia Plath, Marshall Scholar at Newnham, continues correspondence to her mother, later to be published in *Letters Home*.

**1958** Vivian Fuchs and his team complete the first overland crossing of Antarctica.

**1975** Rosemary Murray, President of New Hall, becomes the first female Vice-Chancellor of the University.

**1979** Stephen Hawking becomes the Lucasian Professor of Mathematics and continues his pioneering research on singularities and black holes; in 1988 he publishes *A Brief History of Time*, one of the best-selling scientific books of all time.