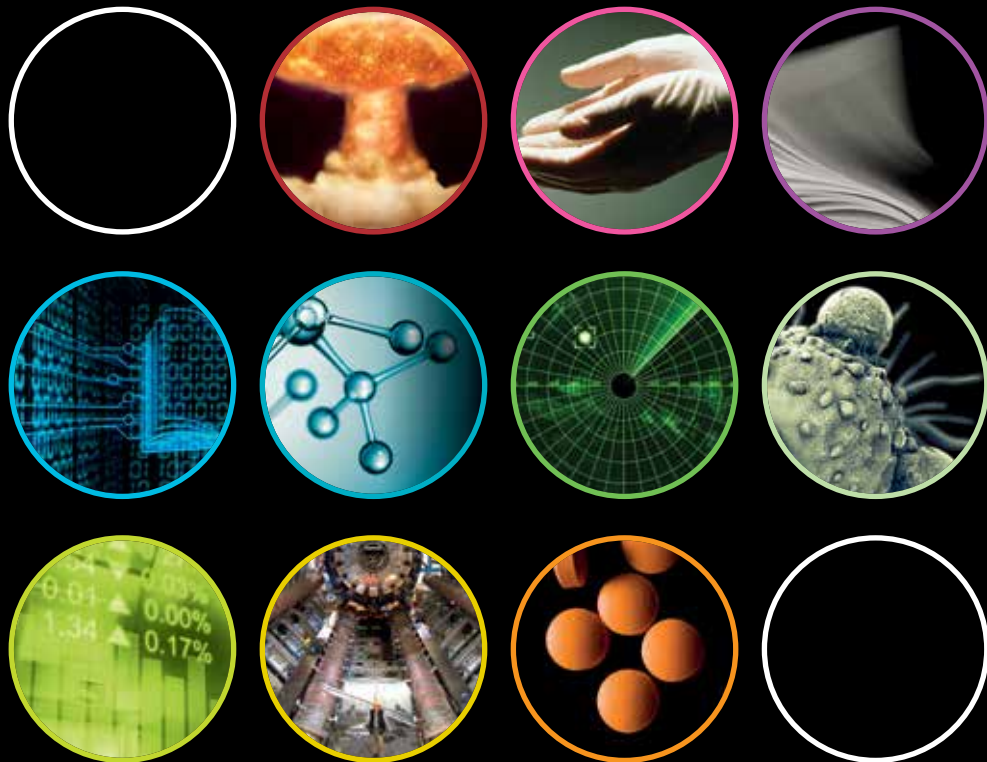


UNIVERSITY OF
BIRMINGHAM



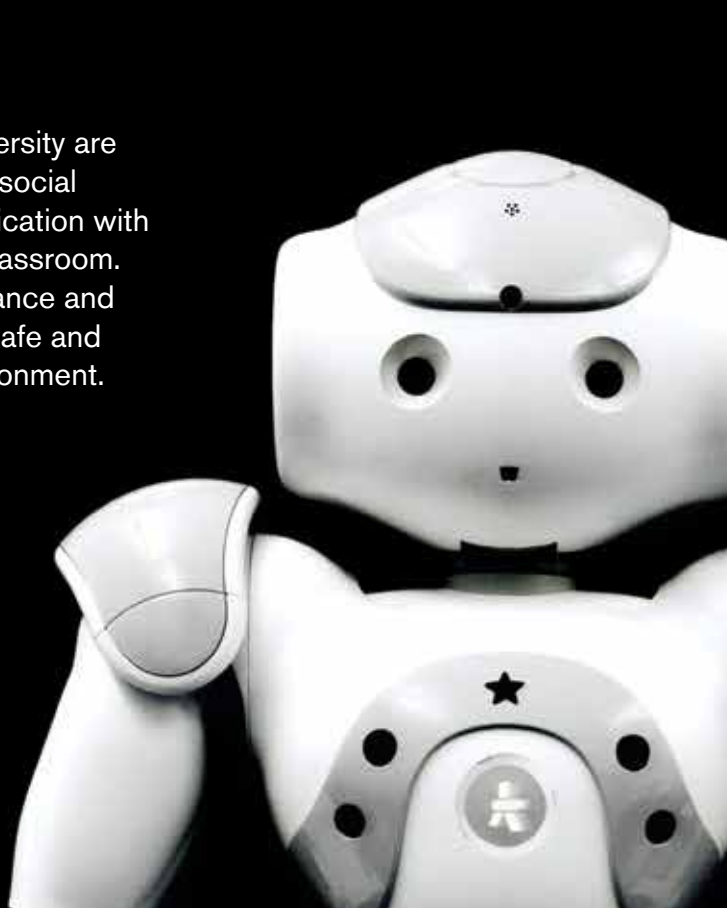
OUR IMPACT...



How research at the University of Birmingham has **changed the world**

In 2014 the University of Birmingham undertook a piece of research to find out from staff, students and alumni who their research heroes were. Over 100 names were suggested, across all colleges and all areas of expertise. We've included the Top Ten finalists inside this booklet... look out for the coloured 'Top Ten' light bulbs to find out more.

Researchers at the University are using robots to improve social interaction and communication with autistic children in the classroom. The Aldebaran robots dance and play games to create a safe and motivating learning environment.



A MAJOR STUDY BY BIRMINGHAM RESEARCHERS PROVED THAT PULSE OXIMETRY (PULSEOX) WAS A SIMPLE AND SAFE TEST TO HELP IDENTIFY CONGENITAL HEART DISEASE IN NEWBORN BABIES, WHICH CONTRIBUTES TO 46% OF DEATHS FROM CONGENITAL MALFORMATIONS AND WOULD OTHERWISE GO UNDETECTED.



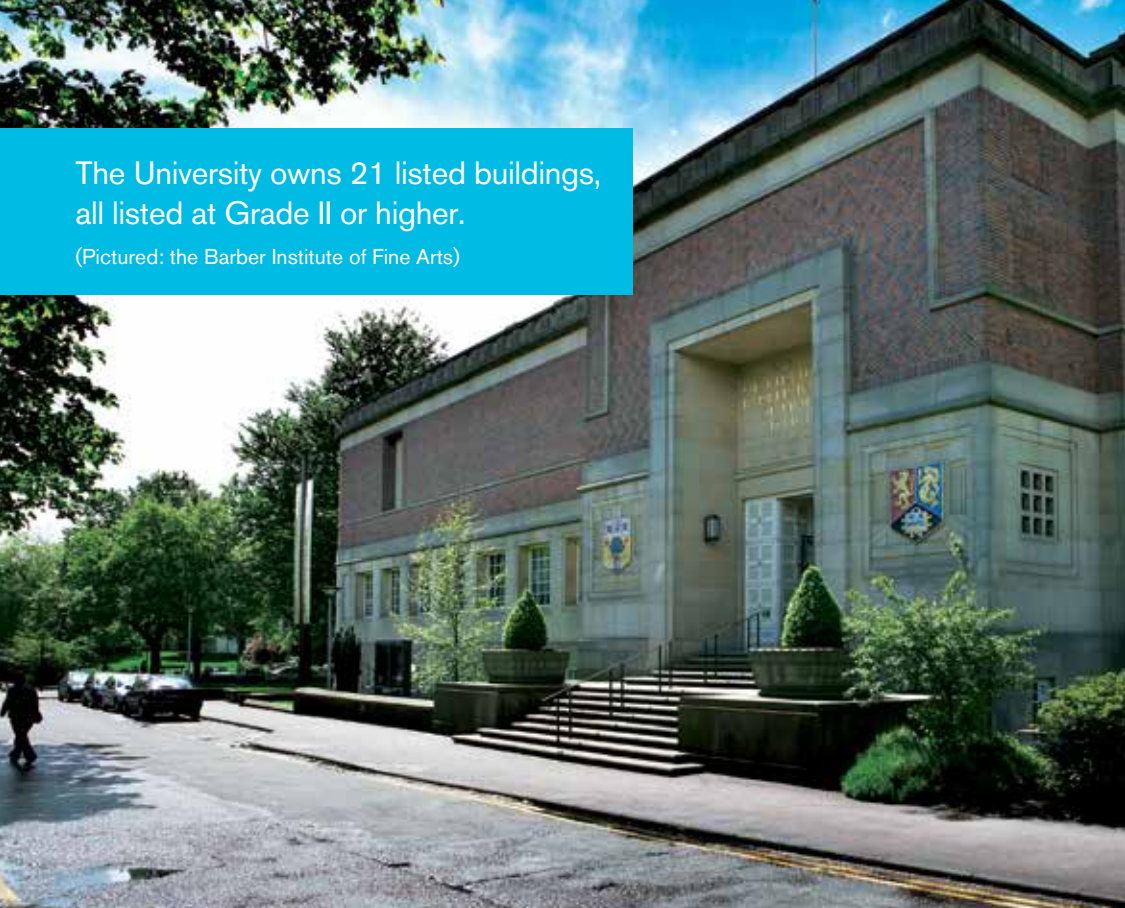
Professor Alan Rickinson

Alan Rickinson led the development of the Institute of Cancer Studies (now School of Cancer Sciences) at the University of Birmingham from 1983 to 2001, overseeing its expansion from a small non-clinical research department into a large research institute integrating basic work on cancer genetics, viral oncology and tumour immunology with translational studies in gene/immunotherapy and the activities of a large cancer clinical trials unit.

Since then, he has been fully committed to maintaining Birmingham's position as an international centre of excellence for work on human tumour viruses, and continues to lead a large research group focusing on the Epstein-Barr virus and its associated malignancies.

The University owns 21 listed buildings,
all listed at Grade II or higher.

(Pictured: the Barber Institute of Fine Arts)



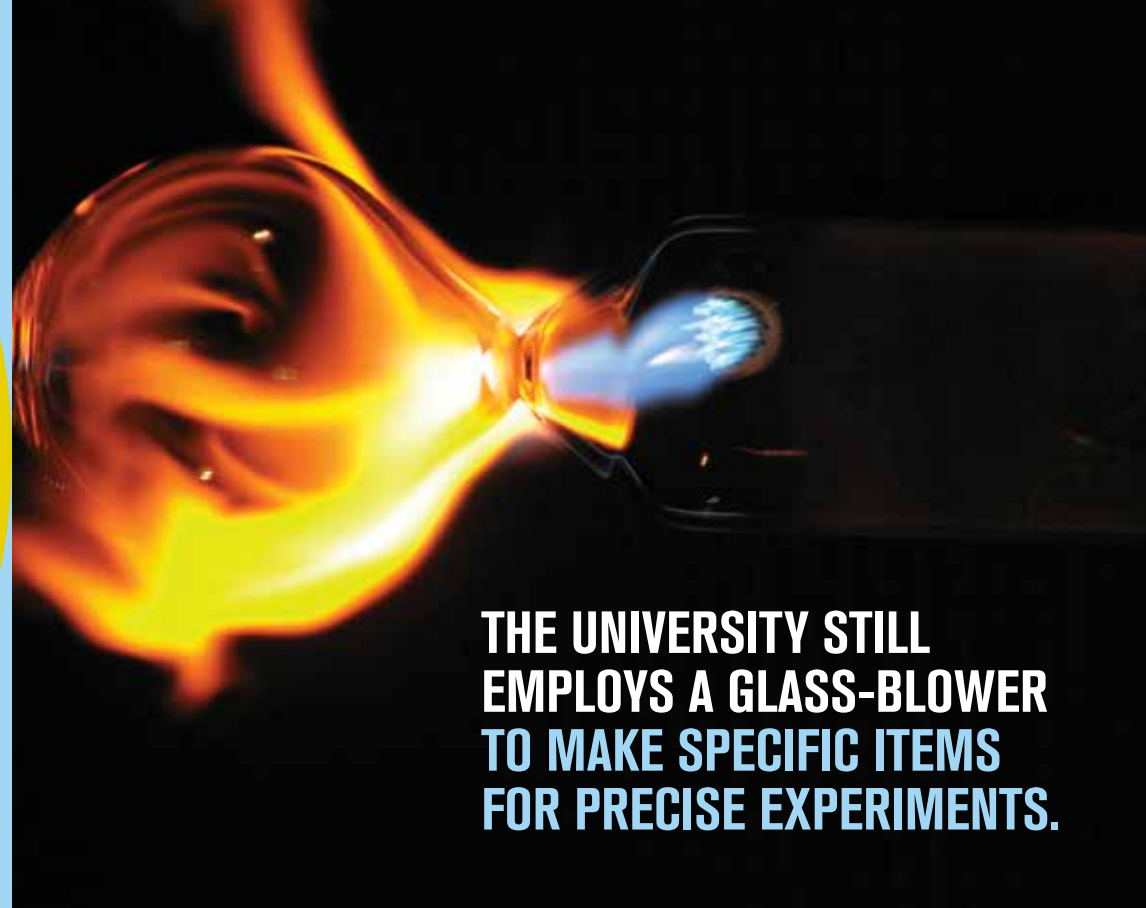
The total area of the University of Birmingham's
campuses amounts to 276 acres, nearly five
times the size of St James's Park in London.



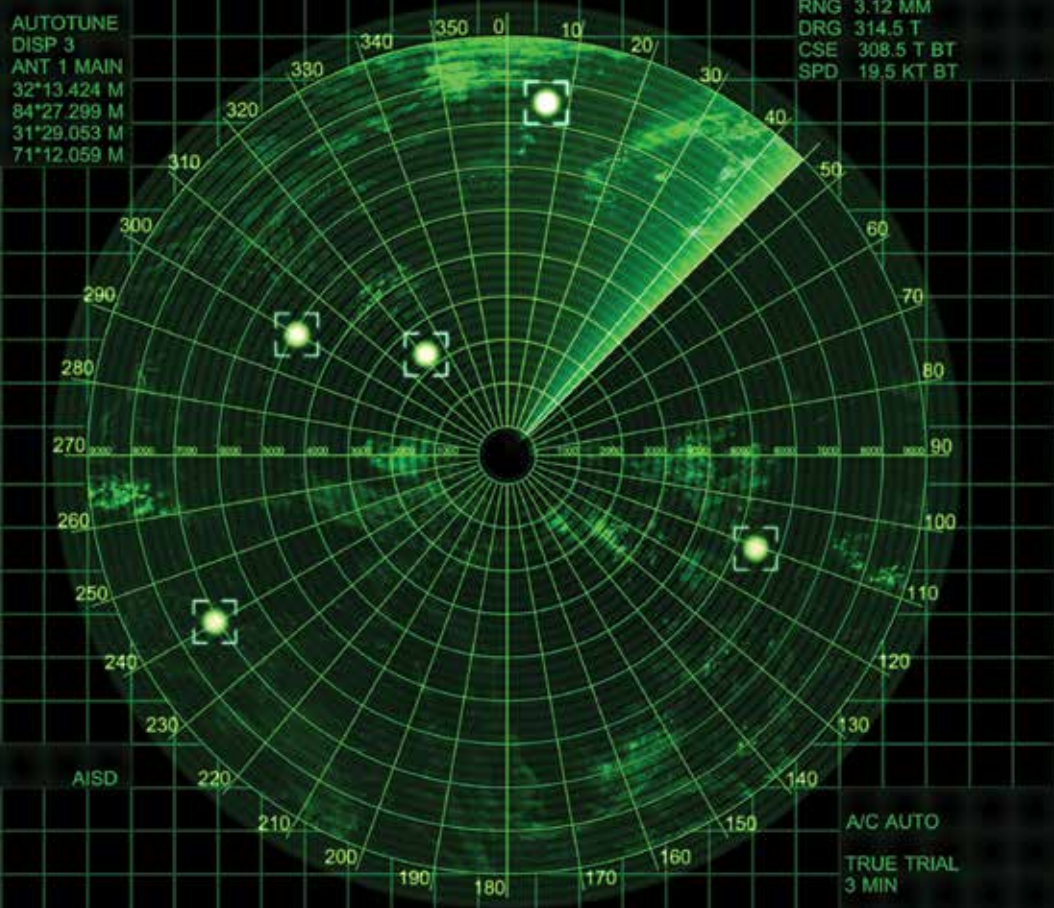
The University of Birmingham has produced two Prime Ministers of the United Kingdom: Stanley Baldwin (1923–1924, 1924–1929 and 1935–1937) and Neville Chamberlain (1937–1940); two of only eight Prime Ministers to study at a university outside Oxford or Cambridge.

**THE UNIVERSITY OWNS THE
AVON PAPERS: PAPERS BELONGING
TO AND ABOUT THE LIFE OF ANTHONY
EDEN (PRIME MINISTER 1955–1957
AND FORMER CHANCELLOR OF THE
UNIVERSITY 1945–1973), INCLUDING
MATERIAL ON THE SUEZ CRISIS.**

Sir David Attenborough,
Benjamin Zephaniah, Clive
Anderson, Sir Trevor McDonald,
Alistair Campbell, Jung Chang
and Gyles Brandreth **have**
all delivered the University's
annual Baggs Memorial
Lecture on happiness.



**THE UNIVERSITY STILL
EMPLOYS A GLASS-BLOWER
TO MAKE SPECIFIC ITEMS
FOR PRECISE EXPERIMENTS.**



Sir John Randall and Dr Harry Boot

In 1940 the cavity magnetron, the principal generator of high power centimetre-wavelength electromagnetic radiation used in radar and microwave ovens, was developed in the Physics Department at the University of Birmingham by physicists John Randall and Harry Boot. It was used to power airborne radar in World War Two.

The University of Birmingham Observatory houses the largest optical telescope within easy reach of central Birmingham and the West Midlands region. Its mirror has a diameter of 50cm, and its high quality optical design matches that of professional research telescopes such as the Hubble Space Telescope.



Sir Peter Scott, a former University Chancellor (1973–1983), founded the Wildfowl and Wetlands Trust and was a founder of the World Wide Fund for Nature.





The University owns over 2.7 million books and scholarly journals, and more than 16,000 electronic resources. Special Collections, housed in the Cadbury Research Library, holds over 200,000 pre-1900 books and over 3 million archives and manuscripts.

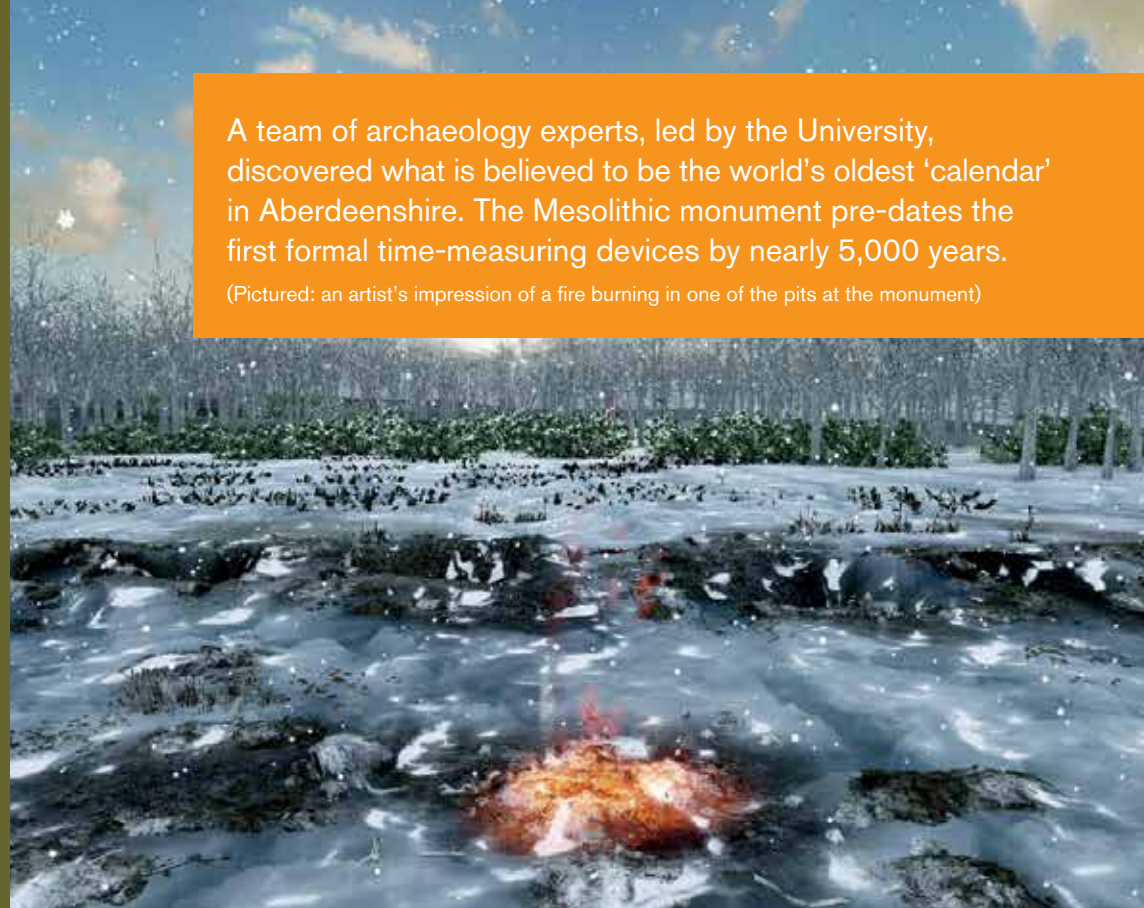


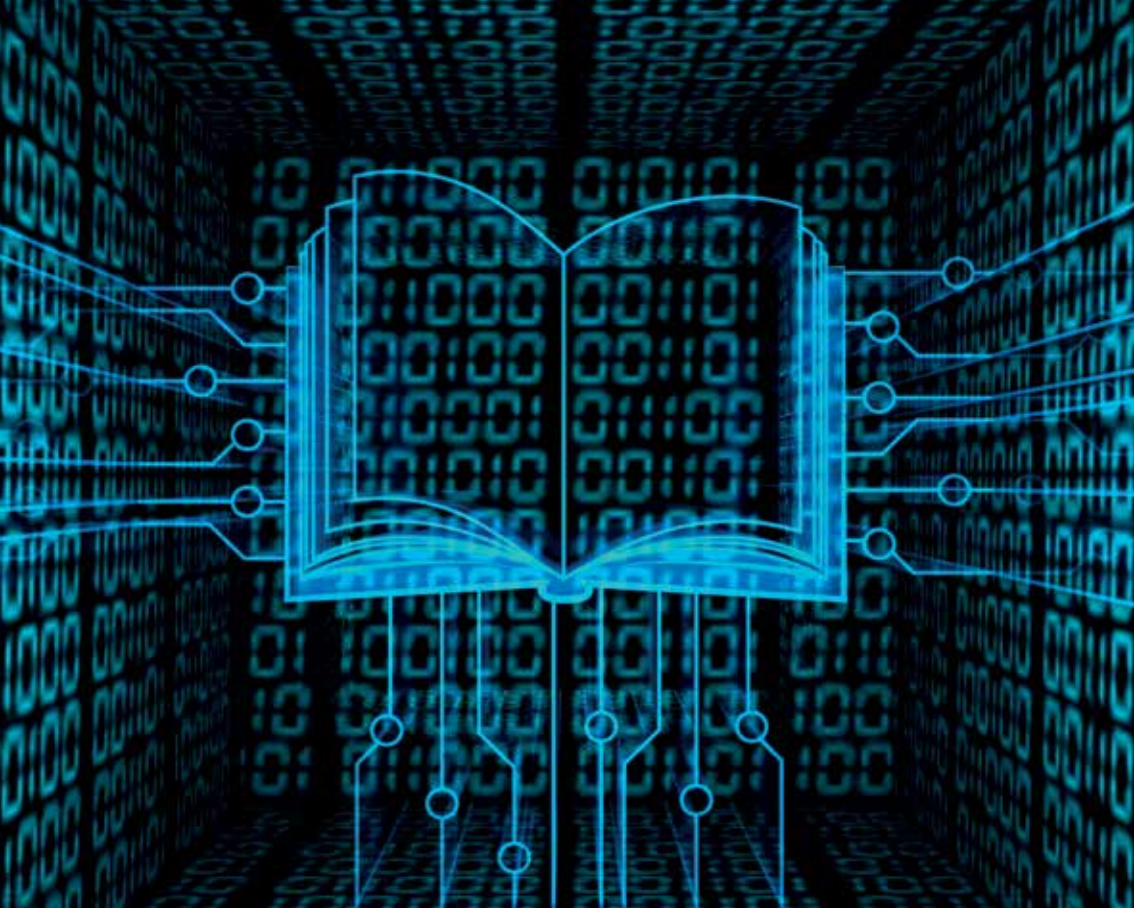
The University's Shakespeare Institute is located in Stratford-upon-Avon and contains a library of over 60,000 volumes including 3,000 early printed and rare books. The Institute is located in the novelist Marie Corelli's former house.

**RESEARCHERS AT THE UNIVERSITY
DISCOVERED A MAJOR CEREMONIAL
MONUMENT LESS THAN ONE
KILOMETRE AWAY FROM STONEHENGE,
COMPLETELY CHANGING OUR
UNDERSTANDING OF STONEHENGE
AND ITS LANDSCAPE.**

A team of archaeology experts, led by the University, discovered what is believed to be the world's oldest 'calendar' in Aberdeenshire. The Mesolithic monument pre-dates the first formal time-measuring devices by nearly 5,000 years.

(Pictured: an artist's impression of a fire burning in one of the pits at the monument)





COBUILD

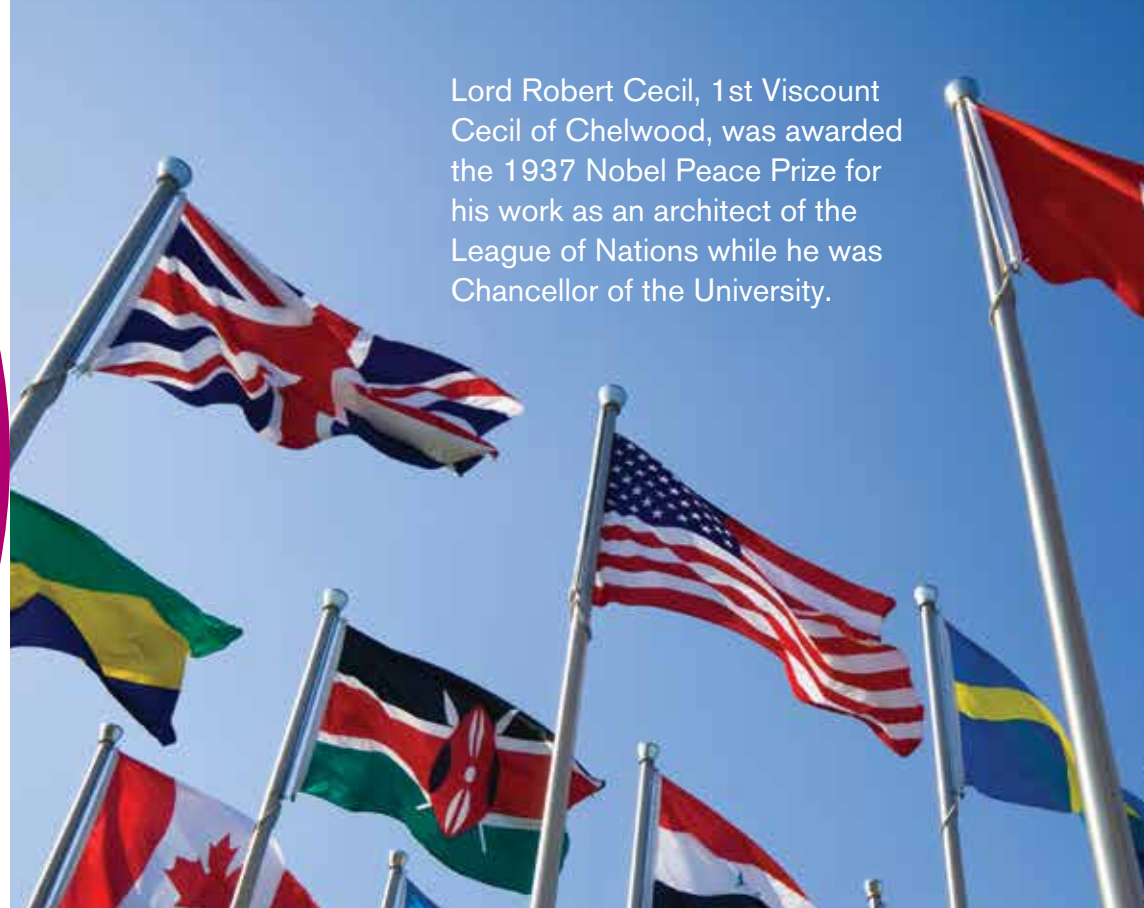
COBUILD (Collins Birmingham University International Language Database) research has transformed the study of the English language internationally by a radical and highly innovative use of corpus-linguistic technologies to analyse computationally multi-million-word databases of the English language.

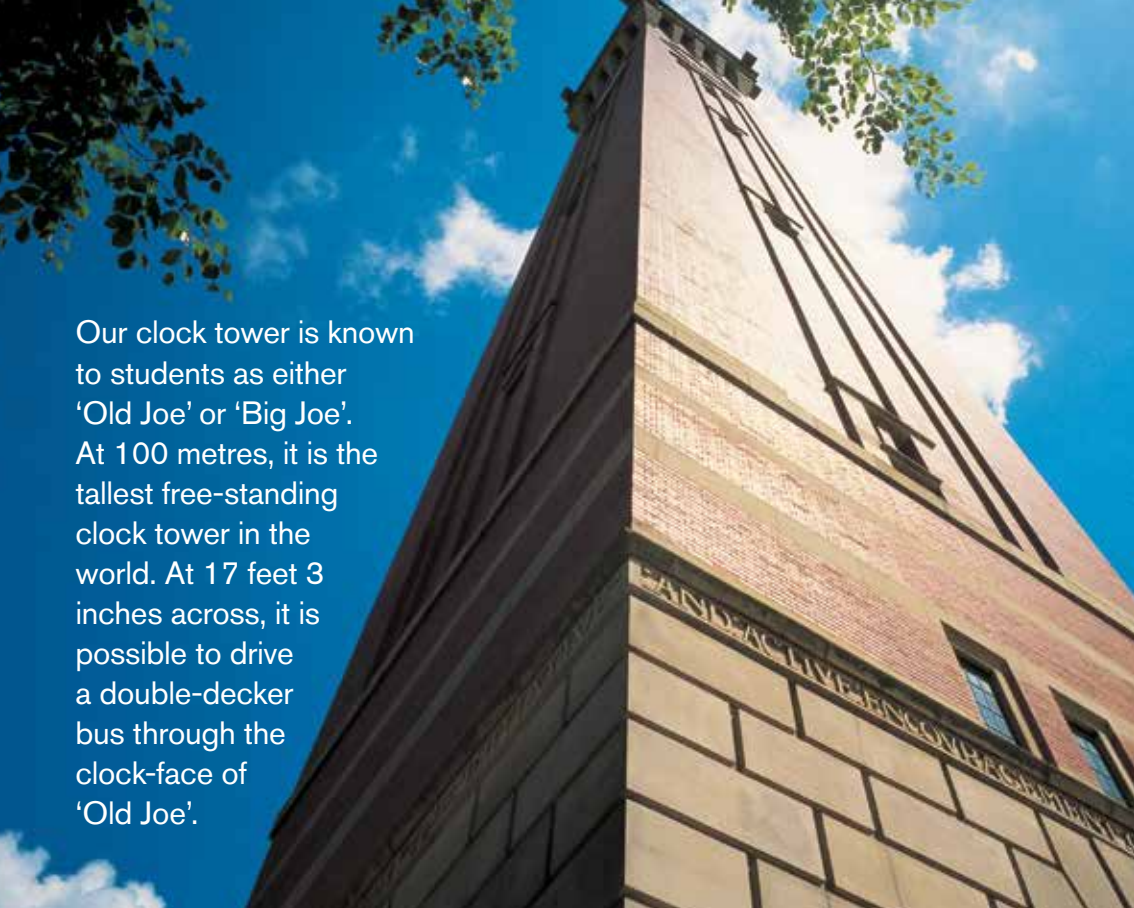
The COBUILD team's original approach to the description of English in the 1980s influenced the design and use of dictionaries, grammars of English and course materials. Their research has subsequently led to revolutionary new approaches to linguistic theory and practice with numerous possibilities generated for interdisciplinary research activity.

The impact has been genuinely world-wide and there is no approach to English language description and use today that can ignore the profound and seminal effects of COBUILD research.

**5,000 INTERNATIONAL STUDENTS
FROM 150 DIFFERENT COUNTRIES,
MAKE BIRMINGHAM ONE OF THE
LARGEST INTERNATIONAL STUDENT
COMMUNITIES IN THE UK.**

Lord Robert Cecil, 1st Viscount Cecil of Chelwood, was awarded the 1937 Nobel Peace Prize for his work as an architect of the League of Nations while he was Chancellor of the University.





Our clock tower is known to students as either 'Old Joe' or 'Big Joe'. At 100 metres, it is the tallest free-standing clock tower in the world. At 17 feet 3 inches across, it is possible to drive a double-decker bus through the clock-face of 'Old Joe'.



Each year we
recycle over
400m³
of green waste.



The University of Birmingham has been selected as the UK's higher education Science, Technology, Engineering and Mathematics (STEM) centre.

**ANDREW CARNEGIE (OF
CARNEGIE HALL FAME) WAS
AN EARLY BENEFACTOR OF
THE UNIVERSITY. HIS FORTUNE
MAKES HIM THE SECOND-
RICHEST MAN OF ALL TIME.**



Otto Frisch and Sir Rudolf Peierls

The Frisch and Peierls memorandum was the first technical exposition of a practical atomic weapon. Written by Otto Frisch and Rudolf Peierls while they were both working at the University of Birmingham, the memorandum contained new calculations about the size of the critical mass needed for an atomic bomb, and helped accelerate British and US efforts towards bomb development during World War Two.

The University has its own botanic garden. Treasures that can be enjoyed here include a Japanese Tea House and the National Collection of the History of the European Rose.



Sir Edward Elgar was Professor of Music at Birmingham (1905–1908) – a musical heritage that continues today with state-of-the-art facilities in the Bramall Music Building and the installation of a bespoke pipe organ in 2014.

**THE UNIVERSITY IS WORTH £898
MILLION ANNUALLY TO THE BIRMINGHAM
ECONOMY AND £1.072 BILLION TO
THE WEST MIDLANDS REGION. THE
UNIVERSITY'S ECONOMIC IMPACT IS
ALMOST DOUBLE THE COMBINED VALUE-
ADDED IMPACT OF THE EIGHT LARGEST
FOOTBALL CLUBS* IN THE REGION!**

* Aston Villa, Birmingham City, Coventry City, Shrewsbury Town, Stoke City,
Walsall, West Bromwich Albion and Wolverhampton Wanderers

A microscopic view of several cells, likely cancer cells, with handwritten labels in red ink. The labels include 'P22X', '10/19', '5', '1227', '10/19', '12', '10/19', '12', '10/19', '12', '10/19', '12'. The cells are surrounded by green, circular structures.

The University of
Birmingham was
chosen as the first of a
unique chain of Cancer
Research UK centres
in the country because
of its research and
medical expertise.



The main entrance to the Aston Webb Building has a whispering gallery at its highest level.



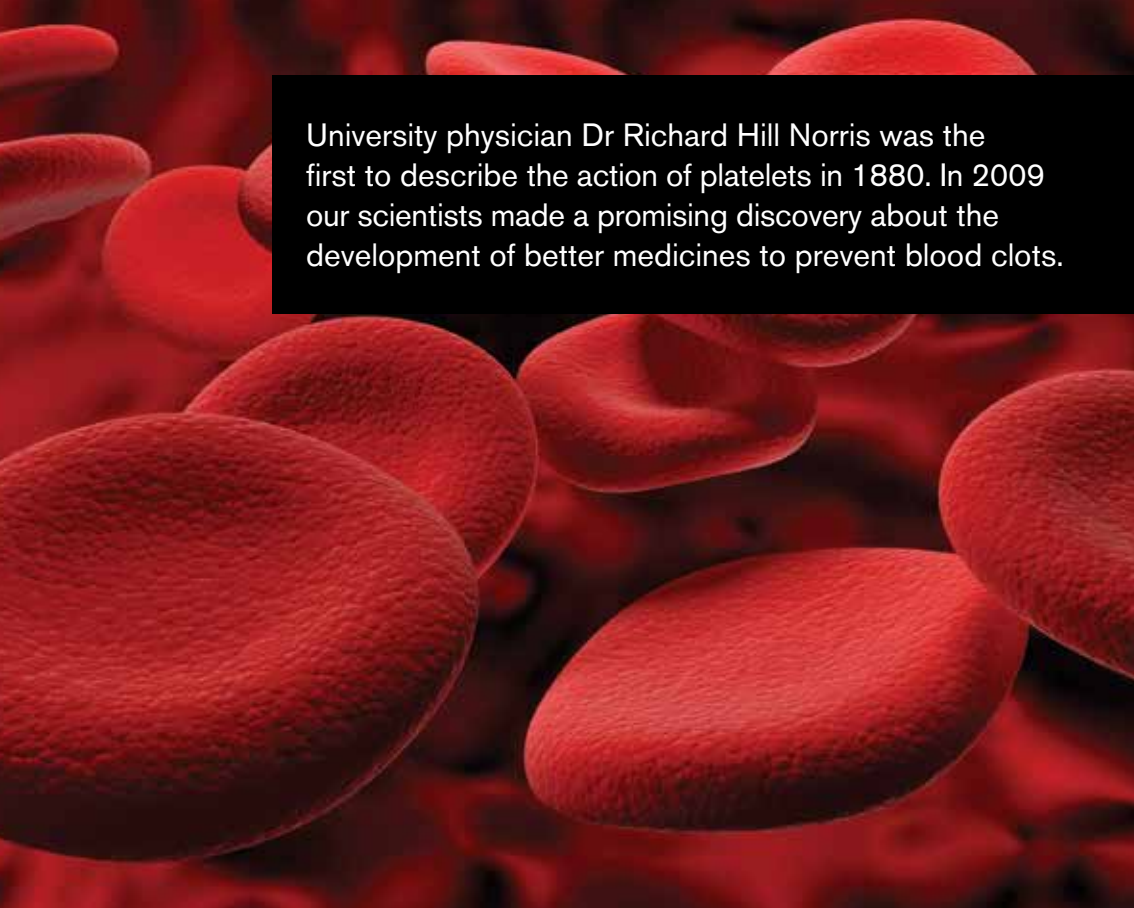
STUDENTS AT THE UNIVERSITY ONCE STUDIED BREWING – A FORMER CORE REGIONAL INDUSTRY.



Professor Frank Hahn

Frank Hahn was Lecturer, then Reader, in Economics in the Faculty of Commerce at the University of Birmingham from 1948 to 1959. His research incorporated money into the analysis of the growth and instability of economic systems. His examination of the share of wages in the national income anticipated the heated debate current today. His contribution to leading us to a better world was in reformulating and refining previous economic theory as the basis for decision making on public policy.

**RESEARCHERS AT THE
UNIVERSITY HAVE SUCCESSFULLY
USED A HERPES VACCINE TO
ATTACK AND KILL CANCER CELLS
– A LEADING DEVELOPMENT
FOR CANCER VACCINES.**

A detailed 3D rendering of several red blood cells, showing their characteristic biconcave disc shape and textured surface. They are arranged in a cluster, with some in sharp focus and others blurred in the background, creating a sense of depth. The color is a deep, vibrant red.

University physician Dr Richard Hill Norris was the first to describe the action of platelets in 1880. In 2009 our scientists made a promising discovery about the development of better medicines to prevent blood clots.



University



WE ARE THE ONLY UNIVERSITY
IN MAINLAND UK WITH ITS
OWN **RAILWAY STATION.**

**IN 1946 THE UNIVERSITY
OF BIRMINGHAM BECAME
THE FIRST UK UNIVERSITY
TO OFFER A SPORTS-BASED
DEGREE.**

Malcolm X

**THE AMERICAN HUMAN
RIGHTS ACTIVIST ADDRESSED
THE UNIVERSITY DEBATING
SOCIETY IN 1965.**

Fred Shotton, former Lapworth Professor of
Geology, mapped the geology of the beaches
of northern France prior to the D-Day landings.





Sir Norman Haworth

Sir Norman Haworth worked at the University of Birmingham for nearly 25 years. His Nobel Prize-winning work in Chemistry studying carbohydrates defined the basic features of starch, cellulose, glycogen, inulin and xylan, the knowledge of which has had broad impact far outside the remit of chemistry.

His pioneering work on vitamin C and carbohydrates was a key step in bringing the natural world within the realm of chemistry, significantly helping achieve advances in health and food production.

Honorary graduates
of Birmingham include
Dame Judi Dench, Jasper
Carrott, Nigel Mansell,
Benjamin Zephaniah and
Sir David Attenborough.



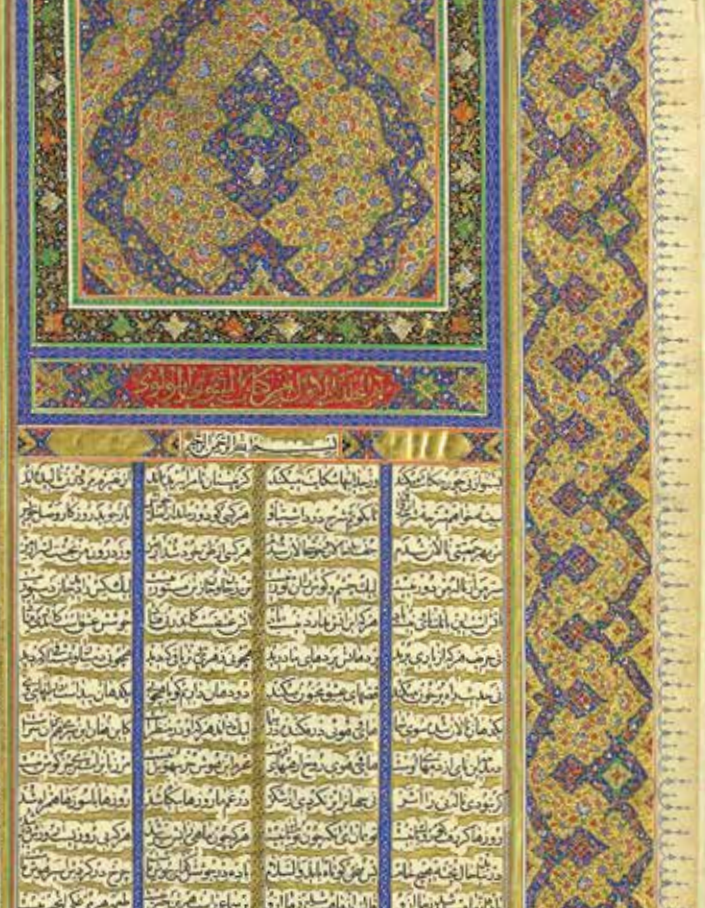
John Neville Marshall, a member of University staff, was awarded the Victoria Cross for his part in the attack on the Sambre–Oise Canal in World War One on 4 November 1918.



The University has exchange agreements with 200 universities in Europe and agreements with 80 universities in Australasia, Africa and the Americas through our Erasmus and International Exchange programmes.

The University has offices in Guangzhou, China and New Delhi, India, and a permanent presence in Lagos, Nigeria and Shanghai, China.

We have been providing social work education since 1908, when one of the first diplomas in social studies in the UK was established at the University.

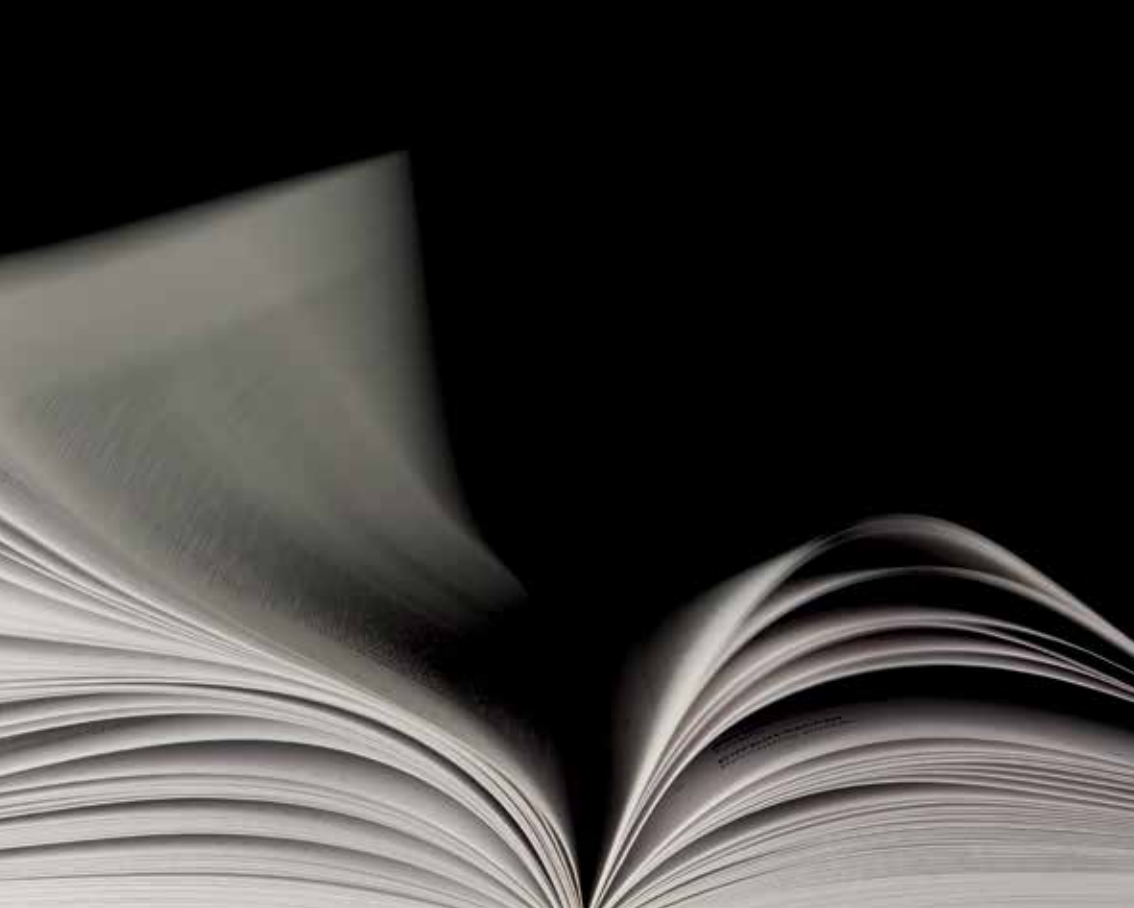


The University owns the Mingana Collection; the largest collection of illuminated Middle Eastern manuscripts after those in the Vatican and the Bibliothèque nationale in France. The collection has recently been made publicly available to view online.

There is a superstition that if you walk under the clock tower when the bell chimes you will fail your degree.



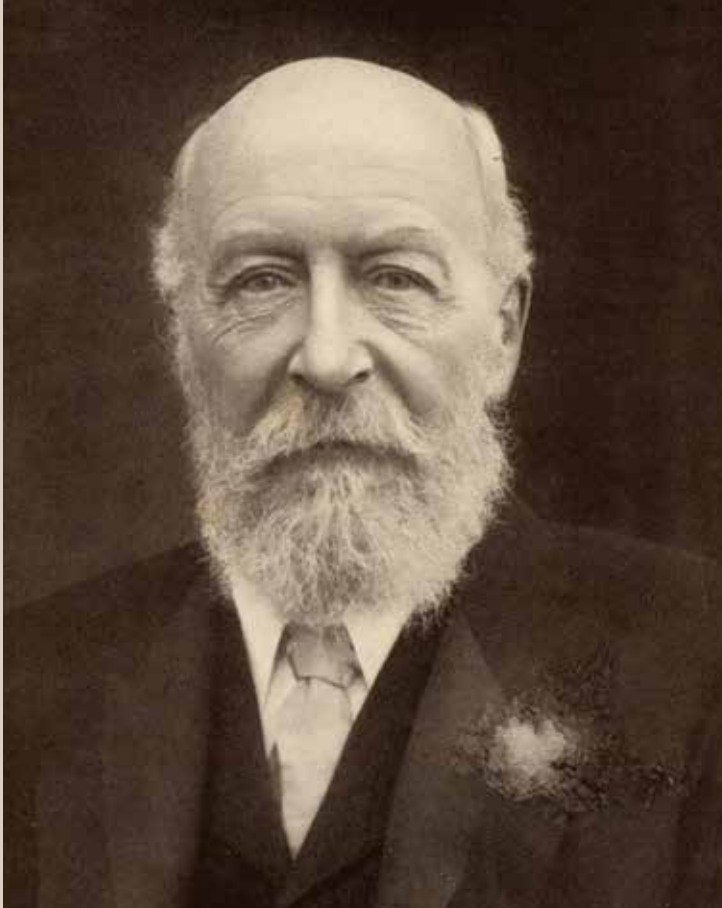
**OUR MOTTO 'PER
ARDUA AD ALTA' MEANS
'THROUGH EFFORTS TO
HIGH ACHIEVEMENTS'.**



Professor David Lodge CBE

As Emeritus Professor of English Literature at the University of Birmingham for 27 years, David Lodge's campus novels, together with those of his contemporary Malcolm Bradbury, broke new ground and helped to create a new genre of literature. His literary criticism has helped generations of students of literature to get to grips with new ideas, and his early novels are still relevant and engaging today. His later novels provide new enjoyment and new ideas.

The University owns the **Cadbury Papers**. The papers relate to the chocolate-making firm and mainly concern the cocoa trade in West Africa from 1900 to 1960.



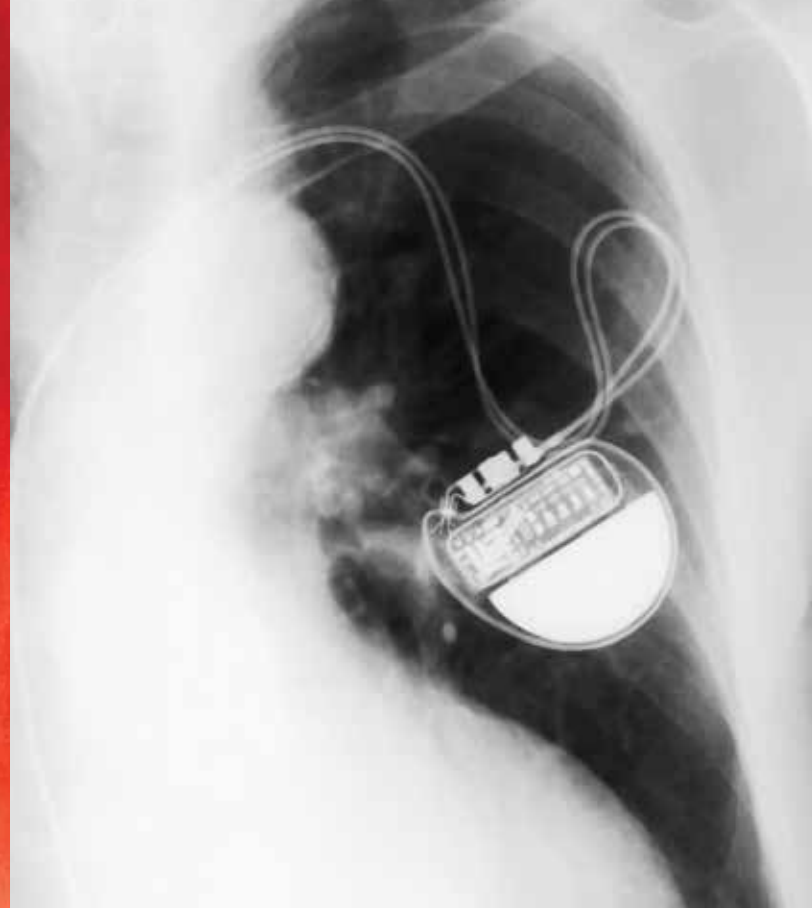
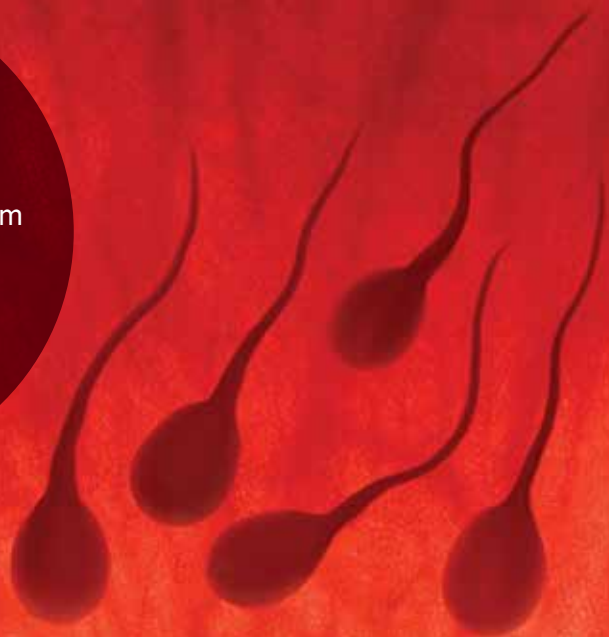
The University owns the **Noel Coward Collection** of scripts, diaries, short stories, songs, music and photographs.

The University is home to works by leading sculptors such as Henry Pegram, Dame Barbara Hepworth, Bernard Sindall, Sir Anthony Caro, William James Bloye and Sir Jacob Epstein.



The University was established by Royal Charter on 5 May 1900. One hundred years later the current monarch visited our campus to mark this important anniversary.

Over-the-counter male fertility tests were first developed at the University of Birmingham to give couples trying to conceive an early warning of potential fertility problems.



In the 1960s our scientists developed pacemakers to treat the symptoms of heart disease.

Many great thinkers were considered but only nine were chosen to represent the greatest names in the sciences and humanities carved above the entrance to the Aston Webb Building at the heart of the University's campus. Figures from left to right: *Beethoven, Virgil, Michelangelo, Plato, Shakespeare, Newton, Watt, Faraday and Darwin.*



The ceramic friezes above the entrance to the Aston Webb Building representing the industry of the Midlands were created by Robert Anning Bell. His work can also be seen in Westminster Cathedral and the Houses of Parliament.



Sir Peter Medawar CBE

Sir Peter Medawar was Professor of Zoology at the University of Birmingham between 1947 and 1951. His research was around tissue culture and why skin from one human being will not form a permanent graft on the skin of another person. He spent many years researching and analysing this phenomenon of tolerance and transplantation immunity.

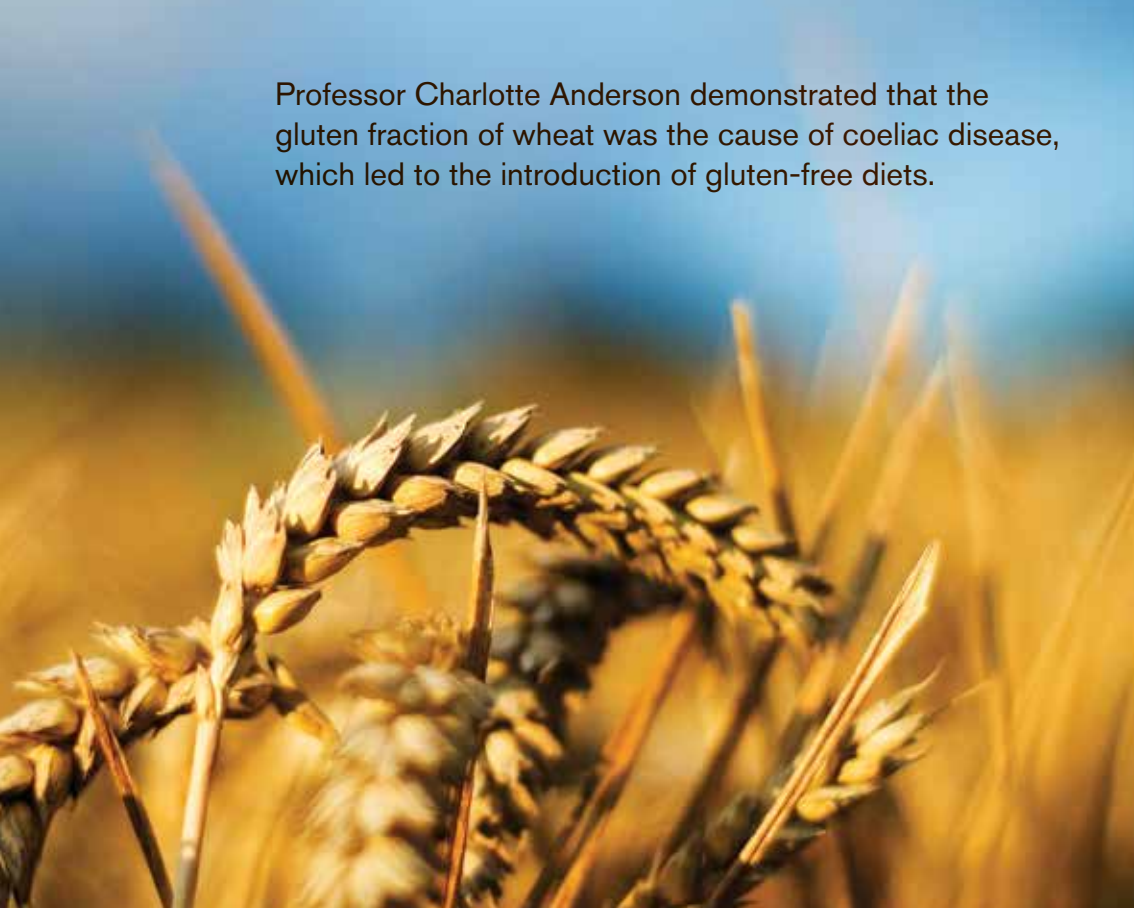
His work on the subject led him to being elected as a Fellow of the Royal Society, which awarded him its Royal Medal in 1959. In the same year, he was Reith Lecturer for the BBC.

Sir Peter's work on graft rejection and the co-discovery of acquired immune tolerance was fundamental to the practice of tissue and organ transplants. He was awarded a Nobel Prize for this work in 1960.



The Barber Institute of Fine Arts on the University's campus contains works by Degas, Magritte, Matisse, Monet, Van Gogh and Picasso.

(Pictured: *The Church at Varengeville*, Claude Monet)



Professor Charlotte Anderson demonstrated that the gluten fraction of wheat was the cause of coeliac disease, which led to the introduction of gluten-free diets.



A nest box has been placed at the top of the University clock tower where a pair of peregrine falcons nest every year.



The University of Birmingham has the longest established business school in the country. It was founded in 1902 as the Faculty of Commerce.

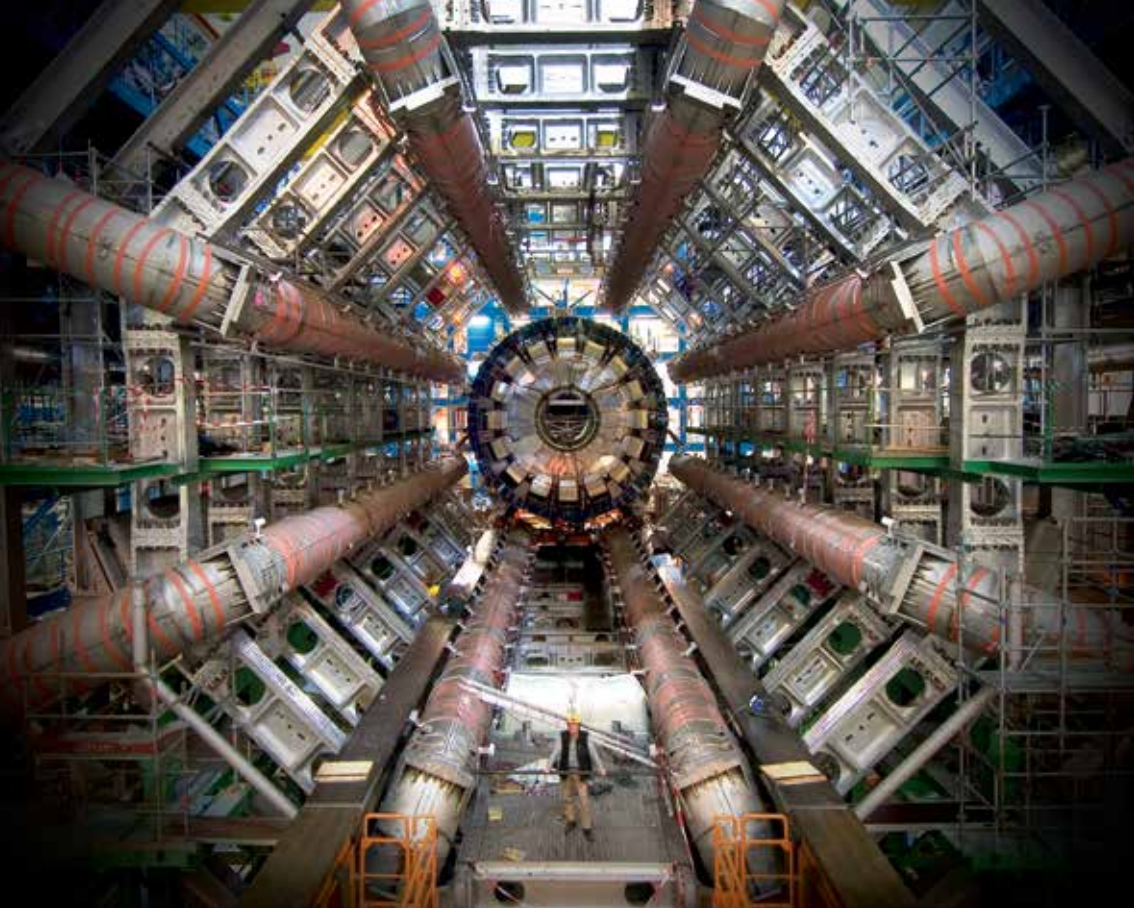
The prominent modern sculptor and artist Sir Eduardo Paolozzi created this sculpture *Faraday* for the University as a centenary gift in 2000.

**OUR PAOLOZZI SCULPTURE *FARADAY*
IS INSCRIBED WITH A QUOTATION
FROM T S ELIOT'S *FOUR QUARTETS*:
'YOU ARE NOT THE SAME PEOPLE
WHO LEFT THAT STATION/OR WHO
WILL ARRIVE AT ANY TERMINUS/
WHILE THE NARROWING RAILS
SLIDE TOGETHER BEHIND YOU.'**

The University owns
The Chamberlain Collection –
the papers of Neville Chamberlain
(Prime Minister 1937–1940);
Joseph Chamberlain (founder
of the University); and Austen
Chamberlain, including letters
describing Neville Chamberlain's
meeting with Hitler.

In 1891 at the University,
John Henry Poynting
was the first scientist to
successfully calculate the
mean density of the Earth.





Professor David Charlton

Currently Professor of Particle Physics at the University of Birmingham, Dave Charlton took up the role of 'spokesperson', or scientific leader, of the ATLAS experiment at CERN's Large Hadron Collider on 1 March 2013, having been voted into the role by the project's 177 member institutions at the height of media interest over the discovery of the 'God particle'.

Professor Charlton, who was deputy spokesperson at the time of the discovery, said his key task at the helm would be to achieve consensus, since all 3,000 physicists involved in the collaboration 'basically have an equal say' in how the project is conducted.

The continuing analysis of data gathered during ATLAS's triumphant first run also needs to be optimised across the collaboration's 100,000 global computers.

**WE ARE THE FIRST
UNIVERSITY IN THE UK TO
RUN A FLEET OF HYDROGEN
CARS, EXPLORING THIS NEW,
SUSTAINABLE FUEL SOURCE.**



Former student Professor Peter Bullock was awarded the 2007 Nobel Peace Prize for his role on the Intergovernmental Panel on Climate Change, which has spread greater knowledge about man-made climate change and laid the foundations for counteracting such change.

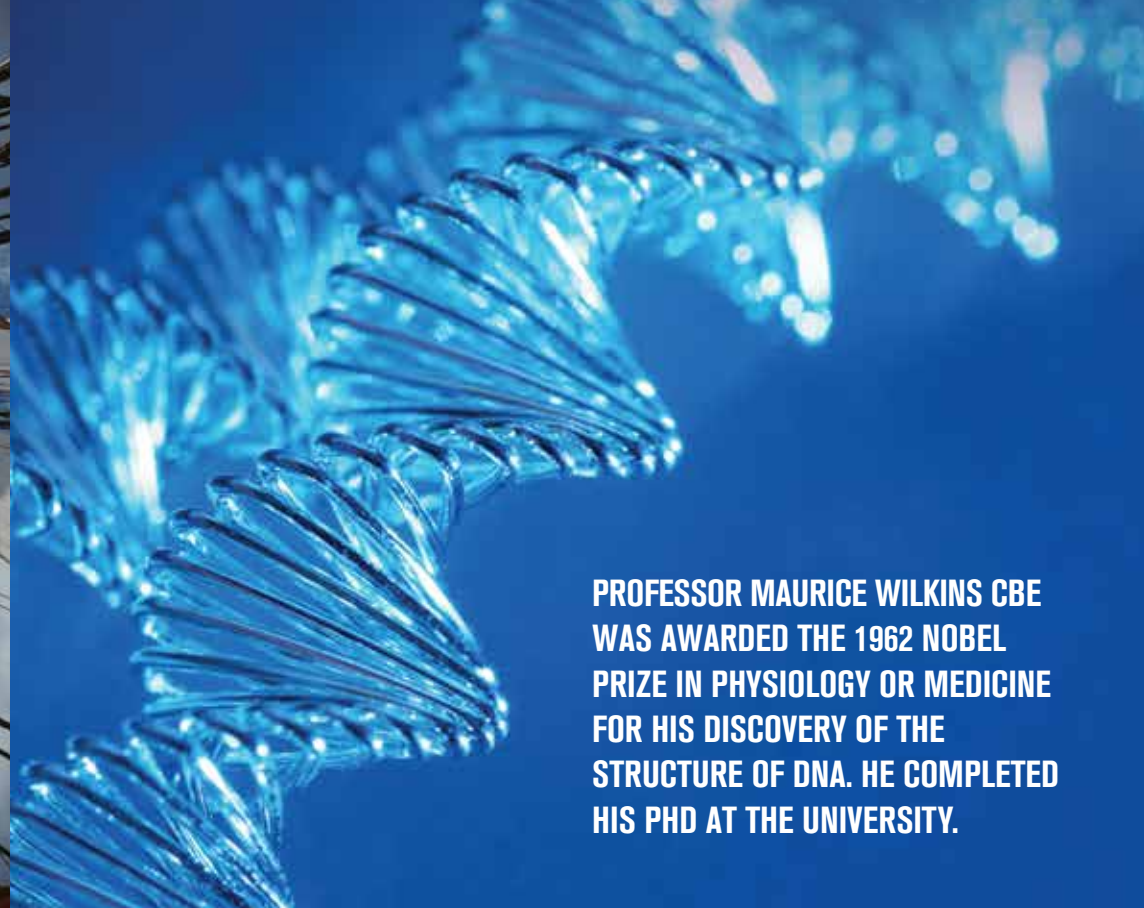


The University
of Birmingham is a
founding member of
the **Russell Group** of
research universities.

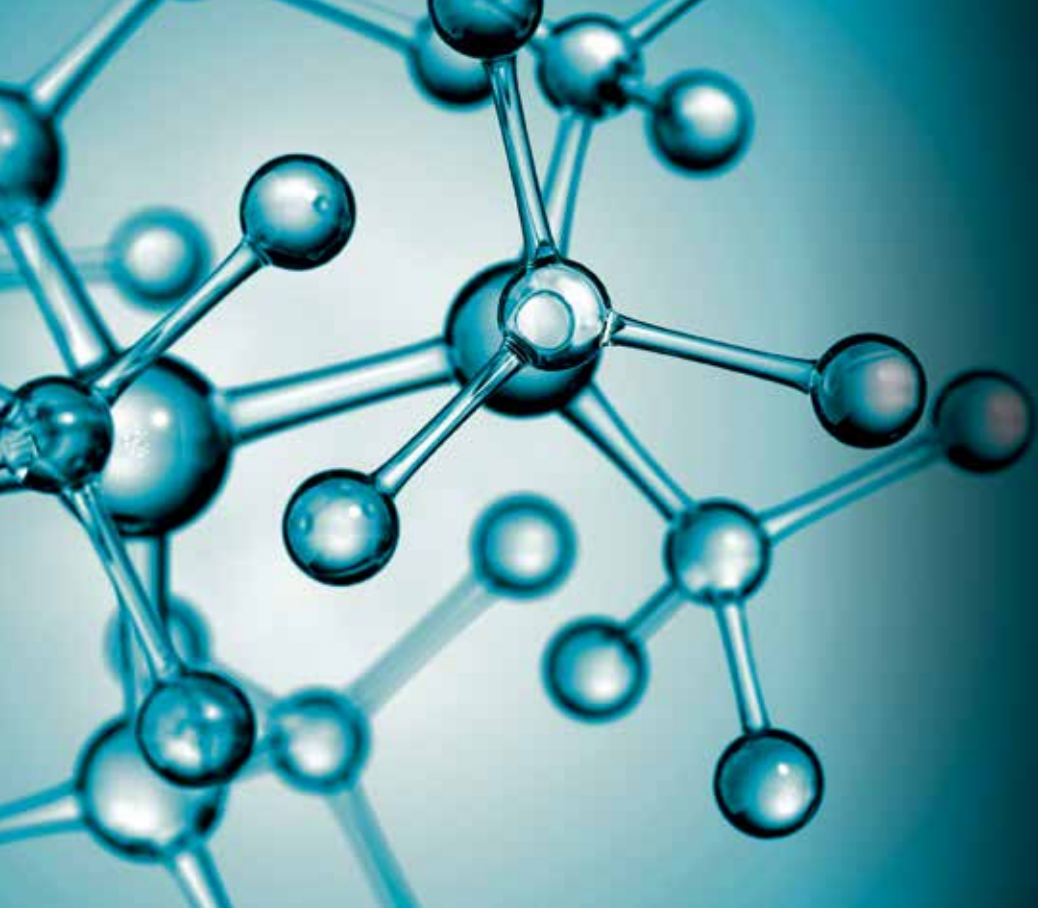
THE UNIVERSITY OF
BIRMINGHAM IS A FOUNDING
MEMBER OF **UNIVERSITAS 21** –
A NETWORK OF 27 RESEARCH
UNIVERSITIES FROM 17
DIFFERENT COUNTRIES.



Lisa Clayton, the first British woman to sail single-handedly around the world, studied at the University of Birmingham



**PROFESSOR MAURICE WILKINS CBE
WAS AWARDED THE 1962 NOBEL
PRIZE IN PHYSIOLOGY OR MEDICINE
FOR HIS DISCOVERY OF THE
STRUCTURE OF DNA. HE COMPLETED
HIS PHD AT THE UNIVERSITY.**



Sir Paul Nurse

Known for his work on cell cycle regulation, Sir Paul Nurse received the Nobel Prize for Physiology or Medicine in 2001 for his seminal discoveries at the molecular level of cell cycles. He enabled the development of new treatments and medicines for cancer through his studies and management of research teams, and discovered the gene that controls cell division through his postgraduate experiments on yeast.

Sir Paul graduated from Birmingham in 1970 with a BSc in Biology and, after doing much of his pioneering research in the 1980s, he joined the Imperial Cancer Research Fund and became its Director General and Head of Cell Cycle Laboratory.

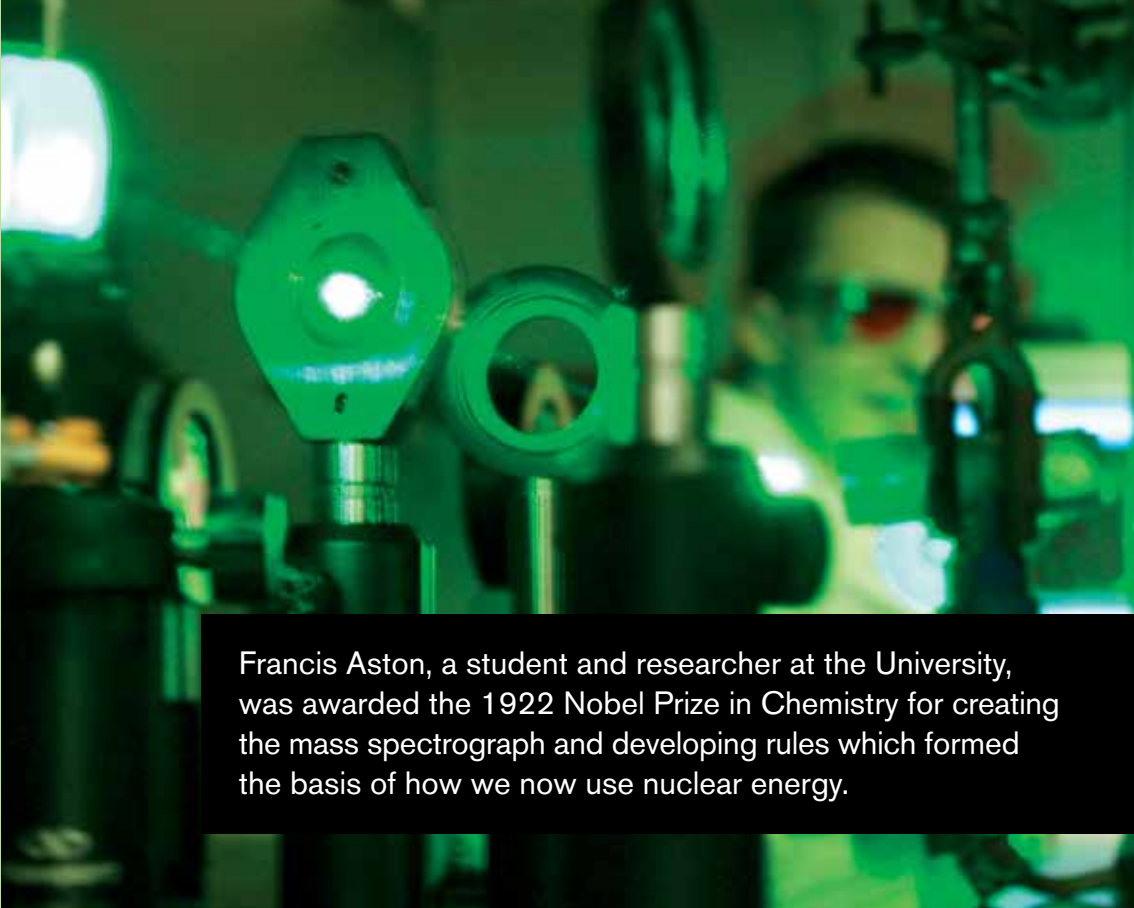
Sir Paul headed up the world's largest volunteer-supported cancer research organisation, Cancer Research UK, when ICRF and the Cancer Research Fund joined forces. He moved to the United States in 2003 to become President of The Rockefeller University, and is currently President of the Royal Society.

**OUR FORMER VICE-
CHANCELLOR RAYMOND
PRIESTLEY TOOK PART
IN THE ANTARCTIC
EXPEDITIONS OF ERNEST
SHACKLETON (1907–09)
AND ROBERT SCOTT
(1910–13).**



The University offers a Masters programme in Dance, run in partnership with the Birmingham Royal Ballet.

Intellectual property from the University of Birmingham developed the world's first point-of-care diagnostic device for multiple myeloma.



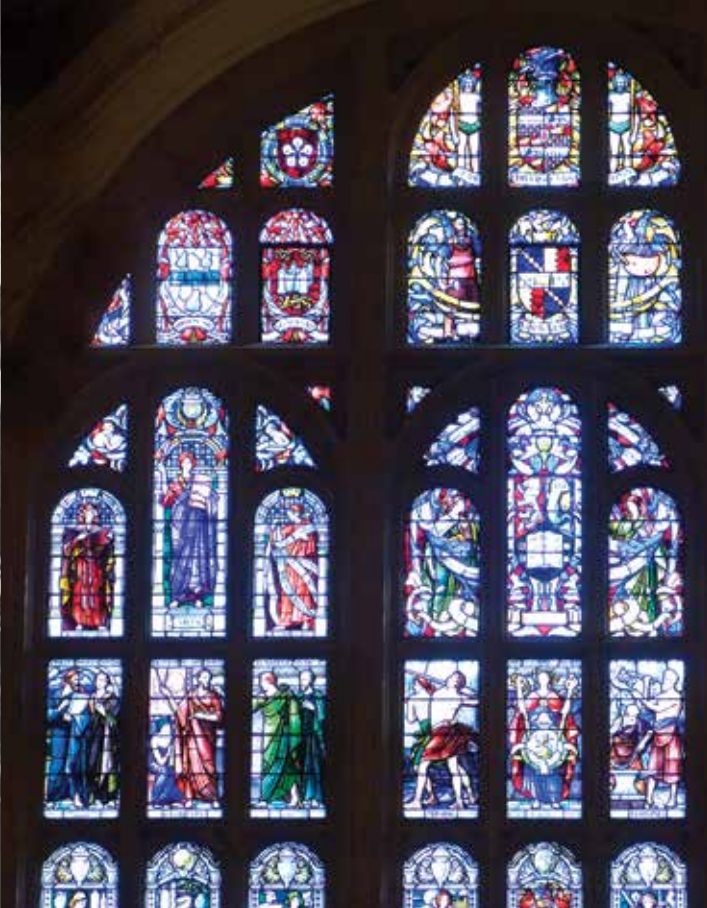
Francis Aston, a student and researcher at the University, was awarded the 1922 Nobel Prize in Chemistry for creating the mass spectrograph and developing rules which formed the basis of how we now use nuclear energy.

A low-angle photograph of graduates in blue gowns throwing their black mortarboards into the air against a clear blue sky. The caps are captured in mid-air at various heights and angles, creating a sense of celebration and movement. The graduates' arms are raised, and their faces are looking upwards.

IN 1900 THE UNIVERSITY
HAD **189** UNDERGRADUATES.
IN 2014 THIS FIGURE HAS
RISEN TO **19,347**.

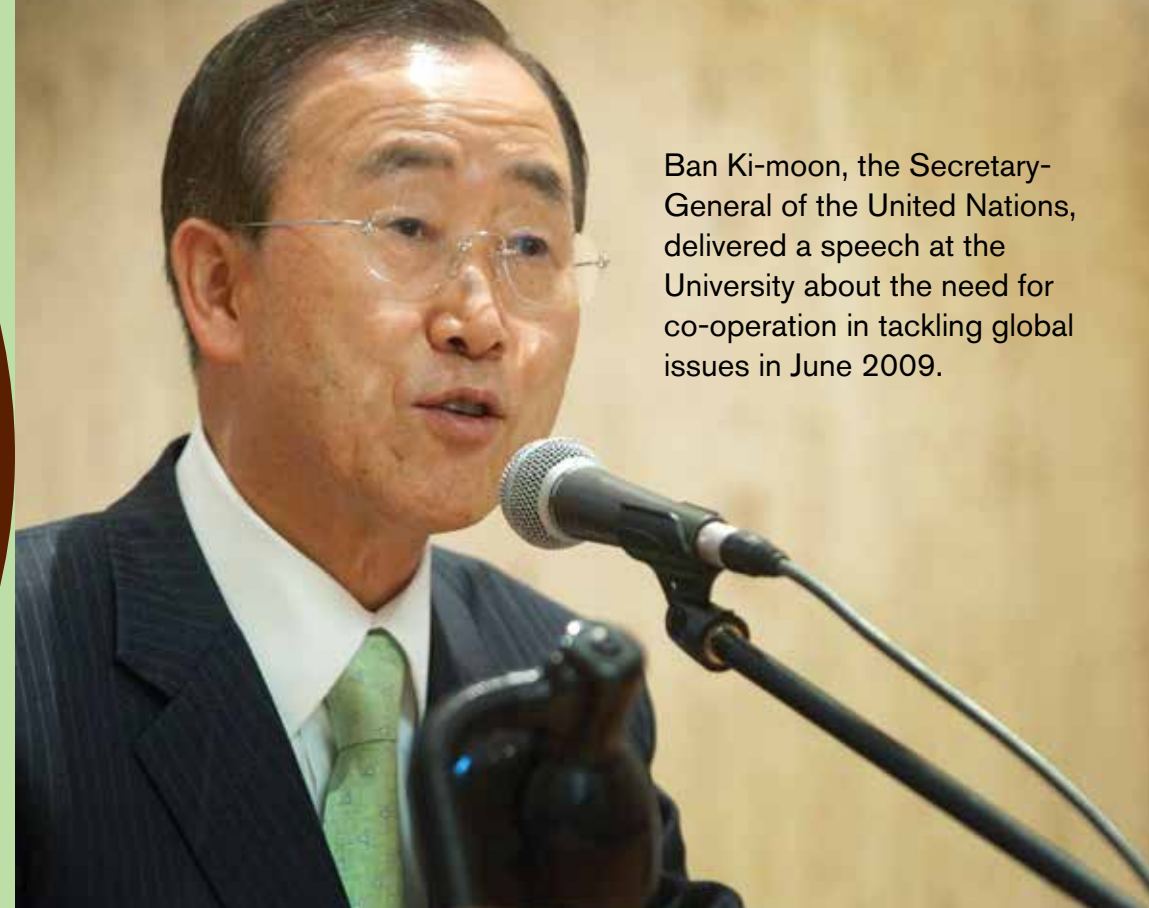
Sir Aston Webb, the University's original architect, also designed the Victoria and Albert Museum's entrance and redesigned the façade of Buckingham Palace and the Mall.

The Great Hall in the Aston Webb Building was converted into the 1st Southern General Hospital during World War One, with 520 beds and treated 125,000 injured servicemen.



The stained glass window in the Great Hall was donated to the University by Sir John Holder. It has 53 lights, contains six shields of the Midlands, the University shield, the arms of the city of Birmingham, the Calthorpe arms, Sir John Holder's arms and the Chamberlain crest.

**WIRELESS TELEGRAPHY,
TANK DESIGN AND LIGHT
ALLOYS FOR AIRCRAFT
WERE ALL DEVELOPED
HERE FOR THE WAR
EFFORT DURING
WORLD WAR ONE.**



Ban Ki-moon, the Secretary-General of the United Nations, delivered a speech at the University about the need for co-operation in tackling global issues in June 2009.

The Right Honourable Joseph Chamberlain, the University's founder and first Chancellor (1900–1914) also laid the basis for our modern education system, cleared the slums of Birmingham, brought its water and gas supply under municipal control and transformed it into the 'best governed city in the world'.



The Aston Webb Building was opened on July 7 1909 by King Edward VII.

Neville Chamberlain ■ Tamsin Greig ■
Victoria Wood ■ Ben Shephard ■ Chris Tarrant
■ Professor Mick Aston ■ Lizo Mzimba ■ Francis
Brett Young ■ David Gill ■ Tim Curry ■ Naomi
Folkard ■ Ann Widdecombe ■ Stanley Baldwin
■ Chris Addison ■ Alison Curbishley ■ General
Sir Mike Jackson ■ Phyllida Lloyd ■ Chrissie
Wellington ■ Simon Thomas ■ Matthew Key ■
Adam Pengilly ■ Simon Halsey ■ James Clavell
■ Joey Barrington ■ Sir Paul Nurse

all studied here.

