



Left: Part of the University of Bristol shield, set in relief on a stone plaque at the entrance to the Pre-clinical Vet School, Southwell Street

Discovery

We will increase knowledge by undertaking research generated by intellectual curiosity and carried out with integrity.

RESEARCH STRATEGY

The publication of the White Paper on *The Future of Higher Education* in January 2003 heightened the urgency of formulating a viable Research Strategy. The University is now implementing an integrated strategy that will enable it to establish an international profile based on world-class cutting-edge research. The next assessment of the quality of UK research is expected to be in 2007/08. The aim of the Research Strategy is to enable all areas of the University to achieve the highest grade in that exercise.

'The University will develop a positive culture of discovery and enterprise, with the aim of producing tangible benefits for the community at large and contributing to the UK knowledge economy. The University will provide exceptional career advantages that will attract and retain top-flight researchers from around the world. It will also be particularly supportive in developing the research

potential of academic staff in the early stages of their career.'

– *University of Bristol Research Strategy 2003-2008.* The full text of the strategy can be found online at www.bristol.ac.uk/research/university/strategy/index_html

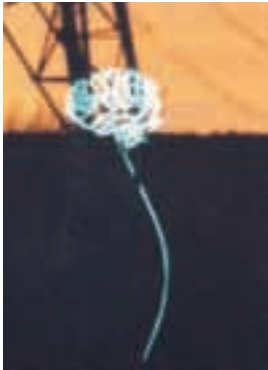
BRISTOL EXPLORES PLANETS

The new Centre for the Study of the Evolution of the Terrestrial Planets opened at the University in March. The £4m research and teaching facility serves students, international researchers and companies in need of world-class geochemical analysis.



The two-storey centre boosts the already formidable reputation of the Earth Sciences Department – one of only three in the UK to be awarded the top, five-star rating in the most recent national assessment of universities' research quality.

Most of the funding came from the Joint Infrastructure Fund – a partnership between the Wellcome Trust, the Office of Science and Technology and the Higher Education Funding Council for England.



ILLUMINATING PHYSICS

Did you know that overhead power lines create electrical fields strong enough to light up a bulb placed on the ground underneath? Richard Box, Artist in Residence in the Department of Physics, based his 2002/03 work on this idea. He bent a long neon tube into the shape of a human brain, then placed this and other sculptures beneath pylons on a Welsh hillside – and the picture on the left is one of the results.

→ SNAPSHOT

EARTHQUAKE LAB PROGRESSES

The University's biggest current building project, the Bristol Laboratory for Advanced Dynamics Engineering (BLADE), is taking shape in University Walk. The laboratory will include one of the largest facilities in the world for simulating earthquakes. BLADE is funded by a £15 million grant from the Government's Joint Infrastructure Fund with a further £2 million invested by the University.



GREG JONES

Second Severn crossing with some of its modes of vibration, computed by Dr John Macdonald

The facility will also allow testing and evaluation of large engineering systems. This will place the University at the centre of a massive research effort to improve the safety of structures such as bridges, power stations and aircraft.

NEW CENTRE FOR CHILD HEALTH

The Centre for Child and Adolescent Health, a collaborative venture between the universities of Bristol and the West of England, opened in May at the Centre's revamped premises on the site of the Old Homeopathic Hospital, Cotham.

The Centre is staffed by a team of paediatricians and psychiatrists, academic nurses, researchers, lecturers and specialist registrars. Research and teaching focuses on five main themes: nutrition in early childhood; child development; palliative care for children and adolescents; children in need; and childhood accidents.



NICK RIDDLE

Left to right: Professor Alan Emond, Director of the new Centre, Vice-Chancellor Professor Eric Thomas and UWE Vice-Chancellor Alfred Morris at the opening

The Centre will collaborate with local health trusts, the universities of Bath and Durham, the London School of Hygiene and the Institute of Child Health. It also has strong links with academic groups in Brazil, Jamaica, Nepal, Cambodia and Sweden.

SHOW AND TELL

Theatre history is being given a boost by the University of Bristol Theatre Collection through its Oral History

'In the 2001 assessment exercise... a staggering 36 out of 46 departments assessed were awarded a grade 5 or 5*'

The Independent, October 2002



JO ELSWORTH

Oral History participants Stephanie Cole, Professor George Brandt and Peter Birrel

Project, which began in 2002. The Project records the memories of people in British theatre, from actors and drama teachers to stagehands and other behind-the-scenes staff.

Accounts of their professional lives have been recorded by many theatre practitioners, including actors (Stephanie Cole, Peter Birrel and Peter Copley), writers (Peter Nichols, ACH Smith) and directors (Alan Dossor, Andrew Hilton). The Project makes particular reference to Bristol's theatrical heritage, including the Bristol Old Vic, the Bristol Old Vic Theatre School and the University. Several past members of the Department, including Professors Glynne Wickham, George Brandt and Ted Braun, have made contributions that provide an insight into the teaching of Drama at Bristol over the past 50 years.

CHALLENGING STEREOTYPES OF WORKING ASIAN WOMEN

A study from the University's Centre for the Study of Ethnicity and Citizenship challenges the simplified contrast often drawn between 'educated' and 'uneducated' South Asian women in Britain.

'South Asian Women and Employment in Britain: The Interaction of Gender and Ethnicity', by Fauzia Ahmad and Tariq Modood of the Department of Sociology and Stephen Lissenburgh of the Policy Studies Institute, finds that cultures traditionally portrayed as

opposed to the education and employment of women are producing growing numbers of highly motivated and confident young women.

ALSPAC: 150 STEPS TOWARDS BETTER CHILD HEALTH



The University's Children of the 90s project – also known as the Avon Longitudinal Study of Parents and Children (ALSPAC) – published its 150th academic paper in July.

ALSPAC has followed the health and development of 14,000 children from the womb. These children are now 11 and 12 years old, and ALSPAC has amassed a huge amount of genetic and environmental data on each child. No other population study in the world has this wealth of information.



ALSPAC

Professor Dieter Wolke, Deputy Director of ALSPAC (right), with Professor Robert Winston, in the BBC's TV documentary series *Child of Our Time*

The study is now an international resource, with the potential to identify the causes and possible prevention of numerous health problems. This year the project was awarded \$1.9 million (£1.2 million) by the prestigious National Institutes of Health in the USA for an investigation into childhood obesity.

ALSPAC has just installed a new suite of laboratories, including equipment which can create a never-ending supply of DNA from the blood samples of children and their parents.

DWARF GALAXY DISCOVERY

Scientists led by Bristol's Dr Steve Phillipps and Dr Michael Drinkwater of the University of Queensland have discovered a new kind of galaxy – the ultra-compact dwarf, or UCD.



An artist's before-and-after illustration of what might happen to the stars stripped from the outer regions of a galaxy as it plunges through the cluster

UCDs look like individual stars on ordinary photographs; but by looking at spectra (images of the distribution of energy emitted), the team saw that seven tiny specks in the Fornax Cluster were galaxies, about 60 million light years away, and not merely foreground stars in our own galaxy.

The UCDs contain tens of millions of stars, but in volumes not much more than 100 light years across, making them far more compact than any previously known galaxies. An entire UCD would fit comfortably between the Earth and relatively close bright stars like Rigel or Betelgeuse in Orion.

→ SNAPSHOT



HEIST AWARD

In April, the University won a gold award in the Public Relations category of the annual Heist Awards, sponsored by *The Guardian*. The competition celebrates excellence in the marketing of universities and colleges. Bristol was recognised for a campaign which began when Arnold Denman, a local businessman, sponsored a post for two years to help the University publicise its research. One result is the termly magazine, *re:search*, which presents research done at the University in an easy-to-read format.



RESEARCH FUNDING

During 2002/03, the University's division of Research & Enterprise Development (RED) negotiated and approved approximately 850 contracts and agreements, an increase of 17 per cent on the previous year. This includes research agreements from industry, charities, the EU and government bodies.

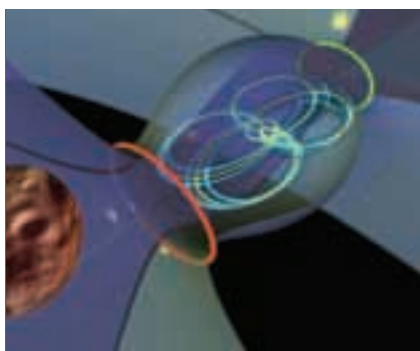
At the time of writing, the University is known to have won around £3 million from successful bids submitted to the EU's Sixth Framework Programme for Research and Technological Development. The University is a research partner in 93 such bids submitted under the first call.

CHAOS THEORY SOLVES PLANETARY MYSTERY

Bristol mathematicians have used chaos theory to understand an unsolved mystery of planetary science: how small moons switch from orbiting the sun to orbiting a planet.

Some small moons orbiting planets such as Jupiter and Saturn have irregular orbits many millions of miles away from the planet. These are believed to have originally encircled the sun before being 'captured' by the planet they now orbit.

Professor Steve Wiggins and Dr Andy Burbanks from the Department of Mathematics, along with chemists at Utah State University, used chaos theory to understand how these moons switch orbits. They invented theoretical moons orbiting the sun and asked how these could switch to an orbit around one of the giant planets. They found that it was chaos that allowed the capture process to take place.



ANDREW D BURBANKS

In this digital graphic, a moonlet shifts from an orbit around the sun and passes through an open 'bottleneck' into the central energy bubble around Jupiter, where it may become a moon

The researchers used their findings to predict the location of six new moons orbiting Jupiter; these have subsequently been found.

ARCHAEOLOGISTS HIT THE FLOOR

Excavations in late 2002 by the Centre for the Historic Environment uncovered a beautiful mosaic floor, largely intact, in a playing field at St Lawrence's School, Bradford-on-Avon. The Centre, part of the Archaeology Department, worked on the site with St Lawrence's and Cardiff University. Students, sixth-formers and volunteers formed the workforce.



MICHAEL COSTEN

The successful exploratory dig uncovered the entrance hall of a large villa, a room with a hypocaust in a second building and a decapitated burial. The most exciting discovery was the entrance hall's intricate mosaic floor which had been deliberately covered over, probably in the early fifth century. Work on the site continued in 2003.

PREVENTING INFANT DEATHS

A team from the University took part in research that will save thousands of infant lives in developing countries.

Staff in the Department of Pathology and Microbiology played a leading role in the discovery that the bacteria causing diarrhoea, enteropathogenic *E. coli*, injects proteins into the cells of the children it attacks. The scientists are now working to identify the way these and other proteins act together to overwhelm the child's cells.



BLACKWELL SCIENTIFIC

A Pseudocolour (ie digitally colourised) scanning electron microscope micrograph showing enteropathogenic *E. coli* interacting with mammalian cells. The image was created at the University's MRC Cell Imaging Facility

Once researchers know exactly how this system works, they will be able to identify specific targets for drug designers.

FIGHTING ALZHEIMER'S: A NEW WEAPON

University scientists have discovered a potentially powerful ally in the treatment of Alzheimer's and similar diseases: a protein called 'nerve growth factor' (NGF), which prevents degeneration of certain groups of brain cells. Work by Dr David Dawbarn and Dr Shelley Allen in the Molecular Neurobiology Unit at the University Research Centre for Neuroendocrinology has resulted in a partnership with Kiadis, a Netherlands-based company, to design drugs that will mimic the beneficial actions of NGF. This could result in new treatments for neurodegenerative diseases.