

Bulletin

*Best wishes for
Christmas and
the New Year*

This Issue • New Business Portal • Colleges Alliance Successes • Swift Launches

DEGREE CLASSIFICATION SYSTEM SHOULD BE REVIEWED, REPORT SAYS

Vice-Chancellor Chairs Group on Measuring and Recording Student Achievement

▶ A joint Universities UK and Standing Conference of Principals (SCOP) report contains recommendations that will shape the future success for UK higher education, providing a richer representation of student achievement.

The report undertaken by the Measuring and Recording Student Achievement Scoping Group, chaired by Professor Robert Burgess, Vice-Chancellor of the University of Leicester, recommends the sector to take further action in three key areas:

- The current UK honours degree is a robust, internationally recognised qualification which continues to serve us well. However, there is a need to consider the classification system to ensure more effective and appropriate ways of representing student learning and achievement.
- Actively pursue a feasibility study on mechanisms for representing value added.
- Whilst acknowledging the autonomy of higher education institutions, efforts should be made to develop a common higher education credit system for England, Wales and Northern Ireland.

Following the release of this report Universities UK and SCOP have invited Professor Burgess to constitute a joint UUK/SCOP Steering Group to consider how the recommendations can be taken forward.

Baroness Warwick, Chief Executive

of Universities UK, said: "We warmly welcome this report and thank Professor Burgess and his group for the considerable work they have undertaken. These wide range of issues are of great importance to institutions, students and wider stakeholders.

"The recommendations propose what could be quite a radical change for the sector, UK wide. We particularly support the recommendation that colleagues in Scotland, Wales and

Northern Ireland should be fully involved in what happens next."

Professor Robert Burgess, Chair of the Scoping Group, said: "In an era of mass higher education, where curriculum change has been massive, there is an urgent need to devise an assessment system that reflects students' achievements and provides a meaningful picture of their abilities to employers.

"We need to provide students with an

appropriate award that will stand the test of time, in the same way as the honours classification system has served us for the past two centuries."

Professor David Vaughan, Vice Chair of the Standing Conference of Principals and Principal of Cumbria Institute of the Arts, said: "The issues addressed in this report are of critical importance for all with an interest in higher education. We owe it to all concerned to get it right. The work of

Continued on page 2

New Building Heralds New Era



NEW ERA: L-R, Chancellor Sir Michael Atiyah with Vice-Chancellor Professor Robert Burgess and former Vice-Chancellor Dr Ken Edwards at the opening ceremony of the Michael Atiyah building.

Full story page 2.



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University of
Leicester



Degree Classification System Should be Reviewed, Report Says *continued from page 1.*

the Scoping Group provides a firm foundation. SCOP welcomes the publication of the report and the opportunity we now have to take the work forward."

Dr Kim Howells MP, Minister of State for Lifelong Learning, Further and Higher Education, said: "I am grateful to Professor Burgess for his contribution. He has sought to provide a vision and an evidence base on which to build further work. His report raises a number of substantial and important issues which will need to be taken forward by the sector.

"The current degree classification system has been in place for around two centuries and served us well. But Professor Burgess and his Group have reached a view that the current system, for a variety of reasons, is not sufficiently fit for purpose and that it is time to consider alternatives. Any development of the current degree classification system is entirely for the sector to determine, in consultation with the main users - students and employers. But I agree with Professor Burgess it is absolutely essential that any changes do not undermine the high international standing of UK degrees.

"I welcome any proposals that will help to make learning more flexible for students. Credit systems, which make it possible to break off and start again without having to repeat learning, will become increasingly important as the routes into and through higher education become more varied."

Sir Howard Newby, Chief Executive of the Higher Education Funding Council for England, said: "It is essential in a mass higher education system that the achievements of an increasingly diverse student population are properly recognised. I support the report's ambitions to ensure that information about the outcomes of learning fully meet students' needs, the interests of employers and the wider public. I also believe that the report's recommendations on moving towards a national credit system will benefit the differing requirements of learners."

• *The full report can be accessed via eBulletin.*

▶ A new building, formally opened at the University on 20 October, will house research teams from a number of disciplines in the Faculty of Science, and will strengthen the links between them.

The Michael Atiyah Building with its £3.7M new wing, is named after the Chancellor of the University, Sir Michael Atiyah. The building is peopled by staff from the departments of Engineering, Mathematics, and Physics and Astronomy and also houses two national research centres: the Space Research Centre and the Multidisciplinary Centre for Mathematical Modelling.

The boundaries between disciplines are now the most fertile grounds for scientific advances. Multidisciplinary modelling is a powerful tool, for example in understanding the relationship between the behaviour of atoms and what happens on the everyday scale. The vision is that by bringing together mathematicians, engineers and physicists, exciting interdisciplinary projects will develop particularly in the modelling area.

"The new centre will further increase the amount of research that can be carried out by the University and will expand the range of things we can achieve. It provides an exciting new interdisciplinary environment for scientific research," commented Deputy Director of Estates Paul Goffin.

Professor Helen Atkinson, Department of Engineering, added: "It's a brilliant facility, which brings an interesting and important group of people together and should lead to some exciting projects at the interface between traditional subjects. Mathematical Modelling draws in people from other disciplines, as does Space Research. Some University engineers working in the Centre will be interacting with research teams in those areas, others will be conducting their own independent lines of research. For example, there are projects on modelling powder flow for the pharmaceutical industry, investigating fluid flow in turbines, and on micromanipulating particles at high temperatures."

Dean of Science Professor A R Hillman said: "The University of Leicester has a longstanding tradition of excellence across Engineering and the Sciences. This excellent facility will encourage researchers from these diverse disciplines to interact with each other in new ways to generate



The new wing of the Michael Atiyah building.

NEW BUILDING HERALDS NEW ERA

novel insights of practical relevance."

The new wing of the Michael Atiyah Building includes Phase 2 of the University's prestigious Space Research Centre. It will enhance the University of Leicester's reputation as one of the largest academic centres for space research in Europe. The University was a co-founder of the £52m National Space Centre, the Millennium Commission's Landmark project for the East Midlands.

As the focus of the University's space research activities, involving around 60 people, the Michael Atiyah Building contains state of the art laboratory facilities, including a large, £300,000 clean room suite, where the first test model of an instrument - MIRI (MidInfraRed Instrument) for the James Webb Space Telescope (JWST), the successor to the Hubble Space Telescope, is currently being assembled.

The Space Research Centre has recently been involved in the launch of the NASA SWIFT mission to investigate gamma-ray bursts (the most powerful explosive events known in the Universe), which will carry an X-ray camera developed and built at Leicester.

Dr John Pye, Space Research Centre Manager commented: "In meeting the science and engineering challenges presented by these space missions, the University is building on its long-standing, but continuously developing experience and expertise in space instrumentation. We are using advanced computer-aided design (CAD) systems to ensure that

the complex instrumentation will meet the demanding specifications for flight in space. We are also 'spinning-off' this expertise into other areas of technology such as medical bioimaging, and the new wing of the building houses a dedicated bioimaging laboratory, allowing us to expand this activity."

Complementing the Earth Observation Science group's work in the Space Research Centre on major ESA satellite missions such as ENVISAT and MSG, a joint Chemistry/Physics team is running an experiment on the roof of the building to measure local pollution over Leicester. Using light collected by an array of nine telescopes, a chemical picture of nitrogen dioxide (emitted mainly from car exhausts) can be built up, which can even predict football match travel times from the pollutant emissions.

Founded in 1999, the Centre for Mathematical Modelling (MMC) unites researchers with shared interests in advanced modelling and simulation methods. The Centre's Director and Professor in Applied Mathematics, Ben Leimkuhler, commented: "The building's high-quality seminar and meeting rooms will facilitate research interaction on themes related to mathematical modelling, including the weekly interdisciplinary MMC seminar, open to all staff and students. The building will also house the Centre's state of the art, 160 CPU, high performance computing cluster."



► A garden that honours one of England's best-known scientists of the past has been designed to grace the new Michael Atiyah Building.

The garden features a sundial incorporated in a bronze bust of Sir Isaac Newton (1642-1727), the scientist who encapsulated the disciplines of mathematics, physics and engineering.

The idea for the Newton sundial came to its creator, Dr John Davis of Ipswich, during a visit in 1999 to the 17th century scientist's home at Woolsthorpe Manor in Lincolnshire. It was at Woolsthorpe during 1665-6 that Newton produced his Law of Universal Gravitation from his three Laws of Motion; he discovered the Particulate Theory of Light; and invented his 'method of fluxions', which initiated the development of Calculus.

Isaac Newton had a lifelong interest in sundials, his own earliest examples being constructed when he was a grammar school boy, without knowledge of geometry and trigonometry.

The design of John Davis's sundial grew from a famous painting of Newton holding a prism, by John Adam Houston, and the Dolphin Sundial at the National Maritime Museum.

Two years later Dr Davis discussed his idea with sculptor Vanessa Stollery, who had created some busts of scientific figures in addition to the animals and figures for which she is well-known, and they

GARDEN HONOURS SCIENTIST SIR ISAAC NEWTON



CREATIVE SPIRIT: Chancellor, Sir Michael Atiyah with John Davis and sculptor Vanessa Stollery.


produced a prototype Newton sundial.

The whole concept of the garden and its contents, which makes reference to the sun and a waning moon, was the inspiration of Professor John Holloway and was designed by Mr Jim Whait of the Estates Office. The garden, with

Newton at its centre, provides a pleasant oasis with seating outside the building.

John Holloway commented: "I am hopeful that the garden will be the focus for many informal discussions on aspects of the work of the staff of the Centre and Institute for many years to come, and that Sir Isaac

Newton will provide some small inspiration to those involved."

Professor Helen Atkinson, Department of Engineering, commented: "The garden will transform this part of the University Campus." 

University Launches Unique Services to Business Website

► Businesses in the region can now benefit from a new website set up by the University of Leicester, which helps companies understand and gain easier access to the wide range of business services and solutions on offer by the University.

The Services to Business portal has been developed with the needs of business in mind. The site enables companies to navigate its pages by focusing on key business issues and specific industry sectors.

Whether the need is for staff training and development, facilities to research, develop and test a new product or advice on improving a business process - the portal automatically presents the user with a series of case studies explaining how the University has already helped other organisations to solve particular business problems.

Users are also given access to pages outlining specific services and relevant, up-to-date contact

information for them to take the matter further.


Businesses that are unable to define a precise problem but want to know how the University has helped other organisations from its sector are afforded the chance to navigate the website by industry sector. Again, the portal provides them with case studies of how the University's expertise has helped others in the past.

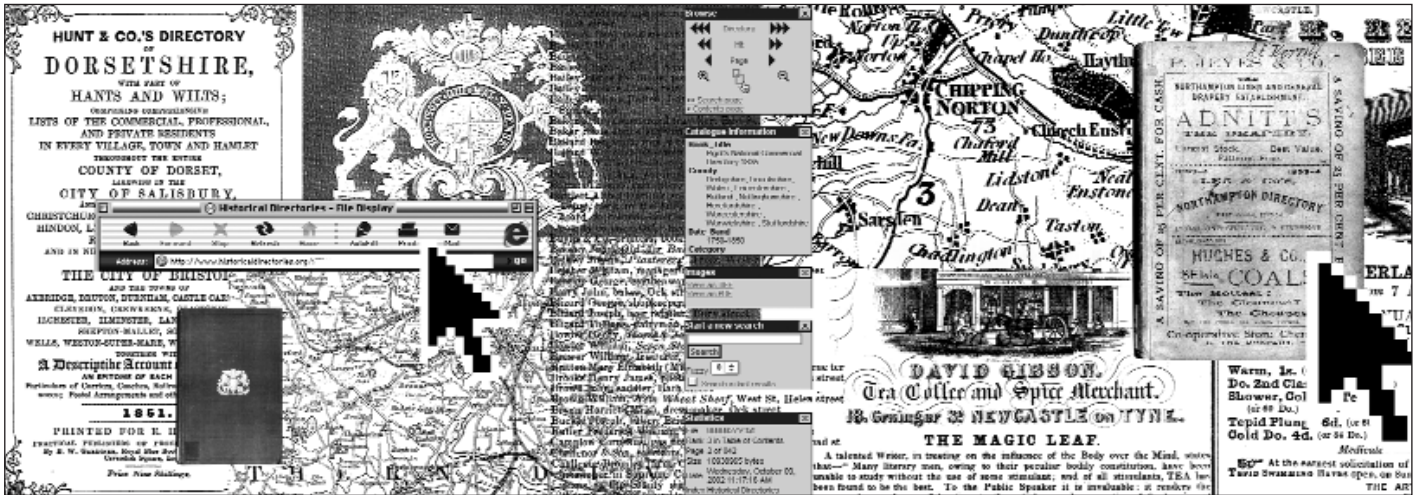
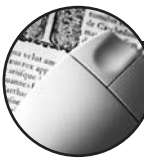
Richard Taylor, Head of Marketing Leicester is perplexed by the way in which organisations looking to academia for help have traditionally been forced to trawl scores of web pages in the hope they will chance upon a solution to their problems:

"It is an unfortunate fact that the

excellent work universities do to support business is rarely clearly communicated. Most university websites offer precious little help to organisations trying to navigate them.

"Even institutions with dedicated sites for business often pack them full of jargon or simply list areas of the university that may be able to lend a hand. Reflecting on this problem has led us to adopt a completely different approach, by treating every user's situation as a case in its own right and by providing genuinely relevant and easy-to-access solutions with proven track records of success."

The portal can be accessed via: <http://www.le.ac.uk/business/> 



► Amateur historians are using sophisticated software developed by ZyLAB for use by the FBI, NASA and European intelligence services to find historical documents in the UK.

The Lottery-funded website includes digitised maps, records and illustrations in nationwide local and trade directories from 1750-1920 as part of the biggest genealogy study ever undertaken in England and Wales.

The University of Leicester project has digitised exact reproductions of the volumes which are accessible online to anyone with an internet connection.

The website uses a powerful ZyLAB search engine which uses state-of-the-art fuzzy searching to not only locate names, occupations, addresses and other key words or phrases to their exact places on the pages within the text, but is also able to read hand-written documents from this period.

SPY TECHNOLOGY HELPS BRING HISTORY TO LIFE FOR WEBSITE

Ian Clarke, senior technologist from Archive Quest has been working in partnership with the University of Leicester and ZyLAB to digitise 620 directories containing more than 500,000 records.

Ian Clarke says: "The historical directories website is one of the most significant genealogy tools that has ever been launched in the UK as everyone from architects and designers restoring old houses and listed buildings to family historians and academics can log on to find out more about properties and areas in which they may live, work in or

research."

The three-year long project was awarded a grant from the New Opportunities Fund of £335,000 to digitise learning materials on a national basis from the University of Leicester's library and libraries and record offices across the UK.

Mary Bettles, Head of Research, Learning and Teaching Support at the University of Leicester Library adds: "The unique nature of the library's collection of English local history material, covers all areas of the country and is rich in its holdings of trade directories. These

are seen as major source material for serious historians and amateur genealogists. The website contains directories and information from libraries and record offices across the UK and has been so successful that we have received feedback from users from as far as Australia and Canada. We are now depositing the data with the Arts and Humanities Data Service, so that the data will be preserved for future researchers."

• *The directory website can be accessed via eBulletin*

E-Learning for Health

► The UK Healthcare Education Partnership (UKHEP) is a joint online venture between:
• University of Leicester
• Royal College of Nursing
• City University London
• University of Ulster

UKHEP has worked together to develop a range of innovative, interprofessional and highly patient-centered online learning modules for post-registration healthcare professionals. UKHEP students benefit from fully supported self-directed learning delivered through

the World Wide Web.

Modules can be studied as stand-alone units to benefit continuing professional development (CPD) or can be combined to earn a BSc (Hons) top-up degree in Health Sciences.

Students are provided with a fully supported, interactive and engaging experience and have the flexibility to fit their studies around personal and professional commitments.

UKHEP students benefit from high levels of interactivity within

small communities of learners. Through online group work, tutorials and discussions, they have the opportunity to share ideas and learn from best practice from colleagues around the country and from a wide variety of healthcare professions.

Studying by e-learning provides far greater flexibility for students, especially for those who are balancing professional and personal commitments. Students are able to log on and study wherever they have access to the Internet. This flexibility allows students to study when they like, where they like and at the pace that best suits them.

2005 modules

In 2005 UKHEP offers the following level 3 modules:

- Clinical Governance Matters
- Clinical Governance Works
- Evidence-based Health Care
- Health Informatics
- Leadership
- Managing Change
- Research Methodologies for Practice
- User and Carer Involvement

• *For further information about UKHEP or to order a free copy of our 2005 prospectus please email ukhep@ukhep.co.uk or call 0845 601 8107 or visit UKHEP webpages*



FIRST GLOBAL STALKING SURVEY

► In Britain, 900,000 adults are stalked every year. It's a crime that devastates lives. Stalking behaviour can lead to assault, rape and in some cases murder. All too often those affected are left to suffer in silence.

For the first time ever, global stalking victims are being given a voice. The University of Leicester and the Network for Surviving Stalking (NSS) embarked on the most comprehensive study of those affected by the crime.

The researchers aim to find out victims' first-hand experiences of stalking along with how those around them have been affected by the crime; what they think about the way their case has been handled by the police and criminal justice system; what they make of the media's reporting of the crime and how they think they could have been better protected.

The research will be published to coincide with Stalking Awareness Month in January

2005. At that time, NSS will also be providing a number of experts for interview - from the fields of law, policing, psychology and psychiatry as well as people who have been personally affected by the crime itself.

Dr Lorraine Sheridan, a lecturer in the University of Leicester School of Psychology and the UK's leading expert on the psychology of stalking, has been researching the issue for seven years.

Dr Sheridan said: "The work we have carried out over the last seven years has told us that normal people, not celebrities, are the vast majority of stalking victims. We also know that anyone can become the victim of a stalker, and that individual stalkers will have very different motives.

"What we want to do now is to examine for the first time the far-reaching effects that stalking has, not only on its victims, but also

on numerous third parties. The physical, emotional and financial costs will be measured, and a 'roadmap' of the course and nature of stalking will be produced. Stalking is a major issue that touches millions of lives but people have so many misconceptions about it."

The Network for Surviving Stalking (NSS) is the only UK charity dedicated to supporting those affected by this crime. Tracey Morgan, Director of the charity said, "The results of this research are going to be crucial to the way stalking is dealt with and the way victims are treated. We cannot do this without the help of victims of stalking. We need to know how they feel about the stalking, the Criminal Justice System and how it is affecting those around them. The more people who complete this questionnaire, the better chance we have of making a real difference in the future. I would

ask that anyone who has been stalked to complete this questionnaire (link below) in order to help us to make things better".

Assistant Chief Constable Jim Gamble, who is the ACPO Lead for Domestic Violence and Harassment says: "I am extremely supportive of the research conducted by The Network for Surviving Stalking and the University of Leicester. This project will provide invaluable information which will educate the police and allow us to deliver more effective solutions."

Stalking can cause huge psychological damage - panic attacks, nervous break-downs, post-traumatic stress disorder... but despite the human cost, many are still failing to recognise the gravity of the crime.

**You can access the web survey form via eBulletin*

Fancy Discussing Life, the Universe ...And Everything Over a Drink or Two?

► Where can you go to talk to other people about science and meet with the scientists involved in groundbreaking work?

Dave Barton, now a PhD student at the University of Leicester, found this a problem when he first became interested in science, around the time that the Cassini mission to Saturn was launched in 1997. Since then, Dave has gone from warehouse work to top level research in the world-renowned University of Leicester Genetics Department, Cassini has reached Saturn, and its probe, Huygens, is set to land on Titan. Just days after the probe

lands, public science debate in Leicester takes a step forward, with Leicester's Café Scientifique hitting the city on Tuesday, January 18, 2005.

First launched in Leeds in 1998, Café Scientifique is now an international organisation. It's a place where people from all walks of life can come together to see, hear, argue and laugh about the latest and wildest ideas in science and technology. Taking place in a bar, it's relaxed, friendly, unbiased, and above all free.

Dave and fellow genetics PhD Carolyn Hazeel have taken the

lead in relaunching the Leicester cafe, and speakers who have already agreed to talk include Tim Stevenson (Chief Engineer at the University's Space Research Centre; talking about the Cassini mission and Titan; Tuesday January 18), Professor Sir Alec Jeffreys FRS (inventor of the world-changing technique of DNA fingerprinting; Tuesday February 1), and Dr Adrian North (of the University's Psychology Department, asking "Is music corrupting our youth?" Tuesday, February 15).

With the Vice-Chancellor's backing and university

sponsorship for publicity, the Café will be running every other Tuesday in Leicester's cultural quarter at the LCB Depot, 31 Rutland Street, Leicester LE1 1RE. Dave and Carolyn are still on the look-out for new and entertaining speakers on a wide range of topics. For more details, or to contact Dave and Carolyn about speaking, see the link to the website <http://www.cafescientifiqueleicester.com>



UNIVERSITY-COLLEGE'S ALLIANCE LIVES UP TO EXPECTATIONS

► In September 2003 a new strategic alliance was created between three higher education institutions in the East and West Midlands, with the aim of collaborating on new initiatives and enhancing educational opportunities in the region.

One year on, the three institutions are already reaping the benefits of this innovative partnership.

Examples include innovation in the field of initial teacher education (ITE). In response to the DFES consultation, The Future of Initial Teacher Education in the Learning and Skills Sector, and the findings of the OFSTED inspection of further education teacher training, a working group of academics from the University of Leicester, Bishop Grosseteste College in Lincoln and Newman College of Higher Education in Birmingham was set up.

A key achievement of this group is the development of the Professional Certificate in Education, an initial teacher education provision spanning the East and West Midlands, which combines the generic teaching skills required to meet the diverse needs of the post-16 sector, with the specific competencies required to teach the essential skills of numeracy, literacy, ESOL and ICT. The learning programme through which this training is delivered is highly individualised, incorporating e-learning and face-to-face delivery.

It addresses the needs of both experienced practitioner and new trainee teacher alike, cutting out certain repetitive aspects of current training and allowing those who can already

demonstrate high standards of teaching ability to be fast tracked.

A separate initiative which enables undergraduates to gain experience in schools while pursuing their course of study, the Student Associates Scheme is a three-year TTA-funded project. Newman College, one of the providers of this scheme, is collaborating with the University's Careers office in publicising these opportunities among Leicester undergraduates.

In October 2004 the Science Learning Centre East Midlands opened its doors for the first time, under the directorship of Dr Tina Jarvis at the University of Leicester. The consortium of the University of Leicester, Bishop Grosseteste College and the University of Nottingham provides high quality, innovative continuing professional development opportunities for teachers and technicians. All three venues have been undergoing a refurbishment programme, complete with interactive white boards and video conferencing facilities. This will enable them to work together to provide a range of very varied courses, including new and imaginative programmes at Bishop Grosseteste College for teachers in special educational needs and primary schools.

More generally, the three HEIs are developing ways of working which enable their staff to share interests in both teaching and research, to the advantage of their students, and the three Students' Unions and Chaplaincy teams are also working together.

Dr Muriel Robinson, Principal of

Bishop Grosseteste College, highlighted those aspects of the partnership which she felt were working especially well: "One immediate example relates to our marketing and recruitment teams, who have met and devised a joint strategy for clearing so that students are made aware of the range of possibilities for studying for a Leicester degree.

"We have found the University very helpful as a source of advice around a range of procurement issues, and both Newman College and the University have provided staff as external panel members on interviews, a service we have been glad to reciprocate.

"Our involvement in the East Midlands Science Learning Centre has been a particularly good example of genuine partnership."

Postgraduate studies, too, will benefit. Staff from both Newman College and Bishop Grosseteste College have been identified as Approved Tutors. Working with University of Leicester staff, they will supervise PhD and Doctor of Education students, to their mutual benefit, providing additional specialist supervision for Leicester research students and supporting College staff, several of whom have registered to study for the Leicester EdD.

Among the opportunities expected to emerge from the extended partnership is the development of new Foundation Degrees. Leicester was chosen as one of the pilots for the delivery of the new-style degree and it already offers the Foundation Degree (two years) in

Educational Studies for Classroom Assistants in collaboration with Bishop Grosseteste College.

At the outset, the Vice-Chancellor of the University of Leicester, Professor Robert Burgess, said the new partnership would:

- Widen participation in higher education by improving access.
- Facilitate curriculum development and the development of innovative programmes.
- Provide opportunities to develop new educational programmes.
- Increase student choice and opportunities.
- Commit to the highest possible standards of education.

"The Government's White Paper has pointed to this as the future of higher education in this country. The University is looking to the future and this alliance across the Midlands means there is a broad base of support sharing our vision of success."

Under the new arrangements, academic benefits arising from the partnership include the sharing of good practice and expertise in teacher education, distance learning and other degree programmes

The alliance also increases the possibility of making joint bids to external bodies, as appropriate, to provide new streams of education in line with local needs.

Pamela Taylor, Principal of Newman College of Higher Education, commented: "We believed that this partnership of three HEIs committed to education as a specialist area would bear fruit. All the signs are that it is doing so and we are delighted to be part of this alliance." ☺

captions for photostop (back page)

1. Students from the universities of Leicester and De Montfort set themselves the challenge of painting 12 murals in the playground of a local school in early November. Over 60 students from the University of Leicester and De Montfort University helped 120 year 5 and 6 school pupils to design and paint murals for their playground over three days. The event, from 2-4 November, took place at Avenue Junior School in Clarendon Park, Leicester. It was part of Contact Student Volunteers' annual Make a Difference Day (MADD).

2. A game played by Samurai warriors was recreated at the University in order to inspire schoolchildren about higher education. The entire cohort of Year 8 students from New College, Leicester, engaged in the game, marking a programme of enrichment activities for

this school to raise aspirations and achievement. A total of 200 children learned about and played the ancient oriental board game, called GO.

3. Professor Greg Walker's novel idea that the 'ideal VC' for a modern University would be a Premiership football manager won a Times Higher writing competition.

4. An exhibition of prints of watercolour paintings by Leicestershire artist Peter Welton went on show at the Richard Attenborough Centre. The new 'Giclee' printing technique takes its name from the French verb "to squirt" or "to spit"...hence the title of the exhibition: Spitting Images. This technique has now virtually replaced lithography as a method of printing fine art images for limited edition runs.

5. Dr Simon Møller's picture of a leaf cell showing chloroplasts See story page 6 of the supplement.

6. Graham Collier is one of two students from Leicester to achieve outstanding success in enterprise competitions. See story page 5 of the supplement.

7. Scientists, including Professor David Siveter of the Department of Geology, have discovered and reconstructed an ancient spider - complete with prominent pincers. A British sea spider fossil from 425 million years ago has helped its modern-day descendants claim their rightful place on the tree of life. The ancient sea spider's prominent pincers show that today's sea spiders are properly grouped with chelicerates, which include the true spiders (arachnids) as well as scorpions and

horseshoe crabs. The 425 million year old sea 'spider' is pictured together with a 'living' sea spider (below)
Pic credit: Dr Derek Siveter

8. Scientists have made a rare discovery from over 500 million years ago that provides new information on how a record of the past was perfectly preserved by nature. Geologists at the University have found that pyrite - or fool's gold - replaced soft tissues, thereby preserving animals to their smallest details for posterity. Dr Sarah Gabbott and colleagues found creatures with the very hairs on their legs preserved and, in some cases, the contents of their last meals could be identified in the guts of animals. An ancient fossil of a worm is pictured.
Pic credit: Dr Derek Siveter



► NASA's Swift satellite successfully launched on Saturday 20 November on board a Boeing Delta 2 rocket at 12:16 p.m. (5.15pm in UK) at NASA's Kennedy Space Center at Cape Canaveral in Florida. The satellite will pinpoint the location of distant yet fleeting explosions that appear to signal the births of black holes.

The launch was witnessed live through a satellite relay at the National Space Centre with presentations from University of Leicester scientists and others. A live phone-link to Professor Alan Wells at Cape Canaveral heard him describe the launch as the beginning of a new era of space research at the University of Leicester.

"It's a thrill that Swift is in orbit. We expect to detect and analyze more than 100 gamma-ray bursts a year. These are the most powerful explosions in the universe, and I can't wait to learn more about them," said Swift Principal Investigator Dr. Neil Gehrels, at NASA's Goddard Space Flight Center, Greenbelt, Md.

Each gamma-ray burst is a short-lived event, lasting only a few milliseconds to a few minutes, never to appear again. They occur several times daily somewhere in the universe, and Swift should detect several weekly.

Gamma-Ray Bursts were only discovered in 1969, and their distance has only been known for seven years. Swift, a mission with substantial UK and Italian participation, is designed to solve the mystery of the origin of gamma-ray bursts. Scientists believe the bursts are related to the formation of black holes throughout the universe - the birth cries of black holes.

To track these mysterious bursts, Swift carries a suite of three main instruments. The Burst Alert Telescope (BAT) instrument, built by NASA's Goddard Space Flight Center, will detect and locate 2-3 gamma-ray bursts weekly, relaying a rough position to the ground within 20 seconds. The satellite will automatically and swiftly re-point itself to bring the burst area into the narrower fields of view of the on-board X-ray Telescope (XRT) and the UltraViolet/Optical Telescope (UVOT). These telescopes study the

NASA SUCCESSFULLY LAUNCHES SWIFT SATELLITE

afterglow of the burst produced by the cooling material that remain from the original explosion.

The XRT (with its Leicester-provided X-ray camera) and the UVOT (from MSSL) will determine a precise arc-second position of the burst and measure the spectrum of its afterglow in visible and X-ray wavelengths. For most of the bursts detected, Swift data, combined with complementary observations conducted with ground-based telescopes, will enable measurements of the distances to the burst sources.

The afterglow phenomenon can linger in X-ray light, optical light, and radio waves for hours to weeks, providing detailed information about the burst. Swift will check in on bursts regularly to study the fading afterglow, as will ground-based optical and radio telescopes. The crucial link is having a precise location to direct other telescopes. Swift will provide extremely precise positions for bursts in a matter of minutes.

Swift notifies the astronomical community via the Goddard-maintained Gamma-ray Burst

Coordinates Network. The Swift Mission Operations Center, operated from Penn State's University Park, Pa., campus, controls the Swift observatory and provides continuous burst information.

Swift was built through collaboration with national laboratories, universities and international partners, including General Dynamics, Gilbert, Arizona; Penn State University; Los Alamos National Laboratory, New Mexico; Sonoma State University, Rohnert Park, Calif.; Mullard Space Science Laboratory in Dorking, Surrey, England; the University of Leicester, England; ASI-Malindi ground station

in Africa; the ASI Science Data Center in Italy; and the Brera Observatory in Milan, Italy.

The total cost of the mission is £138 million (250 million dollars).

The UK contribution, funded by the Particle Physics and Astronomy Research Council, is £3.81 million (plus a further £2.35 million for post launch support).



UK INVOLVEMENT IN SWIFT:

UK scientists, from the University of Leicester and University College London's Mullard Space Science Laboratory, have designed and built core elements of two of the three Swift telescopes. In addition UK astronomers will be involved in follow up observations using ground-based telescopes across the World.

The Burst Alert Telescope (BAT) will detect and locate about two gamma-ray bursts per week, relaying a position to the ground within about 20 seconds. This position will then be used to 'swiftly' steer the satellite to point the X-ray Telescope (XRT), directly at the burst position. Meanwhile, Swift will 'e-mail' scientists and telescopes around the world to observe the burst in real-time through the Swift Gamma-ray Burst Coordinates Network (GCN). This includes UK astronomers using telescope facilities such as the Faulkes Telescopes in Hawaii and Australia, the William Herschel and Liverpool Telescopes in La Palma and the European Southern Observatory's Very Large Telescope in Chile.

Professor Alan Wells from the University of Leicester, UK Lead Investigator for the XRT onboard Swift, has said:

"Of the 10 space missions I've worked on over the past 30 years, Swift is by far the most innovative. The mission, the spacecraft and especially the scientific instruments

that we, in the UK, have had a big hand in over the past 5 years, are finely tuned to push back the frontiers of the understanding of gamma ray bursts. The launch of Swift is the next big step in this new scientific adventure."

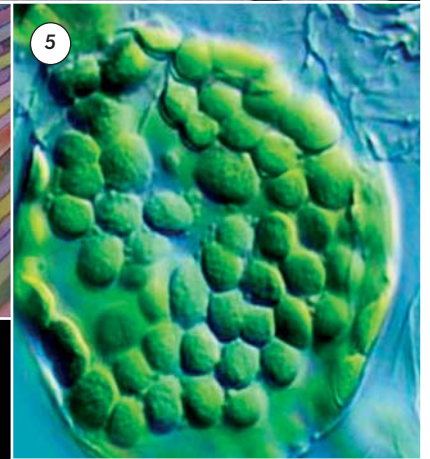
The University of Leicester had a lead role in the X-ray telescope design, and delivery of the focal plane camera and its cooled X-ray CCD detector (using past experience from JET-X and XMM-Newton). The UK SWIFT Science DATA Centre, at Leicester, will provide an archive of all SWIFT data, with open access for the wider UK astronomical community.

The satellite also carries a rare tribute to a University of Leicester scientist. Mr David Watson, who joined the University of Leicester in 1960 and was a Principal Experimental Officer in the Department of Physics and Astronomy, had a plaque engraved in his memory and flown into space.

The small engraved plaque, fixed to the SWIFT X-ray Telescope, carries the following message into space:

In Memoriam DAVID JOHN WATSON 1943-2003 Friend and Colleague, Who touched this instrument and our lives with his gentle and thoughtful attention.

A duplicate of the plaque is located at the Michael Atiyah Building at the University of Leicester, housing the Space Research Centre.



Captions for photostop on page 6

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