

A scanning electron micrograph (SEM) showing a dense population of rod-shaped bacteria. The bacteria are illuminated with different colors, including bright yellow, orange, and blue, against a dark background. The rods vary in length and are oriented in various directions, creating a complex, textured appearance.

Imperial College
London

Annual Report and Accounts

2007–08

Contents

2	Rector's foreword
3	Management Board
4	Report of the Chief Operating Officer
8	Imperial's year — highlights of 2007–08
24	Imperial College London at a glance
26	Corporate governance
27	Responsibilities of the Council
28	Council and Council committees
30	Auditors' report
31	Consolidated income and expenditure account
32	Balance sheets
34	Consolidated cash flow statement
35	Statement of consolidated total recognised gains and losses
36	Statement of principal accounting policies
38	Notes to the accounts

On the cover:

Coloured scanning electron micrograph of Mycobacterium tuberculosis bacteria, the main cause of human tuberculosis. Professor Ajit Lalvani of the Faculty of Medicine, has revolutionised the diagnosis of tuberculosis with his work on the ELISpot and ELISpot-Plus diagnostic tests (see page 16). The latter is now in use at the UK's first Academic Health Science Centre — the partnership between Imperial College Healthcare NHS Trust and Imperial College London which aims to bring the benefits of research to patients more quickly than ever before.

Rector's foreword

“Imperial College today has the platform, the outlook and the people to play its fullest part in tackling the important global challenges ahead.”

As the new Rector of Imperial College London it is a great privilege to write the foreword to this record of achievement of our outstanding staff and students.

The 2007–08 Annual Report and Accounts covers the final 11 months of Sir Richard Sykes' period as Rector. As the following pages illustrate, he has left the College on a strong academic and financial platform, and I would like to express my sincere thanks to him for his outstanding service to Imperial College.

My own pride in Imperial College dates from 1965 when I first joined as an undergraduate student. The College has a wonderful history and heritage, and this pride is felt today by our 140,000 alumni who reside all over the world. In its remarkable past Imperial College has repeatedly recognised and responded to opportunities and challenges. Like those who return every year for the alumni reunion in September, I have been delighted to explore the College of today and meet many of its staff, students and alumni.

Imperial's reputation has been made by the people who work and study here. Attracting and nurturing them is the single most important investment we make. For that reason, in the last year we launched the Imperial College Junior Research Fellowship scheme. This gives the opportunity to 20 post-PhD researchers from anywhere in the world to come to the College for three years to develop their own scientific independence. The College is funding this scheme itself, and this investment highlights our focus on people.

Similarly our professional administrative and support staff help provide our academic staff with time – the all-important resource – to think, to discover and to create.

Writing this foreword in October 2008, it is clear that very challenging times lie ahead for our economy and for the planet as a whole. I believe that science and technology have never been more important than right now in helping to solve the challenges ahead. They will play the central, transformational role in solving issues of global importance such as energy supply, combating global warming and feeding the world's population. Imperial College's contributions will grow out of its history of the application of scientific discovery for the benefit of society – and from the seeds laid down in the past year as our new Interdisciplinary Institutes specialising in Climate Change, in Security Science and Technology, and in Global Health begin to bear fruit.

Imperial College encourages and supports a strong entrepreneurial culture among its staff and students. It is one of the most commonly stated reasons why people choose to work and study here. From



Professor Alan Fenwick (centre), Head of the Schistosomiasis Control Initiative (SCI) at Imperial, and his team with Sir Roy Anderson (far right) at Buckingham Palace after collecting the Queen's Anniversary Prize 2008. The prize was awarded for the SCI's programme, which has administered over 43 million treatments in five years for schistosomiasis and soil-transmitted helminths in countries such as Niger and Burkina Faso.



Imperial College London's Management Board: top, from left to right: Sir Roy Anderson, Rector; Professor Stephen Richardson, Principal, Faculty of Engineering; Professor Stephen K. Smith, Principal, Faculty of Medicine and Chief Executive, Imperial College Healthcare NHS Trust; Professor Maggie Dallman, Principal, Faculty of Natural Sciences; Professor David Begg, Principal, Imperial College Business School; Professor Sir Peter Knight, Senior Principal. Bottom, from left to right: Claire Perry, Managing Director, Imperial College Healthcare NHS Trust; Dr Rodney Eastwood, College Secretary and Clerk to the Court and Council; Professor Mary Ritter, Pro Rector (Postgraduate and International Affairs); Dr Martin Knight, Chief Operating Officer; Professor Julia Buckingham, Pro Rector (Education); Professor John Wood, International Relations Advisor. Former members 2007–08 (until 30 June 2008): Sir Richard Sykes, Rector and Professor Nagy Habib, Pro Rector (Commercial Affairs).

Entrepreneurs-in-Residence in the Imperial College Business School to the annual cross-College business ideas competition, we look for ways to develop those who are able to take scientific ideas or discoveries and turn them into innovative products or services. Through the technology transfer and commercialisation company Imperial Innovations, we formed 11 companies based on our research in the last year, which is testament to the success of our approach.

This entrepreneurial outlook is nested within our broader commitment to 'translate' our activities into benefits for society. The first anniversary of the UK's first Academic Health Science Centre, a partnership between Imperial College London and the NHS represented by Imperial College Healthcare NHS Trust, reminded us of the great strides taken in just 12 months, bringing healthcare research, teaching, and service delivery together in an integrated manner for the benefit of patients.

Imperial is a UK-based university but it is not just the UK that gains from our research and teaching. Our staff and students are drawn here from all over the world; currently 42 per cent of our academic and research staff and 46 per cent of our students come from outside the UK.

At the same time, Imperial researchers work to improve the quality of life in countries around the world. The scale and importance of our global collaborations has, however, created a pressing need to consider our international strategy. Over the coming year we will make important decisions on the extent to which we wish to develop new and existing international relationships.

Finally, during a time of economic change, I am acutely aware that alongside the efforts of all our staff and students in sustaining our excellent reputation, we are particularly fortunate to have officers and members of the College and Council who have steered us on our current financial course. As a result we are well placed to weather the future conditions, and Imperial College today has the platform, the outlook and the people to play its fullest part in tackling the important global challenges ahead.

Report of the Chief Operating Officer

Scope of the financial statements

The financial statements comprise the consolidated results of the College, its subsidiaries and the Students' Union. There have been no changes in the scope since the previous year. The subsidiaries undertake activities which for legal or commercial reasons are more appropriately channelled through limited companies or other vehicles. Such activities include the commercial exploitation of ideas and inventions, consultancy and scientific services, and renting of College space.

The financial statements have been prepared according to the *Statement of Recommended Practice: Accounting in Further and Higher Education Institutions (SORP 2007)* and other relevant accounting standards.



Dr M.P. Knight
Chief Operating Officer

Results for the Year—Key Highlights

The College's consolidated income and expenditure for the year to 31 July 2008 and the net cash/borrowing position at that date are summarised below:

	2008 £m	2007 £m	Change %
Total income (including share of joint ventures)	603.1	556.2	+8
Share of profits from associates	0.1	–	
Total expenditure	(596.1)	(555.9)	+7
Surplus on continuing operations	7.1	0.3	
Tax and minority interest	2.4	2.4	
Surplus before exceptional items	9.5	2.7	
Exceptional items:			
Income from sale of fixed assets	7.9	–	
Profit on deemed disposal of interests in a group endowments	9.3	–	
Surplus on continuing operations after exceptional items	26.7	2.7	
Use of accumulated income within specific endowments	0.4	0.6	
Surplus for the year	27.1	3.3	
Income analysis			
Funding Council grants	165.1	155.2	+6
Academic fees and support grants			
Home and EU students (full time)	21.6	16.1	+34
Overseas students	60.7	56.0	+8
Other	13.7	13.1	+5
	96.0	85.2	+13
Research income			
UK research councils	86.7	70.8	+22
UK charities	62.1	63.7	-3
UK industry	27.0	30.3	-11
European Union and overseas	50.2	44.7	+12
Other	29.5	20.5	+44
	255.5	230.0	+11

	2008 £m	2007 £m	Change £m
Capital expenditure			
Externally funded	46.7	35.3	+11.4
College funded	80.8	62.9	+17.9
	<hr/> 127.5	<hr/> 98.2	<hr/> +29.3
Cash and borrowings			
Cash and short term investments	216.9	135.2	+81.7
Long term borrowings	(173.2)	(123.2)	-50.0
	<hr/> 43.7	<hr/> 12.0	<hr/> +31.7

The consolidated accounts for the College in its first year as an independent university are gratifyingly strong. Revenues increased to over £600m with a significant increase in research income to £256m – 11% more than last year. Furthermore, fees from students rose by 13% to £96m. We have come to expect such increases but should not take them for granted; they are a reflection of the excellence of the education offered by the College and the research work done by its scientists. On the cost front, the College has addressed a number of significant issues. The three year wage settlement negotiated in 2007, together with the unreformed pension arrangements which still persist in the UK Higher Education Sector, represent a demanding burden. The costs of managing – i.e. maintaining and developing – the infrastructure of a science research intensive institution in central London have been severe, particularly given utility price rises and building cost increases. Notwithstanding these pressures, the College has sustained its determination to improve its estate. Capital expenditure has remained at a high level of £128m, of which the College funded share is £81m. Growth in tangible fixed assets to £665m reflects this. On working capital, a tight, disciplined approach has delivered a reduction in funds needed. The College drew down a further £50m under its floating rate loan agreement with the European Investment Bank, taking the College’s gross debt to £173m. In a world of uncertain financial stability, it is comforting to know that banking facilities were put in place ahead of time. The consolidated net cash position at 31 July 2008 was £44m. Skilful treasury management has meant that the interest earned on deposits exceeded interest paid out on borrowings. Overall net interest receivable was therefore a contributor to the College’s net income.

Behind these consolidated figures, however, lie some important details that need to be brought out for a full understanding of some of the complexities underlying the College’s financial position. For within the consolidated figures, there are represented three main activities: The “university”, with its teaching and research work; the College Fund, with its investment focus; and Imperial Innovations, of which Imperial College owns 52%, with its technology transfer business. Three areas are worth examining in this context:

Fig. 1 ► RESEARCH INCOME

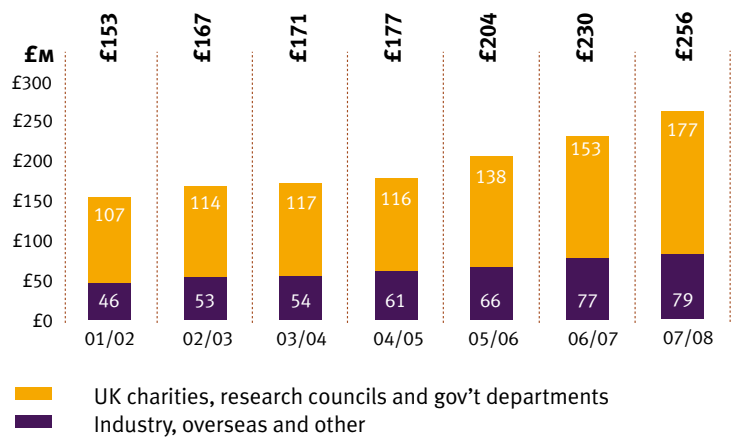
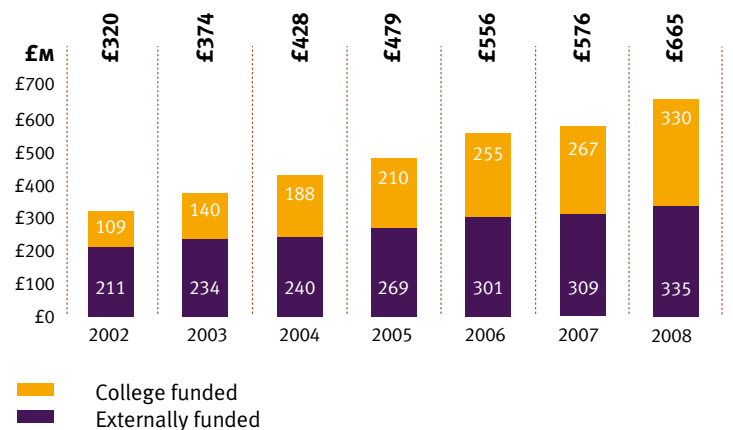


Fig. 2 ► FIXED ASSETS



- The consolidated figures show a surplus for the year of £27.1m. This can be broken down into separate and distinct parts: the £7.1m operating surplus – £9.4m of which is the university’s activities (see the segmental information table below) – and two items of exceptional income. The first was the sale of a surplus property by the College Fund, the proceeds of which were turned into cash which may be re-invested in other investment assets in due course. The second item is the profit on the deemed disposal of shares in Imperial Innovations. In fact, the College sold no shares; instead, Imperial Innovations raised some £30m via an equity issue in November 2007, the effect of which was that the College’s shareholding reduced from 59% to 52% of the enlarged Imperial Innovations. No cash was realised and it is only accounting regulations that lead to this transaction producing a “deemed” profit. In no tangible sense has the university, *per se*, benefited from this transaction, all the more so since it is the College Fund, not the university, that manages the shareholding in Imperial Innovations.
- A second area for clarification concerns the cash position. All three entities that form the consolidated body control separate cash assets, albeit that one treasury unit advises on all detailed treasury operations. The College Fund, by virtue of an entirely investment driven asset allocation decision, elected to go liquid and increased its net cash position to £14m. But the point to note is that the College Fund may decide to invest this cash at some point in the future into stocks and bonds for purely investment reasons, i.e. entirely separate from the university’s cash flow requirements. Furthermore, Imperial Innovations had some £43m of net cash in its balance sheet at 31 July 2008, but this cash is Innovations’ cash, to be invested principally in its technology business portfolio; it does not represent cash that can be used by either the College Fund or the “university”.

6

Segmental information	University (education and research) £m	College Fund £m	Imperial Innovations Group plc £m	Total £m
Operating surplus	9.4	3.8	(6.1)	7.1
Total fixed assets	641.9	36.3	34.4	712.6
Net cash/(debt)				
Cash in hand	53.1	6.3	7.1	66.5
Overdrafts	(8.7)	–	–	(8.7)
Short term investments	105.0	–	36.0	141.0
Cash in endowment assets	–	18.1	–	18.1
Total cash and short term investments	149.4	24.4	43.1	216.9
Borrowings	(162.3)	(10.9)	–	(173.2)
Total net cash/(debt)	(12.9)	13.5	43.1	43.7

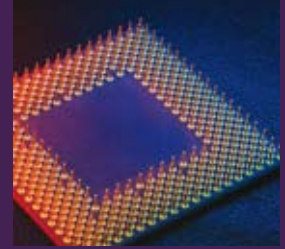
- A similar clarification can be made about fixed assets. For example, in tangible assets, the College Fund has property which it manages with purely an investment focus, separate from the property assets occupied, maintained and developed by the university. And there are investment assets, partly held in Imperial Innovations – its portfolio holdings, which numbered 75 at 31 July 2008 at a book value of £34m, and partly in the College Fund, which is also responsible for the management of the separately identified Endowment Asset investments. With regard to Innovations’ investments, although a book value of £34m is included in the Consolidated College accounts, its market value, as it has reported under International Financial Reporting Standards, is far greater at £51m.

The core issue to be remembered, therefore, is that the consolidated accounts do not reflect the segmented management structures of the three component parts so consolidated. This complexity will get greater, as Imperial Innovations matures, as the College Fund’s assets grow and as the teaching and research activities of the university itself develop. In this context, the growth of international activity, with country and currency risks, and the closer working relationship with the NHS, to create an Academic Health Science Centre, are but two of the exciting opportunities that have potential for increased finance and accounting complexity.

The consolidated figures show a strong balance sheet and a significant surplus. At a time of serious financial uncertainty, this is comforting. It is too soon to be able to assess with any firm certainty the consequences for the College of the financial crisis affecting world markets; but it would, in the light of the severity of the crisis, be imprudent to assume that they will be other than significant and adverse. A combination of inflationary pressures and lower government funding will not be good for the College. So, there is the clear need to manage the financial affairs of the College to make sure that the College can invest in the exciting opportunities open to it. With a strong balance sheet and a surplus, the College will continue to be able to drive forward its academic mission.

Dr M.P. Knight
Chief Operating Officer

“With a strong balance sheet and a surplus, the College will continue to be able to drive forward its academic mission.”



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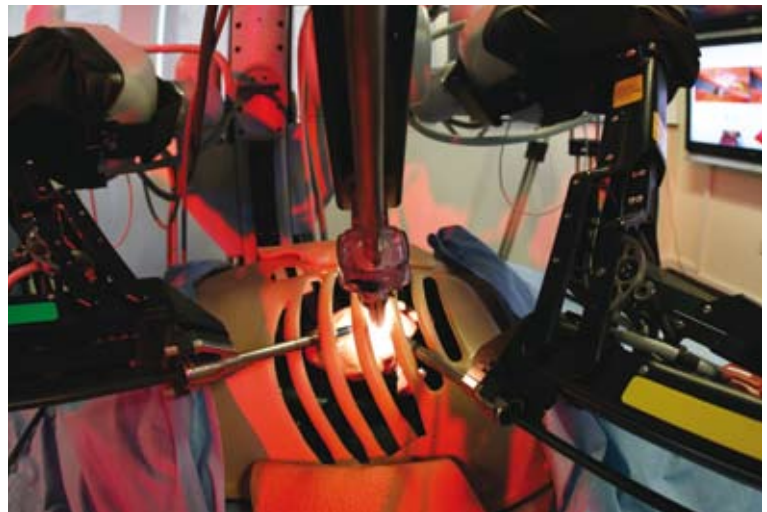
Imperial's year



Our mission: Imperial College embodies and delivers world class scholarship, education and research in science, engineering, medicine and business, with particular regard to their application in industry, commerce and healthcare. We foster interdisciplinary working internally and collaborate widely externally.

“Imperial College’s contributions will grow out of its history of the application of scientific discovery for the benefit of society—and from the seeds laid down in the past year.”

Sir Roy Anderson, Rector



Sir Roy Anderson becomes 14th Rector



In July 2008, Sir Roy Anderson, FRS, FMedSci, took up office as the 14th Rector of the College. A distinguished infectious disease epidemiologist, Sir Roy has been associated with the College for more than 40 years, first arriving as a zoology

undergraduate in 1965. He completed his PhD in parasitology in 1971 and has spent much of his career at Imperial, becoming one of its youngest professors in 1982 at the age of 35, and subsequently head of department at 37. He takes up his new role following four years on secondment to the UK Ministry of Defence, where he was Chief Scientific Advisor.

For more information see www.imperial.ac.uk/rector

Grand reception marks close of Rectorship

In June 2008, staff gathered to say farewell to the College’s 13th Rector. The party marked the end of almost eight years under the leadership of Sir Richard Sykes, during which Imperial has celebrated its Centenary, become an independent university, renovated and refurbished its campuses and been rated one of the best universities in the world. Lord Kerr of Kinlochard, Chairman of the Court and Council, thanked Sir Richard, saying, “Richard has huge respect in this university, in Whitehall and Westminster and across the world, not just because he is very good at articulating his convictions but because you know they are his convictions. Richard dares to be different. He has said what he thought and has raised our game by insisting on excellence and the highest standards.”



New Centre for Robotic Surgery

March 2008 saw the launch of the Hamlyn Centre for Robotic Surgery at the College. The Centre draws together Imperial’s experts in a range of disciplines, to create a national resource in medical robotics that will benefit other UK research groups and industry. It will focus on developing advanced robotic technologies that will advance conventional keyhole surgery, develop new ways of empowering robots with human intelligence, and create revolutionary miniature ‘microbots’ with integrated sensing and imaging for cancer surgery and treatment. The £10 million centre is funded both by the Helen Hamlyn Trust and Lady Hamlyn personally. It is co-directed by two UK medical robotics pioneers, Professor Lord Darzi, Paul Hamlyn Chair of Surgery at Imperial College London and honorary consultant at Imperial College Healthcare NHS Trust and the Royal Marsden NHS Trust, and Professor Guang-Zhong Yang, Imperial’s Director of Medical Imaging.

Fellowships boost for young scientists

Imperial has committed £3.6 million to the establishment of 60 Junior Research Fellowships, which will allow outstanding young scientists to pursue their research unfettered by other demands. The scheme, launched in July 2008, will give top early-career researchers three years free from teaching and administration plus a competitive salary and laboratory support costs. It will enable them to establish and develop their own scientific path and help them make the difficult leap from postdoctoral researcher to lecturer. The Fellowships are open to researchers of all nationalities working in, or between, the disciplines offered by the College.

For more information see www.imperial.ac.uk/jrf

BME group’s third anniversary



Imperial as One, the College’s race equality advisory group, celebrated its third birthday in July 2008 with a special event featuring guest speakers, a champagne reception and an international buffet. The group is building on the achievements of its first three years by collaborating with more partners and stakeholders interested in the elimination of race

discrimination, maintaining good race relations, and celebrating and supporting diversity amongst staff and students at the College.

Imperial's Centenary

The Centenary came to a close at the end of 2007 with the College well on its way to raising £207 million to fund scholarships for gifted students, contribute to building and refurbishment projects across the campuses and to support its academic mission.

Imperial supports new university

A new partnership between one of the world's newest universities and Imperial College London was launched in March 2008. Imperial and King Abdullah University of Science and Technology (KAUST) signed a US\$50 million academic excellence alliance, which will see joint collaborations in research, curriculum development and academic recruitment. Imperial will partner KAUST, a new international, postgraduate research university opening in Saudi Arabia in 2009, during its first years of operation to enable it to build up its academic staff and curriculum in materials science and chemical engineering.

The shock of the new

A new £10 million research institute dedicated to studying the fundamental science behind shock waves, high velocity collisions and extremes of pressure and heat was launched at Imperial in April 2008. Research by the Institute for Shock Physics focuses on understanding what happens to matter under extreme conditions. The research can be applied in many ways, including analysing the effect of meteorite impacts on planets, spacecraft and satellites, understanding how tsunamis are formed, using shockwaves to break up kidney stones and understanding the high pressure conditions that occur at the core of planets.

Planned redevelopment for engineering facilities

In March 2008, Management Board approved plans for significant investment in the creation of a research and teaching complex for the College's engineering-related activities at the South Kensington Campus. The redevelopment, known as the South East Quadrant project, will provide state-of-the-art accommodation for both the research and teaching activities of Aeronautics, Mechanical Engineering, Civil and Environmental Engineering and part of the Business School. At the heart of the scheme will be a contiguous suite of shared teaching and learning space, which will serve both academic and conference needs.

New Centre for Security Science and Technology

In July 2008 Sir Keith O'Nions, formerly Director General of Science and Innovation in the government Department for Innovation, Universities and Skills, joined Imperial to develop its new Institute for Security Science and Technology. The institute aims to develop new technologies for increased safety and security in society by the application of Imperial's leading edge science, such as in the identification of unique surface textures that might be used to 'fingerprint' paper documents to prevent fraud. Projects range from protecting the individual to ensuring the security of whole populations, including safeguarding transport infrastructure, energy supplies and communication networks.

For more information see www3.imperial.ac.uk/news/sirkeithonions

Groundbreaking HE library collaboration

In July 2008, the Higher Education Funding Council for England (HEFCE) announced funding of £9.84 million for a groundbreaking collaboration between higher education libraries led by Imperial and the British Library following a successful 18-month pilot. The funding will enable the creation of the UK Research Reserve (UKRR), whereby the British Library will store low-use journals for the HE community and make them accessible using state-of-the-art ordering and delivery systems. The programme will safeguard the research material for future access and, by the end of the five-year programme, it will have released 100 km of shelf space in higher education libraries, amounting to capital savings of £29 million.



At the Postgraduate Awards Ceremonies in May 2008, students received Imperial College London degrees for the first time. The College gained its independence in 2007 and the picture shows Imperial's new academic dress.

Innovative management structure for AHSC

The Academic Health Science Centre (AHSC) is a unique partnership between Imperial College London and Imperial College Healthcare NHS Trust formed in October 2007 to provide the best healthcare in the world, free at the point of delivery. April 2008 saw the formation of an innovative Clinical Programme Group (CPG) management structure to support the research-led care model within the AHSC. With annual turnovers of more than £50 million, the CPGs are headed by clinicians and are based on clinical research adjacencies. They are: medicine; surgery and cancer; specialist services; circulation sciences and renal medicine; women and children; clinical investigative sciences; and preventative interventional public health.

Nobel conversations

During 2008, Imperial hosted a series of *Nobel Conversations* which heard three winners of Nobel prizes in the sciences discuss their major discoveries. Participants were Imperial Visiting Professor Hartmut Michel, who spoke about membrane protein crystallography, Sir Peter Mansfield, who talked about early developments in NMR imaging, and Professor Stanley Prusiner, also an Imperial Visiting Professor, who discussed his discovery of prions. The emphasis of the conversations was on discovering the unexpected in science and they were followed by questions from the audience.

For more information see www.imperial.ac.uk/events/nobelconversations



Research at the frontiers of scientific, engineering, business and medical knowledge is a major feature of the academic activity of the College and our staff are frequently recognised by the award of prestigious prizes and other honours.



Royal Society honours for natural scientists

Three researchers from the College's Faculty of Natural Sciences have been awarded prestigious prizes by the Royal Society in July 2008. Professor Michele Dougherty (pictured) from the Department of Physics was awarded the Hughes Medal, Professor Edward Hinds, also from Physics, received the Rumford Medal, and Professor Andrew de Mello, from the Department of Chemistry, will deliver the Clifford Paterson Prize Lecture for 2009.



Royal Society top honour for engineer

In recognition of his outstanding contribution to engineering and science, Professor Christofer Toumazou (pictured) was named as one of the new Fellows of the Royal Society in May 2008. Executive Director and Chief Scientist of the Institute of Biomedical Engineering and holder of the Winston Wong Chair in Biomedical Circuits, Professor Toumazou was elected to the UK's national academy of science for his work in analogue signal processing, used in mobile phone technology. His research has led to advances in telecommunications and the revolutionary design of new prosthetic implants. His election brings the number of Fellows of the Royal Society at Imperial to 65.



New year honours

Two members of Imperial staff were recognised for their dedication to science and the community in the 2008 New Year Honours. Professor Brian Spratt of the Division of Epidemiology, Public Health and Primary Care, and Dr Anna Thomas-Betts of the Educational Quality Office received awards from the Queen for their exceptional achievements and service. Professor Spratt, who led an official investigation into the foot and mouth disease outbreak from the Pirbright laboratory site in Surrey in 2007, was awarded a CBE for his services to science. Dr Thomas-Betts, received an MBE for services to education and the community.



Ecologist's medal adds to Imperial's winning streak

An Imperial biologist has been announced as the fourth Imperial scientist since 2000 to win the Zoological Society of London's prestigious Scientific Medal. Professor Tim Coulson (pictured) from the Ecology and Evolution research group in the Department of Biology follows in the footsteps of former winners Professor Ian Owens, Head of the Department of Life Sciences, and Professors Andy Purvis and Austin Burt. The Scientific Medal is given annually to an early-career researcher who completed their doctorate less than 15 years ago, and recognises scientific merit in the field of zoology.



Birthday honours

Key figures from the Faculties of Medicine and Natural Sciences were recognised in the 2008 Birthday Honours. Lung disease expert Professor Sir Anthony Newman Taylor (pictured), Deputy Principal of the Faculty of Medicine, and Professor Sir Christopher Edwards, formerly Principal of the Imperial College School of Medicine, were awarded knighthoods. Also recognised were the late Emeritus Professor Dennis Anderson, founder of the Centre for Environmental Policy and Technology, who received a posthumous OBE, and Professor Paul Matthews, Chair in Clinical Neuroscience, who received an 'honorary' OBE.



Researchers who helped millions win award

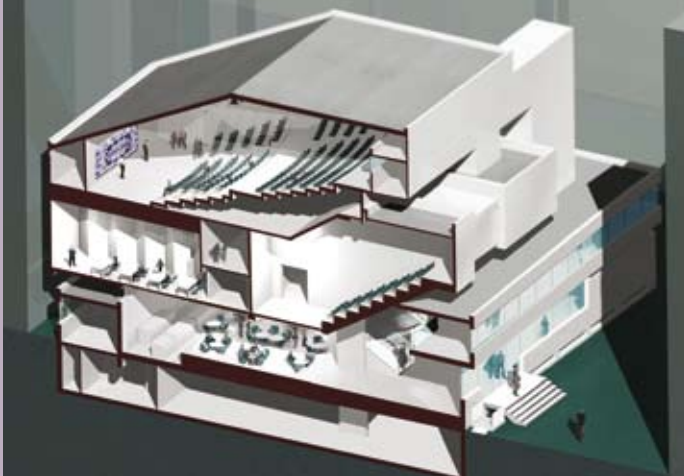
Two Imperial researchers who pioneered treatments, which have helped millions of people with rheumatoid arthritis and other autoimmune diseases, were awarded the prestigious 2008 Dr Paul Janssen Award for Biomedical Research. Emeritus Professor Sir Ravinder Maini and Professor Marc Feldmann, who have been carrying out research together at the College since the 1980s, were selected for the US\$100,000 award by an international committee including Nobel laureates and other world-renowned scientists. Their research has led to the development of new drugs which tackle the inflammation and tissue destruction caused by rheumatoid arthritis and other diseases.



Royal Academy of Engineering Fellows for Imperial

In July 2008, six Imperial College London researchers were recognised for their outstanding contributions to engineering. Professor Nigel Brandon (top left), Department of Earth Science and Engineering, Professor Jeff Kramer (bottom left), Department of Computing, Professor Christofer Toumazou, Institute of Biomedical Engineering, and Mr John Loughhead (top right), of the Imperial-based UK Energy Research Centre, were elected to the Fellowship of the Royal Academy of Engineering. They are joined by Professor Sir Gordon Conway (bottom right), from the College's Centre for Environmental Policy, and Professor of Science and Society Lord Winston, who were awarded Honorary Fellowships.





Hammersmith Campus developments

Significant funding by the College towards the total cost of about £5 million, together with a grant of £2 million from the Wolfson Foundation, has funded the redesign and redevelopment of the **Wolfson Education Centre**. Having long served as a major focus for postgraduate educational needs at Hammersmith, the centre also provides a home for the new graduate entry Medicine course starting in October 2008. With an annual intake of 50 top class graduates in biological sciences, the four-year course is aimed at those interested in science and research, but who want to develop a career in the clinical field.

In another development at Hammersmith Campus, work began in 2008 to replace the current **L Block** building with a new six-storey structure, whose ground floor will be dedicated to a Wellcome Trust funded Clinical Research Facility. The MRC will occupy one floor of the new building, linking to MRC activity in the Commonwealth and Clinical Research Buildings. It will also provide facilities for future developments in infection and immunology, clinical cardiovascular and renal research with the aim of establishing Hammersmith as Imperial's second major campus, with a clear long-term vision and matched investment programme.



Central Library refurbishment

The £11 million refurbishment of Imperial's Central Library was completed in autumn 2008, with the new facilities also showcasing a significant new art collection. After two years of renovation, the ground floor level has been completely transformed to provide a modern, flexible working space for both group and individual study. It now offers 150 new individual study spaces, 90 new computers, group study areas, a 30-seat training room that supports the library's delivery of information skills courses for students, and a new library café. Over 50 modern, abstract canvases were donated to the library by Sussex artist Bob Brighton, whose large scale works are on display throughout the ground floor.



Eastside student accommodation

Ground works for the new Eastside student accommodation began in 2008, following the successful demolition of Linstead Hall on the east of Prince's Gardens on the South Kensington Campus. Substructure works were completed during the summer and the building superstructure should be erected by the end of the year. Occupation of Eastside is scheduled for October 2009 and will provide over 440 student bed places over nine levels. The design of Eastside follows the principles adopted in the Southside halls of residence which opened in October 2007.

For more information see www3.imperial.ac.uk/news/libraryart

Imperial College Business School combines a focus on research with a practical understanding of the way global business works today.



Student entrepreneurs win £25,000

A group of budding student entrepreneurs, including MBA students William Makant and Alan Hart, won £25,000 in Imperial's annual New Business Challenge in March 2008. The College-wide competition, organised by the Business School, provides undergraduates and postgraduates with an opportunity to develop and present business ideas in a realistic environment. The contest this year involved over 120 students who submitted 41 business plans. The winning interdisciplinary team's idea was the Tap Sprinkler, a system which provides fire protection in domestic kitchens.

New strategic design partnership



In May 2008, Imperial formed a major strategic partnership with the Royal

College of Art with the creation of a world class £5.8 million multidisciplinary centre called Design London. Headed by Nick Leon from the Business School, Design London's purpose is to bring together the disciplines of design, engineering, technology and business to address the challenges of future innovation. Part of the core strategic aims of both institutions, and developed in response to the recommendations for higher education described in the *Cox Review of Creativity in Business*, commissioned in 2005 by Gordon Brown, Design London creates an 'innovation triangle' between design, engineering and technology and the business of innovation.

Telecare evaluation

The Business School's Professor James Barlow and Dr Jane Henty have received a £350,000 research grant from the Department of Health to investigate the sustainability of government initiatives to introduce 'telecare'. Telecare includes the use of sensors and other devices to monitor vital signs remotely. Heralded as a way of improving the independence of people with long term chronic diseases, the concept also helps to improve the use of scarce healthcare resources by freeing up beds in hospitals. The research will focus on telecare services launched in three UK regions: Cornwall, Kent and Newham in East London.

'5,000-mile bridge' with India

In December 2007, Imperial's Rajiv Gandhi Centre for Innovation and Entrepreneurship hosted a panel discussion attended by senior Indian business leaders in Mumbai, marking the beginning of its activities. Professor Gerry George, the Centre's director, outlined how the Centre aims to transform ideas into opportunities by making London and the Imperial College Business School a global portal for those working with Indian expertise. He likened it to a 5,000-mile bridge, along which ideas and opportunities travel in both directions. This, he explained, allows access to the College's world class research and helps develop new leaders in and for India.



Winning paper examines returns on market volatility

Dr Markus Leippold, Director of the Centre for Quantitative Finance, collected the Inquire Europe Group's annual best paper prize in March 2008 for his paper *Variance Risk Dynamics, Variance Risk Premia, and Optimal Variance Swap Investments*. The paper reviews data from more than a decade of variance swaps, a bet based on the volatility in a given market, to examine the various influencing factors, as well as proposing strategies for maximising returns. Inquire Europe was established in 1990 to bring



together investment professionals interested in understanding and developing quantitative solutions to financial and investment problems.

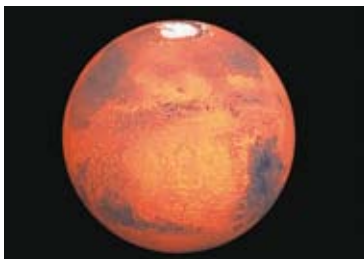


Imperial's partnership with Qatar and Shell is a major move towards developing the world's fossil fuels sustainably.

New centre to develop strongest materials on Earth

Some of the strongest, most durable and heat resistant materials on Earth are to be developed at Imperial, thanks to the new £6 million Centre for Structural Ceramics announced in December 2007. A joint project between the Departments of Materials and Mechanical Engineering, the centre is funded by the Engineering and Physical Sciences Research Council and headed by Professor Bill Lee, Head of the Department of Materials. It aims to dramatically improve the strength and durability of structural ceramics to meet industrial demand for materials that can withstand extreme environments. Projects will include collaborations with organisations such as NASA to create materials to withstand the freezing conditions of space and the scorching heat of take-off and re-entry.

Building blocks of life sought on Mars



In May 2008, Dr Tom Pike, Dr Sanjay Vijendran and PhD student Hanna Sykulska from the Department of Electrical and Electronic Engineering were amongst the first people on Earth to carry out the most detailed analyses ever of Martian soil and dust samples. NASA's Phoenix spacecraft collected soil and dust samples to find evidence of ice particles indicating that Mars could once have had conditions sympathetic to

life. The team, based at mission control at the University of Arizona, used an optical microscope, which uses light and a system of lenses to magnify images, and an atomic force microscope, which scans images down to a fraction of a micrometre to get the highest resolution images ever of Martian soil.

Qatar agreement to tackle climate change

A 10-year research partnership between the College, Qatar Petroleum, Qatar Science and Technology Park, and Shell worth US\$70 million was announced in June 2008 and aims to develop oil and gas reserves in the Middle East sustainably. Imperial and Shell are currently working together to understand how CO₂ behaves in sandstone oil reservoirs such as those beneath the North Sea. They will now join forces with Qatar Petroleum to look at carbonate reservoirs, many of which are in the Middle East, and explore ways to increase the recovery of oil and gas, and develop safe and secure methods of capturing and storing CO₂ to help mitigate the effects of climate change.

For more information see www3.imperial.ac.uk/news/climateagreement

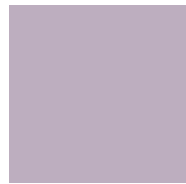
Earliest genetic material may have come from the stars

In June 2008, scientists, including Dr Zita Martins and Dr Mark Sephton of the Department of Earth Science and Engineering, confirmed for the first time that an important component of early genetic material found in meteorite fragments is extraterrestrial in origin. The finding, published in *Earth and Planetary Science Letters*, suggests that parts of the raw materials to



make the first molecules of DNA and RNA may have come from the stars. Molecules in rock fragments of the Murchison meteorite, which crashed in Australia in 1969, were examined. They were found to include uracil and xanthine, precursors to the molecules that make up

DNA and RNA. Analysis showed that they contained a heavy form of carbon that could only have been formed in space. Materials formed on Earth consist of a lighter variety of carbon.



AI award for computing researchers

In January 2008, a team from the Department of Computing, led by Dr Simon Colton, won the £1,000 prize for the best machine intelligence demonstration at the British Computer Society's Specialist Group on Artificial Intelligence (SGAI) conference. The award, voted on by some of the world's foremost authorities on artificial intelligence (AI), recognised the team's innovative and creative automated software technology – *The Painting Fool* – which creates portraits by reading the facial expressions of a human subject and interpreting the emotion conveyed by expressions. Dr Colton, the software designer, said he was excited by the challenge of creating an automated artist, which produces beautiful pieces of artwork. He also said it raised some interesting questions about how people perceive creativity.

Artesia Sideways on carbon capture and storage



Earth Science and Engineering's Dr Tara La Force delivered a lecture via her avatar, or alter ego, Artesia Sideways, as part of the Nature

Network's *Second Life* Climate Change Conference in December 2007. The conference was held on *Second Life*, a three-dimensional virtual world created entirely by its residents. Up to 60 avatars, with names like Snuggle Wobbit and Mythopoetic Writer, heard Artesia speak about carbon capture and storage in the virtual lecture. Dr La Force and her team have been carrying out research in this area with funding from Imperial's Grantham Institute for Climate Change and the Shell Grand Challenge on Clean Fossil Fuels.

Creating the mine of the future

Advanced mining and mineral processing techniques to extract minerals from deep within the Earth will be developed by the £6 million Rio Tinto Centre for Advanced Mineral Recovery announced in May 2008. The centre, a partnership between Imperial and mining company Rio Tinto, is led by Professor Jan Cilliers of the Department of Earth Science and Engineering. Research will concentrate on the development of innovative mining technologies and techniques to improve the extraction of minerals, whilst minimising environmental impacts. Minerals used to produce valuable metals such as copper, used in electrical wiring, or nickel, used to make stainless steel, are becoming increasingly hard to find and recover using traditional mining methods. Because of this, extracting these minerals efficiently and economically from deeper underground is becoming an important focus for mining research.

For more information see www3.imperial.ac.uk/news/futuremine

Henry Moore sculpture assessed by rock engineers

A Henry Moore sculpture dismantled in 1996 could be re-erected in Kensington Gardens, London, thanks to the latest rock engineering techniques. In May 2008, engineers, including Dr John Harrison from the Department of Earth Science and Engineering, carried out a detailed analysis of a sculpture called the Arch, to see whether engineering computer simulation and analysis techniques could be used to understand and preserve complex artefacts that experience structural problems. Using this information, the team believes it has devised a new method to allow the sculpture to be held together without compromising its structure. This includes attaching the rock legs and top section with fibreglass bolts and dowels, and placing the structure on a base of specially reinforced concrete.



See more information at www3.imperial.ac.uk/news/henrymoore

Heart research boosted by £8.9 million award



A new centre of research excellence at Imperial was established in March 2008 through an £8.9 million award from the British Heart Foundation. Medical researchers, scientists and engineers from 20 different disciplines at Imperial led by Professor Michael Schneider, Head

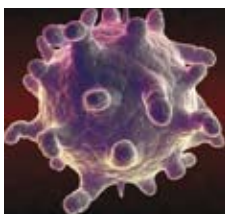
of Cardiovascular Science, are creating pioneering partnerships in order to find innovative ways to prevent, diagnose and treat heart and circulatory disease. Researchers will trial new therapies and collaborate with geneticists and cell biologists, who are exploring the genes involved in heart disease. Geneticists will team up with computer scientists to analyse the wealth of new data available and biochemists will collaborate with engineers studying the mechanics of blood flow to design new ways to diagnose and treat heart disease.

New TB test makes diagnosis quicker and easier

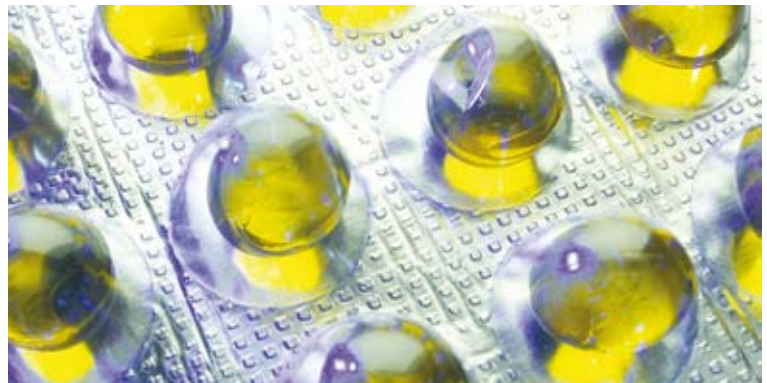
Tuberculosis (TB) infection can be excluded with 99 per cent accuracy in 48 hours when using a new blood test, ELISpot-Plus, in conjunction with an existing test, known as tuberculin skin testing, according to a study led by Professor Ajit Lalvani of the Faculty of Medicine, published in March 2008 in *Annals of Internal Medicine*. The new test combination could prevent patients who do not have TB from being subjected to additional TB tests that can take up to several weeks, and allows doctors to begin investigating other explanations for their symptoms. The new test has already been incorporated into its TB services by Imperial College Healthcare NHS Trust, demonstrating the rapid translation of research into clinical care within the AHSC.

Common cold research offers hope of new asthma treatments

Researchers from Professor Sebastian Johnston's team at the MRC/Asthma UK Centre in Allergic Mechanisms of Asthma at Imperial hope that a new mouse model could boost efforts to develop and test new treatments for the common cold, as well as for potentially fatal illnesses such as asthma. The team has been able to infect mice with rhinoviruses, which lie behind most common colds, for the first time, according to a report published in *Nature Medicine* in March 2008.



The molecular receptors on the surface of mouse cells were not suitable targets for the viruses. The scientists modified the receptors in the mouse so that they resembled human versions and no longer blocked the virus.



How to slow spread of bird flu virus



Closing schools in the event of a flu pandemic could slow the spread of the virus and prevent up to one in seven cases, according to a study published in April 2008 in *Nature*. Dr Simon Cauchemez and Professor Neil Ferguson from the MRC Centre for Outbreak Analysis and Modelling at Imperial, working with colleagues in France, used computer modelling to explore how school closure would affect the spread of a theoretical pandemic H5N1 avian flu virus which had mutated to pass between humans.

They extrapolated from data collected by French GPs, showing how school holidays alter the patterns of influenza transmission in France. School closure is the non-pharmaceutical policy option that health organisations and governments most often consider to control the spread of a future flu pandemic, but there has previously been little evidence about its potential effectiveness.

Gene sequence that can make half of us fatter

A gene sequence linked to a 2cm expansion in waist circumference, a 2kg gain in weight, and a tendency to become resistant to insulin, which can lead to type 2 diabetes, has been discovered. In a study, published in May 2008 in *Nature Genetics* by a team led by Professor Jaspal Kooner and Dr John Chambers of the Faculty of Medicine, the sequence is shown to be present in 50 per cent of the UK population. It is a third more common in those with Indian Asian, rather than European ancestry, which could provide a possible genetic explanation for their high levels of obesity and insulin resistance. Indian Asians make up 25 per cent of the world's population, but are expected to account for 40 per cent of global cardiovascular disease by 2020.



Metabolic fingerprinting reveals causes of disease

New insights into the possible causes of major diseases were revealed in April 2008 by a study published in *Nature* by scientists including Dr Jeremy Nicolson and Professor Paul Elliott of the Faculty of Medicine. It analysed relative levels of many different metabolites in the urine samples of adults in the UK, USA, China and Japan. Metabolites act as markers revealing how diet and lifestyle can contribute to the risk of disease. Adults in the UK and USA, which have similar incidences of high blood pressure and cardiovascular problems, had similar metabolic fingerprints, reflecting similar lifestyles despite geographical separation. Adults in Japan and China, although genetically similar, displayed very different metabolic fingerprints from each other, and from adults in the UK and USA. There are also major differences in the incidence of many diseases in these countries.

Through the Academic Health Science Centre, Imperial continues to advance science with the aim of bringing a higher quality of healthcare directly to patients.

Lowering blood pressure in very elderly cuts mortality

Lowering the blood pressure of elderly patients could cut their total mortality by a fifth and their rate of cardiovascular events by a third, according to a study led by Emeritus Professor Christopher Bulpitt from the Care of the Elderly Group at the College, which was presented in April at the *American College of Cardiology* in Chicago and published in the *New England Journal of Medicine* in March 2008. The Hypertension in the Very Elderly study was the largest ever clinical trial looking at the effects of lowering blood pressure solely in those aged 80 and over. The research showed that the benefits of treatment include a 21 per cent reduction in total mortality rate, a 39 per cent reduction in stroke mortality rate, a 64 per cent reduction in fatal and non-fatal heart failures and a 34 per cent reduction in cardiovascular events.

New anti-cancer agent can overcome drug resistance



Resistance to cancer drugs can be overcome by a new anti-cancer agent according to a study published in the journal *Clinical Cancer Research* in February

2008 by researchers led by Dr Simon Newman from the Oncology Drug Discovery and Women's Health Group at Imperial. They believe that the agent, STX140, may have a future role to play in treating advanced, drug-resistant breast cancer. Many tumours that are initially responsive can develop resistance to chemotherapy, allowing the cancer to progress. For the new study, mice with drug-resistant tumours were given either STX140 or a currently used clinical drug, Taxol, for 28 days. The drug-resistant tumours shrank in size in response to STX140, whereas the drug-resistant tumours treated with Taxol continued to increase in size. STX140 is potentially a very exciting new drug, however further studies will have to be undertaken to ensure its safety.

Professorial recruitment drive in medicine

Imperial is recruiting 30 new world class medical professors over the next three years in a £4 million recruitment drive aimed at bringing fresh talent into healthcare research. The move forms part of the research strategy for the Imperial College Healthcare NHS Trust, part of the UK's first Academic Health Science Centre, created in 2007 to integrate health services with research and teaching. The new professors will work in the Faculty of Medicine and in the new Trust, which is now the largest in the UK. The first wave of chairs will be in areas where the College has or seeks to have a world class position, which include cardiovascular science and renal medicine; diabetes and obesity; musculoskeletal disorders; genetics and genomics; and translational medicine.

Prize for reducing animal use in research

For the second time in three years the Replacement, Refinement and Reduction (3Rs) Prize has been awarded to an Imperial researcher. The 2007 3Rs prize, awarded by the National Centre for the 3Rs was won by Dr Charlotte Gower, from the Department of Infectious Disease Epidemiology. She won the award for her work on the parasites that cause schistosomiasis, a parasitic disease carried by an estimated 207 million people worldwide. The research used recent advances in storing DNA at room temperature to collect parasite DNA samples directly from infected people in areas where the disease is endemic. This improved results because the new, non-animal techniques reflect the genetic variation in the natural population of parasites, while the traditional method of growing parasites could bias results by skewing this genetic variation.

Chemical signature of manic depression discovered

People with manic depression, or bipolar disorder, have a distinct chemical signature in their brains, according to research published in February 2008 in *Molecular Psychiatry* by scientists from Imperial, the University of Cambridge and the US National Institute of Mental Health. The authors, including Dr Tsz Tsang from the Department of Biomolecular Medicine, hope that their research will enable a better understanding of the condition and of how it can be treated. Postmortem brain tissue samples of people with manic depression were compared with those of age and gender matched controls and analysed using nuclear magnetic resonance spectroscopy. People with manic depression showed different concentrations of chemicals in the brain than those without. Identifying a distinct biochemical profile provides a valuable insight into the origins and causes of the disease, and may give a target for drug therapy.





A new ranking by the Centre for Higher Education Development in Germany has shown that Imperial is one of the top European universities for postgraduate research in biology, chemistry, maths and physics.

Masters of disguise

A gene which helps a harmless African butterfly ward off predators by giving it wing patterns like those of toxic species, has been identified by a team of scientists including Imperial's Professor Alfried Vogler, in a paper published in *Proceedings of the Royal Society: B* in February 2008. The mocker swallowtail butterfly, *Papilio dardanus*, is unusual because it emerges from its chrysalis with one of a large number of different possible wing patterns and colours, some of which mimic those of poisonous species. Most butterfly species are identified by a common wing pattern and colour. Biologists are interested in finding out exactly how wing pattern is determined because they believe that understanding how this ability evolved may shed new light on whether such evolutionary changes occur in small gradual steps, or sudden leaps.

New rankings best in Europe for budding natural sciences researchers

A new ranking by the Centre for Higher Education Development (CHE) in Germany has shown that Imperial is one of the top four European universities for postgraduate research programmes in biology, chemistry, maths and physics. Each department was assessed on its research achievements, as an indicator of the quality of postgraduate provision. For physics, Imperial gained a top mark of four gold medals – a feat not achieved by any other university, while in chemistry, maths and biology, Imperial received three gold medals and a silver medal per subject.

Eat up your Brussels sprouts – unless you're an aphid

Aphids that eat Brussels sprouts are smaller than normal and live in undersized populations, which has a negative knock-on effect up the food chain according to new research published in February 2008 in *Science*. The study's authors, including Dr Frank Van Veen of Imperial's NERC Centre for Population Biology, showed for the first time that the nutritional quality of plant food sources for herbivores has a far-reaching impact on an ecosystem as a whole, potentially impeding important functions that the ecosystem performs, such as the natural predation and control of agricultural pests.

140-year-old problem solved

A problem that has defeated mathematicians for almost 140 years has been solved by Imperial's Professor Darren Crowdy, it was reported in March 2008. His breakthrough comes in the field of conformal mapping, a technique to analyse an object by converting it from a complicated shape to a simplified circular one. This was previously possible only if the object's original shape did not contain holes or

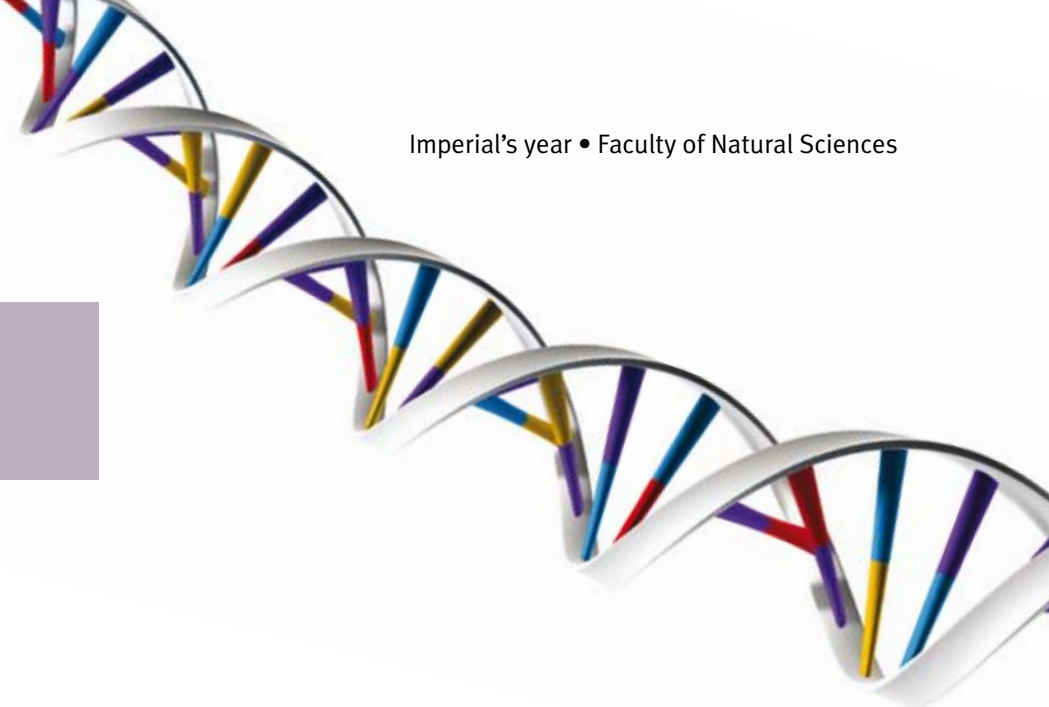


irregularities. Now, thanks to Professor Crowdy's additions to the famous Schwarz-Christoffel formula, the technique can be used in far more complex cases.

Successful ecosystems revealed

The productivity and biodiversity of an ecosystem is significantly affected by the rate at which organisms move between different parts of it, according to new research published in *Nature* in March 2008. Scientists at Imperial's NERC Centre for Population Biology hope that understanding the mechanisms which determine ecosystem diversity and productivity will help ecologists and conservationists to develop strategies to ensure that conservation areas are highly productive and rich in biodiversity. The team used a lab-based artificial ecosystem of communities of bacteria to examine what happens when the bacteria move around and evolve to live in different parts of the ecosystem over the course of hundreds of generations. They found that both the biodiversity and productivity of an ecosystem are at a peak when there is an intermediate rate of dispersal of species – not too little and not too much between different parts of the ecosystem.





Complexities of wetting theory explained



The relationship between a thin liquid film or drop of liquid and the shape of the surface that it wets is explained with a new simplified mathematical

formula published by Professor Andrew Parry of the Department of Mathematics in April 2008's *Physical Review Letters*. Understanding the precise interaction between liquids and surfaces is important for a number of areas, including the chemical industry and new nanotechnologies. A mathematical formula is used to explain how the relationship between the liquid and the surface changes as one wets the other. Previous formulas have all failed to explain what scientists found when they conducted experiments in this field, and have become increasingly complicated and technical.

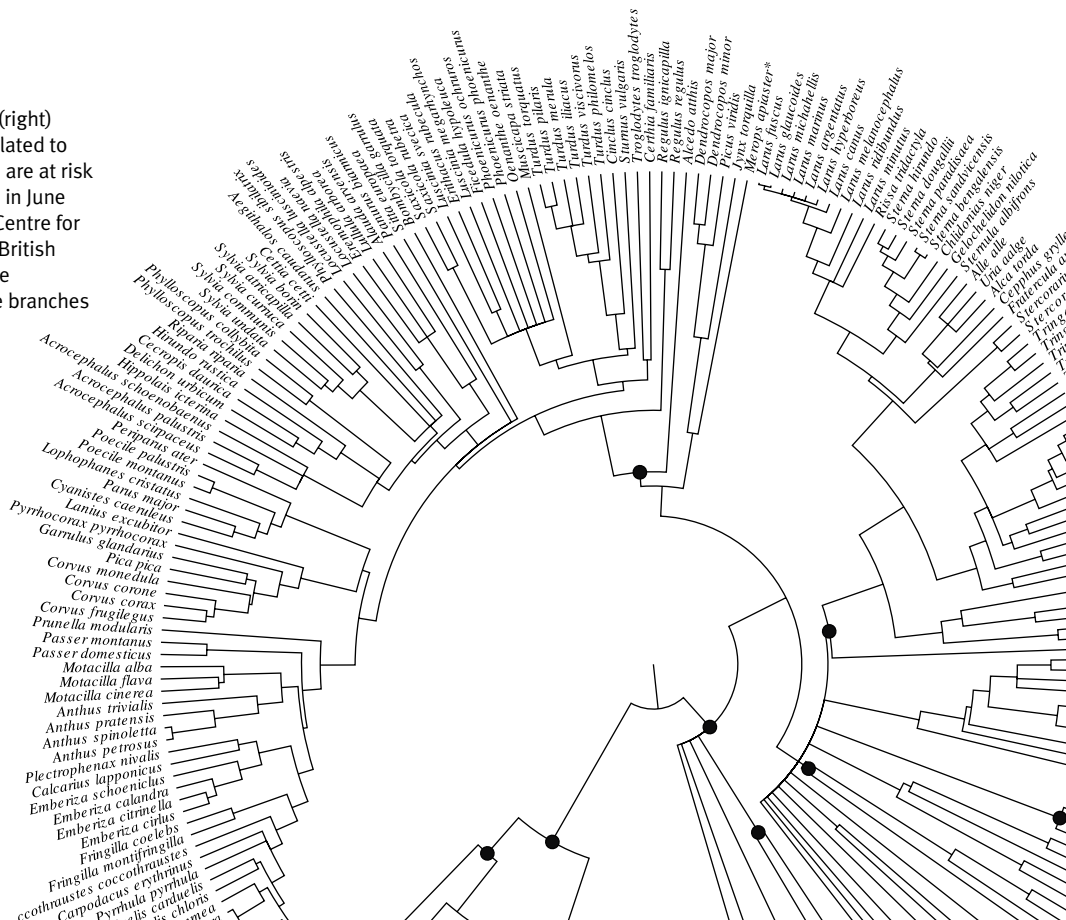
DNA clues to reproductive behaviour

New light has been shed on the study of microbes and their patterns of reproduction in research by Imperial biologists, published in the *PNAS* journal in April 2008. Focusing on the wild yeast *Saccharomyces paradoxus*, which is able to reproduce both sexually and asexually, PhD student Isheng Jason Tsai and colleagues examined how sexual and asexual reproduction cause different types of variations in an organism's DNA sequence. A DNA sequence is a complete set of chemical instructions needed for an organism to grow and function. Finding the unique signatures left by different types of reproduction on the yeast's DNA gives valuable insights into the life cycle of this wild yeast, which is otherwise very difficult to study. The study established that this species goes through a cycle of sexual reproduction once in every 1,000 asexual generations.



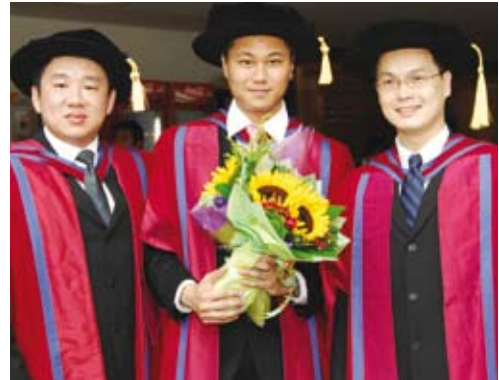
British bird 'family tree' shows endangered risk

A new complete evolutionary 'family tree' (right) showing how all British bird species are related to each other may provide clues about which are at risk of population decline. Research published in June 2008 by Dr Gavin Thomas from the NERC Centre for Population Biology at Imperial found that British birds currently suffering population decline were clustered close together on the same branches of the family tree. This could be because closely related species share physical traits, which may render them less able to cope with climate change or depletion of their habitat, and thereby exceptionally vulnerable to decline.



"It is vital for scientists to be able to talk about their research. We need to encourage more students... to talk about their work, to make it relevant to as many people as possible."

Lord Winston, Professor of Science and Society



Asia Convocation in Singapore

Strong links between Imperial and Asia were celebrated in November 2007 with a special graduation ceremony at Singapore's University Cultural Centre. The one-off event, which was held to mark the College's Centenary, offered a rare opportunity for students to graduate outside the UK. Attending the Asia Convocation 2007 were 61 graduands and their guests from around the world, including Australia, Ghana, Greece, Hong Kong, Indonesia, the Netherlands, Thailand, UK, Malaysia and Singapore. Imperial is home to around 2,500 students from countries across Asia.

Spotlight on humanities

College orchestra win



Symphuni, a major new music competition, has named Imperial College Symphony Orchestra as the UK's best university orchestra. Imperial musicians took the top prize of £5,000 in

the final at London's Cadogan Hall, beating off competition from Cambridge, Manchester and Southampton Universities. The panel of judges included cellist Julian Lloyd Webber, who described the standard of playing as "quite exceptional".

New role for Robert Winston

Improving understanding and interaction between scientists and the public is the goal of Lord Winston in his role as Professor of Science and Society at the College. The new Chair, generously supported by the Garfield Weston Foundation, focuses on finding methods to ensure that scientists communicate effectively with the public, with the aim of further embedding science communication techniques in Imperial's teaching. The role will also help to expand Imperial's wide range of outreach activities, establishing a dedicated schools laboratory and seminar facility based at the College to give pupils and teachers experience of hands-on science in areas such as DNA analysis and robotics.



Podcasts for lectures and slice of Imperial life



From first-hand accounts of the big CERN switch-on to the major issues in global health, Imperial's monthly magazine podcast gives you an inside account of the latest stories in science. Available on the first working day of each month either from our website or from iTunes. Or catch up with what's what in the world of scientific academia by listening to some of Imperial's lecture podcasts.

- ▶ Magazine podcasts: www.imperial.ac.uk/media/podcasts
- ▶ Lecture podcasts: www.imperial.ac.uk/media/onlinelectures



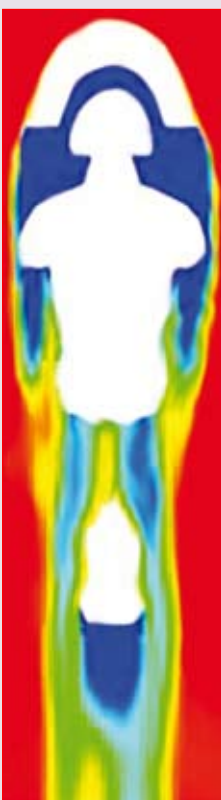
New book explores IVF ethics

The ethical issues surrounding assisted reproduction and IVF are explored in a new book co-written by a PhD student at the College. *From IVF to Immortality:*

Controversy in the Era of Reproductive Technology, co-written by Anna Smajdor, from the Faculty of Medicine, outlines the history of artificial insemination and looks ahead to future issues of reproductive cloning. The book covers issues such as whether cloning might be made legal in the UK, why sex selection is so controversial and whether scientists could ever make an artificial womb. Each chapter includes a real-life case study to illustrate the issues raised, such as the case of Diane Blood, who used her dead husband's sperm to have two children.

That's the spirit

A solar powered boat built by a group of mechanical engineering undergraduates from Imperial competed in Europe's only solar-powered boat race in June 2008. The team of students raced against 49 teams from eight different countries in the Frisian Solar Challenge. Aimed at encouraging new applications of solar energy, the Challenge requires each team to build solar-powered boats suitable for racing in all weather conditions. Imperial's *Solar Spirit* boat is made of glass fibre and is powered by five solar panels. The Imperial team is one of only two UK teams to enter the international race, and has designed, built and tested the boat as part of a third year project.



Such a drag

Work to improve motorcycle aerodynamics won an Imperial postgraduate a European award in May 2008. Amrit Sharma, a PhD student from the Department of Electrical and Electronic Engineering, won a gold medal for automotive design at the Young European Arena of Research Awards. He won the award for mathematical models on aerodynamic drag, which show how air flowing over a bike can exert pressures on it, slowing it down and making it less efficient. Mr Sharma and a team from the Control and Power Research Group, along with motorcycle manufacturer ECOSSE Spirit, are using his models to improve the design of the company's ES1 racing motorcycle.

PhD thesis wins national prize

An Imperial physics postgraduate student was awarded a prestigious national prize for his PhD thesis in January 2008. Dr James Kirkpatrick won the Institute of Physics' annual Roy Prize, which is given for the best thesis submitted in the previous year in the field of condensed matter and materials physics. Dr Kirkpatrick, who finished his PhD in the College's Experimental Solid State Physics Group in May 2007, worked in a team aiming to develop new organic materials for solar cells and other electronic devices. Solar cells are currently made from silicon, but Dr Kirkpatrick and other members of the group are working on making carbon-based electronics a viable, low cost reality.

Helping students market themselves creatively

Black and minority ethnic students at Imperial attended the Imperial as One Student Forum held in January 2008 to learn how to market themselves creatively. Talks were given by speakers including Elspeth Farrar, Director of the Careers Advisory Service, who gave tips on how to create a winning CV. Professor Jaideep Prabhu of the Business School advised students to network as much as possible and to keep their options open. Other speakers included industry professionals such as Professor Yike Guo of the Department of Computing, founder and CEO of Inforsense Ltd, and Malcolm Horton, an executive director of recruitment in the City. Imperial as One is made up of made up of black and minority ethnic staff and aims to promote equality and diversity at the College.

Equality, diversity and commonality—mutually exclusive?



The balance between equality, diversity and commonality was discussed by journalist Yasmin Alibhai-Brown in the Annual Diversity Lecture held in February 2008. The lecture was organised by Imperial's Equality and Diversity

Unit, which organises events throughout the year, embedding equality and diversity issues into College activities.

Watch the Diversity Lecture at www.imperial.ac.uk/events/diversitylecture

Showing their true colours

Imperial College Union recognised its volunteers for their service, contribution and dedication at the Colours Awards, held in June 2008. Imperial College Union relies on volunteers to represent the views of the student body to the College and to administer over 300 student clubs and societies, from the debating society to the sailing club. Full Colours were awarded to 15 students and 40 students received Half Colours. In addition, six Outstanding Service Awards, four President's Awards, a Fellowship and a Distinguished Fellowship were given out. Winners included Ashley Brown, editor of student news website Live! (below), who was awarded both a Distinguished Fellowship and a President's Award.





Imperial won over a third of the overall British universities rowing points for the 2007–08 season.

Success at Henley in the Visitors Challenge Cup

Imperial rowers scored a joint victory with Kingston Rowing Club, winning the Visitors' Challenge Cup at the Henley Royal Regatta in July 2008. The team, made up of two Imperial students and two from Kingston, beat Martyrs Boat Club and Christ Church, Oxford, by one and a quarter lengths. The team is coached by Olympic gold medallist, Steve Trapmore MBE, Imperial's new Head of Rowing.

Sporting achievements on the rise



Imperial is among the UK's top 25 institutions for sport, according to a recent league table. The *Complete University Guide Sports Table 2009* awarded the College top ratings for its indoor dry sports facilities, winter pitches, cricket pitches and taught classes, as well as support for elite athletes during their studies. Imperial was placed 22nd out of a total of 143 competing

institutions in the table, which is compiled by BUCS (British Universities and Colleges Sport, formerly BUSA). The season's rowing results were particularly good, gaining just over 35 per cent of the sport's overall points in the rankings. Racquet sports also performed well and College fencers achieved almost 12 per cent of the sport's overall points. Women's teams represented half of the eight teams that came first in their leagues.



Student Rise week celebrates diversity

Imperial College Union's racial awareness campaign, Rise, held in November 2007 focused on the College's cultural diversity, with the aim of promoting integration and tolerance. Throughout the week, Kirsty Patterson, Union Deputy President for Education and Welfare, and her team of volunteers gathered photos, interviews and comments from international students. They plan to use the material to make posters and materials for future events encouraging integration. Students also tried out international dishes at the Union canteen, *Da Vinci's*, and watched foreign language films in the cinema.

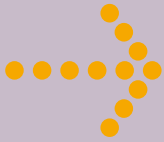
New Dean of Students role

In November 2007, Professor David Lloyd Smith was appointed Dean of Students, a new role covering student support activities across the College. Professor Lloyd Smith has 36 years on the academic staff, 13 of those as Director of Undergraduate Studies in the Department of Civil and Environmental Engineering



followed by seven years as a College Tutor. He has overall responsibility for student counselling, students with disabilities, the chaplaincy and religious interests, College Tutors, Hall Wardens and student complaints and appeals. He also works

closely with the International Office making sure international students settle in to College life.



World expert appointed to head climate change institute

Renowned meteorologist and climate scientist, Professor Sir Brian Hoskins FRS, became the first Director of the Grantham Institute for Climate Change at the College in 2008. A world-leading authority on climate issues and global weather patterns, he uses mathematical models to understand weather systems in different parts of the world and how they interact. Committed to ensuring that climate research is used to advise governments and influence policy, Sir Brian was a member of the Royal Commission that first proposed a 60 per cent target for reduction of UK carbon dioxide emissions by 2050. He also acted as a scientific advisor to the Stern Review, credited with pushing the issue of climate change to the centre of the political agenda in the UK, and was a member of the IPCC assessment team recently awarded the Nobel prize.

Management Board

To foster the close relationship and high degree of integration required by the objectives of the two partners in the Academic Health Science Centre — Imperial College London and the Imperial College Healthcare NHS Trust — the Managing Director of the Trust, Ms Claire Perry, joined Imperial College's Management Board in May 2008. New Faculty Principals, Professors Stephen Richardson (Engineering) and Maggie Dallman (Natural Sciences), and Pro Rectors, Julia Buckingham (Education) and Mary Ritter (International Affairs) also joined the board during the year. See page 3 for more information about Management Board.

Over 90 academic promotions

Over 90 academics were recognised for their hard work in the 2008 academic promotions round. From across the College there were 25 promotions to professor, 47 to reader, three to senior research fellow and 18 to senior lecturer.

See more information at www3.imperial.ac.uk/news/academicpromotions08

Senior staff changes

From September 2008, Professor Sir Peter Knight, formerly Principal of the Faculty of Natural Sciences, became Senior Principal of Imperial and Professor John Wood, formerly Principal of the Faculty of Engineering, took on the role of International Relations Adviser. Professor Nagy Habib, moved from his role as Pro Rector for Commercial Affairs to continue as Head of Biosurgery and Surgical Oncology, to which has been added the role of Chief of Service for Surgery within a Clinical Programme Group for Imperial College Healthcare NHS Trust. Professor Sir Anthony Newman Taylor, formerly Head of Imperial's National Heart and Lung Institute, accepted appointment as Deputy Principal of the Faculty of Medicine.

Top row: Peter Knight, Claire Perry, Anthony Newman Taylor, Julia Buckingham. Bottom row: Mary Ritter, Stephen Richardson, Maggie Dallman, Brian Hoskins.

figures and facts

Imperial College London at a glance



6

Imperial is ranked sixth in the world in the *Times Higher Education's* 2008 world university rankings.

14

14 Nobel laureates and two Fields Medallists have been members of Imperial College either as staff or students.

42%

42% of Imperial's academic and research staff and 46% of its students come from outside the UK.

113

Imperial's 1,133 international staff members hail from 113 different countries.

140,000

Imperial has 140,000 alumni in 190 countries around the world.

£50.2m

Research income from the EU and overseas represented £50.2 million of Imperial's £603.1 million turnover in 2007–08.

The College is committed to exhibiting best practice in all aspects of corporate governance. This statement is provided to enable the reader of the financial statements to obtain a better understanding of the governance and legal structure of the College.

The College endeavours to conduct its business in accordance with the seven principles identified by the Committee on Standards in Public Life (selflessness, integrity, objectivity, accountability, openness, honesty and leadership), and with the guidance to universities from the Committee of University Chairmen in its *Guide for Members of Higher Education Governing Bodies in the UK*, the latest edition of which was published by the Higher Education Funding Council for England (HEFCE) in 2004.

The College is an independent corporation whose legal status derives from a Royal Charter granted under Letters Patent in 1907. Its objects, powers and framework of governance are set out in its Charter and Statutes, which were granted by Her Majesty The Queen in 1998. On 4 April 2007 a Supplemental Charter and Statutes were granted by Her Majesty. This Supplemental Charter, which came into force on the date of the College's Centenary, 8 July 2007, established the College as a university with the name and style of "The Imperial College of Science, Technology and Medicine".

The Charter and Statutes require the College to have three separate bodies, each with clearly defined functions and responsibilities, to oversee and manage its activities as follows:

- ▶ **The Council** is 'the governing and executive body of the College', and is responsible for the finance, property, investments and general business of the College, and for setting its general strategic direction. There are 19 members of the Council, the majority of whom are external members, including the Chairman and Deputy Chairman. Also included in its membership are representatives of the staff of the College and of the student body. None of the external members receive any payment, apart from the reimbursement of expenses, for the work they do for the College.
- ▶ **The Court** is a large, mainly formal body. It offers a means whereby the wider interests served by the College can be associated with it, and provides a public forum where members of the Court can raise any matters about the College. The Court normally meets once a year to receive the College's Annual Report and audited financial statements. In addition, major changes to the College's constitution require the approval of the Court before they can be submitted to the Privy Council. The Court consists of some 160 members most of whom are from outside the College and appointed by appropriate bodies representing educational, research, international, regional and local interests. Its membership also includes representatives of the College's staff and students.
- ▶ **The Senate** is the academic authority of the College and draws its membership entirely from the academic staff and the students of the College. Its role is to direct and regulate the teaching and research work of the College.

The principal academic and administrative officer of the College is the Rector who has a general responsibility to the Council for maintaining and promoting the efficiency and good order of the College. Under the terms of the formal Financial Memorandum between the College and the Funding Council, the Rector is the Designated Officer of the College and in that capacity can be summoned to appear before the Public Accounts Committee of the House of Commons. The financial management of the College is prescribed in the Financial Regulations approved by the Council and conducted in accordance with the Financial Memorandum with the Funding Council.

As chief executive of the College, the Rector exercises considerable influence upon the development of institutional strategy, the identification and planning of new developments, and the shaping of the institutional ethos. He is supported by a Management Board comprising the Rector, the Senior Principal, the Principals of the Faculties and the Imperial College Business School, the Chief Operating Officer, the Pro Rectors for Education, International Affairs and Commercial Affairs, the International Relations Advisor, the College Secretary and the Managing Director of the Imperial College Healthcare NHS Trust.

The Council is responsible for the College's system of internal control and for reviewing its effectiveness. Its approach is risk-based and includes an evaluation of the likelihood and impact of risks becoming a reality and also ensures that risk assessment and internal control procedures are embedded in the College's ongoing operations. The reviews included in the College's risk-based Strategic Audit Plan cover business, operational and compliance issues as well as financial risk. Such a system of internal control is designed to manage rather than eliminate the risk of failure to achieve business objectives and can only provide reasonable, and not absolute, assurance against material misstatement or loss.

The Council's view is that there is an ongoing process for identifying, evaluating and managing the university's significant risks that has been in place for the year ended 31 July 2008 and up to the date of approval of the annual reports and accounts, that it is regularly reviewed by the Council and that it accords with the internal control guidance for directors in the Combined Code as deemed appropriate for higher education.

The Council meets at least four times a year and has three committees, the Audit Committee, the Remuneration and Nominations Committee and the College Fund Board. These are formally constituted as committees of the Council with written terms of reference and specified membership, including a significant proportion of external members. All are chaired by external members of the Council. The decisions of these committees are formally reported to the Council.

▶ **The Audit Committee** meets three times a year with the College's internal and external auditors in attendance. It considers detailed reports together with recommendations for the improvement of the College's systems of internal control and management's responses and implementation plans. It also receives and considers reports from the Funding Council as they affect the College's business and monitors adherence to regulatory requirements. The Committee reports directly to the Council and has the authority to call for any information from the College officers, from internal and external auditors and from others whom it considers necessary to consult in order to discharge its responsibilities effectively. Whilst senior officers attend meetings of the Committee, they are not members of it. Once a year the Committee meets the external auditors on their own for independent discussions. The Audit Committee also receives regular reports from Internal Audit and from the Management Board. Its role in this area is confined to a high level review of the arrangements for internal control, value for money, risk management and the management of health and safety at the College. The emphasis is on obtaining the relevant degree of assurance and not merely reporting by exception.

▶ **The Remuneration and Nominations Committee** determines the remuneration of senior staff in the College including the Rector and also considers nominations for membership of the Court and Council, and of the latter's Committees.

▶ **The College Fund Board** manages those College assets that are not essential to the core academic mission of the College and that can therefore be managed with a pure investment focus. Its Terms of Reference include an obligation to maintain a diversified portfolio of investments, to have regard to the suitability of the investments within this portfolio and to manage the investments in a way that is appropriate to achieve the Investment Objective set by the Council. The Investment Objective necessitates growth in value of the non-core assets in line with inflation whilst also providing a regular distribution for the core academic mission of the College. Within these restrictions, the College Fund Board is authorised to make such investments as it sees fit.

▶ **The Management Board** receives reports setting out key performance and risk indicators and considers possible control issues brought to its attention by early warning mechanisms which are embedded within the operational units.

The College maintains a Register of Interests of members of the Council and of Senior Officers which may be consulted by arrangement with the Clerk to the Court and Council.

Responsibilities of the Council

The College Secretary is the Clerk to the Court and Council. Any enquiries about the constitution and governance of the College should be addressed to him.

The Council has agreed to adopt the Governance Code of Practice published by the Committee of University Chairmen, and accordingly has approved the following Statement of Primary Responsibilities:

1. To approve the mission and strategic objectives of the College, its long-term business plans and key performance indicators, and to ensure that these take account of the interests of the College's stakeholders.
2. To safeguard the good name and values of the College.
3. To appoint the Rector, the College's chief executive, and to put in place suitable arrangements for monitoring his/her performance.
4. To delegate authority to the Rector, as chief executive, for the academic, corporate, financial, estate and personnel management of the College.
5. To ensure the establishment of systems of control and accountability, including financial and operational controls, risk assessment, and procedures for managing conflicts of interest; and monitor the effectiveness of these systems.
6. To ensure that processes are in place for regular monitoring and evaluation of the performance and effectiveness of the College against its approved plans and key performance indicators.
7. To conduct its business in accordance with best practice in higher education corporate governance and with the principles of public life drawn up by the Committee on Standards in Public Life.
8. To be the principal financial and business authority of the College, to ensure that proper accounts are kept, to approve the annual budget and financial statements, and to have overall responsibility for the university's assets, property and estate.
9. To be the College's legal authority and, as such, to ensure that systems are in place to ensure that all its legal obligations, including those arising from contracts and other legal commitments made in its name, are properly met.
10. In accordance with the College's Charter and Statutes, to act as trustee for any property, legacy, endowment, bequest or gift in support of the work and welfare of the College.
11. To ensure that the College's Charter and Statutes are adhered to at all times, with appropriate advice available as necessary.
12. To approve the College's human resources strategy.
13. To establish processes to monitor and evaluate the performance and effectiveness of the Council itself.
14. To appoint a Clerk to the Council and ensure that accountability for his/her performance in that capacity is properly separated from such managerial responsibilities as he/she may have in the College.

In accordance with the College's Charter and Statutes, the Council is responsible for the efficient management and good conduct of all aspects of the affairs of the university (including its finances and property). It is required to present audited financial statements for each financial year. As such it is responsible for keeping proper accounting records which disclose with reasonable accuracy at any time the financial position of the College and enable it to ensure that the financial statements are prepared in accordance with the Charter of Incorporation, the Statement of Recommended Practice (SORP) on Accounting in Higher Education Institutions and other relevant accounting standards. In addition, and in accordance with the formal Financial Memorandum between the College and the Higher Education Funding Council for England, the Council, through its Designated Officer, is required to prepare financial statements for each financial year which give a true and fair view of the state of affairs of the College and of the surplus or deficit and cash flows for that year.

In causing the financial statements to be prepared, the Council has ensured that:

- suitable accounting policies are selected and applied consistently;
- judgements and estimates are made that are reasonable and prudent;
- the SORP and applicable accounting standards have been followed, subject to any material departures being disclosed and explained in the financial statements;
- the College has adequate resources to continue in operation for the foreseeable future and for this reason the financial statements are prepared on a going concern basis.

The Council has taken reasonable steps to:

- ensure that funds from the Higher Education Funding Council for England are used only for the purposes for which they have been given and in accordance with the Financial Memorandum with the Funding Council and any other conditions which the Funding Council may from time to time prescribe;
- ensure that there are appropriate financial and management controls in place to safeguard public funds and funds from other sources;
- safeguard the assets of the College and prevent and detect fraud;
- secure the economical, efficient and effective management of the College's resources and expenditure.

The key elements of the College's system of internal control, which is designed to discharge the responsibilities set out above, include the following:

- clear definitions of the authority delegated to principals of faculties and heads of academic and administrative departments and divisions as set out in the College's approved Levels of Authority;
- approval by Council each year of a College budget and a three-year rolling College plan which, whilst driven from the academic standpoint, are based on detailed financial projections of all College budget centres;
- a comprehensive monthly review of the financial performance of all budget centres and update of forecast outturns with a report to the Rector and senior College staff, to the Management Board and to governors at each Council meeting;
- clearly defined and formalised requirements for approval and control of expenditure, with investment decisions involving capital or revenue expenditure being subject to formal detailed appraisal and review according to approval levels set by the Council;
- a comprehensive Financial Ordinance, detailing financial controls and procedures, approved by the Audit Committee and the Council;
- independent internal auditors, whose risk-based Strategic Audit Plan of work (based upon the College's Risk Register) is approved by, and conclusions subsequently reviewed by, the Audit Committee.

The Audit Committee, on behalf of the Council, regularly reviews the effectiveness of the internal controls in the College and its subsidiaries. Any system of internal control can, however, only provide reasonable, but not absolute, assurance against material misstatement or loss.



Members of Imperial's Council attending their away day in September 2008. Back row from left to right: Lord Kerr, Baroness Wilcox, Steve Smith, Ram Gidoomal, David Begg, Lord Tugendhat. Second row from back: George Gray, Stephen Richardson, Jeremy Newsum, Sir Peter Knight, Martin Knight. Second row from front: Jenny Morgan, Rodney Eastwood, Sir Roy Anderson, Philippa Couttie. Front row: Sir Peter Gershon, Carolyn Griffiths, Kate Owen, Maggie Dallman.

The Council

Chairman:

- ▶ The Lord Kerr of Kinlochard

Co-opted External Members:

- ▶ Mrs P. Couttie
- ▶ Sir Peter Gershon
- ▶ Mr B. Gidoomal
- ▶ Dr G.G. Gray
- ▶ Ms C. Griffiths
- ▶ Mr J.H.M. Newsum
- ▶ Mr S. Newton (from 1 October 2007)
- ▶ Ms K. Owen
- ▶ Dr D.J. Wilbraham (until 30 September 2007)
- ▶ Baroness Wilcox

Ex-Officio:

- ▶ Rector: Sir Richard Sykes (until 30 June 2008)
- ▶ Rector: Sir Roy Anderson (from 1 July 2008)
- ▶ Deputy Rector: Professor Sir Leszek Borysiewicz (until 30 September 2007)
- ▶ Senior Principal: Professor Sir Peter Knight (from 1 September 2008)

Senior Staff Representatives:

- ▶ Professor D.K.H. Begg
- ▶ Professor M. Dallman (from 1 September 2008)
- ▶ Dr M.P. Knight
- ▶ Professor Sir Peter Knight (until 31 August 2008)
- ▶ Professor S. Richardson (from 1 September 2008)
- ▶ Professor S.K. Smith
- ▶ Professor J. Wood (until 31 August 2008)

Elected Staff Member:

- ▶ Professor C. Isham (from 1 September 2008)
- ▶ Professor R. Sinden (until 31 August 2008)

President, Imperial College Union:

- ▶ Mr S. Browne (until 31 July 2008)
- ▶ Ms J. Morgan (from 1 August 2008)

Clerk to the Court and Council:

- ▶ Mr K.A. Mitcheson (until 30 September 2007)
- ▶ Dr R.F. Eastwood (from 1 October 2007)

College Fund Board

Independent Chairman:

- ▶ Mr S. Newton

Independent board members:

- ▶ Professor D. Miles
- ▶ The Hon. Robert Rayne

College board members:

- ▶ Sir Richard Sykes (until 30 June 2008)
- ▶ Sir Roy Anderson (from 1 July 2008)
- ▶ Dr M.P. Knight

Audit Committee

Chairman:

- ▶ Dr G.G. Gray (until 11 July 2008)
- ▶ Mrs P. Couttie (from 12 July 2008)

Membership:

- ▶ Mrs P. Couttie (until 11 July 2008)
- ▶ Sir Peter Gershon (from 1 October 2007)
- ▶ Dr G.G. Gray
- ▶ Ms C. Griffiths
- ▶ Dr D.J. Wilbraham (until 30 September 2007)
- ▶ Ms K. Kantor (co-opted)

Secretary:

- ▶ Mr J.B. Hancock

Remuneration and Nominations Committee

Chairman:

- ▶ The Lord Kerr of Kinlochard

Membership:

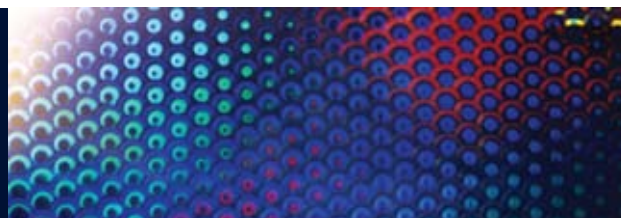
- ▶ Sir Peter Gershon
- ▶ Dr G.G. Gray
- ▶ Baroness Wilcox

Secretaries:

- ▶ Mr C. Gosling
- ▶ Mr K.A. Mitcheson (until 30 September 2007)
- ▶ Dr R.F. Eastwood (from 1 October 2007)

Financial year 2007–08





Independent auditors' report to the Council of Imperial College London

We have audited the financial statements of Imperial College London for the year ended 31 July 2008 which comprise the Consolidated Income and Expenditure Account, the Group and College Balance Sheets, the Consolidated Cash Flow Statement, the Consolidated Statement of Total Recognised Gains and Losses and the related notes. These financial statements have been prepared under the accounting policies set out therein.

Respective responsibilities of the Council and auditors

The Council's responsibilities for preparing the financial statements in accordance with the Accounts Direction issued by the Higher Education Funding Council for England, the *Statement of Recommended Practice: Accounting for Further and Higher Education (SORP)*, applicable United Kingdom Law and Accounting Standards (United Kingdom Generally Accepted Accounting Practice) are set out in the Statement of the Council's Responsibilities.

Our responsibility is to audit the financial statements in accordance with relevant legal and regulatory requirements, and International Standards on Auditing (UK and Ireland). This report, including the opinion, has been prepared for and only for the Council of the College in accordance with the Charters and Statutes of the College. We do not, in giving this opinion, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or in to whose hands it may come save where expressly agreed by our prior consent in writing.

We report to you our opinion as to whether the financial statements give a true and fair view and are properly prepared in accordance with the *Statement of Recommended Practice: Accounting for Further and Higher Education (SORP)*. We report to you whether in our opinion, income from funding bodies, grants and income for specific purposes and from other restricted funds administered by the College, have been properly applied in all material respects for the purposes for which they were received, and whether income has been applied in all material respects in accordance with the College's statutes and where appropriate with the financial memorandum with the Higher Education Funding Council for England (HEFCE). We also report to you if, in our opinion, the College has not kept proper accounting records, the accounting records do not agree with the financial statements, or if we have not received all the information and explanations we require for our audit.

We read the other information contained in the financial statements and consider the implications for our report if we become aware of any apparent misstatements within it. The other information comprises only the Rector's foreword, the report of the Chief Operating Officer, the section on Imperial's year, the corporate governance statement and the responsibilities of the Council.

The maintenance and integrity of the Imperial College London website is the responsibility of the Council; the work carried out by the auditors does not involve consideration of these matters and, accordingly, the auditors accept no responsibility for any changes that may have occurred to the financial statements since they were initially presented on the website.

Legislation in the United Kingdom governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

We also review the statement of internal control and comment if the statement is inconsistent with our knowledge of the College and group. We are not required to consider whether the statement of internal control covers all risks and controls, or to form an opinion on the effectiveness of the group's corporate governance procedures or its risk and control procedures. We consider the implications for our report if we become aware of any apparent misstatements or material inconsistencies with the financial statements. Our responsibilities do not extend to any other information.

Basis of audit opinion

We conducted our audit in accordance with International Standards on Auditing (UK and Ireland) issued by the Auditing Practices Board and with the HEFCE Code of Practice. An audit includes examination, on a test basis, of evidence relevant to the amounts and disclosures in the financial statements. It also includes an assessment of the significant estimates and judgements made by the Council in the preparation of the financial statements, and of whether the accounting policies are appropriate to the group's circumstances, consistently applied and adequately disclosed.

We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or other irregularity or error. In forming our opinion we also evaluated the overall adequacy of the presentation of information in the financial statements.

Opinion

In our opinion:

- i. the financial statements give a true and fair view of the state of affairs of the College and the group at 31 July 2008, and of the surplus of income over expenditure, recognised gains and losses and cashflows for the year then ended;
- ii. the financial statements have been properly prepared in accordance with the *Statement of Recommended Practice: Accounting for Further and Higher Education (SORP)*, and United Kingdom Generally Accepted Accounting Practice (UK GAAP);
- iii. in all material respects, income from the Higher Education Funding Council for England, grants and income for specific purposes and from other restricted funds administered by the College have been applied only for the purposes for which they were received; and
- iv. in all material respects, income has been applied in accordance with the College's statutes and where appropriate in accordance with the financial memorandum (2006/24) with the Higher Education Funding Council for England.

PricewaterhouseCoopers LLP

Chartered Accountants and Registered Auditors

London

21 November 2008

Consolidated income and expenditure account

For the year ended 31 July 2008

	Note	2008 £m	2007 £m
Income			
Funding Council grants	1	165.1	155.2
Academic fees and support grants	2	96.0	85.2
Research grants and contracts	3	255.5	230.0
Other operating income	4	72.6	74.6
Endowment income and interest receivable	5	13.9	11.2
Total income		603.1	556.2
Expenditure			
Staff costs	6	320.9	299.5
Restructuring costs	6	4.0	0.9
Depreciation	9	36.8	32.8
Other operating expenses	7	227.5	217.8
Interest and other finance costs	8	6.9	4.9
Total expenditure	9	596.1	555.9
Surplus after depreciation of fixed assets at valuation and before tax		7.0	0.3
Share of associates' operating results		0.1	–
Taxation		–	–
Surplus after depreciation of assets at valuation and tax		7.1	0.3
Minority interest	29	2.4	2.4
Surplus before exceptional items		9.5	2.7
Exceptional items: continuing operations			
Exceptional income from sale of fixed asset land and buildings	30	7.9	–
Exceptional profit on deemed disposal of interests in a group undertaking	30	9.3	–
Surplus on continuing operations after depreciation, exceptional items and tax		26.7	2.7
Transfer from accumulated income within specific endowments	14	0.4	0.6
Surplus for the year retained within general reserves		27.1	3.3

No operations were discontinued during the year. All operations above are continuing.

Note of historical cost surpluses and deficits

For the year ended 31 July 2008

Surplus on continuing operations before taxation	26.7	2.7
Realisation of revaluation gains of prior years on fixed asset investments sold in the year	1.9	0.3
Historical cost surplus for the year before tax	28.6	3.0
Historical cost surplus for the year after taxation	28.6	3.0

Balance sheets

as at 31 July 2008

	Note	Consolidated		College	
		2008 £m	Restated 2007 £m	2008 £m	Restated 2007 £m
Fixed assets					
Tangible assets	11	665.3	575.8	648.8	563.1
Investments	12, 28	47.3	57.3	21.7	21.6
Investments in joint venture:					
Share of gross assets	13	0.4	–	–	–
Share of gross liabilities	13	(0.4)	–	–	–
		712.6	633.1	670.5	584.7
Endowment asset investments	14	56.0	58.1	56.0	58.1
Current assets					
Stocks		0.3	0.3	0.2	0.2
Debtors	15	92.5	92.1	103.5	104.1
Investments and short term deposits	26	141.0	82.3	105.0	82.3
Cash at bank and in hand	26	66.5	57.3	50.3	27.5
		300.3	232.0	259.0	214.1
Creditors: amounts falling due within one year	16	(252.9)	(217.2)	(251.8)	(214.2)
Net current assets		47.4	14.8	7.2	(0.1)
Total assets less current liabilities		816.0	706.0	733.7	642.7
Creditors: amounts falling due after more than one year	17	(175.1)	(125.5)	(173.5)	(123.7)
Provisions for liabilities and charges	18	(11.6)	(9.3)	(11.6)	(9.3)
Total net assets excluding pension asset		629.3	571.2	548.6	509.7
Pension asset	33	–	0.1	–	0.1
Total net assets including pension asset		629.3	571.3	548.6	509.8

	Note	Consolidated		College	
		2008 £m	Restated 2007 £m	2008 £m	Restated 2007 £m
Represented by:					
Deferred Capital Grants	19	334.5	308.6	325.1	302.7
Endowments					
Expendable	20	18.6	18.9	18.6	18.9
Permanent	20	37.4	39.2	37.4	39.2
		56.0	58.1	56.0	58.1
Revaluation reserve	22	6.4	17.4	1.3	2.7
General reserves					
Income and expenditure account	21, 22	194.4	165.4	166.2	146.2
Share based payments	22	4.7	2.9	–	–
Pension reserve	22	–	0.1	–	0.1
General reserves including pension reserve		199.1	168.4	166.2	146.3
Total College Funds		596.0	552.5	548.6	509.8
Minority interest	29	33.3	18.8	–	–
Total Funds		629.3	571.3	548.6	509.8

Note: For details of the prior period restatement refer to the Statement of principal accounting policies, note 2.

The financial statements on pages 31 to 55 were approved by the Council on 21 November 2008 and signed on their behalf by:

The Lord Kerr of Kinlochard, Chairman

Sir Roy Anderson, Rector

Dr M.P. Knight, Chief Operating Officer

Consolidated cash flow statement

For the year ended 31 July 2008

	Note	2008 £m	2007 £m
Net cash inflow from operating activities	24	45.7	35.8
Returns on investments and servicing of finance			
Income received from endowments		2.1	1.5
Income received from short term investments		11.0	6.5
Income received from fixed asset investments		0.7	0.8
Other interest received		0.7	0.7
Interest paid		(7.0)	(6.3)
		7.5	3.2
Tax paid		-	-
Capital expenditure and financial investment			
Payments to acquire tangible assets other than leased equipment		(123.8)	(77.3)
Purchase of fixed asset investments		(10.4)	(13.5)
Total payments to acquire fixed and endowment asset investments		(134.2)	(90.8)
Receipts from disposal of tangible assets		28.6	0.9
Deferred capital grants and lease premiums in advance received		52.7	41.8
Endowments received		5.1	0.4
		(47.8)	(47.7)
Acquisitions and disposals			
Receipts on issue of shares to minority interests		26.3	-
Management of liquid resources		(56.0)	(83.4)
Financing			
Net mortgages and loans acquired		50.0	-
Increase/(decrease) in cash	26	25.7	(92.1)

Statement of consolidated total recognised gains and losses

For the year ended 31 July 2008

	Note	2008 £m	Restated 2007 £m
Surplus on continuing operations after depreciation, exceptional items and tax		26.7	2.7
(Depreciation)/appreciation of endowment asset investments	14, 20	(6.8)	5.6
Net endowment additions	14, 20	5.1	0.6
Revaluation of investments within fixed assets		(9.1)	3.4
Movement in share based payment reserve	22	1.8	2.6
Actuarial loss on FPS pension scheme	33	(0.1)	–
Total recognised gains relating to the year		17.6	14.9
Opening reserves and endowments as previously reported		243.0	
Prior year adjustment		0.9	
Opening reserves and endowments — restated		243.9	
Total recognised gains relating to the year		17.6	
Closing reserves and endowments		261.5	

Note: For details of the prior period restatement refer to the Statement of principal accounting policies, note 2.

Statement of principal accounting policies

1. Accounting convention

The financial statements have been prepared under the historical cost convention, as modified by the revaluation of endowment and fixed asset investments, and in accordance with both the *Statement of Recommended Practice: Accounting for Further and Higher Education Institutions (SORP)* and applicable accounting standards.

2. Prior period adjustment

In line with the 2007 revised *Statement of Recommended Practice: Accounting for Further and Higher Education Institutions*, a review of the terms and conditions of the College's donations and endowments has been performed and the following prior year adjustments have been made to the balance sheet as at 31 July 2007:

All £3.2m of endowments previously classified as general endowments have been reclassified as unrestricted permanent endowments; together with £6.7m endowments previously classified as specific endowments. £29.3m of endowments previously classified as specific have been reclassified as restricted permanent endowments, and a further £18.4m as restricted expendable endowments.

£0.4m donations previously held within creditors as deferred income have been reclassified as income. This has had no material impact on the 2006/07 Income and Expenditure account, but a £0.4m credit relating to prior years has been taken directly to General reserves.

A further £0.5m donations previously held within creditors as deferred income have been reclassified as restricted expendable endowments. £0.5m short term investments have accordingly been reclassified as short term investments within endowment assets as at 31 July 2007. Of the £0.5m reclassified, £0.2m related to endowments received in 2006/07, with £0.3m being received in previous periods.

In summary comparative figures for the year ended 31 July 2007 have been adjusted as follows:

	Surplus for the year retained within general reserves £m	Total net assets incl. pension asset £m
As previously reported	3.3	570.4
Effect of 2007 SORP on endowments and donations:		
Donations taken to income	0.4	0.4
Donations reclassified as endowments	-	0.5
As restated	3.7	571.3

3. Basis of consolidation

The consolidated financial statements consolidate the financial statements of the College, Imperial College Union and all subsidiary undertakings for the financial year to 31 July. The consolidated income and expenditure account includes the College's share of the income, expenditure and tax of associated undertakings and joint ventures, while the consolidated balance sheet includes investment in associated undertakings and joint ventures at the College's share of their net tangible assets. Associated undertakings are those in which the College has a significant, but not dominant, influence over their commercial and financial policy decisions. Joint ventures represent investments in which the College has joint control.

A separate income and expenditure account for the parent organisation has not been presented because the College has taken advantage of the exemption allowed under s230 of the Companies Act 1985. For those subsidiary, joint venture and associated undertakings that have different accounting year-end dates, interim accounts to 31 July for these companies have been consolidated.

4. Recognition of income and expenditure

Income from donations, research grants and contracts, and other services rendered is included to the extent of the associated expenditure incurred during the year together with any related contributions towards overhead costs.

All income from short-term deposits and endowments is credited to the income and expenditure account in the period in which it is earned. Income from specific endowments not expended in accordance with the restrictions of the endowment is transferred from the income and expenditure account to specific endowments. Income is deferred only when the College has to fulfil conditions before becoming entitled to it or where it has been specified by the donor that the money can be expensed in a future period. Expenditure incurred

relates to the receipt of goods and services. This includes patent costs which are written off in the year that they are incurred rather than being capitalised. A provision for bad debts is estimated on the basis that as debts become older, a higher percentage become irrecoverable.

Where the College disburses funds it has received as paying agent on behalf of the Funding Council or other body, and has no beneficial interest in the funds, the receipt and subsequent disbursement of the funds has been excluded from the income and expenditure account.

5. Pension schemes

The College participates in four principal pension schemes which are funded defined benefit schemes. The schemes are contracted out of the State Second Pension (S2P). The SAUL, USS and FPS schemes are valued formally every three years by professionally qualified and independent actuaries using the Projected Unit method. The NHS Pension scheme is valued every four years using the Aggregate method.

The USS, SAUL and NHS are multi-employer schemes and it is not possible to identify the College's share of the underlying assets and liabilities of the schemes. Therefore, as required by FRS 17 the contributions are charged directly to the income and expenditure account as if the schemes were defined contribution schemes.

The FPS pension scheme is accounted for on the basis of FRS 17. The scheme's assets are included at market value and the scheme's liabilities are measured on an actuarial basis using the projected unit method and discounted at an appropriate rate of return. The College's share of the surplus or deficit of the scheme is recognised as an asset or liability on the balance sheet, with surplus included only to the extent that it is recoverable through reduced contributions in the future or through refunds from the scheme. The current service cost and past service costs are included within staff costs and the expected return on the scheme's assets, net of the impact of the unwinding of the discount on the scheme's liabilities, is included within endowment income. Actuarial gains and losses, including differences between the expected and actual return on the scheme's asset, are recognised in the statement of total recognised gains and losses.

Imperial Innovations Group plc, a subsidiary of the College, operates a defined contribution pension scheme for its employees, with contributions being charged to the income and expenditure account in the period to which they relate.

6. Foreign currencies

Transactions denominated in euros and other foreign currencies are recorded at the rate of exchange ruling at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are translated into sterling at year end rates of exchange, or where there are related forward foreign exchange contracts, at contract rates. The resulting exchange differences are recognised as part of income and expenditure.

7. Finance leases

Assets held under finance leases together with the related lease obligations are recorded on the balance sheet with initial values equivalent to the purchase price of the asset. The excess of lease payments over recorded lease obligations are treated as finance charges which are amortised over each lease term to give a constant rate of charge on the remaining balance of the obligations.

8. Land and buildings

Purchased land and purchased or constructed buildings are stated at cost. Freehold land is not depreciated while leasehold land is depreciated over the life of the lease. Buildings, including service plant, are depreciated over their expected useful lives or at the rate of 2% per annum of their historical cost (no purchased buildings are held on leases of less than 50 years). Buildings which are still under construction are not depreciated. Where land and buildings are acquired with the aid of specific grants, the grants are treated as deferred capital grants and released to income at the same rate as depreciation is charged.

Buildings acquired on integration of previously independent institutions are brought into the balance sheet at fair value (market value where ascertainable, otherwise depreciated replacement cost) and depreciated over their remaining expected useful lives. An amount equivalent to the fair value of assets so acquired is credited to deferred capital grants and released in the same manner as other such grants.

Costs incurred in relation to buildings after their initial acquisition are capitalised only to the extent that they increase the expected future benefits beyond those originally assessed. The cost of such enhancements are depreciated at the rate of 2% per annum, or over the life of the asset if shorter. Finance costs which are directly attributable to the construction of land and buildings are capitalised as part of the cost of those assets.

Some accommodation within associated hospitals is occupied rent free by the College but this is approximately offset by College accommodation occupied rent free by them.

A review of impairment of a fixed asset is carried out if events or changes in circumstances indicate that the carrying amount of any fixed asset may not be recoverable.

On adoption of FRS 15, the College followed the transitional provision to retain the book value of land and buildings but not to adopt a policy of revaluations of these properties in the future. These values are retained subject to the requirement to test assets for impairment in accordance with FRS 11.

9. Fixtures, fittings, tools and equipment

Fixtures, fittings, tools and equipment, including computers and software, costing less than £50,000 per individual item or group of related items are written off in the year of acquisition. All other items are capitalised.

Capitalised equipment is stated at cost and, once in service, depreciated over its expected useful life or at 20% per annum, with the administrative computer system being depreciated over eight years; equipment acquired for specific research projects is depreciated over the remaining life of the project (generally three years).

Where fixtures, fittings, tools and equipment are acquired with the aid of specific grants they are capitalised and depreciated as above. The related grant is treated as a deferred capital grant and released to income at the same rate as depreciation is charged.

10. Reserves

Discretionary reserves are earmarked for specific purposes by the management of the College whereas non-discretionary reserves are legally restricted.

11. Investments

Endowment asset investments and listed fixed asset investments are included in the balance sheet at market value less a provision, where appropriate, to reflect restrictions in their marketability. Fixed assets investments that are not listed on a recognised stock exchange are carried at cost less any provision for impairment in their value except where costs are revalued in compliance with accounting standards. Current asset investments

are included at the lower of cost and net realisable value. Increases/decreases in value arising on the revaluation of fixed asset investments are carried to the revaluation reserve; a diminution in value is taken to the income and expenditure account to the extent it is not covered by a previous revaluation surplus. Investments in associated companies where the input from the College is represented only by the intellectual property rights are valued at zero historical cost.

12. Stocks

Only the value of stocks held in the refectories and central stores are included on the balance sheet. They are valued at the lower of cost and net realisable value.

13. Cash flows and liquid resources

Cash flows comprise increases and decreases in cash. Cash includes cash in hand, deposits repayable on demand and overdrafts. Deposits are repayable on demand if they can be withdrawn at any time without notice and without penalty or if a maturity or period of notice of not more than 24 hours has been agreed. No investments, however liquid, are included as cash.

Liquid resources comprise assets held as readily disposable stores of value. They include term deposits, government securities and loan stock held as part of the College's treasury management activities. They exclude any such assets held as endowment asset investments.

14. Taxation status

The College is an exempt charity within the meaning of Schedule 2 of the Charities Act 1993 and as such is a charity within the meaning of Section 506(1) of the Taxes Act 1988. Accordingly, the College is potentially exempt from taxation in respect of income or capital gains received within categories covered by Section 505 of the Income and Corporation Taxes Act 1988 or Section 256 of the Taxation of Chargeable Gains Act 1992 to the extent that such income or gains are applied to exclusively charitable purposes. The College receives no similar exemption in respect of Value Added Tax. The College's subsidiary companies are subject to corporation tax and VAT in the same way as any commercial organisation.

Notes to the accounts

38

1. Funding Council grants	Note	2008 £m	2007 £m
Recurrent—teaching		55.8	53.3
Recurrent—research		92.1	86.9
London Whole Institutions		0.8	1.2
Higher Education Innovation Fund (HEIF)		1.3	1.3
Research capital initiative and project capital allocations		6.8	4.8
Science Research Investment Fund (SRIF)		26.2	23.5
Other specific grants		1.7	0.9
<hr/>			
Grants from Higher Education Funding Council for England (HEFCE)		184.7	171.9
Joint Information Systems Committee (JISC)		0.1	–
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Transferred to deferred capital grants in the year			
Buildings		(31.6)	(17.7)
Equipment		(1.3)	(10.4)
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Deferred capital grants released in the year			
Buildings	19	8.1	7.4
Equipment	19	5.1	4.0
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		165.1	155.2
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2. Academic fees and support grants	Registered student numbers		2008 £m	2007 £m
	31 Dec 2007	31 Dec 2006		
Full-time home and European Union students	8,582	8,499	21.6	16.1
Full-time overseas students	3,529	3,630	60.7	56.0
Part-time students	1,008	895	4.8	5.9
Research training support grants			5.3	3.3
Short course fees			3.6	3.9
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			96.0	85.2
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Research training support grants include £1.9 million (£1.9 million in 2007) of tuition fees paid in respect of full-time home and European Union students.

Total numbers of full-time and part-time students are 13,119 in 2008 and 13,024 in 2007 (excluding RTSG and short courses).

3. Research grants and contracts	2008 £m	2007 £m
UK research councils	86.7	70.8
UK government departments, local and health authorities	28.0	18.0
UK industry, commerce and public corporations	27.0	30.3
UK charities	62.1	63.7
UK other	1.5	2.5
European Commission	13.3	11.1
Other European Union and overseas	36.9	33.6
	255.5	230.0
Research income relating to the direct expenditure incurred during the year	210.6	195.6
Contributions towards overhead costs	44.9	34.4
	255.5	230.0

Total research income excludes £3.6 million (£6.3 million in 2007) deferred capital grants received in 2008 but includes £5.8 million (£5.7 million in 2007) released from deferred capital grants.

UK other income includes restricted grant aid from the Big Lottery Fund ("BLF"). The total amount awarded in 2008 is £12.3 million (2007: £0.2 million), including £11.8 million (2007: £nil), to fund an interdisciplinary study of the natural environment, focusing on biodiversity and the skills, tools and training associated with the identification and recording of flora and fauna. Of the total awarded £0.5 million (2007: £0.1 million) has been spent and recognised in the year.

4. Other operating income		2008 £m	2007 £m
Health and hospital authorities		15.0	21.5
Consultancies and scientific services		5.2	6.4
Donations		2.6	5.7
Residences, catering and conferences		23.2	20.0
Income from exploitation of intellectual property		2.6	2.1
Rents receivable		3.2	2.5
Commissions and fees		1.3	1.0
Other departmental income		7.7	5.0
Released from deferred capital grants on land and buildings		1.6	1.6
Released from deferred capital grants on equipment		0.1	0.1
Other income		10.1	8.7
		72.6	74.6
			Restated 2007 £m
5. Endowment and investment income	Note	2008 £m	2007 £m
Income from expendable endowment investments	20	0.7	0.5
Income from permanent endowment investments	20	1.3	1.2
Income from long term investments		0.2	0.9
Income from short term investments		10.9	7.8
Other interest receivable		0.7	0.7
Net return on pension scheme		0.1	0.1
		13.9	11.2

Note: For details of the prior period restatement refer to the Statement of principal accounting policies, note 2.

Notes to the accounts

40

6. Staff	Note	2008 £m	2007 £m
Staff costs:			
Wages and salaries		268.9	249.9
Social security costs		22.7	22.4
Other pension costs	33	29.3	27.2
		320.9	299.5
Restructuring costs		4.0	0.9
		324.9	300.4
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		2008 £000	2007 £000
Emoluments of the Rector:			
Remuneration		370	299
Social security costs		48	39
Other		11	10
		429	348
Employer's pension contributions		3	–
		432	348

On 1 July 2008, Sir Roy Anderson was appointed as Rector of the College. Sir Richard Sykes's contract expired on 31 July 2008 resulting in a one month overlap. The figures above include emoluments received by both individuals in respect of their duties as Rector only. Sir Richard Sykes elected not to join the pension scheme and therefore all pension costs shown above are in respect of employer's contributions made to the USS defined benefit pension scheme for Sir Roy Anderson.

Compensation for loss of office to members of staff earning in excess of £100,000 per annum (none in 2008, one in 2007):	2008 £m	2007 £m
Payments in respect of loss of office	–	0.1

	Full Time Equivalent		Headcount	
	2008 Number	2007 Number	2008 Number	2007 Number
Average staff numbers by major category:				
Research and education	3,112	3,067	3,258	3,209
Professional services	2,297	2,163	2,493	2,374
Technical services	499	524	517	543
Operational services	580	530	758	696
	6,488	6,284	7,026	6,822

The Full Time Equivalent (FTE) number is based on the headcount but adjusted to include only the pro rata element of part-time staff. The numbers include staff employed by the subsidiary companies and the Students' Union.

Remuneration of higher paid staff (excluding the Rector) for College duties plus payments made on behalf of third parties	2008 Number	2007 Number
£100,000–£109,999	52	40
£110,000–£119,999	24	21
£120,000–£129,999	24	21
£130,000–£139,999	25	19
£140,000–£149,999	24	29
£150,000–£159,999	23	16
£160,000–£169,999	18	16
£170,000–£179,999	10	7
£180,000–£189,999	7	5
£190,000–£199,999	3	5
£200,000–£209,999	6	3
£210,000–£219,999	3	4
£220,000–£229,999	–	2
£240,000–£249,999	1	1
£250,000–£259,999	1	–
£270,000–£279,999	1	–
£380,000–£389,999	1	–

Remuneration of higher paid staff excludes employer's pension contributions. Payments made on behalf of third parties include NHS Distinction Awards and payments to staff for consultancy services made through subsidiaries.

7. Other operating expenses	2008 £m	2007 £m
Research grants and contracts	89.3	91.2
Consultancies and scientific services	0.1	1.0
Short courses	1.1	1.3
General expenditure in academic departments	37.5	33.7
Residences, catering and conferences	12.9	11.7
Central support services	25.9	22.7
Fellowships, scholarships and prizes	6.5	3.1
Books, periodicals and other library expenditure	5.3	5.0
Facilities and maintenance of premises	43.5	37.0
Auditors' remuneration	0.2	0.3
Auditors' fees in respect of non-audit services	0.1	0.1
Other, including Students' Union	5.1	10.7
	227.5	217.8

8. Interest and other finance costs	2008 £m	2007 £m
Bank and other loans wholly repayable after more than one year	6.6	4.6
Other financing costs	0.3	0.3
	6.9	4.9

Notes to the accounts

42

9. Analysis of expenditure by activity	Staff costs £m	Depreciation £m	Other operating expenses £m	Interest and other finance costs £m	2008 Total £m	2007 Total £m
Academic departments	134.5	4.3	38.6	0.2	177.6	171.0
Academic services:						
Libraries and information services	4.6	–	5.3	–	9.9	9.2
Central computer and computer networks	9.3	3.4	7.4	–	20.1	17.2
Other	7.6	–	7.0	–	14.6	12.9
Total academic services	21.5	3.4	19.7	–	44.6	39.3
Research grants and contracts	115.5	5.8	89.3	–	210.6	195.6
Residences, catering and conferences	5.8	2.5	12.9	–	21.2	20.3
Premises	15.4	19.7	43.5	–	78.6	68.7
Administration and central services:						
Central administration	17.7	1.0	7.9	–	26.6	25.7
General educational expenditure	1.3	–	8.5	–	9.8	6.4
Staff and student facilities	4.0	0.1	4.6	–	8.7	7.9
Total administration and central services	23.0	1.1	21.0	–	45.1	40.0
Other expenditure:						
Consultancies and scientific services	4.4	–	0.1	–	4.5	5.6
Other, including restructuring costs	4.8	–	2.4	6.7	13.9	15.4
Total other expenditure	9.2	–	2.5	6.7	18.4	21.0
	324.9	36.8	227.5	6.9	596.1	555.9
The depreciation charge has been funded by:	Note	£m				
Deferred capital grants released	19	20.7				
General income		16.1				
Total depreciation charge	11	36.8				

10. Segmental reporting	Segment total income £m	Inter-segment income £m	Income from third parties £m	Surplus/(deficit) before tax, minority interest and exceptional items £m	Total assets £m	Net assets £m
Year ended 31 July 2008						
Education and research	590.8	–	590.8	9.4	891.4	467.7
College Fund	6.2	0.2	6.0	3.8	98.7	86.7
Imperial Innovations Group plc	7.1	0.8	6.3	(6.1)	78.8	74.9
	604.1	1.0	603.1	7.1	1,068.9	629.3
Year ended 31 July 2007						
Education and research	545.8	–	545.8	3.9	778.5	432.7
College Fund	4.9	0.1	4.8	2.8	82.6	81.4
Imperial Innovations Group plc	6.5	0.9	5.6	(6.4)	62.1	57.2
	557.2	1.0	556.2	0.3	923.2	571.3

11. Tangible assets		Consolidated			
Cost	Land and buildings		Fixtures, fittings, tools and equipment £m	Assets under construction £m	Total £m
	Freehold £m	Leasehold £m			
At 1 August 2007	265.5	311.2	130.3	92.3	799.3
Additions	24.4	4.0	10.8	88.3	127.5
Transfers	46.1	24.9	11.1	(82.1)	–
Disposals	(1.5)	–	(0.5)	–	(2.0)
At 31 July 2008	334.5	340.1	151.7	98.5	924.8
Depreciation					
At 1 August 2007	56.0	80.1	87.4	–	223.5
Charge for year	8.4	12.0	16.4	–	36.8
Eliminated on disposals	(0.3)	–	(0.5)	–	(0.8)
At 31 July 2008	64.1	92.1	103.3	–	259.5
Net book value					
At 31 July 2008	270.4	248.0	48.4	98.5	665.3
At 1 August 2007	209.5	231.1	42.9	92.3	575.8
		College			
Cost	Land and buildings		Fixtures, fittings, tools and equipment £m	Assets under construction £m	Total £m
	Freehold £m	Leasehold £m			
At 1 August 2007	263.8	304.3	126.9	87.7	782.7
Additions	26.2	1.4	10.7	84.9	123.2
Transfers	46.1	23.6	11.1	(80.8)	–
Disposals	(1.5)	–	(0.3)	–	(1.8)
At 31 July 2008	334.6	329.3	148.4	91.8	904.1
Depreciation					
At 1 August 2007	55.9	79.7	84.0	–	219.6
Charge for year	8.4	11.4	16.4	–	36.2
Eliminated on disposals	(0.3)	–	(0.2)	–	(0.5)
At 31 July 2008	64.0	91.1	100.2	–	255.3
Net book value					
At 31 July 2008	270.6	238.2	48.2	91.8	648.8
At 1 August 2007	207.9	224.6	42.9	87.7	563.1

The transitional rules set out in FRS 15 'Tangible Fixed Assets' have been applied on implementing FRS 15. Accordingly, the book values at implementation have been retained.

Under a 2004 arrangement a finance lease on land was acquired by the College from the Hammersmith Hospitals Trust for the construction of new research buildings for use by the College and by GlaxoSmithKline (GSK) and the Medical Research Council (MRC) under finance leases. All leases have been fully paid hence no finance lease debtor or creditor is reported in the accounts. The land held under the finance lease at a cost of £1.7 million and cumulative depreciation of £0.1 million have been included under Leasehold.

Included at cost within land and buildings for the College and Group as at 31 July 2008 and 2007 is a heritage asset, being the nineteenth-century built Queen's Tower, currently insured at a value of £8.2m.

Notes to the accounts

12. Investments	Note	Consolidated		College	
		2008 £m	2007 £m	2008 £m	2007 £m
Investment in subsidiary companies at cost		–	–	9.2	6.2
Investment in other associated undertakings		0.5	0.5	0.1	0.1
Other fixed asset investments	28	46.8	56.8	12.4	15.3
		47.3	57.3	21.7	21.6

As at 31 July 2008 the College's direct equity holdings in subsidiary and associated companies, all of which are wholly-owned except as shown, were as follows:

Company	Activity	Holding %
IC Consultants Ltd	Consultancy and scientific services	100
Imperial Activities Ltd	Commercial property services	100
Extracalm Co Ltd	Administrative services	100
Extracalm Cleaning LLP	Cleaning services	
Private Patient Healthcare Ltd	Private patient healthcare services	100
Burlington Danes Construction Ltd	Construction and property services	100
Imperial Bioincubator Ltd	Provision of facilities to spin-out companies	100
Imperial College (S) Pte Ltd	Dormant	100
Imperial College Company Maker Ltd	Dormant	100
Imperial College Ltd	Dormant	100
Imperial MBA Ltd	Dormant	100
Imperial College London Ltd	Dormant	100
Imperial Innovations Group plc	Commercialisation of ideas and inventions	52
Natural Resources Intl Ltd	Environmental consultancy and scientific services	50

All companies are registered in England, except for Imperial College (S) Pte Ltd, which is registered in Singapore.

13. Investment in joint venture

During the year the College acquired a 50% share in the Bio Nano Centre Ltd, a UK company limited by guarantee that specialises in the development of biomedical and non technology-based products. The investment has been consolidated using the gross equity method.

14. Endowment asset investments	Consolidated and College						
	Restated Balance 2007 £m	Disposals £m	Additions £m	Net expenditure from capital £m	Transfers between investments £m	Appreciation/ revaluation £m	Balance 2008 £m
UK equities	29.1	–	–	–	(7.3)	(5.9)	15.9
International equities	14.7	–	–	–	(1.2)	(1.2)	12.3
Absolute return investments	5.7	–	–	–	0.2	0.5	6.4
Long/Short UK Equities Fund	–	–	–	–	2.3	–	2.3
Property fund	4.4	–	–	–	(4.3)	(0.1)	–
Investment property	1.1	–	–	–	–	(0.1)	1.0
Cash balances with fund managers	0.4	–	–	–	(0.4)	–	–
Short term investments/cash	2.7	(0.2)	5.3	(0.4)	10.7	–	18.1
Total	58.1	(0.2)	5.3	(0.4)	–	(6.8)	56.0
Fixed interest and equities at cost	46.1						54.5

Note: For details of the prior period restatement refer to the Statement of principal accounting policies, note 2.

15. Debtors: amounts falling due within one year	Consolidated		College	
	2008 £m	2007 £m	2008 £m	2007 £m
Amounts due on research grants and contracts				
Debtors	25.8	22.9	25.8	22.9
Work in progress	41.2	36.2	41.2	36.2
Other debtors	9.5	10.5	5.5	6.4
Prepayments and accrued income	17.7	24.2	12.3	18.8
Amounts owed by group undertakings	–	–	20.1	21.4
Provision for bad debts	(1.7)	(1.7)	(1.4)	(1.6)
	92.5	92.1	103.5	104.1

16. Creditors: amounts falling due within one year	Consolidated		College	
	2008 £m	Restated 2007 £m	2008 £m	Restated 2007 £m
Bank overdraft	8.7	7.1	8.7	7.1
Research payments received on account	109.7	89.0	109.7	89.0
Creditors	16.5	11.7	15.0	10.0
Social security and other taxation payable	9.4	8.1	8.9	7.8
Accruals and deferred income	108.6	101.3	97.4	90.5
Amounts owed to group undertakings	–	–	12.1	9.8
	252.9	217.2	251.8	214.2

Note: For details of the prior period restatement refer to the Statement of principal accounting policies, note 2.

17. Creditors: amounts falling due after more than one year	Consolidated		College	
	2008 £m	2007 £m	2008 £m	2007 £m
Other taxation payable	0.3	0.5	0.3	0.5
Loans repayable after more than five years	173.2	123.2	173.2	123.2
University Challenge Fund grants and Revenue Share Liability	1.6	1.8	–	–
	175.1	125.5	173.5	123.7

The College has arranged four unsecured sterling borrowing facilities.

1. A 30-year £50 million private placement arranged through Royal Bank of Scotland with a small number of institutions. It takes the form of loan notes. The facility was drawn down in a single amount in March 2003 and is not repayable until 2033. Interest at a fixed rate of 5.39% is payable annually in arrears.
2. A 15-year £23.2 million facility from the European Investment Bank. The facility was drawn in a single amount in December 2005 and repayments start in 2009. Interest at variable rates is payable quarterly in arrears.
3. A 50-year £50 million private placement arranged through Royal Bank of Scotland with a small number of institutions. It takes the form of loan notes. The facility was drawn in a single amount in July 2006 and is not repayable until 2056. Interest at a fixed rate of 4.84% is payable annually in arrears.
4. A 15-year £50 million facility from the European Investment Bank. The facility was drawn in a single amount in May 2008 and repayments start in 2011. Interest at variable rates is payable quarterly in arrears.

In order to limit the College's exposure to fluctuations in the UK equity market within its fixed asset investment portfolio, in April 2008 the College purchased the right, without the obligation, to exercise 4,142 FTSE100 put options at a strike price of £5,705 on 14 October 2008. The fair value of these equity derivatives as at 31 July 2008 was an asset of £1.2 million. This amount has not been recognised in the accounts. Since the year end, on 15 September 2008, the College sold its options, recognising a gain of £1.7 million.

Notes to the accounts

18. Provisions for liabilities and charges	Restructuring provision £m	Decommissioning of engineering facility £m	Total £m
Consolidated and College			
At 1 August 2007	1.4	7.9	9.3
Provided in the year	3.4	–	3.4
Utilised / written back in the year	(1.4)	–	(1.4)
Unwinding of the discount	–	0.3	0.3
At 31 July 2008	3.4	8.2	11.6

A number of restructuring programmes are currently underway within the College with the aim of reducing costs.

The decommissioning provision relates to a potential liability to remove a specialist engineering facility. It is expected that a substantial contribution towards decommissioning costs will be made by external sources.

46

19. Deferred Capital Grants	Consolidated			College
Note	HEFCE & JISC grants £m	Other grants & benefactions £m	Total £m	Total £m
At 1 August 2007				
Buildings	183.7	92.1	275.8	270.1
Equipment	26.6	6.2	32.8	32.6
Total	210.3	98.3	308.6	302.7
Cash receivable				
Buildings—specific funding (incl. transfers)	35.5	6.2	41.7	38.0
Equipment—specific funding	1.3	3.7	5.0	5.0
Total	36.8	9.9	46.7	43.0
Eliminated on disposals				
Buildings—specific funding	–	(0.1)	(0.1)	(0.1)
Total	–	(0.1)	(0.1)	(0.1)
Released to income and expenditure account				
Buildings	(8.1)	(4.1)	(12.2)	(12.1)
Equipment	(5.1)	(3.4)	(8.5)	(8.4)
Total	(13.2)	(7.5)	(20.7)	(20.5)
At 31 July 2008				
Buildings	211.1	94.1	305.2	295.9
Equipment	22.8	6.5	29.3	29.2
Total	233.9	100.6	334.5	325.1

20. Endowments**Consolidated and College**

	Unrestricted permanent £m	Restricted permanent £m	Total permanent £m	Restricted expendable £m	2008 Total £m	Restated 2007 Total £m
At 1 August						
Capital	10.3	28.6	38.9	23.6	62.5	56.3
Accumulated income	(0.4)	0.7	0.3	(4.7)	(4.4)	(3.8)
	9.9	29.3	39.2	18.9	58.1	52.5
New endowments	1.0	1.6	2.6	2.5	5.1	0.6
Investment income	0.3	1.0	1.3	0.7	2.0	1.7
Expenditure	(0.3)	(0.6)	(0.9)	(1.5)	(2.4)	(2.3)
	–	0.4	0.4	(0.8)	(0.4)	(0.6)
(Decrease) / increase in market value	(1.1)	(3.7)	(4.8)	(2.0)	(6.8)	5.6
At 31 July	9.8	27.6	37.4	18.6	56.0	58.1
Represented by:						
Capital	10.2	26.5	36.7	24.1	60.8	62.5
Accumulated income	(0.4)	1.1	0.7	(5.5)	(4.8)	(4.4)
	9.8	27.6	37.4	18.6	56.0	58.1

Note: For details of the prior period restatement refer to the Statement of principal accounting policies, note 2.

Included within endowments are a number of permanent funds with a deficit of accumulated income as at 31 July 2008. Within unrestricted permanent endowments these comprise two funds with a combined deficit balance of £0.5 million (2007: two funds with a deficit totalling £0.5 million). Within restricted permanent endowments there are 45 individual funds with a total combined deficit of £0.7 million (2007: 45 funds with a total combined deficit of £0.7 million). The College closely monitors funds in a deficit position and expects them to return to an accumulated income position over future years.

	Consolidated £m	College £m
21. Income and expenditure account		
Balance at 1 August 2007 as previously reported	165.0	145.8
Prior year adjustment (see note below)	0.4	0.4
Balance at 1 August 2007 restated	165.4	146.2
Surplus for the year retained within general reserves	27.1	20.8
Transfer from revaluation reserve	1.9	(0.8)
Balance at 31 July 2008	194.4	166.2

Note: For details of the prior period adjustment refer to the Statement of principal accounting policies, note 2.

Notes to the accounts

22. Statement of movements on reserves

Consolidated

	Opening balance as previously reported £m	Prior year adjustment £m	Opening balance restated £m	Surplus for the year £m	Transfer between reserves £m	Movement in year £m	Closing balance £m
Specific non-discretionary reserves							
Harlington student fund	2.3	–	2.3	–	0.2	0.1	2.6
Fund reserve	–	–	–	–	(1.0)	–	(1.0)
Imperial College Union funds	1.7	–	1.7	–	–	0.3	2.0
Subsidiary and associate companies' reserves	17.5	–	17.5	–	2.7	6.0	26.2
	21.5	–	21.5	–	1.9	6.4	29.8
General reserve	143.5	0.4	143.9	27.1	–	(6.4)	164.6
Total income and expenditure reserves	165.0	0.4	165.4	27.1	1.9	–	194.4
Pension reserve	0.1	–	0.1	–	–	(0.1)	–
Revaluation reserve	17.4	–	17.4	–	(1.9)	(9.1)	6.4
Share based payments	2.9	–	2.9	–	–	1.8	4.7
Total reserves	185.4	0.4	185.8	27.1	–	(7.4)	205.5

Note: For details of the prior period adjustment refer to the Statement of principal accounting policies, note 2.

23. Related party transactions

For some years the College has maintained a Register of Interests of all governors, academic and academic related staff. Policies incorporated within the College's Financial Regulations require an individual to declare an interest and withdraw from any commercial discussions should a conflict of interest potentially arise. Written assurances have been obtained from all governors and senior officers of the College in respect of themselves and their close family that for the year to 31 July 2008 they have not unduly influenced any transaction between the College and a related party, as defined by FRS 8.

Commercial relationships with companies or other organisations that might be regarded as related parties have been reviewed. During the year, the College purchased goods and services amounting to £5.8 million and received research grants and contracts amounting to £23.7 million from such parties. Research grants include £17.7 million from the Wellcome Trust where Professor Sir Leszek Borysiewicz, the former Deputy Rector, is a governor and where Mr Stewart Newton is an advisor. The Wellcome Trust has detailed guidelines and controls which require that governors withdraw from any discussion or decision making on the award of grants where there may be a conflict of interest.

In October 2007 Hammersmith Hospitals NHS Trust and St Mary's NHS Trust merged to form the Imperial College Healthcare NHS Trust. Dr R. Eastwood, College Secretary, was a member of the Board of Hammersmith Hospitals NHS Trust until its dissolution on 30 September 2007. He had no involvement in transactions between the College and the Board of Hammersmith Hospitals NHS Trust. On 1 October 2007, the then Rector, Sir Richard Sykes, was appointed as the university-nominated non-executive director of the Imperial College Healthcare NHS trust. On 1 October 2008 the Rector, Sir Roy Anderson, replaced him as the university-nominated non-executive director. Professor Stephen Smith, the Principal of the Faculty of Medicine was appointed as Chief Executive of Imperial College Healthcare NHS Trust on 1 October 2007. Claire Perry, the Managing Director of Imperial College Healthcare NHS Trust, joined the College's Management Board in May 2008. As a result of the formation of the

Imperial College Healthcare NHS Trust, the concept of the Academic Health Science Centre (AHSC) has been developed between the College and the Imperial College Healthcare NHS Trust. This is intended to bring together and coordinate the delivery of healthcare services, teaching and research. Purchased goods and services include £4.5 million from the Imperial College Healthcare NHS Trust.

In common with many universities, senior members of the College sit on Research Councils, other NHS Trust boards and other grant awarding bodies which have their own internal procedures to avoid potential conflicts of interest. Sir Richard Sykes, the previous Rector, was a member of the HEFCE Board. Professor Sir Leszek Borysiewicz, the former Deputy Rector, is the Chairman of the Main Panel A Assessment Panel for the HEFCE RAE 2008.

Dr M.P. Knight, Chief Operating Officer, is also the Chairman of the College's subsidiary Imperial Innovations Group plc (Imperial Innovations) and fees of £71k were paid by Imperial Innovations to Merrycroft Ltd, in which Dr Knight has a beneficial interest, for the provision of the Chairman's services to Imperial Innovations. Dr M.P. Knight also holds options over ordinary shares of Imperial Innovations and held ordinary shares in Imperial Innovations at 31 July 2008. Further details of Dr Knight's shares and options in the ordinary share capital of Imperial Innovations are given in the Directors Remuneration Report and in Note 29 on Related Party Disclosures within the Imperial Innovation's Annual Report for the year ended 31 July 2008 which is publicly available.

In common with a number of other College employees Sir Richard Sykes, the previous Rector, in his individual capacity, owned ordinary shares in Imperial Innovations Group plc, a subsidiary of the College. The total shareholding owned by College employees continues to represent less than one half of one per cent of the issued share capital.

The College has close relationships with a number of west London NHS Trusts with whom the College shares a number of sites and facilities. College staff work closely with those Trusts particularly in the clinical service areas.

24. Reconciliation of consolidated operating surplus to net cash inflow from operating activities	2008 £m	2007 £m
Surplus after depreciation of fixed assets at valuation and before tax	7.0	0.3
Depreciation	36.8	32.8
Deferred capital grants released to income	(20.7)	(18.8)
Investment income	(13.8)	(11.2)
Loss on disposal of fixed assets	–	1.9
Fair value loss on revaluation of fixed asset investments	1.0	–
Increase in stock option obligation	3.2	4.4
Interest payable	6.9	4.6
(Increase)/decrease in debtors	(8.4)	0.5
Increase in creditors	31.7	23.7
Increase/(decrease) in provisions	2.0	(2.4)
Net cash inflow from operating activities	45.7	35.8

25. Reconciliation of net cash flow to movement in net funds	Note	2008 £m	2007 £m
Increase/(decrease) in cash in the period		25.7	(92.1)
Increase in short term investments		56.0	83.4
Loan drawdowns		(50.0)	–
Change in net funds		31.7	(8.7)
Net funds at 1 August		12.0	20.7
Net funds at 31 July	26	43.7	12.0

26. Analysis of changes in net funds	Restated Balance 1 Aug 2007 £m	Cash flow £m	Balance 31 Jul 2008 £m
Cash at bank and in hand	57.3	9.2	66.5
Endowment assets	–	18.1	18.1
Bank overdraft	(7.1)	(1.6)	(8.7)
	50.2	25.7	75.9
Short term investments			
Endowment assets	2.7	(2.7)	–
Others	82.3	58.7	141.0
Debt due after one year	(123.2)	(50.0)	(173.2)
	12.0	31.7	43.7

Note: For details of the prior period restatement refer to the Statement of principal accounting policies, note 2.

Short term investments represent deposits with terms of up to 12 months.

Notes to the accounts

27. Access funds	2008 £000	2007 £000
Balance at start of the year	40	82
Funding Council grants	205	189
Interest earned	7	6
	252	277
Disbursements	(199)	(237)
Balance unspent at end of the year	53	40

Funding Council grants are available solely for students and the College acts only as a paying agent. The grants and related disbursements are therefore excluded from the income and expenditure account.

50

28. Fixed asset investments	Note	Balance 1 Aug 2007 £m	Additions/ (disposals) in year £m	Balance 31 Jul 2008 £m
Subsidiary undertakings' investments		41.5	(7.1)	34.4
Other investments		15.3	(2.9)	12.4
Other fixed asset investments	12	56.8	(10.0)	46.8
Investments in associated undertakings		0.5	–	0.5
Fixed asset investments	12	57.3	(10.0)	47.3

29. Minority interest

The minority interest relates entirely to Imperial Innovations Group plc. On 22 November 2007 Imperial Innovations Group Plc issued 8.1 million new shares as a result of which the Group's percentage investment decreased from 59.3% to 52.3%. The Group has recorded an exceptional profit in respect of the deemed disposal (see note 30).

	2008 £m	2007 £m
Balance at 1 August	18.8	18.9
Deficit after tax and minority interest	(2.4)	(2.4)
Revaluation of investments within fixed assets	(1.5)	0.5
Movement in share based payment reserve	1.4	1.8
Issue of new share capital	17.0	–
Balance at 31 July	33.3	18.8

30. Exceptional items	2008 £m	2007 £m
Exceptional income from sale of land and buildings	7.9	–
Exceptional income from the deemed disposal of interest in a subsidiary undertaking	9.3	–
	17.2	–

During the year, the College recognised a profit of £7.9 million on the sale of two College properties.

On 22 November 2007 a subsidiary of the College, Imperial Innovations Group Plc, issued 8.1 million new shares as a result of which the Group's percentage investment decreased from 59.3% to 52.3%. The Group has recorded a profit of £9.3 million in respect of the deemed disposal.

31. Capital commitments	Consolidated and College	
	2008 £m	2007 £m
Capital commitments for major building projects contracted at 31 July	61.0	53.1

32. Contingent liabilities

The College is a member of Universities Mutual Association (Special Risks) Ltd, a company limited by guarantee, formed to provide a mutual association for terrorism risks. If the association sustains a shortfall in any year, members are liable for their pro rata share by way of a supplementary contribution. The association's ability to pay claims is derived from the following sources:

1. The reserve fund of £10 million accumulated from members' contributions;
2. A £15 million internal loan facility from Member institutions (Imperial College is not a participating institution);

3. Aggregate reinsurance layers totalling £600 million, providing for a first loss limit of £325 million, obtained through the Bermudan and Lloyds insurance markets;

4. In any indemnity year before the year has been closed, the Board may call for a supplementary contribution of an amount that the Board thinks fit to be paid by each member entered for that indemnity year.

The College is involved in a number of legal cases. No material financial liabilities are anticipated.

33. Pension schemes

The College participates in four separate, independently managed, defined benefit, occupational pension schemes, which are contracted out of the State Second Pension (S2P); each is valued by professionally qualified and independent actuaries, triennially except the NHS Scheme which is quadrennially. The USS, SAUL and NHS pension schemes are multi-employer schemes and it is not possible to identify the College's share of the underlying assets and liabilities of the schemes on a consistent and reasonable basis and hence, as required by FRS 17, contributions to the schemes are accounted for as if they were defined contribution schemes. As a result, the amounts charged to the income and expenditure account represent the contributions payable to the schemes in respect of the accounting period.

Imperial Innovations Group plc and Imperial Consultants Ltd, subsidiaries of the College, operate defined contribution pension schemes for their employees with contributions being charged to the income and expenditure account in the period to which they relate.

USS

Staff paid on academic and academic-related scales, who are otherwise eligible, can acquire pension rights through the Universities Superannuation Scheme (USS), which is a national scheme administered centrally for UK universities.

The assets of the scheme are held in a separate trustee-administered fund. At the latest valuation as at 31 March 2005, the market value of the assets of the scheme was £21,740 million and the value of the past service liabilities was £28,308 million leaving a deficit of assets of £6,568 million. The assets therefore were sufficient to cover 77% of the benefits which had accrued to members after allowing for expected future increases in earnings. The actuary also valued the scheme on a number of other bases as at the valuation date.

Using the Minimum Funding Requirement prescribed assumptions introduced by the Pensions Act 1995, the scheme was 126% funded at that date; under the Pension Protection Fund regulations introduced by the Pensions Act 2004 it was 110% funded; and using the FRS 17 formula as if USS was a single employer scheme, the actuary estimated that the funding level would have been approximately 90%.

Since 31 March 2005 the funding level of the scheme has undergone considerable volatility. The actuary has estimated that the funding level had increased to 91% at 31 March 2007, but that at 31 March 2008 it had fallen back to 77%. On the FRS 17 basis, using an AA bond discount rate of 6% based on spot yields, the actuary estimated that the funding level at 31 March 2008 was 104%, down from 109% at 31 March 2007.

The College contribution rate required for future service benefits alone at the date of valuation was 14.3% of pensionable salaries but the trustee company, on the advice of actuary, decided to maintain the College contribution rate at 14% of pensionable salaries.

The next formal triennial actuarial valuation is due in respect of the position as at 31 March 2008. The contribution rate will be reviewed as part of each valuation.

Any surpluses or deficits arising at this or future valuations may impact on the College's future contribution commitment.

SAUL

The College participates in the Superannuation Arrangements of the University of London (SAUL), a centralised defined benefit scheme for all eligible employees with the assets held in separate trustee-administered funds.

The College has now adopted FRS 17 for accounting for pension costs. It is not possible to identify the College's share of the underlying assets and liabilities of SAUL. Therefore contributions are accounted for as if SAUL were a defined contribution scheme and pension costs are based on the amounts actually paid (i.e. cash amounts) in accordance with paragraphs 8–12 of FRS 17. The last available valuation was carried out as at 31 March 2005 using the projected unit credit method in which the actuarial liability makes allowance for projected earnings. As a whole, the market value of the scheme's assets was £982 million representing 93% of the liability for benefits after allowing for expected future increases in salaries.

In relation to future service liabilities it was assumed that investment return above prices was 6.5% per annum and nominal salary increases above prices of 1.5% per annum.

The contribution rate required for future service benefits alone at the date of the valuation was 19.7% of salaries per annum. The ongoing contribution rate has increased from August 2006 from 10.5% to 13% of pensionable salaries per annum for existing employers. Member contributions have also increased to 6% of salaries with effect from the same date. Employers who have recently joined SAUL ('New Employers') and certain employee groups (as agreed by the Trustees of SAUL), pay 19.2% of salaries per annum until the second actuarial valuation after entry.

A comparison of SAUL's assets and liabilities calculated using assumptions consistent with FRS 17 revealed the Scheme to be broadly balanced at the last formal valuation date.

NHS

Staff who have pension rights in the NHS Pension Scheme, on taking up a post within the College, may remain in membership of that scheme which is the nationally administered scheme for the National Health Service. The NHS Pension Scheme is an unfunded, defined benefit scheme that covers NHS employers, General Practices and other bodies, allowed under the direction of the Secretary of State, in England and Wales. As a consequence it is not possible for the College to identify its share of the underlying scheme. Therefore, the Scheme should be accounted for as if it were a defined contribution scheme in accordance with FRS 17.

The Scheme is subject to a full valuation every four years from 2004 (until 2004 based on a five year valuation cycle). The results of the latest valuation at 31 March 2004 concluded that the Scheme had accumulated a deficit of £3.3 billion as at 31 March 2004. However, after taking into account the changes in the benefit and contribution structure effective from 1 April 2008, the actuary reported that employer contributions could continue at the existing rate of 14% of pensionable pay. Up to 31 March 2008, employees paid contributions at the rate of 6% of pensionable pay. From 1 April 2008 employee contributions changed to a tiered scale from 5% up to 8.5% of their pensionable pay depending on total earnings.

An FRS 17 valuation of the Scheme liability is carried out annually by the Scheme Actuary by updating the results of the full actuarial valuation. The valuation of the Scheme liability was performed as at 31 March 2008 and is contained in the Scheme Actuary report, which forms part of the annual NHS Pension Scheme (England and Wales) Resource Account, published annually. These accounts can be viewed on the NHS Pensions website.

The main features of the most recent valuations of the three principal schemes, under a FRS 17 basis, are as follows:

Latest actuarial valuations	USS	SAUL	FPS 1634
	31 Mar 2005	31 Mar 2005	31 Mar 2005
Assumptions			
Investment returns per annum—past service liabilities	4.50%	5.50%	5.00%
Investment returns per annum—future service liabilities	6.20%	6.50%	N/A
Salary scale increases per annum	3.90%	4.15%	4.00%
Pension increases per annum	2.90%	2.65%	2.70%
Results			
Market value of assets at date of last valuation	£21,740m	£982m	£10.7m
Regular contribution rate	14.30%	19.70%	24.20%
Variation from regular cost	(0.30%)	(9.20%)	(24.20%)
Proportion of members' accrued benefits covered by the actuarial value of the assets	77.00%	93.00%	106.00%

FPS Defined Benefit Scheme

The Federated Pension Scheme 1634 (FPS) is the scheme St Mary's Hospital Medical School operated for non-academic staff prior to 1 August 1988, when it was closed to new entrants. Two thirds of the membership elected to transfer into SAUL at that time and there are now no contributing members. A qualified independent actuary carried out a full actuarial valuation on 31 March 2005. The major assumptions used by the actuary and results of the scheme have been recorded above, under the projected unit (SSAP 24) basis.

For the purposes of reporting under FRS 17 a valuation was undertaken on 31 July 2008, and details are as follows:

Assumptions	2008	2007
Price inflation per annum	3.75%	3.50%
Salary inflation per annum	N/A	4.80%
Rate of increase to pensions in payment	3.75%	3.30%
Rate of increase to pensions in deferment	3.75%	3.50%
Rate used to discount Scheme liabilities	6.30%	5.80%

The assets in the scheme and the expected rates of return

	Expected rate of return		Market value	
	2008	2007	£m	£m
Equities and property	7.30%	7.20%	3.4	4.0
Annuities	6.30%	5.80%	2.4	3.9
Bonds	5.50%	5.80%	4.4	2.7
Cash	4.80%	5.10%	0.2	0.2
Total			10.4	10.8

Notes to the accounts

FRS 17 has been fully adopted and its effects are as follows:

Amounts included within operating profit	Year ended 31 July 2008 £m	Year ended 31 July 2007 £m
Current service cost	0.1	0.1
Total operating charge	0.1	0.1

The amounts to be included as other finance income

Expected return on scheme assets	0.6	0.6
Interest on scheme liabilities	(0.5)	(0.5)
Net finance return	0.1	0.1

Amounts to be included in the statement of total recognised gains and losses (STRGL)

Difference between expected and actual return on scheme assets	<1%	<1%
Experience gains and losses arising on scheme liabilities	<1%	0%
Changes in assumptions underlying the present value of scheme liabilities		
Recognisable surplus adjustment		

% of scheme asset/liabilities

	2008	2007	£m	£m
	<1%	<1%	(0.4)	–
	<1%	0%	(0.2)	–
			(0.3)	0.5
			0.8	(0.5)
Total actual gains and losses recognised in the STRGL			(0.1)	–

Movements in scheme's surplus during the year

	Recognisable surplus		Scheme's surplus	
	£m	£m	£m	£m
Surplus in scheme at beginning of the year	0.1	0.1	2.4	1.9
Movement in year:				
Current service cost	(0.1)	(0.1)	(0.1)	(0.1)
Other finance income	0.1	0.1	0.2	0.1
Actuarial gain/(loss) in STRGL	(0.1)	–	(1.0)	0.5
Surplus in the scheme at end of the year	–	0.1	1.5	2.4

Value of the scheme's assets and liabilities

Fair value of scheme assets	10.4	10.8
Present value of scheme liabilities	(8.9)	(8.4)
Surplus	1.5	2.4
Recognisable surplus at year end per FRS 17	–	0.1
Unrecognised surplus	1.5	2.3

The pension costs for the College and its subsidiaries under SSAP 24 were:

	2008 £m	2007 £m
Contributions to USS	19.7	18.2
Contributions to SAUL	5.4	5.2
Contributions to NHS	3.8	3.5
Contributions to defined contribution pension schemes	0.3	0.2
FPS current and past service cost per FRS 17	0.1	0.1
	29.3	27.2

34. Funding of fixed assets (£m)

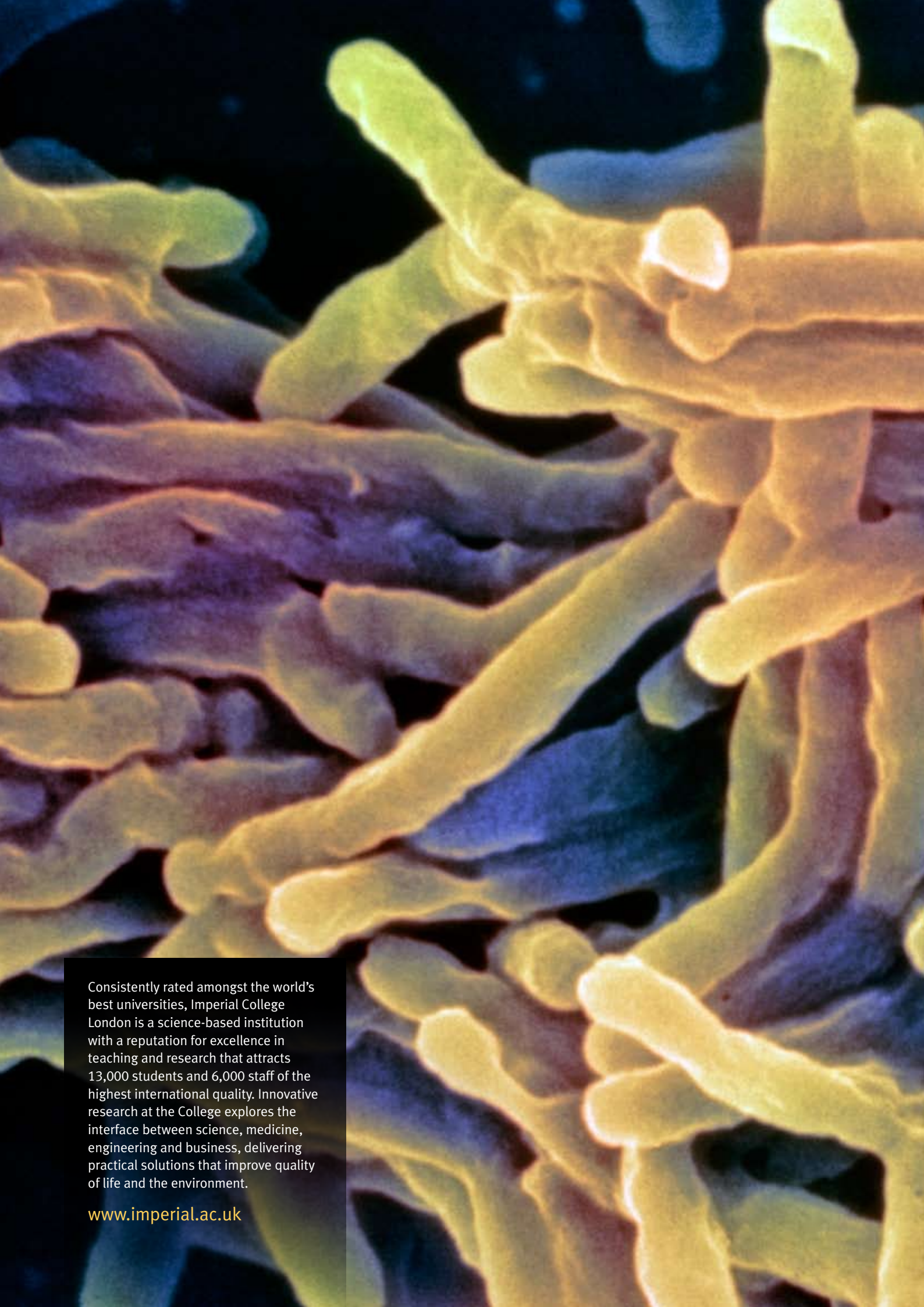
Land and buildings at cost	Balance 1 Aug 2007	Additions/(disposals) during the year				Balance 31 Jul 2008
		HEFCE grants	Other grants/ donations	College reserves	Transfers	
Land	12.9	–	–	–	–	12.9
Buildings						
Freehold						
South Kensington Campus	169.3	6.1	–	7.6	41.6	224.6
Charing Cross Campus	7.1	–	–	–	–	7.1
St Mary's Campus	35.7	0.5	–	–	–	36.2
Royal Brompton Campus	6.1	0.1	–	–	4.5	10.7
Silwood Park Campus and outstations	9.6	–	–	10.5	–	20.1
Wye Campus	13.8	–	(0.1)	–	–	13.7
Clayponds	11.0	–	–	–	–	11.0
	252.6	6.7	(0.1)	18.1	46.1	323.4
Leasehold						
South Kensington Campus	187.4	0.4	–	(1.2)	17.5	204.1
Charing Cross Campus	33.8	–	–	–	–	33.8
Hammersmith Campus	65.0	2.4	–	0.3	7.4	75.1
St Mary's Campus	8.4	–	0.4	–	–	8.8
Royal Brompton Campus	0.3	–	–	–	–	0.3
Evelyn Gardens	16.3	–	–	–	–	16.3
	311.2	2.8	0.4	(0.9)	24.9	338.4
Buildings under construction	78.8	26.0	5.8	52.9	(71.0)	92.5
Total land and buildings	655.5	35.5	6.1	70.1	–	767.2
Represented by:						
			Balance 1 Aug 2007	Additions during the year	Disposals during the year	Balance 31 Jul 2008
Grants from HEFCE			253.7	35.5	–	289.2
Other grants/donations			126.7	6.2	(0.1)	132.8
Capital expenditure met from reserves			275.1	71.5	(1.4)	345.2
			655.5	113.2	(1.5)	767.2
Equipment at cost			Balance 1 Aug 2007	Additions during the year	Disposals during the year	Balance 31 Jul 2008
Funded from HEFCE grants			45.5	1.3	–	46.8
Funded from research grants and contracts			36.5	3.7	(0.1)	40.1
Funded from other grants/donations			1.9	–	–	1.9
Funded from reserves			59.4	9.3	(0.4)	68.3
Donated assets			0.5	–	–	0.5
Total equipment			143.8	14.3	(0.5)	157.6

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Page 19 *DNA clues to reproductive behaviour*: <http://commons.wikimedia.org/wiki/user:masur>

Pages 24, 25, 26, 27 and 28: www.flickr/photos/peasap



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