

**Imperial College
London**



Annual Report and Accounts | 2008-09

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On the cover:

The cover image shows the tell-tale 'plaques' or holes caused by replication of influenza virus in cultures of cells grown in the laboratory of Professor Wendy Barclay (Faculty of Medicine). Read more about her team's work on page 16, Human nose too cold for bird flu. Since the outbreak of swine flu in Mexico in February 2009, several teams of distinguished Imperial scientists have been making important contributions to research on the H1N1 virus. Our virologists have been researching how respiratory viruses grow and spread in order to identify better ways of protecting ourselves. Our scientists have also been giving vital scientific advice to public health policy makers and have been working with the media to improve awareness and understanding of swine flu, and to reinforce public health messages.

Rector's foreword



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“Education is a vital part of Imperial's mission; our graduates will be among those who rebuild sustainable economies and improve quality of life through excellence in science, technology and medicine.”

In my introduction to the previous *Annual Report and Accounts* in October 2008, I noted that challenging times lay ahead of us. That the College ends the year on a sound financial footing despite the economic turbulence felt across the world is due to the hard work of all staff at Imperial, and the result of some astute planning by my senior colleagues; I am indebted to them all.

There has been much to celebrate at Imperial over the past year, and clear evidence that we continue to fulfil our mission to carry out world class research and education in science, technology, medicine and business for the benefit of society. Perhaps most significant are the results of the 2008 Research Assessment Exercise, which judged that Imperial is home to the highest percentage of world-leading or internationally excellent research of all UK multi-faculty universities, at 73 per cent.

One of the key priorities for the coming year is to convince decision-makers of the importance of this critical mass of multidisciplinary excellence to the economy. High levels of public debt will mean tough decisions for whichever party wins the next election and my concern is that cuts should not be imposed uniformly across the sector. In difficult economic times, the priority of government should be to protect and preserve the truly world class, especially those that can work with government to help in the UK's recovery.

While economic pressures have made it prudent to reassess our spending priorities, we must also continue to invest in our long-term academic mission. We would not be reporting another year of success without our staff, the College's most valuable resource, and nurturing the next generation of academics and academic administrators is crucial. I am delighted, therefore, that we recently welcomed our first Junior Research Fellows, an outstanding cohort of early-career researchers who will be supported and mentored in all aspects of establishing their own scientific path.

Recruiting and retaining world class people is one vital action; providing them with a world class environment in which to work is another. We have embarked on a project to transform the south east quadrant of the South Kensington Campus, which will radically change our public face and also providing exciting new teaching and research spaces for the Faculty of Engineering.

Another exciting development, which falls outside our reporting period, is our recent acquisition of a west London site, previously owned by the BBC, which will provide new space for administration, education, student accommodation and research, close to our Hammersmith and St Mary's campuses.

For students, we have seen the opening of new accommodation in Prince's Gardens and the new-look Central Library, which is proving extremely popular. Today's students have high expectations of both the university environment and the teaching they are offered. Meeting those expectations is essential if we are to continue to attract talented students from around the world and, therefore, enhancing the student academic experience will be a major theme of the coming year.

Education is a vital part of Imperial's mission; our graduates will be among those who rebuild sustainable economies and improve quality of life through excellence in science, technology and medicine. We talk a lot about demonstrating the impact of our activities; I can do no better than to quote one of our newly-promoted professors, who commented recently that, 'almost every academic would tell you that the biggest impact they will have on society is through their graduates'.

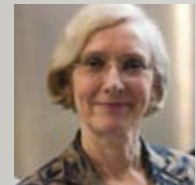
Despite the current tough job-seeking environment, demand from employers for Imperial graduates remains buoyant, as shown by *The Sunday Times* 2009 University Guide, which placed Imperial top for the proportion of leavers in graduate-level jobs and second for graduate salaries. The continued success of our students after they leave the College is an objective indicator of the worth of what we do here.



Increasingly, higher education is an international activity and Imperial is thinking very carefully about its global strategy. We are exploring the possibility of institutional collaborations in places such as India and Singapore, and are pleased to have a flourishing partnership with Saudi Arabia's new university, KAUST, which launched in September 2009. Education is a tried and tested route to national development and improved quality of life, and I am proud that Imperial is strengthening its collaborations with higher education institutions around the world.

Cementing Imperial's commitment to making a difference to quality of life worldwide, this year saw the establishment of Imperial's newest interdisciplinary institute. The Institute for Global Health, headed by the acclaimed former UNAIDS chief Peter Piot, will lead and coordinate work to tackle infectious and chronic diseases that blight underprivileged populations worldwide.

This is merely a single example of Imperial's global focus. We have many other stories to tell about the ways in which the College is underpinning economic competitiveness, scientific advance and improved health and well-being. As Rector, my pride in the range and quality of the work conducted here has grown by the day. The College is in formidable shape, and so it was with satisfaction that I announced at the end of 2009 that I would be stepping down as Rector and returning, at Imperial, to my research interest into global health, in 2010. Once again I wish to record my gratitude to staff and students for all they do to sustain our global reputation, and to the College's Court and Council for their expert guidance through rough terrain. Thanks to their efforts, we are well-placed to weather the challenges that lie ahead.



IMPERIAL COLLEGE LONDON'S MANAGEMENT BOARD

- » Sir Roy Anderson, Rector
- » Professor Sir Peter Knight, Senior Principal
- » 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 Julia Buckingham, Pro Rector (Education)
- » Professor Mary Ritter, Pro Rector (Postgraduate and International Affairs)
- » Mr Edward Astle, Pro Rector (Commercial Development)
- » Dr Martin Knight, Chief Operating Officer
- » Dr Rodney Eastwood, College Secretary and Clerk to the Court and Council
- » Ms Claire Perry, Managing Director, Imperial College Healthcare NHS Trust
- » Professor John Wood, International Relations Advisor

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 2009 and the net cash/borrowing position at that date are summarised below:

	2009 £m	2008 £m	Change %
Total income (including share of joint ventures)	672.1	603.1	+11
Less share of joint venture income	(0.3)	–	
Share of profits from associates	0.1	0.1	
Total Expenditure	(657.4)	(596.1)	+10
Surplus on continuing operations	14.5	7.1	
Tax and minority interest	1.6	2.4	
Surplus before exceptional items	16.1	9.5	
Exceptional profits on disposals	–	17.2	
Surplus on continuing operations after exceptional items	16.1	26.7	
Use of accumulated income within specific reserves	0.6	0.4	
Surplus for the year	16.7	27.1	
Income analysis			
Funding Council grants	178.4	165.1	+8
Academic fees and support grants			
Home and EU students (full-time)	27.2	21.6	+26
Overseas students	68.6	60.7	+13
Other	13.0	13.7	-5
	108.8	96.0	+13
Research income			
UK research councils	102.1	86.7	+18
UK charities	70.9	62.1	+14
UK industry	27.1	27.0	–
European Union and overseas	55.6	50.2	+11
Other	31.1	29.5	+5
	286.8	255.5	+12



	2009 £m	2008 £m	Change £m
Capital expenditure			
Externally funded	34.4	46.7	-12.3
College funded	80.9	80.8	+0.1
	<hr/> 115.3	<hr/> 127.5	<hr/> -12.2
Cash and borrowings			
Cash and short term investments	201.1	216.9	-15.8
Long term borrowings	(173.2)	(173.2)	-
	<hr/> 27.9	<hr/> 43.7	<hr/> -15.8

Despite a year of extraordinary financial and economic upheaval, the financial performance of Imperial College London was good in the year ended 31 July 2009.

- Total income grew by 11.4%; research income alone grew by 12.3% and academic fees rose by 13.3%;
- The total net cash position at 31 July 2009 was £27.9 million. Whilst there was a cash outflow of £15.8 million during the year, this reflects asset allocation decisions in the College Fund, where non-core assets are held for investment purposes, and in Imperial Innovations Group plc (Innovations), to switch holdings away from cash and into other types of investment;
- An acute treasury policy ensured that net interest was a positive contributor; and it is worth reminding ourselves that the College's total borrowing of £173.2 million has an average remaining life of 24 years;
- Innovations recorded a profit of £5.3 million in its independent results which, as a UK listed entity, are reported under International Financial Reporting Standards.
- The College Fund performed excellently. Within its portfolio, the College Fund is responsible for three asset classes: a portfolio of liquid stocks and shares, which maintained its value in a period when markets around the world fell significantly and when comparable funds are reported to have fallen in value by as much as 25–30%; property, where redevelopment and refurbishments are undertaken to add value; and the holding in 52% of the shares in Innovations, whose share price rose 24% in the year;
- The College maintained its very strong investment programme. The obvious evidence of this was a College-funded capital expenditure figure of £81 million on over 20 major projects.
- The practical commissioning of the 453-bed Eastside student residences block in Prince's Gardens marked the completion of the major restructuring of Prince's Gardens. And, as Eastside was being finished, work commenced on the major reconstruction of the former Royal Postgraduate Medical School on the Hammersmith Campus.

Fig. 1 ► RESEARCH INCOME

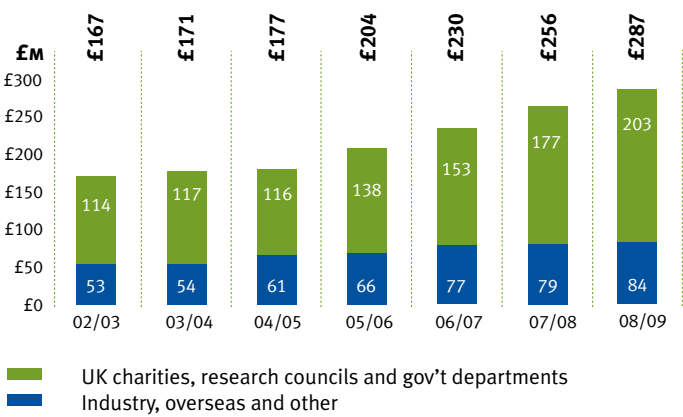
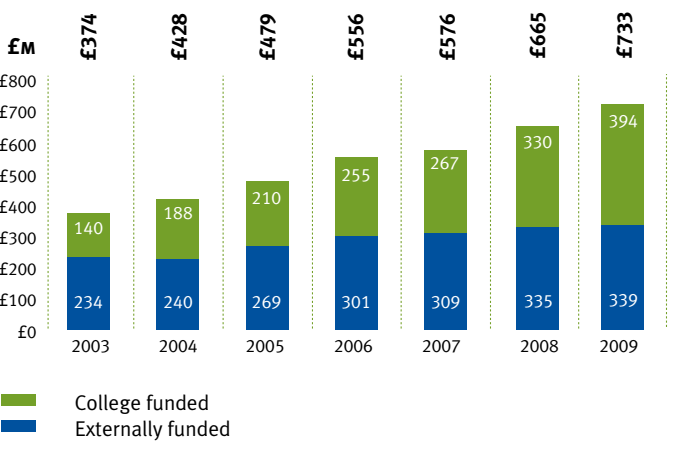


Fig. 2 ► FIXED ASSETS



So, 2008–09 was a year of sound financial performance, growth in teaching and research activity levels and continued investment in the infrastructure and facilities of the College.

But, as the College went through the year on such a satisfactory basis, it became very apparent that storm clouds were gathering. Around 47% of the College's total consolidated income emanates from government sources; the government's financial position and the inevitability of reductions in public spending in the coming years has been a growing concern in the discussions about the College's future financial position. Further, the recessionary impact on sponsors of research at the College became more evident by the day. This applied not only to industrial sponsors, but also to charities whose ability to fund research has been adversely impacted by stock market falls. Furthermore, the prospective burdens of an essentially public sector pension provision has given great cause for concern. In 2008–09, the pension costs of the College were £32.1 million; with an unreconstructed pension provision, it has been estimated that this figure could rise to between £45 million and £50 million p.a.

Given this background, during the year, a significant amount of time has been spent stress-testing the core assumptions that lie behind the projections of the College's financial stability. As a result, a number of specific steps were taken to safeguard the future for a financially viable College.

- The Capital Plan has been re-addressed and a number of projects slowed down or put back;
- restructuring programmes in a number of departments have been put in place;
- a halt, in principle, was called on all non-academic recruitment, with the adoption of a policy of redeploying and/or promoting existing staff;
- and lastly, an even sharper cost control culture has been introduced across the board.

Segmental information	University (education and research) 2009 £m	College Fund 2009 £m	*Imperial Innovations Group plc 2009 £m	Total 2009 £m
Operating surplus/(deficit)	15.3	1.8	(2.6)	14.5
Total fixed assets	695.0	53.2	38.3	786.5
Net cash/(debt)				
Cash in hand	12.7	8.7	1.4	22.8
Overdrafts	(2.0)	–	–	(2.0)
Short term investments	131.0	–	29.3	160.3
Cash in endowment assets	–	20.0	–	20.0
Total cash and short term investments	141.7	28.7	30.7	201.1
Borrowings	(150.6)	(22.6)	–	(173.2)
Total net cash/(debt)	(8.9)	6.1	30.7	27.9

* Figures for Innovations included within the College's consolidated results have been prepared under UK Generally Accepted Accounting Principles in line with the College's own accounting policies.



The combination of good financial performance in the year, the strength of our balance sheet and an open recognition of the need to be rigorous in preparing for less comfortable times ahead, has resulted in the maintenance of sound prospects for the College's financial position. This approach has had the immediate benefit of enabling the College to maintain its capability to invest for the future and to take advantage of opportunities that have arisen in today's straightened circumstances. Two examples demonstrate this:

The College Fund entered into an agreement with Berkeley First in August 2009 to develop a 452-bed postgraduate accommodation block in Wandsworth. This step has helped to fulfil the College's long-standing ambition to provide more accommodation for postgraduate students. But it was only achieved because the College Fund had the requisite capital at a time when land prices in London had fallen and building costs had come down significantly in the light of reduced construction activity.

The second example is the purchase from the BBC by the College of the freehold of a 7.5-acre site close to its Hammersmith Campus. Albeit that the legal completion took place on 1 September, after the year end, this purchase has addressed one of the increasingly serious concerns of the College, namely the congested and densely populated South Kensington Campus – a 10-acre site with over three million square feet of built space, much of it with highly sophisticated facilities in 50-year-old buildings. At a time when the education offered by the College in science, technology and medicine is in ever more demand –

applications for undergraduate and postgraduate places at the College are at an all-time high – the purchase of this site allows us to address the inevitable squeeze on space in our existing teaching and research buildings. The College is now in a physical position to grow its research and increase its teaching, particularly at the postgraduate level.

The ability of the College to maintain its investment programme, even in the face of tough economic and financial times ahead, is a testament to the recognition by all members of staff that sound financial management is about investment on the one hand and frugality on the other. The College's financial strength, as evidenced by the performance in the year, and the overt management recognition of the need to tighten ahead of tough times to come, is a significant strength in maintaining the College's position as one of the world's major academic institutions.

Dr M.P. Knight
Chief Operating Officer

“The College's financial strength, as evidenced by the performance in the year, and the overt management recognition of the need to tighten ahead of tough times to come, is a significant strength in maintaining the College's position as one of the world's major academic institutions.”



Imperial's year

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Professor Chris Toumazou, Director of the Institute of Biomedical Engineering, in the High Frequency Electromagnetics Laboratory investigating the frequency response of quartz resonators. Professor Toumazou is part of a larger group researching the use of resonators such as implantable blood pressure sensors for continuous wireless monitoring.

Our mission: Imperial College London 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.

Top RAE results

Imperial is home to the greatest concentration of research rated world-leading and internationally excellent amongst all UK universities, according to the 2008 Research Assessment Exercise (RAE) results published in December 2008. Seventy-three per cent of the College's staff have had their research judged as world-leading or internationally excellent (4* and 3*), the highest percentage of all UK multi-faculty universities. The College also has six of the UK's top-rated research areas (4*) in Chemical Engineering; Civil Engineering; Epidemiology; Mechanical, Aeronautical and Manufacturing Engineering; History; and Pure Mathematics. Imperial submitted 1,225 staff to the 2008 assessment, an increase of 6.7 per cent on the 2001 RAE.

First director for Institute for Security Science and Technology

In July 2008, Sir Keith O'Nions was appointed to set up and develop a new Institute for Security Science and Technology at Imperial. Sir Keith, formerly Director General of Science and Innovation in the government's Department for Innovation, Universities and Skills, has been bringing together scientists and engineers at the College to develop novel ways of solving security problems across a range of areas, from protecting the individual to ensuring the security of whole populations. See more about the Institute on page 21.



Professor Guang-Zhong Yang and Lord Darzi with Prime Minister Gordon Brown and Lord Mandelson touring the medical imaging and robotics lab, where researchers are developing robot-assisted surgery techniques which greatly reduce patient trauma and speed up recovery times.

Futuristic greenhouse

A futuristic £1 million rooftop greenhouse, enabling central London scientists to grow large quantities of plants for experiments ranging from developing new sources of biofuels to helping sequence the tomato genome, has been built on top of a five-storey building at the South Kensington Campus. The GroDome, which was completed in April 2009, is the only rooftop facility of its kind in London. It provides Imperial's plant scientists with over 200 square metres of temperature and light controlled growing space for a variety of plant species, allowing them to carry out large-scale plant experiments in an urban location for the first time.

Government ministers visit

Latest developments in personalised medicine were on show when the Prime Minister, Gordon Brown, and three government ministers, visited Imperial in July 2009 to launch the Office for Life Sciences Blueprint, a new government vision for healthcare innovation. The Prime Minister was joined by Lord Mandelson, Secretary of State for Business, Innovation and Skills, Lord Drayson, Minister for Science and Innovation, and Lord Darzi, Professor of Surgery at Imperial, then Health Minister for Quality and Innovation. Plans were announced for an 'innovation pass', making new medicines available for a limited time on the NHS.



Imperial's GroDome is the only rooftop plant sciences research facility of its kind in London. Porter Institute PhD student Nick Brereton's research is focused on using willows to produce biofuel.

Radical redesign for Exhibition Road

The first stage of a major road development in the heart of London's cultural quarter got underway in October 2008. Researchers from the Department of Civil and Environmental Engineering, led by Professor Michael Bell, are working with the Royal Borough of Kensington and Chelsea on a radical redesign of South Kensington's Exhibition Road. The road is not only home to Imperial, but cultural institutions including the Victoria and Albert Museum, Science Museum and Natural History Museum. Around five million people visit the street each year and, in a bid to tackle overcrowding by 2012, signs and traffic signs will be removed to make a shared space for cars and pedestrians.



New College mace

A silver and gilt mace created to mark the College's independence made its first appearance during the Postgraduate Awards Ceremony in May 2009. The mace, donated by the Goldsmiths' Company in recognition of its longstanding relationship with Imperial, will be used in future ceremonies to lead the academic procession into the Royal Albert Hall. Weighing 7.1 kilograms and measuring 1.2 metres, the £25,000 mace incorporates a helix-shaped stem representing the structure of human DNA to reflect the College's mission to carry out and apply cutting edge scientific research. It is topped by a head depicting the College crest and also includes the Goldsmiths' Company's coat of arms.



The silver and gilt mace, shown here being carried by Lord Kerr of Kinlochard, Chairman of the Council of Imperial College London, was given to the College by the Goldsmiths' Company and is used at Imperial's graduation ceremonies to lead the academic procession into the Royal Albert Hall and is displayed on stage during the event.

Inspiring teaching

An innovative scheme encouraging science postgraduates to enter teaching has been expanded. Funding from the Foyle Foundation in November 2008 has enabled Imperial's INSPIRE programme, which combines a Postgraduate Certificate in Education with specialised science communication training, to help support the teacher training of 50 scientists over the next five years. The Foyle Science Scholarships are targeted at chemistry and physics postgraduates in particular, due to the shortage of teachers with a background in those subjects in London's state schools.

Animal award for scientist

A researcher exploring dangerous blood clots in the lungs has been recognised for his contributions to reducing the number of mice used in experiments. Charalambos Tymvios, a PhD student at the National Heart and Lung Institute, has been highly commended by the National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs) in its annual awards announced in January 2009. This is the third time in four years that an NC3Rs prize has been awarded to a College scientist. Mr Tymvios and his team have developed a way of investigating how blood clots form that uses 85 per cent fewer mice than traditional research.

Landfill targets

Imperial has become the first university in the UK to commit to halving the amount of construction waste it sends to landfill by 2012. In February 2009, the College signed up to the Waste and Resources Action Programme (WRAP) voluntary agreement through which organisations set targets to reduce the amount of construction, demolition and excavation waste sent to landfill. Imperial aims to reduce the amount of construction sent to landfill by reusing and recycling waste materials. It is



also developing guidelines for future construction projects that include working with renewable and long-lasting materials and designing buildings efficiently.

Scientists in the news

Encouraging young scientists to take up a career in the broadcast industry is the aim behind two new studentships announced in January 2009. Postdoctoral scientists can apply for a studentship for the MSc in Science Media Production in the Department of Humanities. The studentship offers a grant for the cost of the tuition fees plus £18,000 for living expenses over an 18-month period, covering the one-year MSc and working in the broadcast industry for six months. Funding for the scheme comes from the Wellcome Trust as part of its public engagement programme.



New Pro Rector for Commercial Development



Mr Edward Astle was named the College's new Pro Rector (Commercial Affairs) in November 2008. A senior businessman with broad international experience in the energy and telecommunications sectors, he is responsible for the initiation, development and delivery of commercially exploitable College collaborations. He leads the exploration of opportunities for science, medicine and education-based commercial partnerships around the world and is a member of Imperial's Management Board.

New Director of Development



Ms Judy Beard took up the role of Director of Development in May 2009, joining Imperial from a not-for-profit training and consultancy organisation, where she has been principal management consultant since October 2007. Prior to this appointment she worked for 30 years in charities, most recently at Macmillan Cancer Support.

Director, Institute for Global Health



Dr Peter Piot, former Executive Director of UNAIDS, accepted the role of the first Director of Imperial's Institute for Global Health in October 2008. Dr Piot is spearheading the Institute's mission to find solutions to health problems worldwide, working in partnership with international development and health agencies and foundations.

Senior staff changes



Professor Sir Anthony Newman Taylor (pictured on the far left) accepted appointment as Deputy Principal of the Faculty of Medicine from 1 October 2008. Sir Anthony, who holds the Chair in Occupational and Environmental Medicine, was previously the Head of the National Heart and Lung Institute, Faculty of Medicine, and Campus Dean of the Royal Brompton Campus.

Professor Donal Bradley (above right), former Head of the Department of Physics, was appointed Deputy Principal of the Faculty of Natural Sciences from 1 January 2009.



Effective from 1 October 2008, the Faculty of Engineering's Deputy Principal (Research) is Professor Jeff Magee (left) and Deputy Principal (Teaching) is Professor David Nethercot (right).

Awards and honours

Prestigious award for TB research

A researcher whose work has revolutionised the diagnosis of tuberculosis (TB) was awarded the prestigious Weber-Parkes Trust Medal by the Royal College of Physicians in October 2008. Professor Ajit Lalvani and his team, from the Centre for Respiratory Infection, have invented and validated a new T-cell based blood test to diagnose TB infection, known as ELISpot. Combining the ELISpot-Plus test with a tuberculin skin test allows doctors to rule out TB within 48 hours, providing a much quicker result than existing testing methods. According to World Health Organisation estimates, around a third of the world's population is infected with the TB bacteria and approximately nine million new cases of active TB are diagnosed each year.



Professor Ajit Lalvani (left) and his team's new blood test, ELISpot, is a major advance because it is able to identify patients with a significant risk of developing the active form of TB much more precisely.

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Bank of England appointment

A leading economist has been appointed an external member on the Bank of England's interest rate setting Monetary Policy Committee (MPC). Professor David Miles, Visiting Professor at Imperial's Business School and an expert in macroeconomics, took his place on the MPC in June 2009. Professor Miles has been Managing Director and Chief UK Economist at Morgan Stanley since October 2004. Previously, he was Professor of Financial Economics at Imperial and was the founding professor of the Business School's Finance Group.

New Royal Society Fellows

Three professors were named Fellows of the Royal Society in May 2009. Martin Buck, joint head of the Division of Biology, was praised by the Society for his pioneering contributions to our understanding of molecular mechanisms of transcription initiation in bacteria. Michael Duff, of the Department of Physics, is known for championing the search for a proper theory to explain the particles and forces of nature in a unified theory. Robert Ainsworth, a visiting professor in the Department of Mechanical Engineering, was recognised by the Society for his research in structural integrity and its use in assessing the safety of nuclear power generation plants. There are now a total 67 Royal Society Fellows at Imperial.



Trial of the year

A trial that showed the benefits of lowering the blood pressure of very elderly patients was named Trial of the Year in 2008 by Project ImpACT and the Society for Clinical Trials. The 3,845-patient Hypertension in the Very Elderly Trial (HYVET), led by Professor Chris Bulpitt, from the Faculty of Medicine, is the largest ever clinical trial to look 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, 39 per cent reduction in stroke mortality rate, 64 per cent reduction in fatal and non-fatal heart failure and 34 per cent reduction in cardiovascular events.



Lifetime award for mosquito and malaria expert

A leading researcher on the malaria parasite and transmission of the disease received a special lifetime achievement prize in October 2008. The award was given to Professor Fotis Kafatos, Chair of Immunogenomics in the Department of Life Sciences by the Louis-Jeantet Foundation, a Swiss-based organisation that provides funding and major prizes for biomedical research. The award recognises Professor Kafatos's major contributions to the development of European biomedical research on the world stage, as well as his exceptional research into the biology of the Anopheles mosquito – the carrier of the malaria parasite Plasmodium.



Golden recipe

College chefs cooked up a storm at the University Caterers Organisation (TUCO) Chefs' Challenge 2009, winning the Gold Award for their four-course creation. The annual cooking contest in April 2009 saw 12 teams of university chefs competing to produce a meal in less than two hours. The three

Imperial chefs – Steve Robertson, Martin Stafford and Andrew Crook – served up a meal comprising pan-fried foie gras, smoked pancetta and baby pea risotto with seared scallops, fillet of monkfish with wild mushrooms and chocolate fondant. Their top prize included hotel accommodation, dinner at a top class restaurant and £900.

Top engineering award

A world-leading structural engineer has received the highest accolade from the Institution of Structural Engineers. Professor David Nethercot, Head of the Department of Civil and Environmental Engineering, was presented with the Gold Award in April 2009 for services to structural engineering. Professor Nethercot is currently investigating progressive collapse – which causes floors of structures like the World Trade Centre to fall 'like a pancake' to the floor beneath. His new modelling methods, which test how different buildings withstand impacts, should help engineers to design more robust structures.

Dr Richard Murphy and Dr Michael Ray of the Faculty of Natural Sciences using a planetary ball mill for the preparation of biomass samples for further chemical analysis. Dr Murphy's research group focuses on the sustainable production and use of plant biomass for biomaterials, biofuels and bioenergy.

World class medical researchers

Leading medical researchers have been recognised for their excellence in their fields, with election in May 2009 to the Fellowship of the Academy of Medical Sciences. Professors Neil Poulter, Michael Schneider, Marina Botto and Elio Riboli, all from the Faculty of Medicine, joined 40 other new Fellows from across the UK. Academy Fellows are elected for outstanding contributions to the advancement of medical science, for innovative application of scientific knowledge and for their conspicuous service to healthcare. The total number of Imperial Fellows is now 78.

Queen's birthday honours

Two academics have been recognised in the 2009 Queen's birthday honours. Professor Anne Dell (left), in the Department of Life Sciences, was made a CBE for services to science. Her research focuses on a sugar-rich layer called the glycocalyx that coats every cell in the human body. These sugars play an important role in cell-to-cell communication and recognition and are central to key biological questions.



Dr Caroline Shuldham (right), from the Faculty of Medicine, received an OBE for services to healthcare. She has a background in cardiac and intensive care nursing, nursing education, and research. The 2009 honours also included a knighthood for former Deputy Rector and Fellow of Imperial, Professor Sir Bill Wakeham, for services to chemical engineering and higher education.

Biofuels 'manifesto' is top read

In October 2008, a research paper mapping the way forward for sustainable biofuel production was named as one of the most influential studies of the last 10 years in its field. The paper, entitled *The path forward for biofuels and biomaterials*, appeared in the journal *Science* in 2006 and has been cited in over 150 subsequent academic studies, according to *Thomson Sciencewatch's* Essential Science Indicators. Professor Richard Templar, Director of Imperial's Porter Institute for bioenergy and biomaterials research, co-author of the 2006 paper, describes it as a manifesto for the sustainable production of fuel, power, chemicals and materials in integrated biorefineries of the future.





Meteorite shower may have made the Earth habitable

A meteorite shower known as the late heavy bombardment, which fell approximately four billion years ago, could have helped to make the Earth more able to

support life by modifying its atmosphere, research published in June 2009 suggests. Researchers from the Department of Earth Science and Engineering have calculated that the bombardment, which lasted around 20 million years, would have released 10 billion tonnes each of water vapour and carbon dioxide from meteorites' outer crusts, creating the right ingredients for Earth to nurture life.

Stem cell-derived materials to aid bone healing come a step closer

Bone-like material grown from three different commonly used types of mouse cells have been shown to have significant differences in quality by a research team from the Department of Materials and the Institute of Biomedical Engineering. The study, published in July 2009, found that material grown from cells from a mouse's skull or bone marrow successfully mimicked many of the hallmarks of real bone, including stiffness. Material grown from a mouse's embryonic stem cells, meanwhile, was much less stiff and complex. Researchers believe this insight brings the possibility of implanting specially grown material into people with damaged or fractured bones a stage closer.



Professor Molly Stevens, from the Department of Materials and the Institute of Biomedical Engineering, with Dr Eileen Gentleman, postdoctoral researcher, discuss new strategies for tissue engineering to grow replacement bones with stem cell technology.

Chemical imaging could prove useful tool in atherosclerosis treatment

A new chemical imaging technique known as attenuated total reflection Fourier transform infrared (ATR-FTIR) spectroscopic imaging could become a useful tool in assessing the lesions of people with atherosclerosis. These



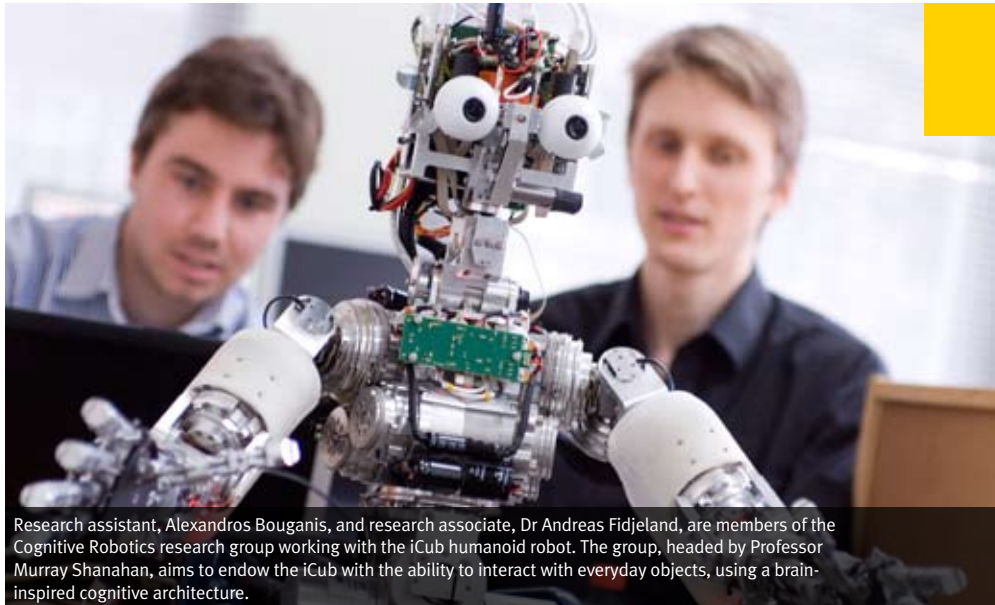
lesions cause artery walls to harden and thicken, restricting flow of blood around the body, and can also rupture, leading to heart attacks and strokes. Doctors currently take biopsies of lesions to determine their chemistry.

However researchers from the Department of Chemical Engineering and Chemical Technology demonstrated in July 2009 that ATR-FTIR imaging was able to reveal the precise composition and size of the lesions and the levels of elastin, collagen and cholesteryl ester in them.



Mobile monitors to reveal pollution hot spots

Researchers are turning pedestrians, cyclists, buses and cars into mobile wireless sensors to trial small mobile sensors that can monitor and manage air pollution more accurately than is possible with current larger, stationary sensors. The project, launched in June 2009 by the Department of Civil and Environmental Engineering, aims to understand how air pollution forms, lingers and dissipates in unprecedented detail, providing information that could lead to better urban planning or allow people who are particularly vulnerable to poor air quality to avoid pollution hotspots.



Research assistant, Alexandros Bouganis, and research associate, Dr Andreas Fidjeland, are members of the Cognitive Robotics research group working with the iCub humanoid robot. The group, headed by Professor Murray Shanahan, aims to endow the iCub with the ability to interact with everyday objects, using a brain-inspired cognitive architecture.

iCub pushes forward understanding of intelligence

The Departments of Computing and Electrical and Electronic Engineering are using a human-like robot known as iCub to explore how human beings interact with the world around them through awareness, perception, reasoning and judgement. iCub, which arrived at the College in March 2009, can move its head, arms, fingers, eyes and legs in a similar way to humans. The team plans to link the robot to a computer simulation that replicates how human brains communicate through short bursts of electrical energy, and discover whether iCub will be able to process information about its environment and move in response.

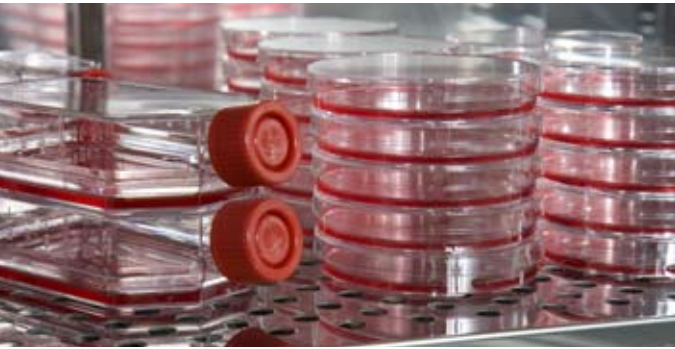
“We are really interested in making robots more empathetic to our needs...the work that we are doing could one day make this a reality.”

Dr Yiannis Demiris, Electrical and Electronic Engineering

Quick DNA analysis device en route to market

A partnership between the Institute of Biomedical Engineering, Pfizer and the government's Technology Strategy Board is supporting the development of a prototype device that could analyse DNA to assess whether an individual is likely to react adversely to prescription drugs. The SNP Dr device analyses genetic variations in single nucleotide polymorphisms, parts of human DNA that make everyone respond differently to bacteria, viruses, toxins and medication. The device is programmed to recognise a particular set of sequences that can be used to predict how an individual would respond to certain drugs. Trials of SNP Dr began in February 2009.





New drug combinations spur stem cells into repairing the body

In a study published in January 2009 in the journal *Cell Stem Cell*, Imperial scientists, including Dr Sara Rankin from the Faculty of Medicine, tricked bone marrow into releasing extra adult stem cells into the bloodstream, a technique they hope could one day repair heart damage or mend broken bones. When a person has a disease or an injury, the bone marrow mobilises different types of stem cells to help repair and regenerate tissue. The research shows that it might be possible to boost the body's ability to repair itself by using different new drug combinations to put the bone marrow into a state of 'red alert' and send specific kinds of stem cells into action.

“Preventing infection is much easier and cheaper than treating a patient with tuberculosis.”

Dr Rod Escombe, Wellcome Trust Centre for Clinical Tropical Medicine at Imperial

Huge study finds link to premature death in large waistlines

Having a large waistline can almost double your risk of dying prematurely, even if your body mass index is within the normal range, according to a study of over 350,000 people across Europe, published in November 2008 in the *New England Journal of Medicine*. The authors, including Professor Elio Riboli of the Faculty of Medicine, suggest that this may be because fatty tissue around the waist secretes cytokines, hormones and metabolically active compounds that can contribute to the development of chronic diseases, particularly cardiovascular diseases and cancers.

Using UV to cut TB

Ultraviolet lights could reduce the spread of tuberculosis in hospital wards and waiting rooms by 70 per cent, according to researchers, including Dr Rod Escombe of the Wellcome Trust Centre for Clinical Tropical Medicine at Imperial, in a study published in *PLoS Medicine* in March 2009. Every year over nine million people are infected with TB and nearly two million people die from it, according to the World Health Organisation. Infection rates are particularly high where vulnerable people are crowded together. When a tuberculosis patient coughs, bacteria are sprayed into the air in tiny droplets, infecting other people. These bacteria can be killed by hanging a shielded ultraviolet C (UVC) light from the ceiling, with a fan to mix the air. UVC light kills tuberculosis bacteria by damaging their DNA so they cannot infect people, grow or divide. The chest clinic at St Mary's Hospital, part of the Imperial College Healthcare NHS Trust, will be the first hospital to have them in the UK.

Glutamic acid linked to lower blood pressure

Glutamic acid may be one of the components responsible for the lower blood pressures of people with vegetable-rich diets, according to a study published in July 2009 in *Circulation: Journal of the American Heart Association*. Co-author Dr Ian Brown, of the Faculty of Medicine, looked at diet and blood pressure data from over 4,000 people and analysed the amount of five different amino acids in their diets. Results showed that, on average, those who consume more glutamic acid have lower blood pressure than those who consume less. Glutamic acid is a major component of protein, and vegetable protein contains higher levels of glutamic acid than animal protein does.



Human nose too cold for bird flu

Avian influenza viruses do not thrive in humans because the

temperature of 32 degrees Celsius inside a person's nose – the first site of infection – is too low, according to research published in May 2009 in the journal *PLoS Pathogens*. The authors of the study, including Professor Wendy Barclay, from the Faculty of Medicine, say this may be a reason why bird flu viruses do not cause pandemics in humans easily. Normal avian influenza viruses usually infect the guts of birds, which are warmer, at 40 degrees Celsius.



New findings may help scientists develop a vaccine against leishmaniasis, a parasitic disease spread by the bite of sand flies, that causes two million new cases each year.

Parasites persuade immune cells to let them in

The development of a vaccine against leishmaniasis, a neglected tropical disease affecting around 12 million people per year, could be helped by findings published in August 2009 in *PLoS Pathogens* by Faculty of Medicine researchers, led by Dr Matthew Rogers. Leishmania parasites are transmitted by sand flies. The study found that the parasites produce a gel which is regurgitated into the body by the flies when they bite a human. It also showed that the gel then entices immune cells to the bite site and persuades them to engulf the parasites and feed, rather than digest, them, which helps the infection take hold.

Body clock linked to diabetes and high blood sugar

Diabetes and high levels of blood sugar may be linked to abnormalities in a person's body clock and sleep patterns, according to a genome-wide study published in the journal *Nature Genetics* in December 2008 by authors including Professor Philippe Froguel from the Faculty of Medicine. It shows that a mutation called rs1387153, near a gene called MTNR1B, is associated with having an increased average blood sugar level and around a 20 per cent elevated risk of developing type 2 diabetes. MTNR1B forms part of a signalling pathway that controls the action of the hormone melatonin, which regulates sleeping and eating patterns.



Study links schizophrenia to signalling problems in the brain

Schizophrenia could be caused by faulty signalling in the brain, according to research published in March 2009 by

researchers including Professor Jackie de Belleruche of the Faculty of Medicine, in the journal *Molecular Psychiatry*. In the biggest study of its kind, the scientists looked in detail at brain samples donated by people with the condition and identified 49 genes that work differently in the brains of schizophrenia patients compared to controls. Many of these genes are involved in controlling cell-to-cell signalling in the brain, supporting the theory that abnormalities in the way in which cells 'talk' to each other are involved in the disease.

Music could help vision in stroke patients

Stroke patients who have lost part of their visual awareness can show an improved ability to see when listening to music they like, according to a study published



in March 2009 in *Proceedings of the National Academy of Sciences*. The researchers, led by Dr David Soto, of the Faculty of Medicine, believe that the improvement could be as a result of experiencing positive emotions when listening to music. The team suggests that positive

emotions may result in more efficient signalling in the brain, which may then improve the patient's awareness by giving the brain more resources to process stimuli.

Flu mortality formula potentially misleading

Research published in July 2009 in the *British Medical Journal* by scientists led by Dr Tini Garske, from the MRC Centre for Outbreak Analysis and Modelling at Imperial, says a standard calculation used in forecasting potential numbers of deaths during the swine flu pandemic could mislead planners by being open to over- and underestimation.

First, the total number of deaths may be underestimated if the cause of death is not correctly attributed to swine flu. Second, as the pandemic progresses, the total number of cases will tend towards underestimation, as people with milder symptoms may not be tested or visit a doctor. Thirdly, the 'snapshot' calculation does not take account of the delay between infection and death, leading to the false impression that the infection is actually becoming more severe as the pandemic progresses.



Imperial scientists, who are advising the UK government on its swine flu strategy, say more accurate mapping of the spread of the virus must be carried out if it is to be effectively managed.



Climate change affects sheep size

Milder winters are causing Scotland's wild breed of Soay sheep to get smaller, despite the evolutionary benefits of possessing a large body, according to research published in July 2009 in *Science Express*. Lead author, Professor Tim Coulson, from the Department of Life Sciences, suggests that climate change has meant lambs on the Scottish island of Hirta do not need to put on as much weight in the first months of life to survive. The researchers also found that size of sheep on the island is affected by the newly-discovered 'young mum' effect, whereby young ewes produce smaller offspring.



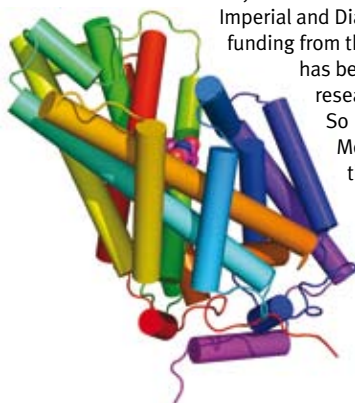
The LHC, which Lyn Evans, Visiting Professor in the High Energy Physics research group calls "a discovery machine, the most sophisticated scientific instrument of our time," will smash two beams of particles head-on at super-fast speeds, recreating the conditions in the universe moments after the Big Bang.

Biggest experiment on Earth

Physics researchers are taking part in the biggest experiment on earth. After over 20 years of design, development and construction, the Large Hadron Collider (LHC) particle accelerator, a 27 kilometre-long circular tube 100 metres between the French-Swiss countryside at CERN, was first switched on in September 2008. Following repairs to a serious fault, it is expected to re-open in November 2009 when it will recreate local conditions similar to those that existed in the earliest instants of the universe, a split second after the Big Bang. Imperial's Professor Tejinder Virdee of the Department of Physics is the lead scientist on the CMS experiment and overall project leader for the LHC is Lyn Evans, Visiting Professor in the High Energy Physics research group.

Membrane Protein Laboratory opens

A laboratory set up to solve the structures of membrane proteins was officially opened by the Rector, Sir Roy Anderson, in September 2008. The Membrane Protein Laboratory (MPL) at the Diamond Light Source National Synchrotron Facility in Oxfordshire is a joint venture between Imperial and Diamond Light Source, with funding from the Wellcome Trust. The MPL has been established to assist researchers, led by Professor So Iwata of the Division of Molecular Biosciences, to solve the structure of important membrane proteins embedded in the oily membranes which coat the thousands of cells in our bodies.



Funding boost for super fast computers

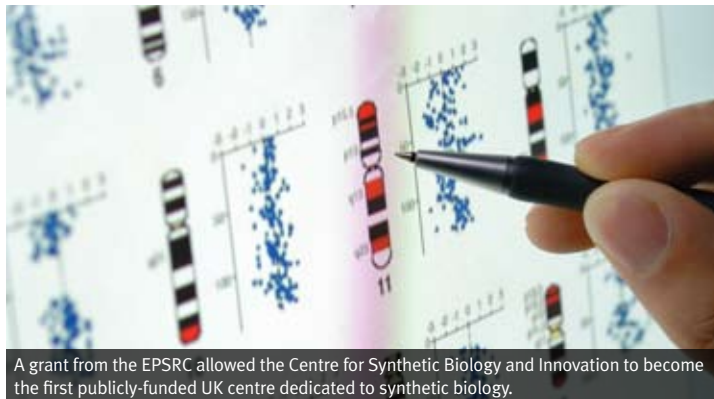
Computers which use light to process data faster than ever before are among many groundbreaking potential applications of a £6 million research programme launched in September 2009. Researchers, led by Professor Stefan Maier of the Department of Physics, are working to establish a world-leading research programme on the fundamental science of 'nanoplasmonic devices'. These devices' key components are tiny nanoscale metal structures – more than 100 times smaller than the width of a human hair – that guide and direct light. The structures interact with light in an unusual, highly-controlled way and could be used to build new kinds of super-high-speed optical computers.

Tackling master gene that switches on disease-fighting cells

The master gene that causes blood stem cells to turn into disease-fighting natural killer (NK) immune cells has been identified by scientists in a study published in *Nature Immunology* in September 2009. The researchers, led by Dr Hugh Brady, from the Department of Life Sciences, have 'knocked out' the E4bp4 gene in a mouse model, creating the world's first animal model entirely lacking NK cells but with all other blood cells and immune cells intact. This breakthrough model should help solve the mystery of the role that NK cells play in autoimmune diseases like diabetes and multiple sclerosis. The discovery could one day help scientists boost the body's production of NK cells, creating new ways to treat cancer.

Deforestation causes 'boom and bust' in Amazon

Clearing the Amazon rainforest increases Brazilian communities' wealth and quality of life, but these improvements are short-lived, according to research published in *Science* in June 2009. The study, by an international team including researchers from Imperial, shows that levels of development revert back to well below national average levels when the loggers and land clearers move on. Dr Rob Ewers, from the Department of Life Sciences and fellow author for the study, says that deforestation needs to be better managed to ensure that for local people a development 'boom' isn't followed by 'bust'.



A grant from the EPSRC allowed the Centre for Synthetic Biology and Innovation to become the first publicly-funded UK centre dedicated to synthetic biology.

Blast off for space snapshots

Physicists celebrated the launch in May 2009 of two new multimillion euro space telescopes. The European Space Agency space telescopes Herschel and Planck could transform our view of how planets, stars and galaxies are born and give insights into the universe shortly after the Big Bang. The Astrophysics Research Group, headed by Professor Kirpal Nandra, have been involved in the two missions since they were first proposed 20 years ago and are keen to see the software and instrumentation they have designed at work in space.

Climate change costs underestimated

Scientists have warned that the UN negotiations aimed at tackling climate change are based on substantial underestimates of the cost of adapting to its impacts. The real cost is likely to be two to three times greater than estimates by the UN Framework Convention on Climate Change (UNFCCC) say Professor Martin Parry, of the Centre for Environmental Policy, and colleagues in a reviewed study published in August 2009 by the International Institute for Environment and Development and Imperial's Grantham Institute for Climate Change. The study adds that costs will be even higher when the full range of climate impacts on human activities is considered.

New centre to lead UK synthetic biology research

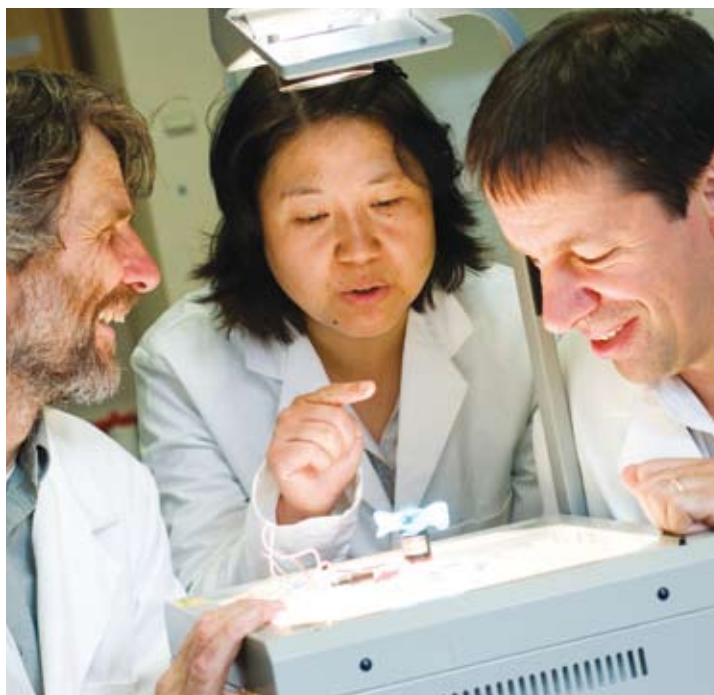
Programming biological cells so that they behave like engineering parts is the focus of research at the new Centre for Synthetic Biology and Innovation launched at Imperial in December 2008. The centre will focus on synthetic biology, a field in which engineers work with molecular bioscientists to produce biologically-based parts by modifying DNA. These parts could be used to build biological devices to detect the early onset of disease or combat harmful bacterial infections. The centre is directed by Professor Richard Kitney of the Department of Bioengineering.

Funding boost for next generation of researchers

Young scientists with the potential to make the next generation of world-changing breakthroughs are being nurtured by five new Doctorial Training Centres. Focusing on chemical biology, controlled quantum dynamics, plastic electronics and the theory and simulation of materials, the centres received funding of £18 million in December 2008 from the Engineering and Physical Sciences Research Council (EPSRC). Unlike traditional PhD programmes, the new centres enable PhD students to work with, and learn from, scientists across a variety of fields. The aim is to produce a new generation of researchers with the interdisciplinary skills and expertise to help them tackle some of the major challenges facing the world today.

“These new training centres will ensure that the College continues to produce innovative young researchers who have the breadth of interdisciplinary experience needed to meet the global demand for highly trained specialist scientists and engineers.”

Sir Roy Anderson, Rector



Imperial researchers discuss the performance of dye sensitised, nanocrystalline solar cells. From left to right: Dr Brian O'Regan, Lecturer in the Department of Chemistry, and co-inventor of dye sensitised solar cell technology; Xiaoe Li, PhD student and research technician working on development of these solar cells; and Professor James Durrant, Professor of Photochemistry and Deputy Director of the Energy Futures Lab.

Imperial College Business School



Business School academics will develop case study materials through research involving Finmeccanica's defence, transport, security and space companies.

New partnership

The Business School has joined forces with Finmeccanica, an international engineering company which employs 73,000 people globally. The new partnership was formalised in April 2009 by the signing of a Memorandum of Understanding. From October 2009, Business School academics will teach on the company's young talent training programme known as the FHINK Master's in International Business Engineering, which has attracted 15,000 applications from 121 countries over the last three years.

Gaps in cancer care

Widespread variation and gaps in national cancer public health programmes across Europe have been revealed in a report published in June 2009. The Analysis of National Cancer Control Programmes in Europe study shows that 15 of 31 European countries have not formulated national cancer control plans (NCCP). These plans were recommended in 2002 by the World Health Organisation to help governments and healthcare providers reduce cancer incidence and mortality and improve the quality of life of cancer patients. Lead author of the study was Professor Rifat Atun, chair of International Health Management at the Business School.

20

Poker prize for MBAs

A team of MBA students were awarded a cash prize of £10,000 in September 2009 by the Business School for a business plan they devised on the Imperial MBA flagship course, Innovation, Entrepreneurship and Design (IED). The six MBAs developed an idea by Cancer Research UK to tap into competitiveness to increase charitable-giving – especially among men who are not typically substantial donors. The idea, 'Play Poker, Beat Cancer', will bring together existing online gaming companies



around a televised global tournament, with significant contributions being made towards the cancer charity. The winning team, led by Piers Kotting, are planning to enter their company in Design London's incubator, an early-stage start-up business scheme linked to the Business School.

Finance MSc receives SII designation

The Securities and Investment Institute (SII) has designated Imperial's Business School an SII Centre of Excellence in the field of finance, enabling students to apply for exemption from Institute examinations. The designation means that the School's MSc Finance programme is the first in London to have both SII exemption and Chartered Financial Analyst partner programme status.





Imperial's Partnership for Child Development has launched a new project to help farmers in sub-Saharan Africa provide healthy school meals for local children, and to analyse the cost and impact of government-led school meal programmes. The new initiative will work in conjunction with education, health and agricultural sectors, social workers and international development partners, and is supported in part by a £12 million grant from the Bill and Melinda Gates Foundation.

Institute for Global Health

The overall mission for the Institute for Global Health is to improve the health in disadvantaged populations globally, by establishing itself as a catalytic hub for a network of global health initiatives across Imperial, and as a centre of leadership, research, education, and policy development. Former Director of UNAIDS, Professor Baron Peter Piot, started at Imperial as the Institute's first Director in May 2009. He is establishing the Institute as a College-wide, multidisciplinary initiative to organise, stimulate and focus leadership and resources on the global health challenge. Working in close collaboration with Imperial departments and international partners, the Institute manages a number of flagship research programmes to address the challenges of infectious and chronic diseases, and of structural and systemic issues involved with health and health service delivery.

Institute for Security Science and Technology

The Institute for Security Science and Technology, launched in November 2008 under the leadership of Professor Sir Keith O'Nions, is focusing on new science, technology and innovation linked to homeland and national security issues. From protecting the individual to ensuring the security of whole populations, the Institute is looking at ways of preventing identity theft and document fraud, as well as safeguarding transport infrastructure, energy supplies and communication networks. In the past year, the Institute has established a network of research groups across the College, to bring engineers, scientists and medical researchers together. Research will include work on sensors and sensor fusion, image analysis, data analysis and data mining, biomedical imaging and network sciences, with funding being sought both from research councils and government departments, such as the Home Office and Ministry of Defence.

Imperial's institutes

By encouraging novel multidisciplinary collaborations, Imperial's institutes aim to translate the critical mass of the College's research expertise into effective responses to global challenges by generating new technology solutions and influential policy advice to benefit healthcare, industry and commerce.

Energy Futures Lab

Providing a secure energy supply for the future is one of today's key challenges, and one that the Imperial Institute Energy Futures Lab (EFL) addresses by providing a focal point for energy research across the College. It offers researchers and students funding, support, training and opportunities to work in partnership with industry. It is working on new research programmes to encourage novel collaborations between traditional research disciplines, develop existing technologies, generate new energy solutions, and provide robust policy advice for shaping the energy agenda over the next 20–50 years. In December 2008, Ed Miliband MP delivered the EFL Annual Lecture, *Sustainable, Secure, Affordable Energy*. It was his first major speech on energy as Secretary of State for the Department of Energy and Climate Change.



Salvador Acha, PhD student in the BP Urban Energy Systems project, with Professor Nilay Shah (Chemical Engineering and Chemical Technology), discussing results for the design of a new eco-town. The project brings together the expertise of various departments and is located in the Energy Futures Lab.

Grantham Institute for Climate Change

The Grantham Institute for Climate Change, headed by Professor Sir Brian Hoskins, aims to support and translate the College's research into innovative solutions to tackle climate change. It seeks new approaches to collaboration across Imperial, and has established a series of new academic appointments and research studentships. The Institute also works to shape policy and global decision-making through its publications, seminars and public events programme. In July 2009, Grantham Institute lecturer Dr Ned Ekins-Daukes was selected to present *A quantum of sol*, an exhibition about nano-solar cells, at the Royal Society's Summer Science Exhibition. He also authored Grantham's first briefing paper, on solar energy for heat and electricity, to coincide with the exhibition.



Dr Nick Florin, Research Associate at the Grantham Institute for Climate Change, and Belén González, a visiting PhD student from Instituto Nacional de Estadística, Spain, conducting a precipitation experiment using a slurry bubble column. The overall aim is to be able to remove CO₂ from the exhaust from a large-scale power station, before transporting it to be stored underground.



2008 THE AWARDS

Graduate Schools support of final year PhDs recognised

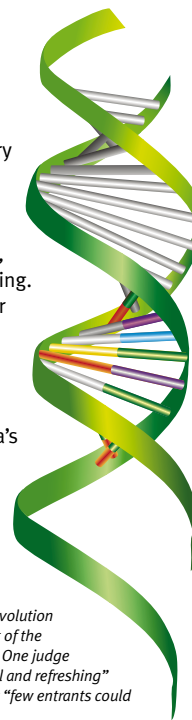
A scheme helping final year PhD students to complete their research and move on to the next phase of their careers was recognised at the *Times Higher Education (THE) Awards* in October 2008. Organised by the Graduate Schools, the *Your PhD: Finish Up and Move On (FUMO)* programme won in the Outstanding Support for Early Careers Researchers category. This is the second time the Graduate Schools have won at the *THE Awards*. In 2006 they won in the same category for the development of an innovative three-day residential course for first year PhD students called the Research Skills Development course, which was designed to help researchers start their PhD.

Double student success at *Guardian* awards

Imperial's student media triumphed at the 2009 *Guardian* Student Media Awards, winning two categories and two runner-up awards. *Felix*, the student newspaper, fought off competition from the Universities of York and Cambridge to be named Student Newspaper of the Year. In 2008 *Felix* editor, Tom Roberts, a fourth year physics undergraduate, also won in the Student Journalist of the Year category. His prize was a seven-week work placement at *The Guardian*.

Graduate wins prestigious *Daily Telegraph* competition

In July 2008, Imperial biochemistry graduate Erika Cule won the *Daily Telegraph's* science writing competition for her fictional essay entitled *It's all in the genes*, on the future of genome sequencing. Fighting off competition from over 300 other entries, Erika won in the 20 to 28-year-old category. The competition aims to find future popularisers of science, engineering and technology. Erika's success follows on from winning Imperial's Science Challenge 2008 with the same essay.



Erika Cule's take on the implications of the revolution in personal genomics stood out from the rest of the entries, reported Roger Highfield on her win. One judge described her winning essay as "very original and refreshing" and another, novelist Fay Weldon, noted that "few entrants could pull off this kind of approach".



Imperial's Student Newspaper *Felix* triumphed again at the *Guardian* Student Media Awards winning the hard-fought Student Newspaper of the Year category. 2008 editor, Tom Roberts, also won Student Journalist of the Year. The newspaper is published weekly during term time, producing approximately 30 issues per year, and is distributed around the various Imperial College campuses.



Best young female engineer

Department of Electrical and Electronic Engineering postgraduate student Hanna Sykulska was named IET Young Woman Engineer of the Year for 2008. Presented by the Institution of Engineering and Technology (IET), the award recognises young female engineers who have firmly established themselves as dynamic and technically excellent professionals. Hanna, who was the only woman engineer in the UK to take part in NASA's Phoenix mission to Mars with team-mates

Student team's gold medal success

Nine undergraduates won a gold medal and two additional top prizes at the 2008 International Genetically Engineered Machines (iGEM) competition held at MIT in the USA in November 2008. The students from Bioengineering and Life Sciences, won their prizes for a four-month project in which they designed and developed genetically engineered bacterial 'machines' that can produce self-assembling materials for use in clothing and medical applications. The team won for their method of modifying small harmless soil bacteria called *Bacillus subtilis* to produce materials, such as cellulose, on demand and in a pre-determined pattern.

Conference gives prospective students a medical preview

The second *Vision* conference, organised by Imperial College London medical students for school students took place in September 2008. Aimed at 15 and 16-year-olds from less privileged backgrounds and local schools, it offered an interactive programme involving lectures, demonstrations, exhibition stands and mock interviews to help participants prepare for medical school applications. Pupils also met over 90 current Imperial medics giving them the opportunity to practise common medical procedures, such as taking blood pressure and passing a nasogastric tube through the nose to the stomach. In addition, a laparoscopic simulator from the Department of Biosurgery and Surgical Technology enabled the school pupils to have a go at keyhole surgery.



Postgrads show how to fight climate change

In March 2009, postgraduates from the Department of Earth Science Engineering won the first prize in a national competition for a proposal that could help a major energy company and its customers combat climate change. Alan Whitaker, Andy Hadland, Gaurav Monga and Philipp Gruenewald from the MSc in Sustainable Energy Futures won the npower Energy Challenge competition at Wembley Stadium. They beat seven other teams from universities such as Oxford and Cambridge to take home the £10,000 prize. Their proposal showed how the company could get its customers to enter into new energy efficiency agreements and make a profit in the process.



Over 270 school pupils attended the *Vision* conference 2008 – a one-day conference giving them an insight into the medical profession and helping prospective students with the application process.

“One of the most important messages I hope we have given to delegates is that regardless of their background, all students have an equal opportunity in their pursuit of their passion for medicine.”

Sukhpreet Singh Dobb, *Vision Outreach* Founding President

Estate developments



The new Southside (above) and Eastside (below) halls of residence at Prince's Gardens.

Prince's Gardens

The restoration of Prince's Gardens, the historic London square which is home to two of the College's main student residences on the South Kensington Campus, was completed in summer 2009. Work included the construction of Southside, containing four halls of residence with 413 beds, which opened in October 2008, and Eastside, which welcomed its first residents in October 2009, see below. A network of paths across the gardens has been created, and the original railings and central urn have been returned. New lighting has been installed to make the area safer and more attractive at night.

Eastside halls of residence

The new Eastside halls of residence at Prince's Gardens took in their new cohort of freshers in October 2009. The complex provides student accommodation for 453, a convenience store, and a restaurant and bar. The halls of residence are named after Nobel prize winners Dennis Gabor, who won the Nobel Prize for Physics in 1971 for his invention of holography, Sir Geoffrey Wilkinson, who received the award for his work on organometallic sandwich compounds and former Rector, Sir Patrick Linstead. Linstead Hall was also the name of the hall on that site that was demolished to allow for the new building.

“The new L Block will enable us to bring a critical mass of scientists, clinicians and patients under one roof, focusing on major health challenges in many areas.”

Sir Roy Anderson, Rector



The new L Block is specifically designed to encourage the translation of research findings into benefits for patients.



South Kensington Campus developments

The first phase of the south east quadrant (SEQ) project began in early 2009. The project comprises a programme of works whose vision is to provide shared, world class, flexible teaching and research facilities, embracing the Departments of Aeronautics, Mechanical Engineering, Civil and Environmental Engineering, Computing and an expanded Business School. The College proposes to build a flexible, green building that will also work as a showcase space on its Exhibition Road frontage. The new spaces will also allow a greater capacity to work across disciplines, transcending traditional boundaries to address global issues, such as energy, water supply, sustainability, security and an ageing population.

Translational medicine centre

The construction of L block at Hammersmith Campus officially began in April 2009, when the Rector, Sir Roy Anderson, ceremonially took the first sledgehammer to the old, outdated building. The new £99 million, six-storey facility will be dedicated to finding new ways to treat people with serious health problems, such as heart and circulatory diseases. It will form a key part of the Academic Health Science Centre by bringing together a critical mass of scientists, clinicians and patients under one roof, thereby speeding up the translation of research into new therapies and treatments. The new building is due to be in use by December 2011.

5th

Imperial is ranked fifth equal in the world by the *Times Higher Education* 2009 world university rankings.

14

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

93.3%

The Sunday Times 2009 university guide placed Imperial top of the league for the percentage of former students in graduate-level jobs in the UK.

73%

The 2008 Research Assessment Exercise judged Imperial as home to the highest percentage of world-leading or internationally excellent research of all UK multi-faculty universities.

24%

The College Fund holds 52% of the shares in Imperial Innovations, Imperial's technology transfer company. Innovations' share price rose by 24% in the year.

£286.8m

The College's research income amounted to £286.8 million in 2008–09.

Corporate governance

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 2009.

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 up to 23 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, changes to the College's Charter 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 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 Development, 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 2009 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.

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.

Responsibilities of the Council

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.

The Council will undertake a review of its governance arrangements in 2009-10 with the intention of ensuring their continued effectiveness.

Council and Council committees



Members of Imperial's Council attending their away day in July 2009. Back row: Professor Stephen Richardson, Mr Jeremy Newsum, Sir Peter Gershon, Baroness Manningham-Buller, Professor Chris Isham, Mr Stewart Newton, Dr Rodney Eastwood, Professor Stephen Smith, Dr Martin Knight. Front row: Mrs Philippa Couttie, Professor Maggie Dallman, Sir Roy Anderson, Ms Jenny Morgan, Lord Kerr of Kinlochard, Dr George Gray, Ms Kate Owen.

The Council

Chairman:

- ▶ Lord Kerr of Kinlochard

Co-opted External Members:

- ▶ Sir David Cooksey (from 7 July 2009)
- ▶ Mrs P. Couttie
- ▶ Sir Peter Gershon
- ▶ Mr B. Gidoomal (until 30 May 2009)
- ▶ Dr G.G. Gray (until 31 July 2009)
- ▶ Ms C. Griffiths
- ▶ Ms R. Lomax (from 7 July 2009)
- ▶ Baroness Manningham-Buller (from 7 July 2009)
- ▶ Mr J.H.M. Newsum
- ▶ Mr S. Newton
- ▶ Ms K. Owen
- ▶ Lord Tugendhat (from 7 July 2009)
- ▶ Baroness Wilcox

Ex-Officio:

- ▶ Rector: Professor Sir Roy Anderson
- ▶ Senior Principal: Professor Sir Peter Knight

Senior Staff Representatives:

- ▶ Professor D.K.H. Begg
- ▶ Professor M. Dallman
- ▶ Dr M.P. Knight
- ▶ Professor S. Richardson
- ▶ Professor S.K. Smith

Elected Staff Member:

- ▶ Professor C. Isham (until 31 August 2009)
- ▶ Professor J. Kramer (from 1 September 2009)

President, Imperial College Union:

- ▶ Ms J. Morgan (until 31 July 2009)
- ▶ Mr A. Brown (from 1 August 2009)

Clerk to the Court and Council:

- ▶ Dr R.F. Eastwood

Audit Committee

Chairman:

- ▶ Mrs P. Couttie

Membership:

- ▶ Sir Peter Gershon
- ▶ Dr G.G. Gray (until 31 July 2009)
- ▶ Ms C. Griffiths
- ▶ Ms R. Lomax (from 1 August 2009)
- ▶ Ms K. Kantor (co-opted)

Secretary:

- ▶ Mr J.B. Hancock

Remuneration and Nominations Committee

Chairman:

- ▶ Lord Kerr of Kinlochard

Membership:

- ▶ Sir Peter Gershon
- ▶ Dr G.G. Gray (until 31 July 2009)
- ▶ Baroness Manningham-Buller (from 1 August 2009)
- ▶ Baroness Wilcox

Secretaries:

- ▶ Mr C. Gosling
- ▶ Dr R.F. Eastwood

College Fund Board

Chairman:

- ▶ Mr S. Newton

Membership:

- ▶ The Hon. R. Rayne
- ▶ Professor D. Miles (until 30 April 2009)
- ▶ Sir Roy Anderson
- ▶ Dr M.P. Knight
- ▶ Professor D.K.H. Begg

Secretary:

- ▶ Ms L. Humphreys



The College Fund Board

Top: Mr Stuart Newton, The Hon. Robert Rayne. Middle: Professor David Miles, Sir Roy Anderson. Bottom: Dr Martin Knight, Professor David Begg.



Financial year 2008–09

Auditors' report

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 2009 which comprise the Consolidated Income and Expenditure Account, the Consolidated 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*.

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 information given in the report of the Chief Operating Officer is consistent with those financial statements. In addition, we report to you if, in our opinion, the College has not kept proper accounting records, if the accounting records are not in agreement 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 Annual Report and consider the implications for our report if we become aware of any apparent misstatements or material inconsistencies with the financial statements. This other information comprises only the Rector's foreword, 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 corporate governance statement and comment if the statement is inconsistent with our knowledge of the College. We are not required to consider whether the corporate governance statement covers all risks and controls, or to form an opinion on the effectiveness of the College'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 Accountability and Audit Code of Practice contained in the Financial Memorandum 2008/19. 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 College'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 2009, and of the group's income and expenditure, recognised gains and losses and statement of cash flows 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*, and United Kingdom Generally Accepted Accounting Practice;
- 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 (2008/19) with the Higher Education Funding Council for England.

PricewaterhouseCoopers LLP
Chartered Accountants and Registered Auditors
London

23 November 2009

Consolidated income and expenditure account

For the year ended 31 July 2009

	Note	2009 £m	2008 £m
Income			
Funding Council grants	1	178.4	165.1
Academic fees and support grants	2	108.8	96.0
Research grants and contracts	3	286.8	255.5
Other operating income	4	84.8	72.6
Endowment and investment income	5	13.3	13.9
Total income		672.1	603.1
Less: share of income from joint ventures		(0.3)	–
Net income		671.8	603.1
Expenditure			
Staff costs	6	351.1	320.9
Restructuring costs	6	8.0	4.0
Depreciation	9	46.7	36.8
Other operating expenses	7	245.1	227.5
Interest and other finance costs	8	6.5	6.9
Total expenditure	9	657.4	596.1
Surplus after depreciation of fixed assets at valuation and before tax		14.4	7.0
Share of associates' operating results		0.1	0.1
Taxation		–	–
Surplus after depreciation of assets at valuation and tax		14.5	7.1
Minority interest	29	1.6	2.4
Surplus before exceptional items		16.1	9.5
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		16.1	26.7
Transfer from accumulated income within endowments	14	0.6	0.4
Surplus for the year retained within general reserves		16.7	27.1

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 2009

Surplus on continuing operations before taxation	16.1	26.7
Realisation of revaluation gains of prior years on fixed asset investments sold in the year	–	1.9
Historical cost surplus for the year before tax	16.1	28.6
Historical cost surplus for the year after taxation	16.1	28.6

Balance sheets

as at 31 July 2009

	Note	Consolidated		College	
		2009 £m	2008 £m	2009 £m	2008 £m
Fixed assets					
Tangible assets	11	733.4	665.3	715.1	648.8
Investments	12, 28	53.1	47.3	23.4	21.7
Investments in joint venture:					
Share of gross assets	13	0.3	0.4	-	-
Share of gross liabilities	13	(0.3)	(0.4)	-	-
		786.5	712.6	738.5	670.5
Endowment asset investments	14	56.0	56.0	56.0	56.0
Current assets					
Stocks		0.3	0.3	0.2	0.2
Debtors	15	93.6	92.5	99.9	103.5
Investments and short term deposits	26	160.3	141.0	131.0	105.0
Cash at bank and in hand	26	22.8	66.5	20.8	50.3
		277.0	300.3	251.9	259.0
Creditors: amounts falling due within one year	16	(281.2)	(252.9)	(283.7)	(251.8)
Net current (liabilities)/assets		(4.2)	47.4	(31.8)	7.2
Total assets less current liabilities		838.3	816.0	762.7	733.7
Creditors: amounts falling due after more than one year	17	(172.5)	(175.1)	(171.4)	(173.5)
Provisions for liabilities and charges	18	(18.4)	(11.6)	(18.4)	(11.6)
Total net assets excluding pension asset		647.4	629.3	572.9	548.6
Pension asset	34	-	-	-	-
Total net assets including pension asset		647.4	629.3	572.9	548.6

	Note	Consolidated		College	
		2009 £m	2008 £m	2009 £m	2008 £m
Represented by:					
Deferred Capital Grants	19	339.4	334.5	328.1	325.1
Endowments					
Expendable	20	17.6	18.6	17.6	18.6
Permanent	20	38.4	37.4	38.4	37.4
		56.0	56.0	56.0	56.0
Revaluation reserve	22	4.8	6.4	3.9	1.3
General reserves					
Income and expenditure account	21, 22	211.1	194.4	184.9	166.2
Share based payments	22	4.7	4.7	–	–
Pension reserve	22	–	–	–	–
General reserves including pension reserve		215.8	199.1	184.9	166.2
Total College Funds		616.0	596.0	572.9	548.6
Minority interest	29	31.4	33.3	–	–
Total Funds		647.4	629.3	572.9	548.6

The financial statements on pages 31 to 55 were approved by the Council on 20 November 2009 and signed on their behalf by:

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 2009

	Note	2009 £m	2008 £m
Net cash inflow from operating activities	24	54.4	45.7
Returns on investments and servicing of finance			
Income received from endowments		1.5	2.1
Income received from short term investments		10.3	11.0
Income received from fixed asset investments		–	0.7
Other interest received		0.8	0.7
Interest paid		(8.9)	(7.0)
		3.7	7.5
Capital expenditure and financial investment			
Payments to acquire tangible assets		(122.2)	(123.8)
Purchase of fixed asset investments		(18.3)	(7.9)
Acquisition of endowment assets		(6.9)	(2.5)
Total payments to acquire fixed and endowment asset investments		(147.4)	(134.2)
Receipts from disposal of tangible assets		0.2	8.6
Receipts from disposal of fixed asset investments		9.7	6.7
Receipts from disposal of endowment assets		8.1	13.3
Deferred capital grants and lease premiums in advance received		54.2	52.7
Endowments received		1.3	5.1
		(73.9)	(47.8)
Acquisitions and disposals			
Receipts on issue of shares to minority interests		–	26.3
Management of liquid resources		(19.3)	(56.0)
Financing			
Net mortgages and loans acquired		–	50.0
(Decrease)/increase in cash	26	(35.1)	25.7

Statement of consolidated total recognised gains and losses

For the year ended 31 July 2009

	Note	2009 £m	2008 £m
Surplus on continuing operations after depreciation, exceptional items and tax		16.1	26.7
Decrease in market value of endowment asset investments	14, 20	(0.7)	(6.8)
Net endowment additions	14, 20	1.3	5.1
Revaluation of investments within fixed assets		(1.6)	(9.1)
Movement in share based payment reserve	22	-	1.8
Actuarial loss on FPS pension scheme		-	(0.1)
Total recognised gains relating to the year		15.1	17.6
Opening reserves and endowments		261.5	
Total recognised gains relating to the year		15.1	
Closing reserves and endowments		276.6	

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 UK accounting standards.

2. Basis of consolidation

The consolidated financial statements incorporate the financial statements of the College, Imperial College Union and all subsidiary undertakings, including Imperial Innovations Group plc, 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 s408 of the Companies Act 2006. 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. For those subsidiary companies that report under International Financial Reporting Standards for their own financial statements, (namely Imperial Innovations Group plc), accounts have been restated to comply with UK Accounting Standards for the purposes of consolidation into these consolidated Group accounts.

3. 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 endowments not expended in accordance with the restrictions of the endowment is transferred from the income and expenditure account to 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 should be expended 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.

4. 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.

5. Foreign currencies

Transactions denominated in Euros, US\$ 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.

6. 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.

7. 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.

8. 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.

9. Reserves

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

10. 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.

11. 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.

12. 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.

13. 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.

14. Share based payments

Certain employees (and directors) of Imperial Innovations Group plc, a subsidiary of the College, receive remuneration in the form of share based payments. Equity settled share based payments are measured at fair value, using the binomial option pricing model, at the date of grant. This fair value is expensed on a straight-line basis to the income and expenditure account over the vesting period, based on an estimate of shares that will eventually vest. A corresponding credit is taken to the share based payment reserve.

Notes to the accounts

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1. Funding Council grants	Note	2009 £m	2008 £m
Recurrent—teaching		56.9	55.8
Recurrent—research		98.3	92.1
London Whole Institutions		0.4	0.8
Higher Education Innovation Fund (HEIF)		1.4	1.3
Research capital initiative and project capital allocations		20.8	6.8
Science Research Investment Fund (SRIF)		12.0	26.2
Other specific grants		4.7	1.7
<hr/>		194.5	184.7
Grants from Higher Education Funding Council for England (HEFCE)			
Joint Information Systems Committee (JISC)		0.1	0.1
Transferred to deferred capital grants in the year			
Buildings		(30.2)	(31.6)
Equipment		(2.6)	(1.3)
Deferred capital grants released in the year			
Buildings	19	12.2	8.1
Equipment	19	4.4	5.1
<hr/>		178.4	165.1

2. Academic fees and support grants	Registered student numbers		2009 £m	2008 £m
	31 Dec 2008	31 Dec 2007		
Full-time home and European Union students	9,038	8,582	27.2	21.6
Full-time overseas students	3,764	3,529	68.6	60.7
Part-time students	1,026	1,008	5.1	4.8
Research training support grants			5.4	5.3
Short course fees			2.5	3.6
<hr/>			108.8	96.0

Research training support grants include £2.6 million (£1.9 million 2008) of tuition fees paid in respect of full-time home and European Union students.

Total numbers of full-time and part-time students are 13,828 in 2009 and 13,119 in 2008 (excluding those on Research Training Support Grants and short courses).

3. Research grants and contracts	2009 £000	2008 £000
UK research councils	102.1	86.7
UK government departments, local and health authorities	29.7	28.0
UK industry, commerce and public corporations	27.1	27.0
UK charities	70.9	62.1
UK other	1.4	1.5
European Commission	15.3	13.3
Other European Union and overseas	40.3	36.9
	286.8	255.5
Research income relating to the direct expenditure incurred during the year	233.8	210.6
Contributions towards overhead costs	53.0	44.9
	286.8	255.5

Total research income excludes £6.1 million (£3.6 million in 2008) deferred capital grants received in 2009 but includes £6.7 million (£5.8 million in 2008) released from deferred capital grants.

UK other research grants and contracts include restricted grant aid from the Big Lottery Fund (BLF). The total amount of funding awarded for projects ongoing in 2009 is £12.2 million (for projects ongoing in 2008: £12.3 million). This includes £11.8 million (2008: £11.8 million) 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 this total awarded £0.8 million (2008: £0.5 million) has been spent and recognised in the year within the research income figures above.

4. Other operating income	2009 £000	2008 £000
Health and hospital authorities	16.2	15.0
Consultancies and scientific services	8.2	5.2
Donations	3.4	2.6
Residences, catering and conferences	23.3	23.2
Income from exploitation of intellectual property	2.0	2.6
Rents receivable	3.6	3.2
Commissions and fees	1.6	1.3
Other departmental income	9.1	7.7
Released from deferred capital grants on land and buildings	6.0	1.6
Released from deferred capital grants on equipment	0.1	0.1
Other income	11.3	10.1
	84.8	72.6

5. Endowment and investment income	Note	2009 £000	2008 £000
Income from expendable endowment investments	20	0.5	0.7
Income from permanent endowment investments	20	1.1	1.3
Income from long term investments		0.5	0.2
Income from short term investments		10.5	10.9
Other interest receivable		0.7	0.7
Net return on pension scheme		-	0.1
		13.3	13.9

Notes to the accounts

6. Staff	Note	2009 £m	2008 £m
Staff costs:			
Wages and salaries		295.7	268.9
Social security costs		23.3	22.7
Other pension costs	34	32.1	29.3
		351.1	320.9
Restructuring costs		8.0	4.0
		359.1	324.9

A number of staff restructuring initiatives are currently underway as part of an efficiency and cost control exercise being undertaken by the College.

	2009 £000	2008 £000
Emoluments of the Rector:		
Remuneration	292	370
Social security costs	34	48
Other	6	11
	332	429
Employer's pension contributions	41	3
	373	432

In the prior year, on 1 July 2008, Sir Roy Anderson was appointed as Rector of the College. The contract for Sir Richard Sykes, the former Rector, expired on 31 July 2008 resulting in a one month overlap. The figures above for 2008 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.

No payments for compensation for loss of office were made in 2009 or 2008 to members of staff earning in excess of £100,000 per annum.

	Full Time Equivalent		Headcount	
	2009 Number	2008 Number	2009 Number	2008 Number
Average staff numbers by major category:				
Research and education	3,233	3,112	3,385	3,258
Professional services	2,237	2,297	2,438	2,493
Technical services	602	499	622	517
Operational services	582	580	705	758
	6,654	6,488	7,150	7,026

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 Student Union.

Remuneration of higher paid staff (excluding the Rector) for College duties plus payments made on behalf of third parties	2009 Number	2008 Number
£100,000–£109,999	46	52
£110,000–£119,999	30	24
£120,000–£129,999	25	24
£130,000–£139,999	26	25
£140,000–£149,999	25	24
£150,000–£159,999	24	23
£160,000–£169,999	19	18
£170,000–£179,999	12	10
£180,000–£189,999	9	7
£190,000–£199,999	3	3
£200,000–£209,999	3	6
£210,000–£219,999	–	3
£220,000–£229,999	2	–
£230,000–£239,999	1	–
£240,000–£249,999	–	1
£250,000–£259,999	–	1
£260,000–£269,999	1	–
£270,000–£279,999	1	1
£380,000–£389,999	–	1

Remuneration of higher paid staff excludes employer's pension and National Insurance 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	2009 £m	2008 £m
Research grants and contracts	100.9	89.3
Consultancies and scientific services	2.8	0.1
Short courses	1.0	1.1
General expenditure in academic departments	40.9	37.5
Residences, catering and conferences	13.7	12.9
Central support services	22.2	25.9
Fellowships, scholarships and prizes	7.4	6.5
Books, periodicals and other library expenditure	5.9	5.3
Facilities and maintenance of premises	47.1	43.5
Auditors' remuneration	0.2	0.2
Auditors' fees in respect of non-audit services	0.1	0.1
Other, including Students' Union	2.9	5.1
	245.1	227.5

8. Interest and other finance costs	2009 £m	2008 £m
Losses on long term investments	0.6	–
Bank and other loans	5.4	6.6
Other financing costs	0.5	0.3
	6.5	6.9

Notes to the accounts

9. Analysis of expenditure by activity	Staff costs £m	Depreciation £m	Other operating expenses £m	Interest and other finance costs £m	2009 Total £m	2008 Total £m
Academic departments	147.0	3.4	41.9	0.1	192.4	177.6
Academic services:						
Libraries and information services	4.6	–	5.9	–	10.5	9.9
Central computer and computer networks	11.1	2.4	6.0	–	19.5	20.1
Other	8.6	–	6.7	–	15.3	14.6
Total academic services	24.3	2.4	18.6	–	45.3	44.6
Research grants and contracts	126.2	6.8	100.9	–	233.9	210.6
Residences, catering and conferences	6.5	2.6	13.7	–	22.8	21.2
Premises	16.5	30.3	47.1	–	93.9	78.6
Administration and central services:						
Central administration	18.2	0.9	5.8	–	24.9	26.6
General educational expenditure	2.3	–	9.3	–	11.6	9.8
Staff and student facilities	4.6	0.3	4.8	–	9.7	8.7
Total administration and central services	25.1	1.2	19.9	–	46.2	45.1
Other expenditure:						
Consultancies and scientific services	5.0	–	2.8	–	7.8	4.5
Other, including restructuring costs	8.5	–	0.2	6.4	15.1	13.9
Total other expenditure	13.5	–	3.0	6.4	22.9	18.4
	359.1	46.7	245.1	6.5	657.4	596.1
The depreciation charge has been funded by:	Note	£m				
Deferred capital grants released	19	29.4				
General income		17.3				
Total depreciation charge	11	46.7				

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 2009						
Education and research	661.9	0.8	661.1	15.3	931.1	486.4
College Fund	4.9	0.3	4.6	1.8	118.0	93.7
Imperial Innovations Group plc	6.3	0.2	6.1	(2.6)	70.4	67.3
	673.1	1.3	671.8	14.5	1,119.5	647.4
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

The Education and research segment comprises the core academic activities of scholarship, education and research.

The College Fund manages assets not required for the core academic mission of the College with a pure investment focus, in order to provide steady capital growth and a regular income to support the College's academic objectives.

Imperial Innovations Group plc (Innovations), is an intellectual property (IP), incubation and investment subsidiary developed to provide commercialisation and business support services to the College and external organisations. For purposes of its individual financial statements it reports as an AIM listed group under International Financial Reporting Standards. Figures included in the segmental analysis above, however, have been prepared on the basis of UK Generally Accepted Accounting Principles to comply with the consolidation requirements of the *Statement of Recommended Practice: Accounting for Further and Higher Education Institutions (SORP)* and other applicable UK accounting standards.

11. Tangible assets	Consolidated				
	Land and buildings		Fixtures, fittings, tools and equipment £m	Assets under construction £m	Total £m
	Freehold £m	Leasehold £m			
Cost					
At 1 August 2008	334.5	340.1	151.7	98.5	924.8
Additions	15.6	35.6	13.4	50.7	115.3
Transfers	(1.2)	15.0	4.5	(18.3)	–
Disposals	–	–	(7.0)	(0.1)	(7.1)
At 31 July 2009	348.9	390.7	162.6	130.8	1,033.0
Depreciation					
At 1 August 2008	64.1	92.1	103.3	–	259.5
Charge for year	15.8	14.5	16.4	–	46.7
Eliminated on disposals	–	–	(6.6)	–	(6.6)
At 31 July 2009	79.9	106.6	113.1	–	299.6
Net book value					
At 31 July 2009	269.0	284.1	49.5	130.8	733.4
At 1 August 2008	270.4	248.0	48.4	98.5	665.3
	College				
	Land and buildings		Fixtures, fittings, tools and equipment £m	Assets under construction £m	Total £m
Cost	Freehold £m	Leasehold £m			
At 1 August 2008	334.6	329.3	148.4	91.8	904.1
Additions	15.6	36.4	13.2	47.5	112.7
Transfers	(1.3)	15.1	4.5	(18.3)	–
Disposals	–	–	(7.0)	(0.1)	(7.1)
At 31 July 2009	348.9	380.8	159.1	120.9	1,009.7
Depreciation					
At 1 August 2008	64.0	91.1	100.2	–	255.3
Charge for year	15.8	14.0	16.1	–	45.9
Eliminated on disposals	–	–	(6.6)	–	(6.6)
At 31 July 2009	79.8	105.1	109.7	–	294.6
Net book value					
At 31 July 2009	269.1	275.7	49.4	120.9	715.1
At 1 August 2008	270.6	238.2	48.2	91.8	648.8

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 Freehold.

Included at cost within land and buildings for the College and Group as at 31 July 2009 and 2008 is a heritage asset, being the nineteenth-century built Queen's Tower, currently insured at a value of £8.4 million (2008: £8.2 million).

Notes to the accounts

12. Investments	Note	Consolidated		College	
		2009 £m	2008 £m	2009 £m	2008 £m
Investment in subsidiary companies at cost		–	–	9.2	9.2
Investment in other associated undertakings		0.6	0.5	0.1	0.1
Other fixed asset investments	28	52.5	46.8	14.1	12.4
		53.1	47.3	23.4	21.7

As at 31 July 2009 the College's direct equity holdings in subsidiary and associated undertakings were as follows:

Undertaking	Activity	Holding %
Subsidiaries		
IC Consultants Ltd	Consultancy and scientific services	100
Imperial Activities Ltd	Commercial property services	100
Extracalm Co Ltd	Administrative services	100
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 Ltd	Dormant	100
Imperial MBA Ltd	Dormant	100
Imperial College London Ltd	Dormant	100
Imperial Innovations Group plc	Commercialisation of ideas and inventions	52
Extracalm Cleaning LLP	Cleaning services	partnership
Associates		
Natural Resources Intl Ltd	Environmental consultancy and scientific services	50
GMEC Management Company Ltd	Promotion of collaborative biomedical research	20

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

13. Investment in joint venture

At 31 July 2009 the College held a 50% share in the Bio Nano Centre Ltd, a UK company limited by guarantee that specialises in the development of biomedical and nanotechnology-based products. The investment has been consolidated using the gross equity method.

14. Endowment asset investments	Consolidated and College						
	Balance 2008 £m	Disposals £m	Additions £m	Net expenditure from capital £m	Transfers between investments £m	Increase/ (decrease) in market value £m	Balance 2009 £m
UK equities	15.9	–	–	–	(6.1)	(1.3)	8.5
International equities	12.3	–	–	–	6.8	–	19.1
Absolute return investments	6.4	–	–	–	(0.2)	(0.7)	5.5
Long/Short UK Equities Fund	2.3	–	–	–	(0.1)	(0.2)	2.0
Equity options	–	–	–	–	(1.7)	1.7	–
Investment property	1.0	–	–	–	–	(0.2)	0.8
Investment income receivable	–	–	–	–	0.1	–	0.1
Short term investments/Cash	18.1	(0.7)	2.0	(0.6)	1.2	–	20.0
Total	56.0	(0.7)	2.0	(0.6)	–	(0.7)	56.0
Fixed interest and equities at cost	54.5						52.6

15. Debtors	Consolidated		College	
	2009 £m	2008 £m	2009 £m	2008 £m
Amounts falling due within one year:				
Amounts due on research grants and contracts				
Debtors	18.4	25.8	18.4	25.8
Work in progress	45.5	41.2	45.5	41.2
Other debtors	14.3	9.5	10.5	5.5
Prepayments and accrued income	15.1	17.7	12.8	12.3
Amounts owed by group undertakings	–	–	12.0	20.1
Provision for bad debts	(2.0)	(1.7)	(1.6)	(1.4)
	91.3	92.5	97.6	103.5
Amounts falling due after more than one year:				
Prepayments and accrued income	2.3	–	2.3	–
	93.6	92.5	99.9	103.5

16. Creditors: amounts falling due within one year	Consolidated		College	
	2009 £m	2008 £m	2009 £m	2008 £m
Bank overdraft	2.0	8.7	10.5	8.7
Loans repayable within one year	1.9	–	1.9	–
Research payments received on account	130.4	109.7	130.4	109.7
Creditors	17.9	16.5	16.4	15.0
Social security and other taxation payable	9.1	9.4	9.0	8.9
Accruals and deferred income	119.9	108.6	108.0	97.4
Amounts owed to group undertakings	–	–	7.5	12.1
	281.2	252.9	283.7	251.8

17. Creditors: amounts falling due after more than one year	Consolidated		College	
	2009 £m	2008 £m	2009 £m	2008 £m
Other taxation payable	0.1	0.3	0.1	0.3
Loans repayable in one to two years	5.8	1.9	5.8	1.9
Loans repayable in two to five years	17.3	17.3	17.3	17.3
Loans repayable after more than five years	148.2	154.0	148.2	154.0
University Challenge Fund grants and Revenue Share Liability	1.1	1.6	–	–
	172.5	175.1	171.4	173.5

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 December 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.

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 2008	3.4	8.2	11.6
Provided in the year	8.4	0.1	8.5
Utilised / written back in the year	(2.2)	–	(2.2)
Unwinding of the discount	–	0.5	0.5
At 31 July 2009	9.6	8.8	18.4

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.

19. Deferred Capital Grants	Note	Consolidated			College
		HEFCE & JISC grants £m	Other grants & benefactions £m	Total £m	Total £m
At 1 August 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
Cash receivable					
Buildings—specific funding (incl. transfers)		30.2	(4.4)	25.8	23.6
Equipment—specific funding		2.6	6.0	8.6	8.6
Total		32.8	1.6	34.4	32.2
Eliminated on disposals					
Buildings—specific funding		–	–	–	–
Equipment—specific funding		–	(0.1)	(0.1)	(0.1)
Total		–	(0.1)	(0.1)	(0.1)
Released to income and expenditure account					
Buildings		(12.2)	(8.5)	(20.7)	(20.4)
Equipment		(4.4)	(4.3)	(8.7)	(8.7)
Total	9	(16.6)	(12.8)	(29.4)	(29.1)
At 31 July 2009					
Buildings		229.1	81.2	310.3	299.1
Equipment		21.0	8.1	29.1	29.0
Total		250.1	89.3	339.4	328.1



20. Endowments	Consolidated and College					
	Unrestricted permanent £m	Restricted permanent £m	Total permanent £m	Restricted expendable £m	2009 Total £m	2008 Total £m
At 1 August						
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
New endowments	1.0	0.2	1.2	0.1	1.3	5.1
Investment income	0.3	0.8	1.1	0.5	1.6	2.0
Expenditure	(0.2)	(0.6)	(0.8)	(1.4)	(2.2)	(2.4)
	0.1	0.2	0.3	(0.9)	(0.6)	(0.4)
Decrease in market value	(0.2)	(0.3)	(0.5)	(0.2)	(0.7)	(6.8)
At 31 July	10.7	27.7	38.4	17.6	56.0	56.0
Represented by:						
Capital	11.0	26.4	37.4	24.0	61.4	60.8
Accumulated income	(0.3)	1.3	1.0	(6.4)	(5.4)	(4.8)
	10.7	27.7	38.4	17.6	56.0	56.0

Included within endowments are a number of permanent funds with a deficit of accumulated income as at 31 July 2009. Within unrestricted permanent endowments these comprise two funds with a combined deficit balance of £0.4 million (2008: two funds with a deficit totalling £0.5 million). Within restricted permanent endowments there are 41 individual funds with a total combined deficit of £0.7 million (2008: 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.

21. Income and expenditure account	Consolidated £m	College £m
Balance at 1 August 2008	194.4	166.2
Surplus after tax and minority interest	16.7	18.7
Balance at 31 July 2009	211.1	184.9

22. Statement of movements on reserves					Consolidated
	Opening balance £m	Surplus for the year £m	Transfer between reserves £m	Movement in year £m	Closing balance £m
Specific non-discretionary reserves					
Harlington student fund	2.6	–	–	–	2.6
Fund reserve	(1.0)	–	–	–	(1.0)
Imperial College Union funds	2.0	–	–	–	2.0
Subsidiary and associate companies' reserves	26.2	–	(2.0)	–	24.2
	29.8	–	(2.0)	–	27.8
General income and expenditure reserve	164.6	16.7	2.0	–	183.3
Total income and expenditure reserves	194.4	16.7	–	–	211.1
Share based payments	4.7	–	–	–	4.7
Pension reserve	–	–	–	–	–
Total general reserves including pension reserve	199.1	16.7	–	–	215.8
Revaluation reserve	6.4	–	–	(1.6)	4.8
Total reserves	205.5	16.7	–	(1.6)	220.6

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 2009 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 £17.7 million and received research grants and contracts amounting to £47.9 million from such parties. Research grants include £26.0 million from the Wellcome Trust where Baroness Manningham-Buller 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.

Lord Kerr of Kinlochard is deputy chairman of Royal Dutch Shell plc and is a member of the advisory board of BAE Systems plc. Research contract income includes £1.0 million from Royal Dutch Shell plc and £0.9 million from BAE Systems plc. The College also received £1.2 million of research contract income from AWE ML where Sir Peter Knight is a member of the Advisory Council.

The Rector, Sir Roy Anderson is a non-executive director of GlaxoSmithKline plc. He is also a member of the Science Advisory Board of the Bill and Melinda Gates Foundation (Grand Challenges), and a Science Policy Committee Member for the Royal Society. Research grants and contracts include £3.0 million from GlaxoSmithKline plc, £4.7 million from the Bill and Melinda Gates Foundation and £3.1 million from the Royal Society.

In October 2007 Hammersmith Hospitals NHS Trust and St Mary's NHS Trust merged to form the Imperial College Healthcare NHS Trust. Professor Stephen Smith, the Principal of the Faculty of Medicine is also the Chief Executive of Imperial College Healthcare NHS Trust. The

Rector, Sir Roy Anderson, was appointed as the University nominated non-executive director of the Trust on 1 October 2008 and the College Secretary, Dr Rodney Eastwood, is also a member of the Trust Board. Claire Perry, the Managing Director of Imperial College Healthcare NHS Trust, also serves on the College's Management Board. 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 £11.8 million and research grant income includes £3.2 million from the Imperial College Healthcare NHS Trust.

Dr John Green, the Chief Coordinating Officer of the Research Services Division of Imperial College London, is also a Trustee of the Kennedy Institute of Rheumatology Trust. Research grant income includes £2.6 million from the Kennedy Institute of Rheumatology 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.

On 1 January 2009 Christopher Gosling, the Director of Human Resources, was appointed as a Trustee of the SAUL pension scheme. Purchased goods and services include £5.4 million to the SAUL Trustee Company in the seven months to 31 July 2009. Further details of the scheme are outlined in note 34.

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 £60k 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 Knight also holds options over ordinary shares of Imperial Innovations and held ordinary shares in Imperial Innovations at 31 July 2009. 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 28 on Related Party Disclosures within the Imperial Innovations Annual Report for the year ended 31 July 2009 which is publicly available.

A number of other College employees own 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

	2009 £m	2008 £m
Surplus after depreciation of fixed assets at valuation and before tax	14.4	7.0
Depreciation	46.7	36.8
Deferred capital grants released to income	(29.4)	(20.7)
Investment income	(13.3)	(13.8)
Loss on disposal of fixed assets	0.3	–
Fair value loss on revaluation of fixed asset investments	0.5	1.0
Increase in stock option obligation	–	3.2
Interest payable	6.5	6.9
Increase in debtors	(0.3)	(8.4)
Increase in creditors	22.6	31.7
Increase in provisions	6.4	2.0
Net cash inflow from operating activities	54.4	45.7

25. Reconciliation of net cash flow to movement in net funds

	Note	2009 £000	2008 £000
(Decrease)/increase in cash in the period		(35.1)	25.7
Increase in short term investments		19.3	56.0
Loan drawdowns		–	(50.0)
Change in net funds		(15.8)	31.7
Net funds at 1 August		43.7	12.0
Net funds at 31 July	26	27.9	43.7

26. Analysis of changes in net funds	Balance 1 Aug 2008 £m	Cash flow £m	Balance 31 Jul 2009 £m
Cash at bank and in hand	66.5	(43.7)	22.8
Endowment assets	18.1	1.9	20.0
Bank overdraft	(8.7)	6.7	(2.0)
	75.9	(35.1)	40.8
Short term investments	141.0	19.3	160.3
Debt due within one year	–	(1.9)	(1.9)
Debt due after one year	(173.2)	1.9	(171.3)
	43.7	(15.8)	27.9

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

Notes to the accounts

27. Access funds	2009 £000	2008 £000
Balance at start of the year	53.0	40.0
Funding Council grants	145.0	205.0
Interest earned	2.0	7.0
	200.0	252.0
Disbursements	(197.0)	(199.0)
Balance unspent at end of the year	3.0	53.0

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.

28. Fixed asset investments	Note	Balance 1 Aug 2008 £m	Movements in year £m	Balance 31 Jul 2009 £m
Subsidiary undertakings' investments		34.4	4.0	38.4
Other investments		12.4	1.7	14.1
Other fixed asset investments	12	46.8	5.7	52.5
Investments in associated undertakings		0.5	0.1	0.6
Fixed asset investments	12	47.3	5.8	53.1

29. Minority interest

The minority interest relates entirely to Imperial Innovations Group plc. In the prior year 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% (see note 30).

	2009 £m	2008 £m
Balance at 1 August	33.3	18.8
Loss after tax and minority interest	(1.6)	(2.4)
Revaluation of investments within fixed assets	(0.3)	(1.5)
Movement in share based payment reserve	–	1.4
Issue of new share capital	–	17.0
Balance at 31 July	31.4	33.3

30. Exceptional items	2009 £m	2008 £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

In the prior year the College recognised a profit of £7.9 million on the sale of two College properties. Also, 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 recorded a profit of £9.3 million in respect of the deemed disposal.

31. Capital commitments	Consolidated and College	
	2009 £m	2008 £m
Capital commitments for major building projects contracted at 31 July	39.8	61.0

32. Contingent assets and liabilities

On 18 December the Group divested its holding in Thiakis Ltd. Under the sale agreement, the Group could receive deferred consideration on the achievement of certain milestones. The fair value of the consideration receivable is estimated to be in the region of £6.3 million. No amounts have been recognised in these financial statements in relation to this potential asset.

The College and one of its subsidiary companies are presently appealing against a decision by HMRC with regard to the VAT treatment of a series of transactions undertaken between themselves. The College expects a successful outcome in this case, but tax and interest of approximately £0.9 million could be payable in the event that the decision is given against the appellants.

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

33. Post balance sheet events

On 1 September 2009, the College completed on the freehold purchase for £28 million of a 7.5-acre site on Wood Lane from the BBC. The site will create new teaching, research and administrative facilities for Imperial College London in addition to offering the potential to extend the provision of quality affordable student accommodation.

On 7 August 2009, Imperial College entered into a conditional agreement to develop 452 post graduate student studios in partnership with Berkeley First. The Scheme is conditional upon acceptable planning, and is planned to be delivered for the start of the 2012 academic year. The College will hold a 49% interest in the development vehicle.

34. 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. Both USS and SAUL are 'last man standing' schemes wherein in the event of the insolvency of any of the participating employers, the amount of

any pension funding shortfall (which cannot otherwise be recovered) in respect of that employer will be spread across the remaining participant employers and reflected in the next actuarial valuation.

Imperial Innovations Group plc and IC 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. USS has over 130,000 active members and as at 31 March 2008 the College had 3,063 active members participating in the scheme.

The assets of the scheme are held in a separate trustee-administered fund. At the latest valuation as at 31 March 2008, which was carried out using the projected unit method, the market value of the assets of the scheme was £28,842.6 million and the value of the past service liabilities was £28,135.3 million, indicating a surplus of £707.3 million. The assets therefore were sufficient to cover 103% 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.

Under the Pension Protection Fund regulations introduced by the Pensions Act 2004 the Scheme was 107% funded; on a buy-out basis the assets would have been approximately 79% of the amount necessary to secure all the USS benefits with an insurance company; and using the FRS 17 formula as if USS was a single employer scheme, using an AA bond discount rate of 6.5% per annum based on spot yields, the actuary estimated that the funding level at 31 March 2008 was 104%.

Since 31 March 2008 global investment markets have continued to fall and at 31 March 2009 the actuary has estimated that the funding level under the new scheme specific funding regime had fallen from 103% to 74%. On the FRS 17 basis, using an AA bond discount rate of 7.1% per annum based on spot yields, the actuary estimated that the funding level at 31 March 2009 was 86%. An estimate of the funding level measured on a buy-out basis at that date was approximately 46%.

The College contribution rate required for future service benefits alone at the date of valuation was 16% of pensionable salaries and the trustee company, on the advice of actuary, agreed to increase its contribution rate to 16% of pensionable salaries from 1 October 2009.

The next formal triennial actuarial valuation is due as at 31 March 2011. The contribution rate will be reviewed as part of each valuation and may be reviewed more frequently.

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 a separate Trustee-administered fund.

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 2008 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 £1,266 million representing 100% of the liability for benefits after allowing for expected future increases in salaries.

Based on the strength of the Employer covenant and the Trustee's long term investment strategy, the Trustee and the Employers agreed to maintain employer and member contributions at 13% of salaries and 6% of salaries respectively following the valuation.

A comparison of SAUL's assets and liabilities calculated using assumptions consistent with FRS 17 revealed the Scheme to be in surplus at the last formal valuation date (31 March 2008). The next formal actuarial valuation is due at 31 March 2011 when the above rates will be reviewed.

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

Latest actuarial valuations	31 Mar 2008	
Assumptions		
USS Scheme		
Valuation rate of return	6.4%	
Salary scale increases per annum	4.3%	
Pension increases per annum	3.3%	
Life expectancy:		
Males (females) currently aged 65	22.8 yrs (24.8 yrs)	
Males (females) currently aged 45	24.0 yrs (25.9 yrs)	
SAUL Scheme		
	31 Mar 2008 Past Service	31 Mar 2008 Future Service
Investment return on liabilities:		
Before retirement	6.9%	7.0%
After retirement	4.8%	5.0%
Salary scale increases per annum	4.85%	4.85%
Pension increases per annum	3.35%	3.35%

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 full actuarial valuation was carried out as at 31 March 2007 and has been updated to 31 July 2009 by a qualified independent actuary.

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. The results of the latest available 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 2009 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 Business Services Authority website.

The main assumptions used for the purposes of FRS 17 are (in nominal terms):

Assumptions

	2009	2008
Price inflation per annum	3.75%	3.75%
Salary inflation per annum	N/A	N/A
Rate of increase to pensions in payment at the LPI rate	3.40%	3.75%
Rate used to discount Scheme liabilities	6.00%	6.30%
RPI	3.50%	3.75%
Post retirement mortality assumption	PxA92(b=yob)mc	PxA92(b=yob)mc

The assets in the scheme and the expected rates of return

	Rate of return		Market value	
	2009	2008	£m	£m
Equities	6.00%	7.30%	2.8	3.4
Property and infrastructure	6.00%	–	0.3	–
Gilts	4.50%	5.50%	1.2	1.3
Insured annuity contracts	6.00%	6.30%	0.9	1.1
Corporate bonds	6.00%	5.50%	4.3	4.4
Cash	0.50%	4.80%	–	0.2
Total fair value of assets			9.5	10.4

Reconciliation of the present value of scheme liabilities and fair value of assets to the asset recognised in the Balance Sheets

	2009 £m	2008 £m
Fair value of assets	9.5	10.4
Value of liabilities	(8.4)	(8.9)
Funded status	1.1	1.5
Unrecognised pension asset	1.1	1.5

Amounts included within operating profit

	2009 £m	2008 £m
Current service cost	–	(0.1)
Total operating charge	–	(0.1)

The amounts to be included as other finance income

	2009 £m	2008 £m
Expected return on scheme assets	0.7	0.7
Interest on scheme liabilities	(0.5)	(0.5)
Effect of restriction on expected return	(0.2)	(0.1)
Net finance return	–	0.1

Changes in the present value of the defined benefit obligation

	2009 £m	2008 £m
Opening defined benefit obligation	(8.9)	(8.4)
Interest cost on obligation	(0.5)	(0.5)
Current service cost	–	(0.1)
Actuarial gain/(loss) on obligation	0.4	(0.5)
Member contributions	–	–
Benefits paid	0.6	0.6
Closing defined benefit obligation	(8.4)	(8.9)

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Changes in the present value of scheme assets	2009 £m	2008 £m
Opening fair value of assets	10.4	10.8
Expected return	0.7	0.6
Actuarial loss	(1.0)	(0.4)
Member contributions	–	–
Benefits paid	(0.6)	(0.6)
Closing fair value of scheme assets	9.5	10.4

Total amounts recognised in the statement of total recognised gains and losses (STRGL)	2009 £m	2009 £m	2008 £m	2008 £m
Pension scheme asset at start of year		–		2.4
Actuarial gain/(loss) on assumptions	0.4		(0.3)	
Actuarial loss on experience	–		(0.2)	
Actuarial loss on assets	(1.0)		(0.4)	
Surplus restriction	0.4		(1.6)	
Effect of restriction on expected return	0.2		0.1	
STRGL losses		–		(2.4)
Pension scheme asset at end of year		–		–

Actual return on scheme assets	2009 £m	2008 £m
Expected return on scheme assets	0.7	0.6
Actual return on scheme assets	(0.3)	0.2
Actual less expected return on scheme assets	1.0	0.4

Amounts for the current and previous four periods	2009 £m	2008 £m	2007 £m	2006 £m	2005 £m
Fair value of scheme assets	9.5	10.4	10.8	10.8	10.7
Value of liabilities (funded obligation)	(8.4)	(8.9)	(8.4)	(8.9)	(8.5)
Surplus	1.1	1.5	2.4	1.9	2.2
Experience loss on liabilities	–	(0.2)	–	(0.1)	(0.1)
Experience (loss)/gain on assets	(1.0)	(0.4)	–	0.1	1.2

The pension costs for the College and its subsidiaries included in the income and expenditure statement were:	2009 £m	2008 £m
Contributions to USS	21.7	19.7
Contributions to SAUL	6.0	5.4
Contributions to NHS	4.1	3.8
Contributions to defined contribution pension schemes	0.3	0.3
FPS current and past service cost per FRS17	–	0.1
	32.1	29.3

35. Funding of fixed assets (£m)

Land and buildings at cost	Balance 1 Aug 2008	Additions/(disposals) during the year				Balance 31 Jul 2009
		HEFCE grants	Other grants/ donations	College reserves	Transfers	
Land	12.9	-	-	-	-	12.9
Buildings						
Freehold						
South Kensington Campus	224.6	2.3	-	7.5	(1.4)	233.0
Charing Cross Campus	7.1	-	-	-	-	7.1
Hammersmith campus	-	-	-	-	-	-
St Mary's Campus	36.2	-	-	0.2	-	36.4
Royal Brompton Campus	10.7	0.5	-	(0.4)	-	10.8
Silwood Park Campus and outstations	20.1	-	-	5.5	0.1	25.7
Wye Campus	13.7	-	-	-	-	13.7
Clayponds	11.0	-	-	-	-	11.0
	323.4	2.8	-	12.8	(1.3)	337.7
Leasehold						
South Kensington Campus	204.1	10.4	-	3.6	9.5	227.6
Charing Cross Campus	33.8	-	0.1	-	-	33.9
Hammersmith Campus	75.1	12.1	(0.2)	7.7	5.5	100.2
St Mary's Campus	8.8	-	-	1.9	-	10.7
Royal Brompton Campus	0.3	-	-	-	-	0.3
Evelyn Gardens	16.3	-	-	-	-	16.3
	338.4	22.5	(0.1)	13.2	15.0	389.0
Buildings under construction	92.5	4.9	(4.3)	50.6	(13.7)	130.0
Total land and buildings	767.2	30.2	(4.4)	76.6	-	869.6
Represented by:						
			Balance 1 Aug 2008	Additions during the year	Disposals during the year	Balance 31 Jul 2009
Grants from HEFCE			289.2	30.2	-	319.4
Other grants/donations			132.8	(4.4)	-	128.4
Capital expenditure met from reserves			345.2	76.6	-	421.8
			767.2	102.4	-	869.6
Equipment at cost			Balance 1 Aug 2008	Additions during the year	Disposals during the year	Balance 31 Jul 2009
Funded from HEFCE grants			46.8	2.6	(1.0)	48.4
Funded from research grants and contracts			40.1	6.0	(3.3)	42.8
Funded from other grants/donations			1.9	-	-	1.9
Funded from reserves			68.3	4.2	(2.8)	69.7
Donated assets			0.5	0.1	-	0.6
Total equipment			157.6	12.9	(7.1)	163.4



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Consistently rated amongst the world's best universities, Imperial College London is a science-based institution with a reputation for excellence in teaching and research that attracts 14,000 students and 6,000 staff of the highest international quality.

Innovative research at the College explores the interface between science, medicine, engineering and business, delivering practical solutions that improve quality of life and the environment — underpinned by a dynamic enterprise culture.

Since its foundation in 1907, Imperial's contributions to society have included the discovery of penicillin, the development of holography and the foundations of fibre optics. This commitment to the application of research for the benefit of all continues today, with current focuses including interdisciplinary collaborations to improve health in the UK and globally, tackle climate change and develop clean and sustainable sources of energy.