

Newsletter



ENERGY AND ENVIRONMENT



ETHICS AND GOVERNANCE



HEALTH AND MEDICINE



TECHNOLOGY AND SOCIETY



Oxford Martin School expands and rebrands...

INFLUENCE IN-DEPTH » IN THE NEWS... » EVENT HIGHLIGHTS



Dear Friends,

We have had an exciting start to the University term, with the launch of our new short name, Oxford Martin School, as well as nineteen new research programmes as a result of the successful matched funding challenge.

We celebrated our expansion with a special event at the Royal Society in London, which was attended by over 200 people from government, business, academia and society. Since then, our pace of activity and change hasn't stopped – with new academic posts advertised almost every week, a number of websites already launched for our new Institutes, and a vibrant events programme that offers something for everyone.

Our newsletter this term provides a world map to demonstrate the School's global reach and influence through a showcase of recent highlights from our wide-ranging activities, research collaborations and academic achievements. Since our website has become a crucial focal point in the challenge to develop and integrate our wide-ranging programmes, the e-version of this newsletter connects you to more information about these highlights through links to news stories, blogs, project summaries and videos on our website.

This is by no means a comprehensive overview of everything we've done over the past few months – with 30 research programmes and an extensive global network of affiliated individuals and organisations, we have only focused on selected highlights here. We hope you find it informative, stimulating and inspiring, as we do...

Best wishes for the holiday season and the New Year,

A stylized, handwritten signature in white ink that reads "Ian Goldin". The signature is fluid and cursive, with a long horizontal line extending from the end.

Ian Goldin, Director



The Oxford Martin School expands and rebrands...

The success of our \$50 million matched funding challenge, launched by James Martin in March 2009, gave us a tremendous opportunity to restructure our research portfolio and refresh our overall identity. With the aim of strengthening our connection with Oxford University and positioning the School as the world's leading source of scholarly and influential thinking about 21st century challenges and opportunities, we introduced our new short name of Oxford Martin School over the summer and began to organise all our research activity into four broad clusters: Health & Medicine; Energy & Environment; Technology & Society; Ethics & Governance. We officially relaunched the School with a new website, logo and materials at a special event at the Royal Society in September.

The event brought together a panel of academics from the Oxford Martin School in front of a broad audience of thought leaders and decision makers from all realms of society. We presented a wide range of complex challenges we face in the future, and showed how effective solutions are within our grasp. Through their presentations, the academics highlighted the important and challenging questions driving their research. These included: Is it technically feasible and socially acceptable to intervene in the earth's natural systems to address climate change? Can we develop a vaccine to eliminate malaria, tuberculosis or HIV? Could we one day live in a world without war?

Dr James Martin, the School's founder, summed up the general feeling of optimism inspired by the ideas that were shared by our academics. Reflecting on the opportunities brought by 21st century science and other social advances, Martin concluded, "We will win the battle for the planet, we will save the oceans, we will save the forests, and we will find solutions".



In the News...

As the School grows, so does its impact in the media. Here are just a few examples of the coverage our institutes and academics have received over the last term:

NATIONAL GEOGRAPHIC

July 2010

Global Warming Means More Mexican Immigration

New computer models predict massive immigration rise due to climate change over next 50–60 years.

Dr Ian Goldin, Director of the Oxford Martin School, debates the accuracy of long-range migration forecasts.

THE OBSERVER

July 2010

Is humanity prepared for the worst?

Designer viruses, potent new weapons, hurtling asteroids... all have the potential to obliterate humanity. How can scientists plan for such a catastrophe?

Professor Nick Bostrom from our Future of Humanity Institute talks about preparing society for the worst.

THE IRISH TIMES

September 2010

'We don't know the potential of plants yet'

Plant science is central to humanity's future.....in the past 15 years plant science has undergone a revolution.

Dr Liam Dolan from the Institute on Plants for the 21st Century explains why plants have such a vital role to play in our future.

NEW SCIENTIST

October 2010

Unweaving the cosmic web: Relativity goes large

We're on the verge of being able to see the structure of the entire universe that could help us go beyond Einstein's masterwork....

Professor Pedro Ferreira from the Programme on Computational Cosmology takes a closer look at the validity of general relativity.

THE NEW YORK TIMES

October 2010

Tipping point for apps on Facebook

A study of 50 million Facebook users finds that applications were either extremely influential, persuading many friends of adopters to adopt, or else not influential at all; there were no gradations.

Dr Felix Reed-Tsochas from the Institute for Science, Innovation and Society explains how he found a tipping point in social behaviour online.

THE ECONOMIST

November 2010

Geoen지니어ing: Lift-Off

Research into the possibility of engineering a better climate is progressing at an impressive rate – amidst wide-ranging debate.

Tim Kruger from the Oxford Geoen지니어ing Programme explains one method of using the oceans to absorb carbon.

Selected Achievements

Grant to harness tidal energy – Professor Guy Houlby (Programme on Globalising Tidal Power Generation) and Dr Malcolm McCulloch (Institute for Carbon and Energy Reduction in Transport) are part of a research team to have been awarded £50,000 by the Oxford University Challenge Fund to develop a tidal turbine.

Leverhulme Trust – The International Migration Institute was awarded £1.74 million by the Leverhulme Trust to lead and develop a new collaborative programme of research into ‘The Impact of Diasporas’.

Wellcome Trust Research Fellowship – Dr Bennett Foddy (Institute for Science and Ethics – formerly the Programme on Ethics of the Biosciences) has received a Wellcome Trust Research Fellowship in Biomedical Ethics to undertake a project on the ethical use of lifespan-extending technology.

Royal Society Fellowship – Professor Georg Gottlob (Institute for the Future of Computing) was elected a Fellow of the Royal Society for his research excellence and fundamental contributions both to artificial intelligence and to database systems.

Top-rated research on meningitis vaccines – Professor Andrew Pollard (Institute for Vaccine Design) is singled out by *Science Watch* for his highly cited research into meningitis.

Department of Health appointment – Dr Mark Sheehan (Institute for Science and Ethics) was invited to become a member of the Department of Health’s new Advisory Group for National Specialised Services (AGNSS).

New book published – Dr Emanuela Paoletti (International Migration Institute) has published a new book “The Migration of Power and North–South Inequalities”, which examines relations of power between migration-sending and migration-receiving countries.

National science exhibit – The Institute for Emerging Infections and the Biodiversity Institute attracted over 5,000 people to their joint exhibit on the connection between infectious disease in wild animals and humans. “Emerging infections: viruses that come in from the wild” offered visitors to the Royal Society’s Summer Science Exhibition a chance to play games, watch videos and conduct experiments with DNA.

Reaching new audiences – Professor Gero Miesenboeck (Programme on Mind and Machine) gave a talk at TEDGlobal 2010 about his pioneering research into optogenetics – genetically modifying nerve cells to respond to light. Optogenetics allows researchers to track a nerve’s function more clearly, to gather better evidence on how electrical impulses on tissue translate into actual behaviour and thoughts.

Event Highlights

Special Lectures

'Climate change and marine ecosystems: have dangerous changes already begun?'

by Ove Hoegh-Guldberg

6 September

A lecture about what effect the changing climate will have on the world's oceans – those that are already noticeable and what further consequences we might expect to see.

'Reinventing Fire: Profitable solutions to climate change'

by Amory B. Lovins

24 November

A lecture that aimed to demonstrate how society can make a lucrative switch to efficient use of renewable energy.

'Certification and Sustainability' seminar series

October–November

A seminar series that drew together international scholarly and practitioner expertise to examine and compare the effectiveness of a range of certification schemes. Topics included conflict diamonds, sustainable forestry, and global labour standards.

Integrative seminars

This term the Oxford Martin School started a new series of integrative lectures that aim to share research insights, skills and methodologies that cut across a number of issues studied in the School.

'Working with the crowd: 21st century citizen science'

by Dr Chris Lintott

25 October

'Climate models and climate model data sets. Why are they so big!?' by Professor

Tim Palmer

8 November

'Integrating Technology, Science, Law, Economics, and Politics: Development of Practical Policy for Carbon Capture and Storage' by Dr Kenneth Richards

22 November

Some forthcoming events next term

'Intergenerational justice – what do we owe the next generation?'

January–March 2011

The Oxford Martin School and the Oxford Institute of Ageing will convene a cross-disciplinary series of seminars to probe the complex issues involved with identifying long-term policy solutions to practical, social and philosophical questions about ensuring the welfare of future generations.

'Not Without Hope: an Intelligent Future for Life on Earth' by Tim Flannery

8 March 2011

A lecture that shows the awesome hand of nature and, remarkably, the transformative power of ideas.

'The Future of Life' at the Oxford Literary Festival,

3 April 2011

In a unique partnership, the Oxford Martin School is working with organisers of the Oxford Literary Festival to create an afternoon of talks on science and the future.

Influence In-Depth

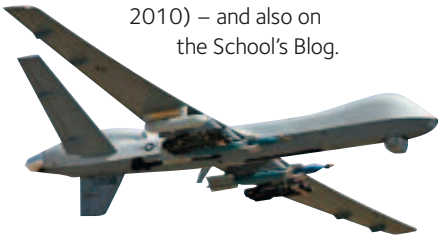
While the UK's Strategic Defence and Security Review (published 19 October 2010) was anticipated with dread by many of Britain's top military analysts, Dr David Rodin, Co-Director of the Oxford Institute for Ethics, Law and Armed Conflict, took the prospect of impending defence budget cuts as an opportunity to overhaul Britain's armed forces and reprioritise military spending. Dr Rodin, a leading expert on the ethics of war and conflict, published his opinions in *The Guardian* newspaper (13 October, 2010) – and also on the School's Blog.



force projection". He also pointed out that this work could be more effective at countering the non-traditional security threats posed by transnational terrorists and organised crime. Rodin's opinions prompted wide-ranging debate and interest among the general public.

Advancing public understanding, influencing policy and effecting positive change are key aims for the Oxford Martin School. Rodin's opinion piece is just one example of how our academics engage in public debate.

Our website describes many other instances of academics contributing evidence to government committees, participating in advisory groups and attending international meetings so they can contribute to more informed and evidence-based decision-making globally.



Calling the Defence Review a "once-in-a-generation opportunity", Rodin proposed that the military cut costs by eliminating expensive systems such as Trident (Britain's nuclear weapons system), and developing armed forces that "focus on effective humanitarian intervention". Such a consolidation of effort, he argued, "will sustain wealth and significant global influences without costly and morally problematic exercise in



Teams of researchers across Oxford University are members of the Oxford Martin School, constituting a unique, interdisciplinary community of scholars tackling the challenges of the 21st century. The Oxford Martin School comprises thirty Institutes and Programmes which develop forward-looking research in the following areas:

- Ageing
- Biodiversity
- Carbon and Energy Reduction in Transport
- Computational Cosmology
- Economic Modelling
- Emerging Infections
- Ethics, Law and Armed Conflict
- Future of Cities
- Future of Computing
- Future of Humanity
- Future of the Mind
- Future Technologies
- Geoengineering
- Global Economic Development
- Healthcare Innovation
- International Migration
- Mind and Machine
- Modelling and Predicting Climate Change
- Nanoscience
- Nuclear and Energy Materials
- Oceans
- Particle Therapy Cancer Research
- Plants for the 21st Century
- Science and Ethics
- Science, Innovation and Society
- Solar Energy
- Stem Cells
- Tidal Power Generation
- Tropical Forests
- Vaccine Design

It's been a busy term. Since our last newsletter we have...

- Attracted to our website over 40,000 visitors, who looked at over 180,000 webpages
- Sent out 250 Tweets on Twitter and welcomed 800 new Twitter followers
- Added 22 blog entries that have been viewed over 7,000 times
- Published 45 unique news stories highlighting events and achievements from around the School
- Uploaded more than 20 webcasts
- Hosted 15 events, lectures and seminars attended by over 1,000 people
- In total among all our Institutes, more than 110 events across the University have been convened.

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JAMES MARTIN 21ST CENTURY SCHOOL

USA Massachusetts

Ongoing

Our collaboration with Cushing Academy is helping to prepare students to meet the opportunities and challenges of this century by developing a new secondary school curriculum that will be shared freely and widely around the world. Professor Nick Bostrom (Future of Humanity Institute) and Dr George Leeson (Oxford Institute of Ageing) are among the first Oxford academics to help develop open content curricula examining major trends shaping the 21st century.

Washington, DC

July

Dr Russell Powell (Institute for Science and Ethics) testified to the US Presidential Commission on Bioethics regarding the recent breakthroughs in synthetic biology. The Commission asked him and Professor Allen Buchanan of Duke University to provide a comprehensive overview of the key ethical issues associated with this powerful new technology.

California

Ongoing

The School continues its ongoing partnership with the James Martin Center for Nonproliferation Studies (CNS). CNS is the largest nongovernmental organization in the United States devoted exclusively to research and training on nonproliferation issues. The Center contributes its perspective on the dangers of weapons of mass destruction to the work of the School in exploring the potential consequences of emerging technologies that could shape the future of mankind.

Mexico

October

Described as "a first for Latin America", the Latin American Conference on Ageing was organised by the Oxford Institute of Ageing and marks the beginning of a new era of understanding population ageing in the region. Held at the University of Mexico, the three day conference involved intensive discussions on changing demographics, health care and pension systems and implications for urban and social development.

Cuba

July

Dr Sonia Trigueros (Institute of Nanoscience for Medicine) spent several weeks in Cuba collaborating with scientists there to promote nanotechnology in medicine. She shared recent advances, such as using nanobio-sensing techniques for fast diagnosis and therapy, with Cuban experts in chemistry, medicine, physics and biology. "Together, we are examining how to progress in this area to meet future needs," she said.

The Universe

December

The Programme on Computational Cosmology aims to extend methods developed in astrophysics and cosmology to aid researchers in a diverse range of fields, including oceanography, climate science and medicine. Its new website provides access to networks and resources that show how best to handle, search and model the vast quantities of data produced by enormous experiments.

UK

September

The Oxford Geoengineering Programme is a new member of the Oxford Martin School, launched with the help of the recent matched funding challenge. The Programme is a unique interdisciplinary research initiative that aims to take a lead on advancing the technology, considering the impacts and informing public debate that surrounds geoengineering. It draws together an interdisciplinary team to consider carefully geoengineering from all perspectives.

UK

October

Professor Rodney Phillips (Institute for Emerging Infections) and his interdisciplinary team unlocked a clue to the HIV immune response. Their study produced, for the first time in a human subject, evidence that the blood's B-cells appear to have a crucial role in containing the design of future immunotherapies and HIV vaccines.

UK

October

Amidst heated national debate over this year's military spending cuts, Dr David Rodin (Oxford Institute for Ethics, Law and Armed Conflict) wrote an opinion piece in *The Guardian* arguing for a bold new military strategy. Rodin claimed that many of the most feared changes may be desirable, or even necessary, if we are to fulfil some of our most basic moral obligations. His opinions were widely echoed by other experts involved with military strategy. (See 'Influence In-Depth' overleaf.)

Netherlands

September

Professor Ken Peach (Particle Therapy Cancer Research Institute) presented his research on using Grid computing technology in particle therapy for cancer at the EGI Technical Forum. The presentation was part of the Institute's efforts to promote to wider audiences the clinical effectiveness of charged particle therapy, and to advocate for its use.

Monaco

November

At the international workshop on the "Economics of Ocean Acidification", James Martin Senior Visiting Fellow Dr Kenneth Richards (Oxford Martin School) was part of an international team of advisors providing recommendations that aim to help effective international policy development on climate change issues. The event aimed to strengthen linkages between environmental science and economics.

China

August

The Oxford Martin School was showcased at the World Economic Forum's Annual Meeting of New Champions, in Tianjin, China. Members of the School presented an 'IdeasLab' of their latest research on nanotechnology, the future of transport, brain function and manipulation, and pandemic risks. The audience included business and policy leaders from around the world.

Japan

August

James Martin Fellow Dr Javier Lezaun (Institute for Science, Innovation and Society) chaired a panel at the Society for Social Studies of Science conference in Tokyo that considered the process of democracy as a 'technology' to be studied in its own right. The talk was titled 'Democracy as an experimental form'.

Australia

September

Thanks to our recent matched funding challenge we have launched a new research centre affiliated with the world-renowned George Institute, based in Australia. The new George Centre for Healthcare Innovation is a multidisciplinary collaboration dedicated to the formulation, evaluation and implementation of innovative, affordable strategies for managing the pandemics of chronic disease and disability facing the world in the 21st century.

South Atlantic

October

Professor Gideon Henderson (21st Century Ocean Institute) led a scientific expedition to investigate the 'micronutrient' metals in the South Atlantic. The 39-day mission aboard the Royal Research Ship *Discovery* set off from Cape Town to study the mysterious sources that supply iron, zinc and other metals that are essential 'fuel' for ocean ecosystems. By collecting samples, the research team hopes to learn how the metals enter and leave the ocean, and how their abundance in seawater influences marine biology.

Senegal

November

The International Migration Institute convened the third African Migrations Workshop in Dakar, Senegal, on the topic of 'The Contribution of African Research to Migration Theory'. The workshop aimed to further strengthen migration research within Africa by bringing together scholars from across the continent and beyond, and discussing the contribution of African research to mainstream migration theory.

Ghana

Autumn

Professor Yadvinder Malhi (Oxford Centre for Tropical Forests) has taken up a period of residence in Ghana to provide scientific support and local scientific training to help start up a number of deforestation pilot projects in Ghana, Nigeria and Sierra Leone. He is visiting study sites across the region to understand better the local realities, and developing proposals to encourage interdisciplinary research around the potential for ecosystems services to play a role in sustainable development, poverty alleviation, and adaptation to climate change.

Africa

November

Dr Ian Goldin, Director of the Oxford Martin School, spoke at the Royal Society of Arts, giving a lecture entitled 'Africa 2050: Will Africa Claim the 21st Century?' Dr Goldin outlined present trends in African demographics, economics and politics. He discussed the main challenges facing the continent over the next 40 years, and highlighted Africa's opportunities in the context of global mega-trends.

The Middle East

November

The Oxford Martin School hosted a unique gathering of scientists and environmental managers from the Jordan Valley and Dead Sea Basin, which several Directors from the School's Institutes also joined. It was part of a closed workshop to discuss collaborative projects that will benefit the environment and peoples of the region, and to create momentum for multilateral management of shared water resources.

Global reach of the Oxford Martin School