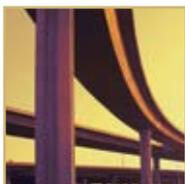




Winter Newsletter

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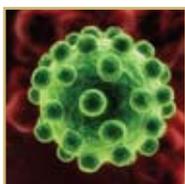
Institute for Science and Civilization



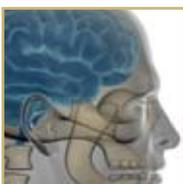
Environmental Change Institute



Oxford Institute of Ageing



Institute for Emerging Infections



Institute for the Future of the Mind



International Migration Institute



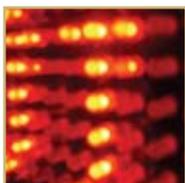
Future of Humanity Institute



Programme on Ethics of the New Biosciences



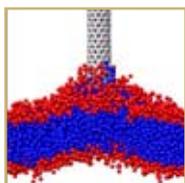
Institute for Carbon & Energy Reduction in Transport



Chair and Programme in Energy Materials



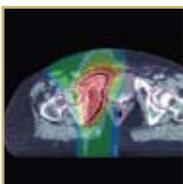
Oxford Institute for Ethics, Law and Armed Conflict



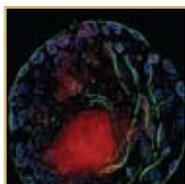
Institute of Nanoscience for Medicine



The 21st Century Ocean Institute



Particle Therapy Cancer Research Institute



The Oxford Stem Cell Institute

Message from the Director

Dear Friends and Colleagues,

Welcome to our first newsletter of the 2008-09 academic year.

This term saw the launch of the next phase of the James Martin 21st Century School, which now incorporates 15 research Institutes across the University of Oxford. It has been a real delight to welcome our new colleagues to the School, and they have all shown impressive enthusiasm to collaborate with each other and contribute to School-wide efforts to develop integrated research, connect with policymakers and build impact among various audiences. It is an honour for me to be a part of this extraordinary team of scholars, and I hope you will take as much pleasure as I do in attending their events, reading their publications and getting to understand the importance of their work.

Among the highlights of the past term is the tremendous success of the University of Oxford's new iTunes U site. This was launched in October 2008 and quickly led the worldwide rankings for number of downloads. Three of the top ten recordings were 21st Century School Distinguished Public Lectures – by Professor Joseph Stiglitz (who was at the top of the global iTunes chart for education for over a week), Dr Craig Venter and Professor Lord Nicholas Stern.

This term has seen yet another example of the tremendous generosity and commitment of our founder, Dr James Martin, who has recently pledged \$50 million in matching funds to our fundraising campaign. As many of you are aware, although we have a very solid foundation, we need to develop our resources in order to achieve our bold ambition of being the foremost global centre of research on the future. We are currently in the process of recruitment for a Head of Development who can help us realise our potential by bringing in new funds to the School and its Institutes. We hope that Dr Martin's tremendous offer will inspire the generosity and involvement of other philanthropists and donors to join our research efforts on 21st century challenges and opportunities.

Please contact us if you'd like more details about any of the announcements in the newsletter.

Best wishes for the holiday season and the New Year,

Ian Goldin

Director, James Martin 21st Century School



News Highlights

Launch of new Institutes

The beginning of the academic year saw the launch of seven new 21st Century School Institutes, bringing many more exciting and innovative themes of research into the School to complement research in the eight pre-existing Institutes. The new Institutes strengthen our work in three key areas: health, the environment, and social and technological change.

The new Institutes are already active in their research programmes and have launched websites, organised events, initiated partnerships and are recruiting new staff. The seven new Institutes are:

The 21st Century Ocean Institute

www.oceans21.ox.ac.uk

Co-Directors: Professors Gideon Henderson and David Marshall

Oxford Stem Cell Institute

www.stemcells.ox.ac.uk

Co-Directors: Dr Paul Fairchild and Professor Helen Mardon

Oxford Institute for Ethics, Law and Armed Conflict

www.elac.ox.ac.uk

Co-Directors: Dr David Rodin and Professor Jennifer Welsh

Institute of Nanoscience for Medicine

<http://www.21school.ox.ac.uk/institutes/>

Co-Directors: Professors John Ryan and Mark Sansom and Dr Sonia Contera

Institute for Carbon and Energy Reduction in Transport

<http://www.21school.ox.ac.uk/institutes/>

Director: Dr Malcolm McCulloch

Particle Therapy Cancer Research Institute

www.ptcri.ox.ac.uk

Co-Directors: Professors Ken Peach and Bleddyn Jones

Chair and Programme in Energy Materials

<http://www.21school.ox.ac.uk/institutes/>

Director: Professor Chris Grovenor

We are also delighted to announce the formation of the new **Oxford Centre for Tropical Forests (OCTF)**, launched in November with a reception in the Botanical Gardens. The centre, created in part with funding from the James Martin 21st Century School, is hosted by the Environmental Change Institute. Led by Professor Yadvinder Malhi, the OCTF aims to foster links and intensify synergies between those interested in the past, present and future of tropical forests. For details see: www.octf.org.uk

Presentations on each of the fifteen Institutes that now constitute the 21st Century School were given by each of the Directors at a "Showcasing" day for the School. The webcasts of these presentations can be viewed on our website at:



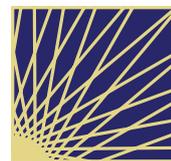
Paul Fairchild, Co-Director, Oxford Stem Cell Institute

www.21school.ox.ac.uk/resources/video.cfm

In October the University of Oxford launched its new **iTunes U site**, created to "showcase research and enable the public to hear from world-leading thinkers on topical issues". Three top featured recordings were brought to Oxford by the James Martin 21st Century School: Lord Nicholas Stern, Professor Joseph Stiglitz and Dr Craig Venter. Other 21C School lectures include Paul Collier's "The Bottom Billion" and Nobel Prize winner Sir John Sulston's joint lecture with Professor John Harris, "What is Science for?". This is an exciting opportunity for the 21st Century School to increase public awareness of its work, and our presence on iTunes U will continue to grow as webcasts of forthcoming events are added to the site. Further details: http://www.ox.ac.uk/itunes_u/index.html



iTunes University of Oxford



The Policy Foresight Programme, led by Sir Crispin Tickell, is moving from its current home in the James Martin Institute for Science and Civilization to become a 21st Century School Hub

programme. The Policy Foresight Programme holds a number of seminars and conferences each year on issues of science, technology and the environment, with the aim of identifying leverage points in current policy that could have significant long-term benefits for society. The Programme will play an important role in the outreach activities of the School, developing linkages among academia, government and civil society, and helping Institutes to feed their research findings into the policymaking process. Summaries from previous events and further details are now available on the 21C School website at: <http://www.21school.ox.ac.uk/outreach/policy-foresight/>

The **Environmental Change Institute** has launched its new China Environment and Energy Programme. Led by James Martin Fellow Jimin Zhao, the new programme will support interdisciplinary study of China's major environmental and energy issues. Research will examine the evolution and effectiveness of China's governance during a period of rapid socio-economic transformation and explore choices that could promote a more sustainable development path.

Awards & Achievements

Professor Diana Liverman, Director of the **Environmental Change Institute** for the past five years, has been appointed to a new committee on "America's Climate Choices" which will advise the US government on responses to climate change. She will become Vice-Chair of the panel on "Informing Effective Decisions and Actions Related to Climate Change", where she hopes to add insights from the UK and international experiences.



Professor Diana Liverman

The **International Migration Institute** has been awarded a grant by the German Marshall Fund to conduct a comparison of US-Mexico and EU-Morocco migration and development experiences. Field trips and discussions with local stakeholders will establish a unique transatlantic South-North dialogue which will improve our understanding of issues around migration management and the impact of migration on development in countries and regions of origin.

Professor Steve Rayner, Director of the **James Martin Institute for Science and Civilization**, has been appointed an Honorary Professor in Global Climate Change and Society in the Department of Agricultural Sciences at the University of Copenhagen. He will deliver an annual lecture and contribute to the Copenhagen Climate Conference which will decide on the Post-Kyoto policy regime. In October, Professor Rayner was also listed by *Wired* magazine's 2008 Smart List as one of the 15 People the Next President Should Listen To.

Dr Nick Bostrom, Director of the **Future of Humanity Institute**, has been awarded the title of Professor of Applied Ethics at Oxford University, in recognition of research "of outstanding quality" and his "significant international reputation."



Professor Nick Bostrom

The **Oxford Institute of Ageing** has been awarded funding from the Volkswagen Foundation to carry out research into the reconciliation of employment and care for older family members. The Institute is the UK partner in the European project "Between Job and Care: Conflict or Opportunity?". The project hopes to show that the reconciliation of employment and family care in an ageing society is possible if accompanied by support measures at enterprise and social policy level.



Research Highlights

Academic research activities, reports and publications

Professor Rodney Phillips and colleagues at the **Institute for Emerging Infections** have undertaken cross-disciplinary research into the interplay between the HIV virus and its human hosts. Their research, accepted for publication in *Nature*, shows that when a new virus interacts with humans the subsequent interplay can shape the genes of both the host and the virus. This is an ongoing process, one which is highly relevant to pandemic theory and our understanding of what a future threat might constitute. Professor Phillips called the work a “vindication of the cross-disciplinary approach...which would not have been possible without James Martin 21st Century School support.”

The **21st Century Ocean Institute** has recently completed research into the feasibility of adding calcium hydroxide to the oceans, causing them to take up excess CO₂ from the atmosphere. The report, undertaken on behalf of Shell, demonstrated that while this approach has significant potential, further research is required before we can be sure whether this kind of geo-engineering can really help to counteract increasing CO₂ levels.

Dr Jane Wallace and Professor Mark Sansom at the **Institute of Nanoscience for Medicine** have published a paper in *Nanotechnology*. The Institute, which seeks to improve understanding of how nanostructures interact with cell structures, has been trying to overcome obstacles to using carbon nanotubes in this manner. They aim to learn how to improve the solubility of carbon nanotubes. It may be possible to exploit this research in the future to minimize the damage that nanostructures do to cell membrane integrity.

James Martin Fellow Dr Aris Katzourakis, of the **Institute for Emerging Infections**, has co-authored a paper with researchers from Oxford, Stanford and Imperial College detailing important findings on the way viruses evolve and transmit infection. The paper reports the discovery of an ancient HIV-like virus in the genome of the Madagascan grey mouse lemur, which is the first

unambiguous example of a “missing link” between simple lentiviruses, which can be caught by many animals, and HIV/SIV viruses with more complex genomes that only affect humans and other primates.

This work expands knowledge of the “family tree” of HIV-like viruses and challenges current notions of how HIV/AIDS might change and evolve. The paper, entitled “Discovery and analysis of the first endogenous lentivirus” is published in the *Proceedings of the National Academy of Sciences*.

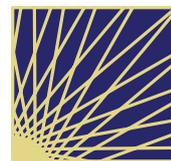


The lemur - revealing secrets about the HIV virus

A team of scientists from Oxford and Northwestern University, including Dr Felix Reed-Tsochas of the **James Martin Institute for Science and Civilization**, have found striking similarities between collaborative networks formed by plants and the insects that pollinate them and the networks between manufacturers and firms. It seems that firms and species follow similar rules when deciding whom to co-operate with. The new findings, published in *Nature*, suggest that the simple rules of co-operation that generate such networks may be universal.

A selection of other recent publications includes:

- ◆ Professor Stephen Castles, Director of the **International Migration Institute**, has published an updated version of his book, *The Age of Migration: International Population Movements in the Modern World*, with Professor Miller at the University of Delaware.
- ◆ Dr Rafael Ramirez, Senior Research Fellow in Futures at the **James Martin Institute for Science and Civilization**, co-edited *Business Planning for Turbulent Times: New Methods for Applying Scenarios*, aimed at business and organizational leaders who want to think through how best to deal with increasing turbulence, complexity and uncertainty.
- ◆ Dr Michael Thompson, Associate Fellow of the **James Martin Institute for Science and Civilization** has published a book,



Organising and Disorganising: A Dynamic and Non-Linear Theory of Institutional Emergence and its Implications, showing the advantage of the argumentative process in producing desirable outcomes in a variety of situations.

- ◆ James Martin Fellow Professor John Schellnhuber, at the **Environmental Change Institute**, published an article: “Global warming: Stop worrying, start panicking?” in *Proceedings of the National Academy of Sciences of the United States of America*.
- ◆ Dr Andreas Hoff, James Martin Senior Research Fellow of the **Oxford Institute of Ageing** published “Population Ageing in Central and Eastern Europe as an Outcome of the Socio-economic Transition to Capitalism” in *Socialinis darbas* [Lithuanian Journal of Social Work].
- ◆ “Towards an Arms Trade Treaty,” a policy brief incorporating a report and recommendations arising from a roundtable meeting hosted by the Institute for Ethics, Law and Armed Conflict.

Impact and outreach

In addition to his focus on building and integrating the new research Institutes into the **James Martin 21st Century School**, the Director of the School, Dr Ian Goldin, has been active over the summer and the past term in strengthening the presence of the School’s research in more diverse arenas. He has given presentations at leadership gatherings and international research forums (such as the Australian Leadership Retreat, the Hong Kong Foresight Project, and the World Economic Forum’s

Dubai Summit on the Global Agenda). He has also held high-level meetings with individuals in the public and private sectors internationally, for example accompanying the Vice-Chancellor of the University of Oxford to visits with leaders in Qatar and Dubai, and



Dr Ian Goldin
Photo courtesy of South China Morning Post

meeting with ministers and Chinese government leaders in Beijing and Shanghai. He also recently participated in an Oxford Union Debate as part of the “Silicon Valley comes to Oxford” event.

An innovative new business-academic partnership between Pi Capital, a private equity investment group, and the **James Martin 21st Century School** has been developed following the Chancellor’s dinner event in July. The collaboration aims to bring together some of the UK’s most successful and influential business leaders with forward-thinking academics from the University of Oxford, providing an opportunity to examine and discuss the major challenges and opportunities of the coming decades. A variety of events, including London-based breakfast meetings and presentations, will be organised to give an opportunity for a level of interaction and exchange that we hope will be greatly beneficial to academics and private sector professionals alike.

Professor Angela McLean, Co-Director of the **Institute for Emerging Infections**, recently travelled to California where she chaired the *First International Conference on Infectious Disease Dynamics*. Over three days a wide range of participants from 25 countries presented their work, including four students and fellows from the Institute for Emerging Infections. The event was a great success and plans are already underway for a second conference.

Dr David Rodin, Co-Director of the **Institute for Ethics, Law and Armed Conflict**, delivered the keynote address to a major conference on *Ethics and Emerging Military Technology* in Amsterdam on 5 November. The conference, organised jointly by the Dutch Defence Academy and Ministry of Defence, brought together leading academics, policy makers and military officers from Europe, North-America and Australia. Dr Rodin’s address entitled “Technology and Asymmetry” was an excellent opportunity to give a major presence to the new Institute’s work and ambitions.

Dr Malcolm McCulloch, Director of the **Institute for Carbon & Energy Reduction in Transport (I-CERT)**, was recently featured in an Financial Times article on the transformation of ideas and raw research into commercially viable products. McCulloch recently developed a smart metering technology that allows households to monitor which individual appliances are consuming



electricity on a minute-by-minute basis. His interdisciplinary team at I-CERT is currently examining the effectiveness of various technical solutions to cut the greenhouse gases emitted by cars and other road transport. It is hoped to create future collaborations and “spin out” ventures that will develop and market technical solutions arising from our Institutes’ various research efforts.



The Morgan Lifecar, an example of academic-private sector collaboration

The **Future of Humanity Institute** is to be featured on the German television programme Kulturzeit (3Sat). The programme will focus on the Institute’s work on risks and its ability to concentrate on the “big picture” in its research.

Professor Bleddyn Jones, Co-Director of the **Particle Therapy Cancer Research Institute**, has been involved in the Particle Training Network for European Radiotherapy (PARTNER), launched in October. The aim of PARTNER is to train new researchers in the rapidly emerging field of hadron therapy, which uses beams of protons or carbon ions instead of x-rays. The project paves the way for improved cancer treatments which create minimal harm to healthy tissue.

Dr Andreas Hoff, James Martin Senior Research Fellow at the **Oxford Institute of Ageing** was invited to be the keynote speaker at the 30th Anniversary of the Warsaw School of Economics’ Institute of Statistics and Demography. He spoke on the topic of “the drivers of population ageing in Central and Eastern Europe”

Many of our Directors and Fellows contribute to parliamentary inquiries, Select Committees and other policy consultations. This term there have been several such consultations closely related to 21st Century School research:

- ◆ Professor Steve Rayner, Director of the **James Martin Institute for Science and Civilization**, gave evidence on geo-engineering to a parliamentary inquiry. Responding to claims that geo-engineered solutions to climate change are prohibitively expensive, potentially dangerous and liable to discourage short-term efforts to reduce emissions, Professor Rayner pointed out that these potential problems could only be resolved through further research.
- ◆ The **Environmental Change Institute** recently contributed to a Select Committee inquiry on energy efficiency and fuel poverty. The Institute called for a single, clear, fuel poverty strategy and a switch to targeting the worst, rather than the poorest houses, as well as capital investment programmes to lower the fuel bills of affected households and defined lines of accountability.
- ◆ Professor Sarah Harper, Director of the **Oxford Institute of Ageing**, was asked to lead one of five challenges identified as part of a Department for Children, Schools and Families’ programme. “Beyond Current Horizons” looks at the long term future of education with the aim of preparing for and responding to challenges as society and technology rapidly evolve. Professor Harper led the “Generations and Lifecourse” challenge, focusing on understanding trends in demographics, family structure, intergenerational relationships and aging.



Events Highlights

Seminar Series



The 21st Century School Blog reviews events and activities across the School

This term, the **James Martin 21st Century School Seminar Series** presented the research aims and objectives of our new Institutes. The Directors of six new Institutes and the leader of the Oxford Centre for Tropical

Forest Governance gave presentations that outlined the key questions driving forward their research agenda and identified potential avenues for collaboration and policy initiatives arising from their findings. The 21st Century School's blog was used to create a summary record of each of the seminars. We welcome your contributions to the blog at: www.21school.ox.ac.uk/blog

Events organised by Institutes

In July 2008, the **Future of Humanity Institute** held an international conference on Global Catastrophic Risks. This conference coincided with the launching of the book *Global Catastrophic Risks*, edited by Nick Bostrom and Milan Cirkovic. The conference was preceded by a workshop on existential risks, and followed by a workshop on the policy implications of catastrophic risks, attended by academic experts as well as representatives from the UK government's disaster planning unit. The event attracted extensive news coverage, including CNN and the *New Scientist*.

The **Institute for Ethics, Law and Armed Conflict (ELAC)**, in partnership with the Carnegie Council for Ethics and International Affairs, hosted a round table discussion on "Human Rights and the 'War on Terror'" in New York. The event brought together local scholars and members of government and non-governmental organisations to explore the impact of human rights law and moral theory on the regulation of war. Panellists included Professors Rosemary Foot, Ruti Teitel and Jeremy Waldron, who examined the issues from the perspectives of international policy, philosophy and law.

Professor Ken Peach, Co-Director of the **Particle Therapy Cancer Research Institute**, held a European Science Foundation seminar on "Advanced Instrumentation for Cancer Diagnosis and Treatment" in September. The event brought together clinical oncologists, instrumentation scientists, engineers and computer scientists to explore new ways of diagnosing and treating cancer. The objective was to define a new pan-European research programme, and many of the ideas generated were incorporated into an EU grant proposal for imaging in charged particle therapy.

The **International Migration Institute** recently held its second African Migrations Workshop in Rabat. This year the theme was "Methods and Methodologies". These workshops provide a forum for networking and the exchange of ideas, but also aim to build capacity among African researchers. Early-career researchers from all regions of Africa presented their research findings to peers and senior researchers, who were able to give feedback and mentoring support.



Professor Stephen Castles, Director of the IMI, (1st row, 2nd from right) with participants from the African Migrations Workshop

On 1st December the **Institute for the Future of the Mind**, which has been developing a novel approach to understanding neurodegenerative disorders, hosted *The Clive Project*, an Oxford-based support service for younger people with dementia. A group of 15 clients, carers, and support workers visited the Institute for a presentation by Director Susan Greenfield, followed by a tour of the research facility. James Martin Fellows Cherie Bond and Amy Halliday engaged in lively discussions with the visitors and demonstrated some of the techniques and results of their ongoing projects.



On 9th December, the **Programme on Ethics of the New Biosciences**, held an informal workshop on Global Governance. Speakers Allen Buchanan (Duke University) and Dan Brock (Harvard University) examined the ways in which the recent explosion in technology, and particularly biotechnology, has increased global inequality as those countries who can afford to exploit and develop technologies advance at a pace that far outstrips less developed nations. They also discussed the possibility of developing governance across international boundaries to ensure the new knowledge we are gaining today improves the future for everyone. Allen Buchanan will also be speaking at the 21st Century School next term as part of the seminar series on "Global Governance Challenges". (See the "Other News" section for further details about next term's seminar series.)

Other News

Job vacancies

A **Head of Development** is sought for the James Martin 21st Century School. We have an exciting opportunity for an experienced and dynamic fundraising professional to join the 21st Century School Hub team, and lead initiatives to secure corporate, charitable foundation and private gift support for the School. The candidate will also have the remarkable opportunity of leveraging James Martin's recent pledge of \$50 million in matching funds. If you have a desire to make a positive impact and influence on a global level, this could be the role for you. For further details, please see: www.21school.ox.ac.uk/vacancies

Upcoming events

Next term's **21st Century School Seminar Series** (Spring 2009) is on the theme of "Global Governance Challenges". It will include presentations from academics and professionals on wide-ranging topics such as health, migration, conflict,

finance, the internet, etc. It is the aim of this series to take a look at the global management of such challenges, and to understand how international institutions and national governments cope with global change. The seminars take place on Thursday afternoons (3.30-5.00pm) and are free and open to everyone. For further details, please visit: www.21school.ox.ac.uk/?redirect=235

Two **Distinguished Public Lectures** will be held in the Sheldonian Theatre this spring:

- ◆ **Lord Martin Rees**, President of the Royal Society, will be speaking on Monday 23 February 2009 at 5.00pm.
- ◆ **Lord Nicholas Stern**, IG Patel Professor of Economics and Government at the London School of Economics, will speak on Tuesday 17 March 2009 at 5.00pm.

For further details, please visit our website or email: events@21school.ox.ac.uk

The **Institute for Ethics, Law and Armed Conflict** will be holding a seminar series on "Strengthening International Authority". The series will run during Hilary Term on Monday afternoons and will be held at the James Martin 21st Century School. More details can be found at: www.elac.ox.ac.uk/events

The **Oxford Institute of Ageing** will be holding a weekly seminar series on 'Ageing and Ethnic Diversity'. The seminars will take place in Hilary Term on Thursday afternoons, Seminar Room G at the Manor Road Building. Details of speakers will be announced in January. Details at: www.ageing.ox.ac.uk

The **Oxford Stem Cell Institute** advises interested parties to register early for the UK National Stem Cell Network's 2009 Annual Scientific Conference, to be held in Oxford, 6-8 April 2009 at the Examination Schools. Further details are available via: www.stemcells.ox.ac.uk

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Keep up to date with event and news
across the School by subscribing to our mailing
lists online at:*

www.21school.ox.ac.uk/?redirect=131

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