Annual Review 2014/15

UNIVERSITY OF OXFORD

The Oxford skyline in winter from South Parks

Vice-Chancellor's welcome

One of the great pleasures and rewards of my 6½ years as Vice-Chancellor has been the opportunity to share and celebrate the difference that Oxford people and Oxford learning and research are making all over the world.

One splendid example was the special contribution of Oxford staff in the testing of candidate vaccines to tackle the Ebola crisis and the vital work that Oxford-led teams did in treating the sick on the ground in West Africa. But, as this Annual Review reminds us, it has been a year rich in wonderful and varied work by Oxford researchers: monitoring penguins in Antarctica, recreating Tutankhamun's tomb, holding parenting workshops in South Africa, devising new medical technologies and treatments, improving school meals and creating tools such as the Multidimensional Poverty Index to enable governments to shape future policies. Small wonder, then, that the UK government's 2014 Research Excellence Framework (REF) assessment found that Oxford has the largest volume of world-leading research in the country.

My time as Vice-Chancellor has now run its course. It has coincided with a period of considerable challenge and change for the higher education sector in the UK but I believe that at Oxford we have been equal to the task. Working together, the collegiate University has remained focused on Oxford's core mission to provide the very finest undergraduate and graduate education and to foster world-leading research. We have been helped enormously in that endeavour by the generous support of alumni and donors worldwide. We were able to report in May that the Oxford Thinking Campaign had reached a total of £2 billion in gifts – achieved through the fastest rate of fundraising in British higher education.

The campaign has also supported inspiring new centres for scholarly endeavour. This Annual Review reports the completion of the Weston Library, an £80 million transformation of what was formerly the New Bodleian into a hub for scholarship and research, conservation and digitisation, and where members of the public can explore the Bodleian's treasures. The Blavatnik School of Government has been created to equip tomorrow's international leaders with the tools to tackle the world's most challenging and often conflicting issues, and construction work has begun on the Beecroft Building – the first new research facility for physics at Oxford for more than 50 years.

Further afield, the University is engaged in building of a different nature: responding to a request from Aung San Suu Kyi when she visited Oxford in 2012 for help with the redevelopment of Burmese higher education. Since then Oxford students and staff have supported the University of Yangon in numerous ways, from teaching English and sending books to advising on a strategic plan and hosting Burmese visitors in Oxford.

Elsewhere in this Annual Review we celebrate 12 schoolteachers credited by their former students with inspiring them to come to Oxford. We also take a look at Oxford's thriving Continuing Education programme, which caters to the interests and aspirations of some 14,000 part-time students, many of them entering education as adults for the first time. The University offers in excess of 1,000 part-time courses and programmes; it is perhaps not widely known that the number of students enrolled on them is greater than the number of full-time undergraduates.

There is indeed much to look back on and I do so with the greatest pleasure, confident that Professor Louise Richardson, my successor as Vice-Chancellor, will be leading a forward-looking, dynamic 21st-century powerhouse of education and research.

Professor Andrew Hamilton, *FRS*

'As top predators, penguins are considered sentinels of changes within their ecosystem'

Citizen science and the penguin population

The health of penguin colonies in Antarctica is now being monitored by online volunteers thanks to a project launched in September 2014 by Dr Tom Hart of the Department of Zoology, working in collaboration with the Australian Antarctic Division. Penguin Watch allows citizen scientists access to nearly 400,000 images of penguins taken by cameras monitoring more than 70 colonies around the Southern Ocean.

'Recent evidence suggests that many species of penguin, such as chinstrap and Adélie, are declining as sea ice concentration is reduced in the Antarctic Peninsula,' says Dr Hart. 'Our cameras show us the adults, chicks and eggs in each nest in our chosen locations and Penguin Watch volunteers allow us to simultaneously follow large numbers of colonies in detail across many sites simultaneously. Contrasting, for example, the more and less heavily fished areas, and those that are visited by people compared with unvisited sites, allows us to disentangle the threats to penguins.'

Identifying all the penguins in an image is also helping to develop computer algorithms to automate much of this monitoring. Early warnings of changes in penguin populations will inform conservation efforts aimed at mitigating the effect of human activity (such as fishing) on penguin colonies already being affected by climate change.

In its first year the Penguin Watch site received 2.6 million visits, with volunteers counting over 70 million penguins.

Left: King penguins at sunrise on the coast of South Georgia

Responding to the crisis

Oxford researchers were at the forefront of a global rapid response programme when, in August 2014, the World Health Organisation (WHO) declared that the Ebola outbreak spreading through West Africa had become a public health emergency of international concern.

Following a request from WHO, Oxford's Jenner Institute sprang into action and recruited 60 local volunteers for a phase I first-in-human trial of a vaccine candidate that uses a single benign Ebola virus protein to generate an immune response. With fast-tracked ethical and regulatory approval, the trials began in mid-September and continued in Mali in October.

> *'To be playing a part in getting the vaccine to a place where it can be used in affected countries is so important'*
> *Vaccine volunteer*

While Professor Adrian Hill, Director of the Jenner Institute, led vaccine trials in Oxford, Professor Peter Horby of the University's Centre for Tropical Medicine and Global Health led an international consortium carrying out clinical trials with a variety of new antiviral drugs at Ebola treatment centres in West Africa. Meanwhile Professor Simon Hay and Dr Nick Golding of the Department of Zoology developed maps showing where the Ebola virus was likely to be carried by animals and predicting how it was likely to spread through humans, thus allowing infected countries to use their resources more effectively.

In January 2015 data from the initial 60-volunteer safety trial were published showing that the experimental vaccine was both immunogenic and well tolerated at all doses, so could be taken forward – providing in just four months a result that typically takes over a year. Over subsequent months trials progressed apace, with researchers at the Jenner Institute and members of the Oxford Vaccine Group trialling different candidate vaccines and prime-boost strategies (in which the first vaccination is followed some time later by a 'booster' of the same or a different vaccine).

A healthcare worker dons protective gear before entering an Ebola treatment centre in Freetown, Sierra Leone

All four Ebola vaccines tested initially in Oxford went on to clinical trials in Mali, Liberia, Senegal and Sierra Leone. In June University staff won the largest tranche of awards when UK citizens were given Ebola Medals for Service in West Africa by the UK government. The University subsequently awarded its own Ebola Medals to researchers from 14 countries who worked with Oxford-led teams.

'The building has been designed to promote open discussion, interaction and collaboration'

Educating the leaders of tomorrow

The University's Blavatnik School of Government (BSG) was founded in 2010, thanks to a £75 million donation by American philanthropist Leonard Blavatnik. Now the BSG has stunning new premises, designed by award-winning architects Herzog & de Meuron. It will be formally opened in April 2016, but students and staff have moved in already.

'Our mission is to inspire and support better government and public policy around the world'

There are 117 students from 54 countries and territories in this year's cohort for the Master of Public Policy (MPP), many of them on funded scholarships. The one-year graduate degree takes a broad view of how public policy is made, implemented and evaluated. The BSG also offers a three-year DPhil in Public Policy, giving students the opportunity to research a specific policy issue; and a range of special events and short courses for senior professionals and policymakers. BSG programmes have a strong global focus, using real-life case studies to examine governance in countries around the world.

The faculty includes top academics across disciplines as diverse as economics, philosophy and science, including economist Paul Collier, international relations scholar Monica Toft, and former African Development Bank economist Mthuli Ncube. Masterclasses are often led by visiting practitioners, which have included Montek Singh Aluwalia from India's Planning Commission and Lord Malloch Brown, a former UN deputy secretary.

Main image and below right: The distinctive, curved tiers of the new building; light floods the generous interior spaces. Below left: BSG students come from more than 50 countries and territories

Remote health monitoring

The voice can be affected by a range of disorders, including Parkinson's and Alzheimer's

An Oxford researcher has developed a telephone-based system to help clinicians diagnose and treat patients with diseases that affect the voice.

Dr Ladan Baghai-Ravary, a phonetics expert who is a Knowledge Exchange Fellow in The Oxford Research Centre for the Humanities (TORCH), has developed software which can analyse someone's voice over the phone.

The software searches the person's speech for the characteristic signs of a range of conditions. It can compare the tone, pitch and dynamics of speech to those of people suffering from Parkinson's and Alzheimer's. The information gained from this can give doctors more timely information to enable early diagnosis and appropriate treatment. 'If they can have a system where, for example, they can use a telephone as frequently as they want, and that will give some kind of indication, we might be able to predict when they need to come in to have treatment,' says Dr Ravary.

'The system developed could potentially lead to dramatic changes in the treatment of patients with speech disorders around the world'

Dr Ravary is working on the software with two industrial partners, Aculab plc and Oxford Wave Research (OperaVOX), and hopes it will be available for clinical use within the next few years. 'My ultimate goal is to improve the efficiency and effectiveness of the treatment of patients with diseases affecting speech,' she said.

Second chances

Richard Broadbridge in the courtyard at Rewley House

Oxford's Department for Continuing Education (OUDCE) offered a second chance to Richard Broadbridge: despite leaving school with few qualifications, he achieved a Foundation

'With our support, people continue to seek new horizons and enrich their education – whatever their stage in life'

Certificate in History – equivalent to the first year of full-time University study. Now in his 30s, Richard from Oxford is on the path to a full-time undergraduate degree. While some OUDCE students with limited previous learning opportunities want qualifications, others are seeking educational enrichment for its own sake.

Teaching is delivered in weekly chunks or over a day or weekend, through summer schools and online. Some courses lead to masters' and doctoral degrees. The community project Archeox (Archaeology of East Oxford) attracted hundreds of volunteers who come 'from all walks of life', according to project head Dr David Griffiths. It included a six-week excavation at Bartlemas Chapel in Cowley, the site of a medieval leper hospital.

Since 1927 the department has had a physical base at Rewley House and its core mission has remained constant – to provide opportunities for lifelong learning. OUDCE's cohort now outnumbers Oxford University's full-time undergraduate community, as enrolments have continued to rise steadily – from nearly 14,000 in 2000 to almost 21,000 in 2014.

Oxford and Burma

Oxford has been working to aid the development of democracy and living standards in Burma, also known as Myanmar, which is slowly emerging from years of military rule. The post-junta period is fragile and presents many challenges: Burma's economy, one of the least developed in the world, has struggled with corruption and a lack of foreign investment. Educational

'Oxford's support is designed to have an impact throughout the nation'

standards also need to improve – a fact highlighted by Daw Aung San Suu Kyi in her speech on receiving an honorary degree from Oxford in June 2012. Oxford's aid includes training for young lawyers to help them defend constitutional freedoms and safeguard economic growth from corruption; collaborations in wildlife and geology that will ensure a sustainable future for the country; and a partnership with the University of Yangon to provide a framework that other universities in Burma can learn from. In meetings with key Burmese politicians, civil servants and university leaders, Oxonians including Pro-Vice-Chancellor (Development and External Affairs) Professor Nick Rawlins are offering advice on how they can deliver international standards of education. Staff from Yangon visited Oxford for training in curriculum and research design, student support and strategic planning. They have also received onsite advice on how to design a better library system and thousands of books have been donated.

Note: The University of Oxford has no position on the correct name for the country referred to variously as 'Burma' and 'Myanmar' or for the city known as 'Yangon' and 'Rangoon'.

Below, from left: Aung San Suu Kyi and the Vice-Chancellor discuss ways to revitalise higher education in Burma; Sule Pagoda in Yangon

To view the full articles, visit: www.ox.ac.uk/annual-review

A boy packs fresh fish in the San Pya market in Yangon. Oxford's support will help improve young Burmese people's educational and career opportunities

A source of inspiration

Great teachers are a source of encouragement and inspiration. In 2010 Oxford set out to recognise the particular dedication of teachers who inspired and supported their students to win places at Oxford by establishing the Oxford University Inspirational Teachers Award.

First-year undergraduates from a range of schools and colleges across the country nominate teachers every year for the award. Many of the nominees share the experience of being the only one at their school with the academic ambitions and ability to consider Oxford – and credit their teachers with inspiring them to push themselves in their studies and have the confidence to apply to Oxford. As first-year Pembroke student Mohamed Eghleilib wrote about his Fitzalan High School assistant headteacher Jo Kemp: 'She gave me the confidence I needed to not only apply to top universities but to do so with real intent. She didn't allow me to be complacent and helped me fulfil my potential.'

'You are dealing with fantastic students. In this role there is nothing better'
Jo Kemp

Dr Samina Khan, Director of Undergraduate Admissions at Oxford, said: 'We all remember a teacher who passed on their passion for a subject to us. Mine was Chris Kilkenny, a history teacher at Heathfield Senior High School (now the Joseph Swan Academy, in Gateshead) who made history come alive through his inspirational classroom teaching and field trips around the north-east.'

Oxford's Pro-Vice-Chancellor for Education, Professor Sally Mapstone, presented the awards saying, 'A good teacher can be absolutely vital in encouraging and raising the aspirations of students over the course of their careers. Winning a place at Oxford takes hard work and dedication, and having the support of a committed teacher is for many students what makes the difference in pushing them to apply and make the strongest application they can.'

Left: Alison Boardman (second from left) of Hornsey School for Girls was nominated by Holly Harrison-Mullane (second from right) for the 2014/15 Inspirational Teachers Award

Below: Mohamed Eghleilib thanked teacher Jo Kemp for helping him fulfil his potential

To view the full article, visit: www.ox.ac.uk/annual-review

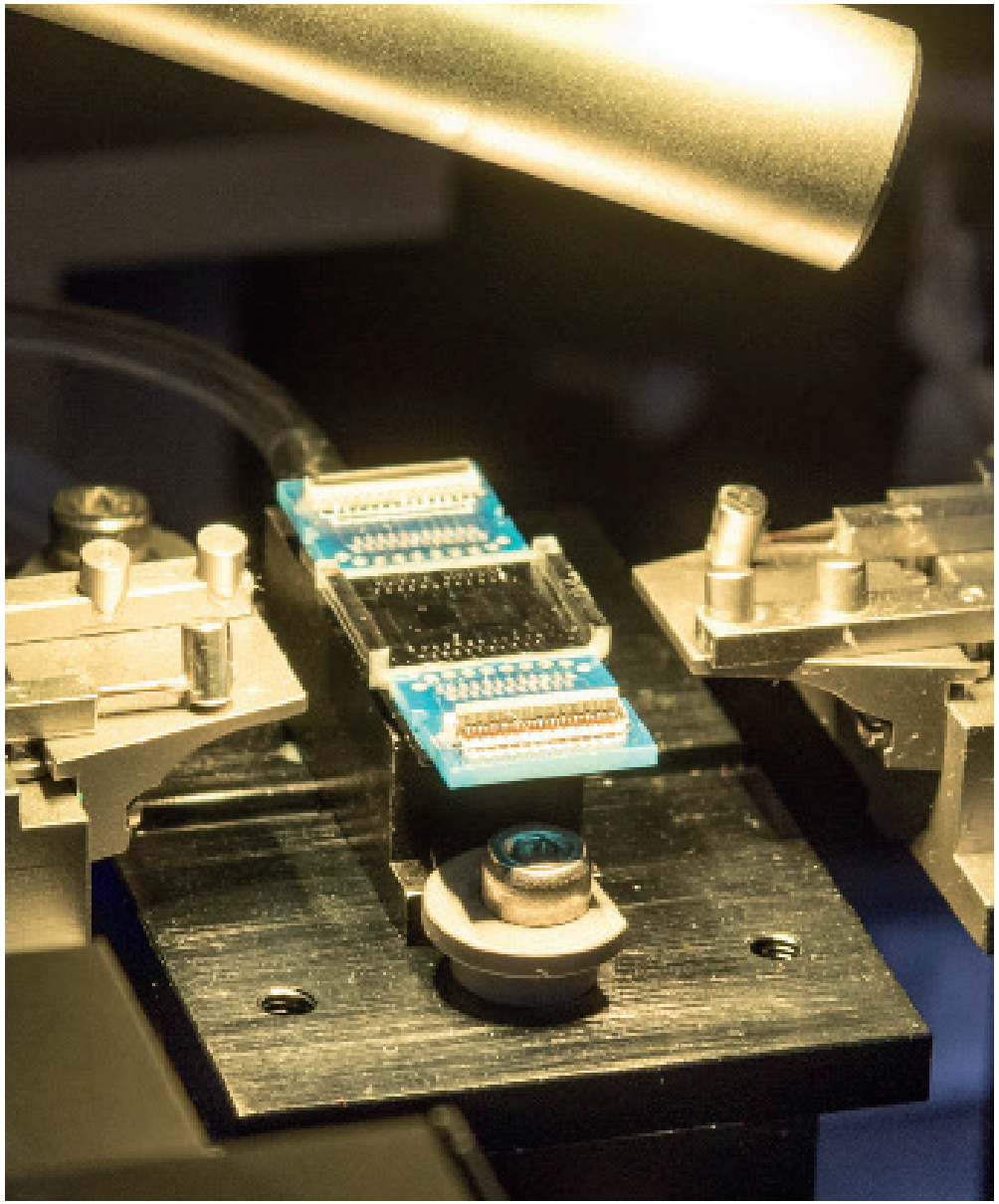
Building for success

Oxford Physics continues to flourish despite physical surroundings that, according to Head of Physics Professor John Wheater, are in many cases 'fundamentally unsuitable for world-class research'. The department hasn't had any major new research infrastructure in half a century – not a long time in the University's overall lifespan, but a significant period given the rate of change and innovation in physics research. A 2008 review of the department highlighted the need for a better infrastructure in place of the dispersed mix of buildings and facilities, leading to the first new building in a major redevelopment project.

The Beecroft Building broke ground on 2 October after a successful £8 million fundraising campaign and will house the Subdepartment of Theoretical Physics alongside modern laboratories for Condensed Matter Physics. Helped by a gift totalling £4 million from Adrian Beecroft (a long-time supporter of the Physics Department and major donor to the Beecroft Institute of Particle Astrophysics and Cosmology), as well as a gift totalling £1.9 million from the Wolfson Foundation, the campaign raised a large proportion of its total from alumni – a strong endorsement of the groundbreaking work of Oxford's physicists in fields from atomic laser physics to astrophysics and atmospheric science.

'The Beecroft Trust is delighted to have been able to help ensure that the new physics building will become a reality,' says Adrian Beecroft. 'Attracting and keeping world-class researchers is essential for Oxford to retain its position as a world leader in physics teaching and research. The new building will provide the cutting-edge facilities and space to support the innovative ideas and experiments of Oxford physicists for many years to come.'

Below: Artists' impressions of the Beecroft Building. Right: Photonic chip in a test-rig at Oxford; this work will continue in the laboratories of the new building



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A NATIONAL TREASURE

Since 2011 a major £80 million refurbishment of one of Oxford's most recognisable libraries has been happening behind hoardings on Broad Street. Following generous support by the Garfield Weston Foundation, the New Bodleian Library, a 1930s building designed by Sir Giles Gilbert Scott, reopened in March 2015 as the Weston Library.

While the façade of the Grade II-listed building has stayed the same, the entrance has moved to Broad Street and members of the public are invited to visit. The Blackwell Hall on the ground floor has a café, shop and two exhibition galleries, and will accommodate public events such as poetry readings and concerts. 500,000 people visited in the first six months of the building being open.

Special fire suppression and climate control systems have been installed in the new building, allowing it to become the main home of the Bodleian's special collections – its unrivalled archive of rare books, manuscripts, archives, music, ephemera and maps. They can now be stored in the same place for the first time.

This gives students and researchers the opportunity to study and handle the special collections more easily than ever before. The Bodleian's expert team of conservators and curators are based in the building to advise those who are using the collections. The library also has new study rooms, reading rooms and a visiting scholars' centre.

Left and right: The new colonnaded entrance on Broad Street; the Weston Library has two exhibition galleries and houses the Bodleian's expert team of conservators

'In a city full of libraries, this is one of the most significant and exciting library transformations for many years'
Richard Ovenden, Bodley's Librarian

To view the full article, visit: www.ox.ac.uk/annual-review

The Rare Book and Manuscripts Reading Room

Honours and awards

Oxford academics were recognised in both the New Year Honours and the Queen's Birthday Honours. In addition, eight academics were elected Fellows of the Royal Society and a further nine were made Fellows of the British Academy. Leading figures from the worlds of engineering, medicine, history and literature received honours at Encaenia, the University's annual honorary degree ceremony.

Sein Chew

Distinguished Friend

Jane Langdale

New Fellow of the Royal Academy

Dickson Poon

New Year Honours

Ruth Simmons

Honorand at Encaenia

Frances Cairncross

The Queen's Birthday Honours

Jonathan Hall

Chancellor's Court of Benefactors

Rory Collins

New Fellow of the Royal Society

New appointments

Nigel Shadbolt

New Head of House

Andrew Stephen

New Professor

Denise Lievesley

New Head of House

Louise Richardson

Louise Richardson, Principal and Vice-Chancellor of the University of St Andrews, was appointed Vice-Chancellor with effect from 1 January 2016. A further 22 academics from around the world were appointed to professorships, visiting professorships and senior administrative posts. Five new heads of house were appointed.

To view the full list of honours, awards and new appointments, visit: www.ox.ac.uk/annual-review

Financial review

The University retained a surplus of £184.3 million in 2014/15 compared to £38.9 million in 2013/14.

	2015 £m	2014 £m
Income	1,429.3	1,174.4
Expenditure	(1,238.3)	(1,146.3)
Surplus on ordinary activities	191.0	28.1
Taxation	(18.5)	-
Minority interest	-	-
Transfer from expendable endowments	11.8	10.8
Net surplus for the year retained within General Reserves	**184.3**	**38.9**

Although the University has retained a large surplus this year, it has significant future capital commitments to fund pension fund deficits and a £1 billion programme of capital expenditure.

The significant increase in the surplus was largely due to a special transfer from Oxford University Press (OUP) totalling £120 million and a research and development expenditure credit claim (RDEC) totalling £66.6 million (net of tax payable). After excluding these one-off items and donations of heritage assets, the underlying University result for the year is a deficit of £12.3 million.

	2015 £m	2014 £m
Net surplus for the year (as reported)	184.3	38.9
Profit on sale of NaturalMotion	-	(33.6)
Special transfer from OUP	(120.0)	-
Research and development expenditure credit claim (net of tax charge)	(66.6)	-
Donation of heritage assets	(10.0)	(0.9)
Underlying (deficit)/surplus for the year	**(12.3)**	**4.4**

The reasons for the change from a surplus position in 2013/14 to a deficit in 2014/15 include reduced overhead recovery on externally funded research, expenditure on the University's share of the costs in setting up the Alan Turing Institute, increased IT expenditure to support teaching and research, demolition costs of certain buildings which are being replaced and the increased net cost of scholarships (a key University priority).

The overall increase in cash for the year was £221 million. The special transfer from the Press and partial receipt of the RDEC have contributed to a net cash inflow from operating activities of £130.3 million. Investment in capital projects totaling £133.1 million includes expenditure on the new building for the Blavatnik School of Government. The net cash impact of investment activities includes the receipt of a £200 million loan from the European Investment Bank (EIB) to provide funding for the University's programme of improvement and expansion of research and teaching facilities.

The balance sheet position remains strong. Net assets totalled £3 billion (2014: £2.6 billion). Fixed assets increased by £266.8 million to £2,363 million and endowment asset investments increased by £128 million to £833.9 million reflecting an increase of 13.1% in market value and the receipt of new endowments.

Notwithstanding all of these challenges, the University will continue to manage its sources of revenue effectively and its costs efficiently in order to generate the positive long-term cash flow needed to ensure that Oxford maintains its pre-eminent position amongst the world's leading universities.

External Research Funding and Impact

Facsimile of a missing fragment from Tutankhamun's tomb, recreated thanks to a unique photo held by the Griffith Institute

Oxford has the largest volume of world-leading research in the country, according to the UK government's 2014 assessment via the Research Excellence Framework (REF). This research activity is underpinned by research grants and contracts with a diverse and expansive collection of third parties: 1,044 separate organisations contributed to the 2014/15 research income of £607 million, with the largest funders being UK charities (£159 million), the UK Research Councils (£146 million) and the European Commission (£58 million).

Oxford researchers continue not only to advance fundamental knowledge but also to contribute to public policy, better health, economic prosperity, social cohesion, international development and the many cultural activities that enhance our quality of life. Outstanding achievements this year included the key role researchers played in combating the Ebola crisis and the release of the first life-size facsimile of Tutankhamun's tomb – so accurate that it caused some of the Tutankhamun experts, Egyptologists and dignitaries present at its opening to burst into tears.

Meanwhile, chemistry researchers developed 3D-printing techniques to create synthetic tissue-like material; spin-out company OxSyBio hopes to use these to produce materials for wound healing, drug delivery and perhaps eventually tissues for organ repair. And a new Multidimensional Poverty Index that interprets poverty as much more complex than just 'lack of income' is already being used by governments across the globe to target enhanced poverty reduction efforts.

To view further information about the University's year in review, including video interviews and slideshows, visit:

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Front cover: The old and the new: view of the 18th-century Radcliffe Camera from the Charles Wendell David Reading Room in the Weston Library

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