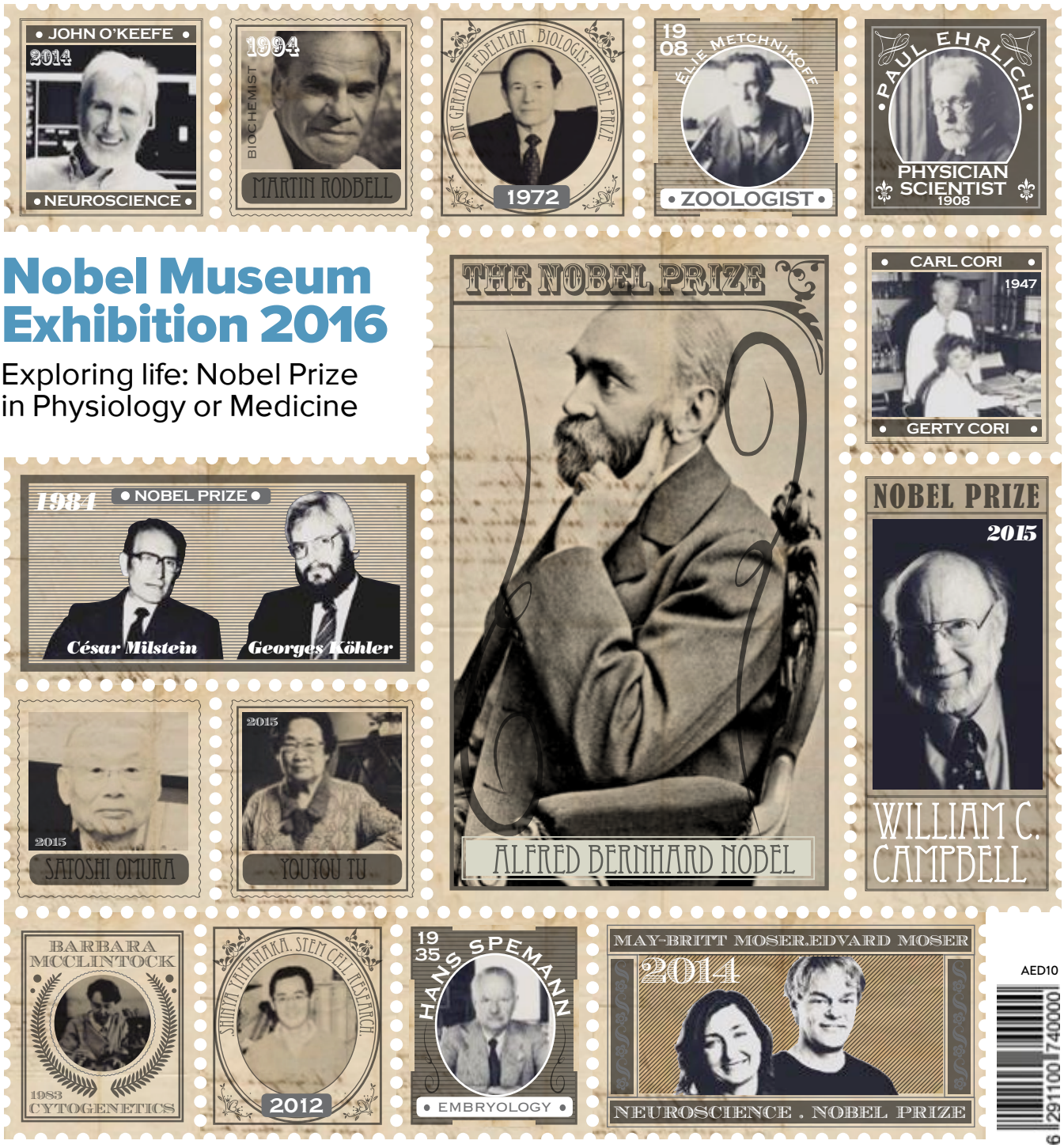
FLASHES

A MONTHLY MAGAZINE ON KNOWLEDGE AND DEVELOPMENT
BY THE MOHAMMED BIN RASHID AL MAKTOUM FOUNDATION

MARCH 2016
ISSUE 17

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Nobel Museum Exhibition 2016

Exploring life: Nobel Prize in Physiology or Medicine

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MOTIVATE
A Motivate Connect Publication

Media One Tower,
Dubai Media City
PO Box 2331, Dubai, UAE
T: +971 4 427 3000
F: +971 4 428 02261
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FOREWORD

Dear Readers,

It has been a busy month for MBRF. MBRF is delighted to bring to Dubai, for the second year in a row, the Nobel Museum Exhibition. This year the theme is "Exploring Life: Noble Prize in Physiology or Medicine". For a society to bloom, it is crucial that its young are given exposure to knowledge and thought. We see exhibitions such as these as an investment in our youth so that they will be inspired to contribute to society in the coming years. Similarly, the World Government Summit 2016, which we have covered in this edition, offered valid insights into how governments can shape healthy societies and nurture the next generation of leaders.

It is with much optimism that significant investments are being made in the fields of knowledge: MBRF launched the Qesaty contest to promote the Arabic language. The AED1 billion Mohammed bin Rashid Library will hold more than 1.5 million volumes, 1 million audio books and two million e-books, making it the world's largest electronic collection and the biggest library in the Arab world.

On the cultural front, the first Biennial of Photography in the Contemporary Arab World concluded successfully in Paris recently, offering a global audience the chance to view the Middle East from a different lens. Meanwhile, Moroccan writer Laila Lalami has become a seminal voice in North African literature. She began publishing her writing in 1996, and in 2015 was a finalist for the Pulitzer Prize in Fiction for her 2014 novel *The Moor's Account*. In addition, *The Moor's Account* was also longlisted for the prestigious Booker Prize in 2015.

Internationally, we are delighted to feature a landmark in Icelandic cinema and Japanese roboticist Hiroshi Ishiguro, who was also one of the recipients of the Sheikh Mohammed Bin Rashid Al Maktoum Knowledge Award. We do hope you enjoy reading this edition of *Flashes*.

Jamal Bin Huwaireb
MD of the Mohammed Bin Rashid
Al Maktoum Foundation



PATH-BREAKING IDEAS ENLIVEN WORLD GOVERNMENT SUMMIT 2016

Event becomes year-round platform and commences operations as an international organisation with global goals

The three-day World Government Summit (WGS) held in Dubai from February 8-10 was a resounding success with over 4,500 participants from more than 130 countries, including 2,000 high-level international government personalities, exchanging path-breaking ideas. The curtain raiser for this event was a keynote recorded speech by US President Barack Obama under the theme "Shaping Future Governments". "When government listens to its people, that is how we move forward," Obama said. "Our countries can learn from each other," he added.

Under the directives of His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, the WGS will now function as an international organisation that works throughout the year to achieve its global goals.

The summit strived to examine the future of humanity in various sectors, answer tomorrow's questions, and produce knowledge to enhance the preparedness of governments in meeting unexpected future challenges in the short, medium and long terms.

GOVERNMENTS AS CITIZEN PLATFORMS

Tim O'Reilly, Founder and CEO of O'Reilly Media, speaking on 'The Next Government Update', underlined the imperative need for governments to become platforms for citizens.

Photos: © Government of Dubai Media Office – All Rights Reserved

People's perception and expectation for service have expanded tremendously with the advent of technological acceleration and innovation – a key reason why many governments around the world are shifting towards providing new platforms for citizen engagement, according to O'Reilly.

He also shed light on the world today that is driven by algorithms, big data, robotics and on-demand economy that brings a "cornucopia of innovation".

FOURTH INDUSTRIAL REVOLUTION

Prof. Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, addressing the opening day of the WGS 2016 in a session titled 'The Dawn of the Fourth Industrial Revolution', stressed the role of the government in shaping the future for next generations.

Highlighting that the concept of the fourth Industrial Revolution, fusing the physical, digital, and biological sphere, deals with the crucial and overwhelming changes that technology has brought in, Prof Schwab emphasised the three absolute changes that governments must undertake.

First, government must recognise their roles and foster innovation. Second, governments will need to reorganise themselves as platforms for innovation. The traditional hierarchical approach must be reevaluated. Third, governments must recognise that the availability of human talent adds a valuable competitive advantage to nations.

AI AND ROBOTICS

Artificial intelligence (AI) expert Neil Jacobstein explained on the final day that the "human brain hasn't had a major upgrade in over 50,000 years. We are going to have to augment our intelligence".

Jacobstein, who is a Visiting Scholar in Stanford's Media X Programme and Co-chair of the AI and Robotics track at Singularity University, headquartered at the NASA Ames Research Park, said that AI will help us do this as it is not just better, faster and cheaper than the technology that currently exists, but is completely different. "AI will blow the roof off education by providing not just one laptop to every child, but rather one personal tutor to every child, which will affect every aspect of governments and organisations."

CLASSROOMS SHOULD BE WORKSHOPS

Paul Anderson, who teaches science in a Montana school in the United States, has explained how classroom game design helps improve learning.

In the broader context of what education should impart and what the future classroom should look like, Anderson said it should resemble a workshop where you read, watch videos, work on skills, and then apply them to a project to solve problems in the real world. ›





Top: Marine Prof. Klaus Schwab, Founder and Executive Chairman of the World Economic Forum
Left: Artificial intelligence (AI) expert Neil Jacobstein



3D PRINTING AND MEDICINE

In his talk titled 'What Comes after 3D Printing Body Parts?' on day three of the World Government Summit 2016, Dr. Anthony Atala, W.H. Boyce Professor and Director of the Wake Forest Institute for Regenerative Medicine, and Chair of the Department of Urology at Wake Forest School of Medicine in North Carolina, shared fascinating insights and updates about research that is supporting the convergence of 3D printing technology with regenerative medicine.

The new technology will help scale the process, reduce cost significantly and deliver futuristic solutions to complex problems ranging from congenital absence of organs to the healing of damaged body parts.



Dr. Anthony Atala, W.H. Boyce Professor and Director of the Wake Forest Institute for Regenerative Medicine, and Chair of the Department of Urology at Wake Forest School of Medicine in North Carolina

CLIMATE CHANGE AND CITIES

Leading a discussion on climate change and its global impact as part of the activities, Felipe Calderon, former President of Mexico and current Chair of the Global Commission on the Economy and Climate, has reaffirmed the correlation between climate change, rise in carbon emission and the frequency of natural disasters.

Calderon argued that it is possible to improve both economic growth and reduce climate change. He urged governments to take immediate action as the window of opportunity – 15 years – to improve environmental circumstances was rapidly dwindling.



Top: Felipe Calderon, former President of Mexico and current Chair of the Global Commission on the Economy and Climate

NOBEL MUSEUM EXHIBITION HIGHLIGHTS CONTRIBUTION TO MEDICINE

MBRF, in collaboration with Nobel Foundation, is showcasing Nobel Laureates as role models for the young in the UAE and Arab region



For the second year in a row, Mohammed Bin Rashid Al Maktoum Foundation (MBRF) has brought the Nobel Museum Exhibition to Dubai. While last year's Nobel Museum exhibition in Dubai, titled "The Nobel Prize: Ideas Changing the World", was a holistic overview of the Nobel Prize itself, this year sees a more focused approach on the history of the Nobel Prize in medicine, the different discoveries and inventions related to medicine and interesting aspects from the lives of the laureates that are most likely to spark an interest among young medical researchers and students.

The month-long Nobel Museum Exhibition in Dubai this year, which opened on February 21, at the Children's City in Dubai Creek Park, highlights Alfred Nobel's vision in establishing the Nobel Prize, his interest in medicine, and also focuses on the contributions of Nobel Prize winners in specific areas, including the treatment of chronic diseases such as diabetes, cancer and thalassemia.

OPENING CEREMONY

His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of UAE and Ruler of Dubai, received Professor Carl-Henrik Heldin, Chairman of the Board of the Nobel Foundation. HH Sheikh Mohammed welcomed the Swedish professor and exchanged talks

Above: HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of UAE and Ruler of Dubai (right); HE Jamal Bin Huwaireb, MD of MBRF (left); and Professor Carl-Henrik Heldin, Chairman of the Board of the Nobel Foundation (second from right)



Above: HE Jamal Bin Huwaireb, MD of MBRF (left) and HE Hussain Bin Ibrahim Al Hammadi, Minister of education (centre), at the Nobel Museum Exhibition

about the Nobel prize and the role it plays in encouraging advocates of peace – such as leaders and decision makers. The opening ceremony was attended by HE Jamal Bin Huwaireb, Managing Director of MBRF, along with Professor Carl-Henric Heldin, Chairman of the Nobel Foundation, and representatives from the local and international media. HH Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE, also graced the event. HH Sheikh Mohammad hailed the role played by the Nobel Foundation in the global humanitarian and scientific fields, as well as its constructive cooperation with MBRF, which allows it to convey its humanitarian message.

Below: The Exhibition features an 'Islamic Medicine' section which reviews the achievements of Islamic scientists in the medical and pharmaceutical fields.



10 YEAR TIE-UP

Addressing the ceremony, HE Bin Huwaireb announced that MBRF has entered an agreement for 10 years with the Nobel Foundation to showcase the Nobel Prize and Nobel Laureates as role models for thousands of young people in the UAE and Arab region. On the directions of HH Sheikh Mohammed, the MBRF, in the coming years, will also plan to take these exhibitions to several cities in the UAE and other Arab countries.

"We promise you more programmes and exhibitions that promote the dissemination of knowledge and document human achievements to enrich minds," said HE Bin Huwaireb. "This is part of the Foundation's efforts to empower future generations in the Arab world with knowledge, and inspire them with sustainable solutions developed by some of the most innovative minds in the world. The exhibition will help young people understand the contribution of Nobel Laureates

in medicine towards serving humanity through breakthroughs in medical and health fields. It will also highlight the early Arab and Muslim medical inventions and their vital role in solving medical problems. Our aim is to encourage young Arabs to study sciences and aspire to win a Nobel Prize," said HE Bin Huwaireb.

Professor Heldin added to this perspective by saying, "It is true that so far Nobel Prizes in Science have been dominated by scientists from Europe and North America. However, with the experience of globalisation with regard to scientific efforts, there are a lot of things happening outside Europe and North America now, including this part of the world" said Heldin, in response to a question.

HIGHLIGHTS OF THE EXHIBITION

The Nobel Museum Exhibition in Dubai has a special focus on Alfred Nobel, his will establishing the Nobel Foundation and the Nobel Prizes, and also sheds light on the history of Medicine and the Islamic Golden Age during which various advances in the field were made. The few selected books displayed at the exhibition from Alfred Nobel's personal library testifies to his personal interest in Medicine.

There is also an 'Inside Explorer' section that highlights Nobel Prize winners who have succeeded in developing practical ways of understanding human physiology.

Detailed photographs, models, hand-held microscopes and videos make this a very interactive exhibition, as you enter this vast field from the living cell to the DNA structure. Visitors can peer into the invisible through different types of microscopy; there is also an edifying section on diseases and cures. The exhibition highlights how Nobel laureates and their discoveries have given us insights into the planet's most amazing resource – life.

HE Bin Huwaireb said over the entire one-month period of its activity, the exhibition, through its various sections, will introduce visitors to several aspects of medicine and offer interactive experiences in the field in an interesting and fun-filled manner.

ISLAMIC CONTRIBUTION

The exhibition also showcases through its multiple sections the huge contribution of Islamic scientists in the medical field, and the development of

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the Islamic medicine field over several centuries. It features an 'Islamic Medicine' section which reviews the achievements of Islamic scientists in the medical and pharmaceutical fields.

While at present, the Nobel Prizes are dominated by scientists and researchers from the US, UK and from Western Europe, both HE Bin Huwaireb and Professor Heldin reminded the audience during the opening ceremony that had the Nobel Prize, which was instituted only in 1901, been in existence a thousand years ago, many of the prizes in Physiology and Medicine would have gone to Arab scholars who dominated the field during the Islamic Golden Age – between the 8th and the 13th Centuries.



In 786 AD Caliph Harun Al Rashid established the House of Wisdom in Baghdad, which had the largest collection of books in the world by the 9th Century. This was indeed a time of scientific and cultural flourishing when Arab scholars and scientists collected knowledge from all over the world – especially Greek, Indian and Chinese sources – and built on it to make new discoveries that still influence our lives today.

Arabic become the main language dealing with ideas and after the 12th Century, medicine and scientific thought continued to grow with important physicians dominating the field in many cities like Baghdad and Mosul. In 809 AD Hunayn Ibn from Southern Iraq published the 'Ten Treatises on Ophthalmology' - the first known systematic treatment of this field and was most likely used in medical schools at the time. In 830 AD, Prince Ziyadat Allah built the Al Qayrawan Hospital in Tunisia. Hospitals were set up by Ahmad Ibn Tulun the Abbassid governor of Egypt in Cairo in 872 and Al Zahrawi considered the greatest

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Top: Students of UAEU College of Medicine & Health Sciences visit the exhibition.
Above: His Excellency Humaid Mohammed Obaid Al Qatami (centre), Chairman of the board of the Dubai Health Authority, at the exhibition.

medieval surgeon, was doing surgeries in Cordoba in 936 AD.

Abu Bakr Mohammad Ibn Zakariya Razi, known in the West as Rhazes (865 to 925 AD), considered the father of clinical and experimental medicine, was born in the ancient city of Rayy, near Tehran, Iran. He was a renowned physician who greatly extended the analytical approach of his predecessors and was known as the most distinguished character in the world of medicine up to the 17th century. A great number of innovations and pioneering works in the medical science have been recorded in the name of Rhazes. He developed methods for diagnosis and treatment of kidney calculi for the first time in medical history. His writings also became fundamental teaching texts in European medical schools.

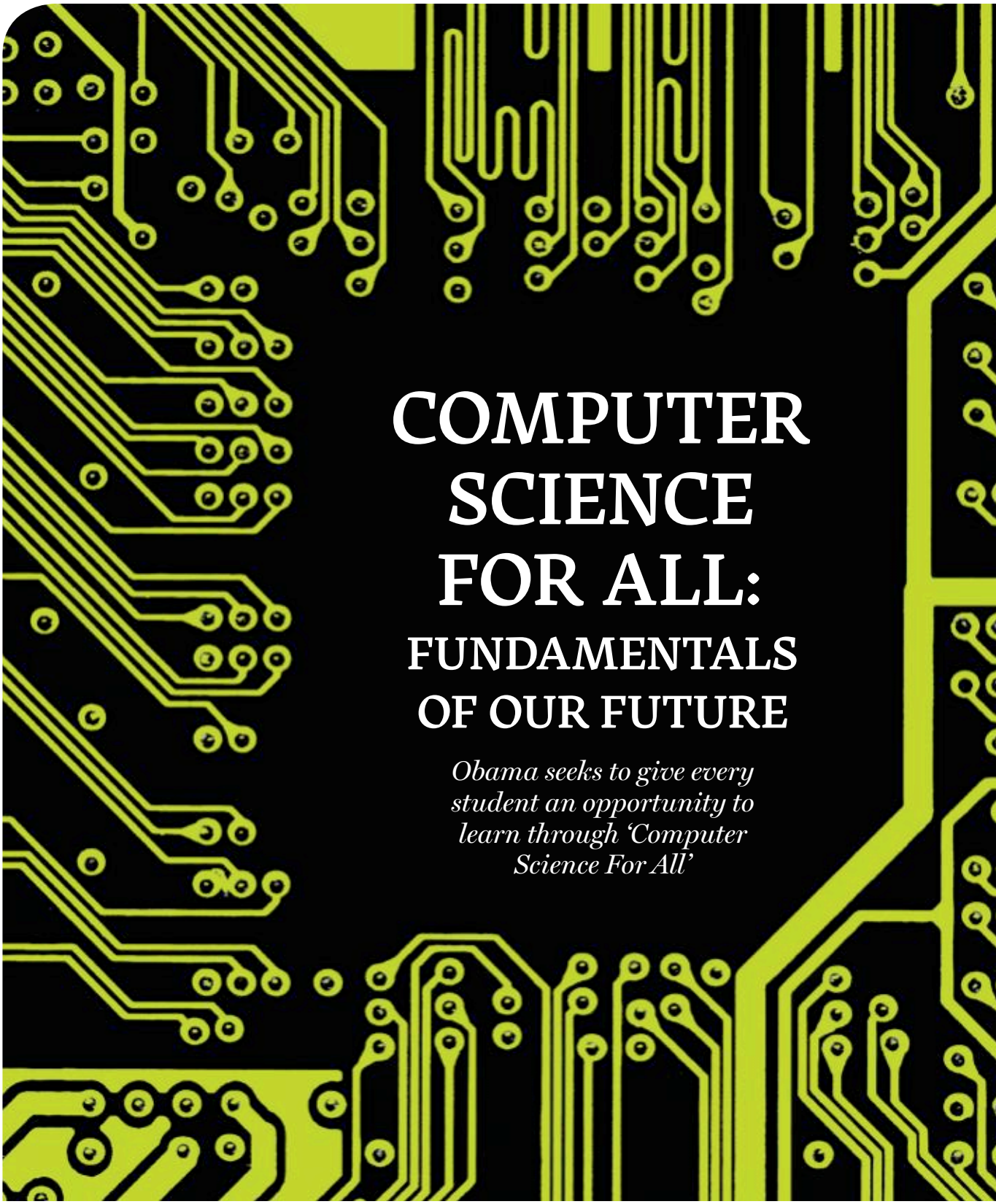
The Prince of Physicians Ibn Sina (Avicenna) – 980AD – created an extensive corpus of works having written 450 scholarly works, out of which 40 were on Medicine. These were being used as standard text in Medicine in Europe till 1650.

AN APPOINTMENT WITH KNOWLEDGE

As HE Jamal Bin Huwaireb aptly said, "It is an appointment with knowledge. This show is about encouraging students of all age groups to study and embark on medical research. It is meant to upgrade our knowledge and find out how the discoveries by these Nobel laureates have helped and benefited our lives. We want our scholars now to work hard, focus on scientific research so that they become deserving winners of the Nobel Prize in the future." Professor Heldin characterised the Dubai exhibition as "a unique platform for transferring knowledge and as a leading knowledge event with narrative form and content". He said that "knowledge is a social entity that is built on trust". One of the challenges of this digital age, is the trust factor, as we seek knowledge from multiple sources – teachers, books and TV shows. "The Nobel Foundation and MBRF have shared values and would like to produce reliable information in an educational way."

Professor Heldin said: "We have to start with the children, who are the future Nobel laureates. This exhibition provides everyone a chance to know about the lives of Nobel laureates and even to meet them in person in Dubai. This project with MBRF is about highlighting role models. The Nobel Prize rewards hard work and good ideas. Alfred Nobel was in constant quest for knowledge. It is our task to fulfill his vision."

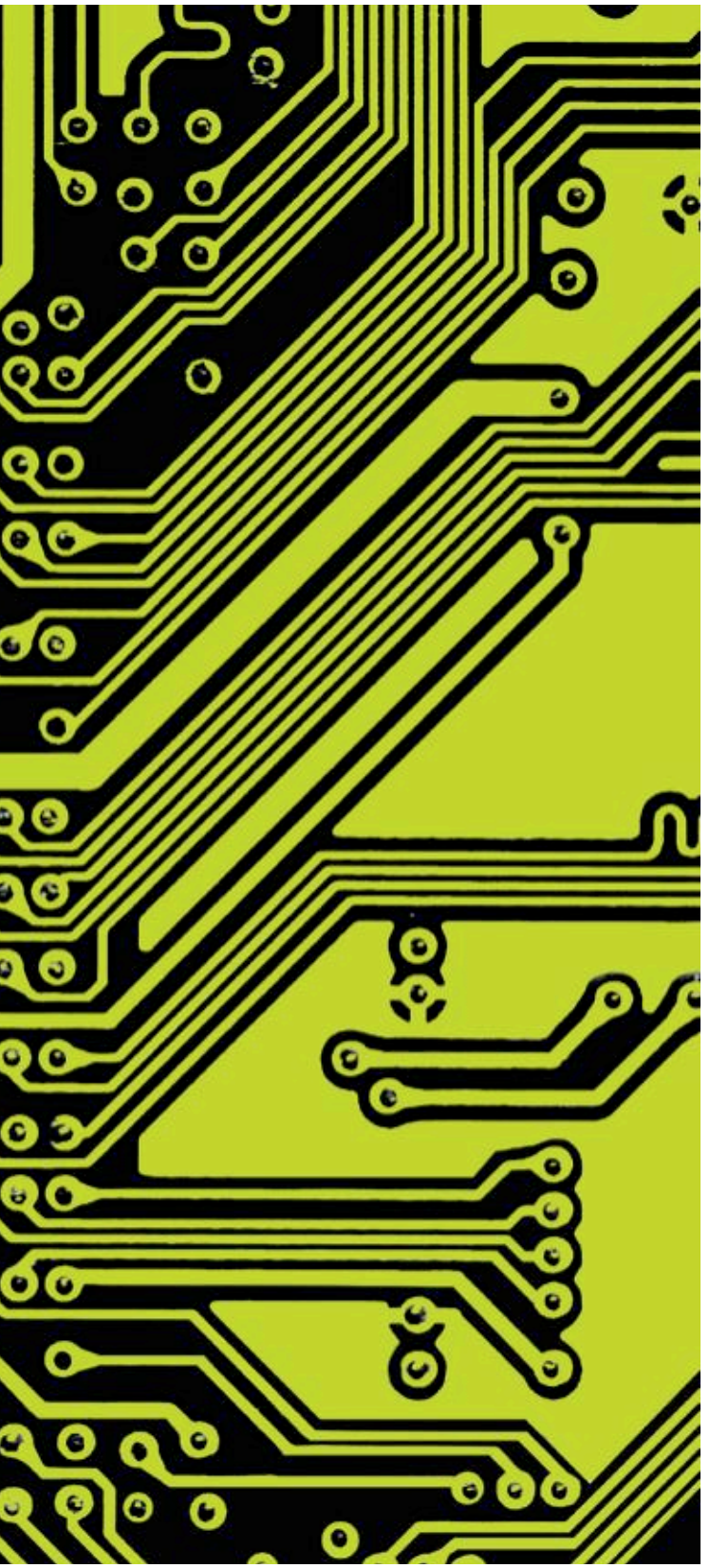
According to HE Bin Huwaireb, the next year's exhibition would be dedicated to Physics, and be "more focused, bigger, more comprehensive and specially designed. We promise you more activities that will enrich minds".



COMPUTER SCIENCE FOR ALL:

FUNDAMENTALS OF OUR FUTURE

Obama seeks to give every student an opportunity to learn through 'Computer Science For All'



Educational experts call it the 'New Latin'. Computer Science is the fourth science and a discipline that needs to be taught in schools like physics, chemistry and biology.

Computer Science (CS) skills, methodology and techniques enable school students to know how digital systems that have become critical components of daily life and society actually work.

While this change in emphasis in school syllabus is increasingly recognised across the globe, in the United States President Obama has recently announced a 'computer science for all' plan with an emphasis on teaching the subject as a 'basic skill' across schools in the country.

The legislation aims to introduce CS education to millions of students from elementary school through senior year of public high school.

ADDRESS TO THE NATION

In the opening remarks itself in his January 30 weekly address to the nation, Obama noted that, "As I said in my State of the Union address, we live in a time of extraordinary change – change that's affecting the way we live and the way we work. New technology replaces any job where work can be automated. Workers need more skills to get ahead. These changes aren't new, and they're only going to accelerate."

He said that in a rapidly shifting economy, "educators and business leaders are increasingly recognising that CS is a 'new basic' skill necessary for economic opportunity."

"So the question we have to ask ourselves is," Obama added, "How can we make sure everyone has a fair shot at success in this new economy?"

"The answer to that question starts with education. That's why my Administration has encouraged states to raise standards. We've cut the digital divide in our classrooms in half. ›



"All our kids are equipped for the jobs of the future – which means not just being able to work with computers, but developing the analytical and coding skills to power our innovation economy."

U.S. President Barack Obama

Above: U.S. President Barack Obama, right, talks to middle-school students who are participating in an "Hour of Code" event in honor of Computer Science Education Week.

We've worked with Congress to pass a bipartisan bill to set the expectation that every student should graduate from high school ready for college and a good job. And thanks to the hard work of students, teachers, and parents across the country, our high school graduation rate is at an all-time high."

Obama said that now we have to make sure "all our kids are equipped for the jobs of the future – which means not just being able to work with computers, but developing the analytical and coding skills to power our innovation economy."

The President referenced his Computer Science for All Initiative, which provides $4 billion in funding for states and $100 million directly for districts in his upcoming budget; and invests more than $135 million beginning this year by the National Science Foundation and the Corporation for National and Community Service to support and train CS teachers.

He called on even more governors, mayors, education leaders, CEOs, philanthropists, creative media and technology professionals, and others to be a part of the efforts.

THREE STEPS

Obama outlined three steps in the 'computer science for all' plan speech.

"First, I'm asking Congress to provide funding over the next three years so that our elementary, middle and high schools can provide opportunities to learn computer science for all students.

"Second, starting this year, we're leveraging existing resources at the National

Science Foundation and the Corporation for National and Community Service to train more great teachers for these courses.

"And third, I'll be pulling together governors, mayors, business leaders, and tech entrepreneurs to join the growing bipartisan movement around this cause. Americans of all kinds – from the Spanish teacher in Queens who added programming to her classes to the young woman in New Orleans who worked with her Police Chief to learn code and share more data with the community – are getting involved to help young people learn these skills."

Obama summed up the plan as "… each of us doing our part to make sure all our young people can compete in a high-tech, global economy. They're the ones who will make sure America keeps growing, keeps innovating, and keeps leading the world in the years ahead. And they're the reason I've never been more confident about our future."

As far back as May 2011, Obama had said: "We don't want the next Intel or Google to be created in China or India. We want those companies and jobs to take root in America."

By some estimates, just one quarter of all the K-12 schools in the United States offer CS with programming and coding, and only 28 states allow CS courses to count towards high-school graduation, even as other advanced economies are making CS available for all of their students.

The White House said that the $135 million in investments by the National Science Foundation (NSF) and the Corporation for National and Community Service (CNCS) to support and train CS teachers will be spread out over five years using existing funds.

GROWING MOVEMENT

Fortunately, there is a growing movement being led by parents, teachers, states, districts, and the private sector to expand CS education. The President's Computer Science for All Initiative builds on these efforts.

INDUSTRY SUPPORT

According to The White House, technology companies have pledged to increase their own investments in computer-science education as part of the initiative. More than 50 organisations have responded to the President's call to action. Cartoon Network, Google and Salesforce.org have announced more than $60 million in new philanthropic investments, and Microsoft is announcing a 50-state campaign to expand CS; and Code.org is announcing plans to offer CS training to an additional 25,000 teachers this year.

"We are the country that has been at the forefront of the digital revolution," Megan Smith, Obama's chief technology officer and a former Google executive, told reporters. "We want to continue that amazing American legacy on into the future."

"When it comes to computer science, we can all be students and President Obama led the way as our CS Student Coder-in-Chief when he became the first President to write a line of code himself. His first line of code was "moveForward<100>" and that's what CS for All is all about: moving forward together. Who taught him to code? A middle-school student named Adrianna from Newark, New Jersey, who took a computer science course at her school," according to Smith.

As for the employment dividend related to CS, according to The White House, last year there were over 600,000 tech jobs open across the United States, and by 2018, 51 per cent of all STEM jobs are projected to be in CS-related fields.

While the tech industry has welcomed the move, commentators have noted that whether Obama's initiative succeeds and can provide new skills to children "will be largely decided by an immobile Congress that likely sees the roughly $4.1 billion programme with scepticism."

"And while few would argue that high-tech, well-paying coding-centric careers are not in great demand, the truth is that Obama's latest education effort faces an uphill battle on Capitol Hill," writes Chris Bing on the DC Inno website.

The Federal government alone needs an additional 10,000 IT and cybersecurity professionals, and the private sector needs many more.

CS is not only important for the tech sector, but also for a growing number of industries, including transportation, healthcare, education, and financial services, that are using software to transform their products and services.

In fact, more than two-thirds of all tech jobs are outside the tech sector, underlining the prospects and significance of the programme that the President has set in motion.

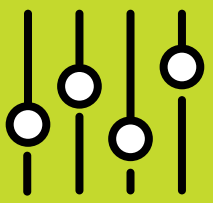
OBAMA'S THREE STEPS IN THE 'COMPUTER SCIENCE FOR ALL' PLAN

1



FUNDING OVER THE NEXT THREE YEARS

2



LEVERAGEING EXISTING RESOURCES

3



CALLING ALL BUSINESS LEADERS, AND TECH ENTREPRENEURS TO JOIN THE BIPARTISAN MOVEMENT

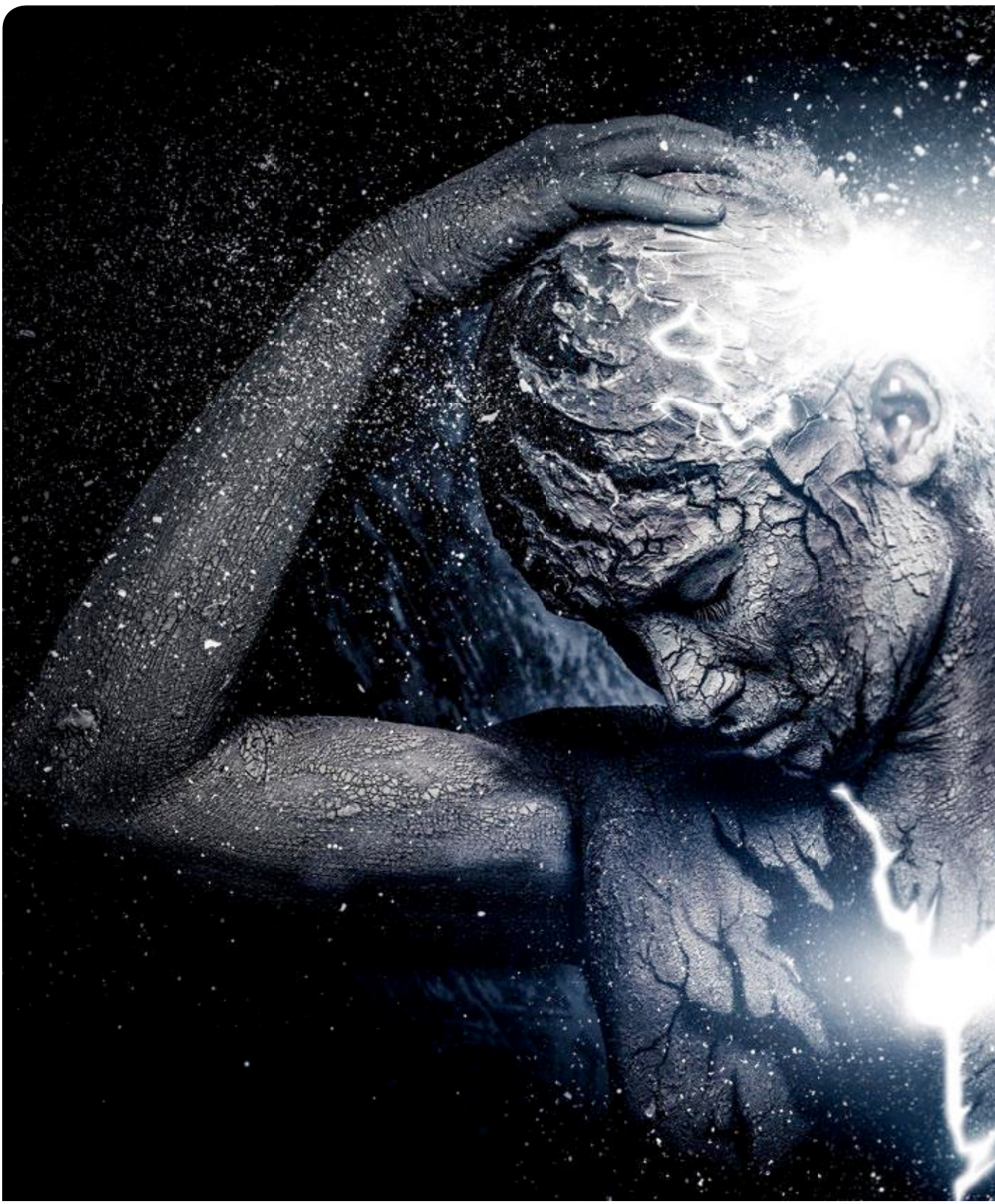


Photo: Shutterstock



CRACKING THE CODE

The $1 million Palo Alto Longevity Prize has been launched with the goal of extending the human life span

All civilisations from time immemorial have been engaged in thinking about extending human life. In less than one century, life expectancy has increased by an average of 30 years in the developed regions of the world, according to the Stanford Centre for Longevity.

Now a life science competition has been launched dedicated to end ageing. That in sum is the $1 million Palo Alto Longevity Prize, which according to its promoters, is "one of a growing number of initiatives around the world pursuing this goal—the more shots on goal the better. Through an incentive prize, our specific aim is to nurture innovations that end ageing by restoring the body's homeostatic capacity and promoting the extension of a sustained and healthy lifespan."

SPONSOR

The Palo Alto Prize is privately-funded by Silicon Vally investors, a communal effort dedicated to ending ageing. "We are one of a growing number of initiatives aimed at ending ageing. The more shots on goal we take as a society the better. We are all ultimately on the same team," the promoters say.

Joon Yun, M.D., the President of Palo Alto Investors, LLC, and a radiologist by training, is personally sponsoring the Palo Alto Longevity Prize through the Palo Alto Institute, a private foundation. Founded in 1989, Palo Alto Investors LLC has $1 billion assets under management invested in healthcare.

BIOLOGY OF AGEING

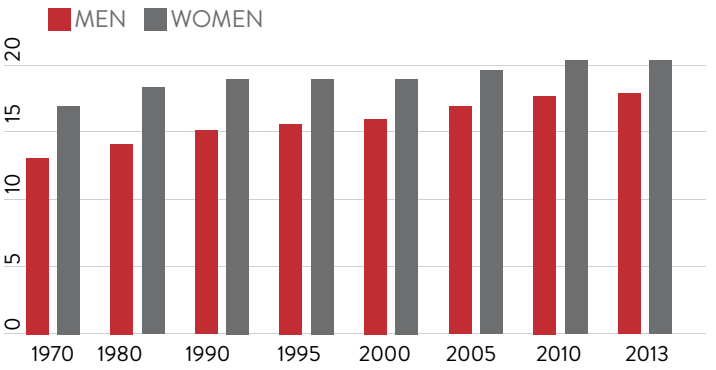
Cracking the code on the fundamental ageing process may allow scientists to influence the actual biology of ageing, thereby slowing or resolving the process of ageing and many diseases and issues related to ageing.

Others like Methuselah Foundation, co-founded by Dave Gobel and Aubrey de Grey in 2003, have also embarked on shedding light on the processes of ageing and finds ways to extend healthy life, giving away over $4 million in funding for regenerative medicine R&D. ›

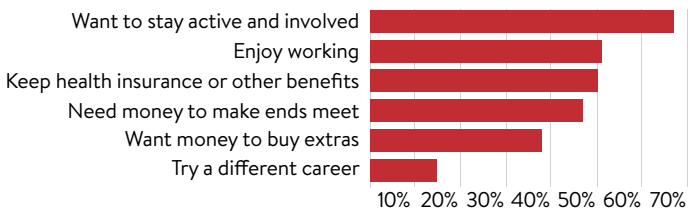
LONGEVITY AND LATER LIFE

A person turning 65 now can expect to live an additional 19.3 years, on average – almost 5½ years longer than a person who reached 65 in 1950.

Life expectancy, in years, for men and women at age 65



Work might fill a number of those years. More people plan to continue working in later life – and not simply for money. The top reasons cited:



Source: Centers for Disease Control and Prevention, National Center for Health Statistics (life expectancy); Employee Benefit Research Institute telephone survey of 1,000 workers age 25 and older, January 2014; margin of error ±3.5% points (working in later life). The Wall Street Journal

From tissue engineering to stem cell science, there have been tremendous advances, and regenerative medicine is transforming health care in the 21st century.

During the recent World Government Summit held in Dubai, Rohit Talwar, an award-winning global futurist, CEO of Fast Future for Research, and specialist advisor on the future of government, addressed the topic of the impact of rising life expectancy, the future of work, long-term policy, business transformation, disruptive strategies and radical innovation.

The global thinker gave audience members a glimpse into the future in which people could live not only to the age of 90 or 100, but even to 200. Talwar stated: "Age extension is big business. Physical and mental enhancements could see us working until we are 200."

With exponential advances in the medical field and quality of life, average life expectancy is increasing by three to five months every year. It is therefore expected that an average human being can live and work more than 100 years by the end of this century.

THE SCIENTIFIC APPROACH

Homeostatic capacity is the capability of systems to self-stabilise in response to stressors. A simple way to visualise homeostatic capacity is to imagine a WeebleTM, the popular self-centreing children's toy. For organisms, it is life's foundational trait—itself comprised of a hierarchy and network of traits—endowed by nature and shaped by selection.

Homeostatic capacity comprises a multidimensional network of traits and operates at all scales of biology, including at molecular, cellular, physiologic, organismal, and systems levels. For the purposes of the Prize, heart rate variability (HRV) was chosen as a biomarker of homeostatic capacity.

Like many fields, the HRV field is not without controversy with differing points of view. On the positive side, HRV represents an intriguing biomarker for homeostatic capacity for the following reasons:

HRV, a measure of cardiac autonomic function, is a proxy for autonomic nervous system function, one of the fundamental physiologic systems governing organismal homeostasis.

HRV can be measured non-invasively and safely using a diverse array of tools at little variable cost. HRV measurement tools (including those available on personal mobile devices) already have a global footprint around the world.

Autonomic dysfunction, as assessed by HRV, is associated with the panoply of ageing diseases. Therapies that ameliorate the diseases of ageing,



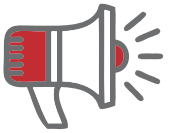
Above: Joon Yun, M.D., the President of Palo Alto Investors, LLC, and a radiologist by training, is personally sponsoring the Palo Alto Longevity Prize through the Palo Alto Institute, a private foundation.



WHY A PRIZE?
Incentive prizes work because they attract:



MINDS



MEDIA



MONEY

reduce mortality rates, and improve longevity such as exercise, sleep, smoking cessation and caloric reduction have been shown to also improve HRV.

Therapies that are known to promote health outcomes such as meditation, yoga, acupuncture and other alternative medicine treatments have also been shown to improve HRV. Chronic stress, which has been shown to exacerbate diseases of ageing, increase mortality rates, and shorten longevity, lowers HRV.

HRV measurements via continuous fetal scalp monitoring have been used to prognosticate fetal distress and risk of mortality since 1965.

WHY FOCUS ON HRV?

Focusing on homeostatic capacity of the autonomic nervous system (ANS) as the central mediator may not be perfect but the promoters of the Palo Alto Longevity Prize think it is undervalued in the ageing process.

The ANS is a two-way communication system. The brain sends signals through the ANS to various systems in the body and the ANS communicates signals from these systems back to the brain. HRV gives us an indication of when the body's self-regulating feedback might be stuck due to diminished homeostatic capacity.

AIM OF THE PRIZE

The incentive prize has the specific aim of nurturing innovations that end ageing by restoring the body's homeostatic capacity and promoting the extension of a sustained and healthy lifespan.

There are two prizes to be won with the $1 million divided between the two and teams may compete for one or both prizes.

A $500,000 Homeostatic Capacity Prize will be awarded to the first team to demonstrate that it can restore homeostatic capacity (using heart rate variability as the surrogate measure) of an ageing reference mammal to that of a young adult.

A $500,000 Longevity Demonstration Prize will be awarded to the first team that can extend the lifespan of its reference mammal by 50 per cent of acceptable published norms. Demonstration must use an approach that restores homeostatic capacity to increase lifespan.

COMPETITION TIMELINE

Many groups from various countries are competing for the prize after it was launched on September 9, 2014. The cut-off date for applying to the contest was in two stages of January 15 and June 15, 2015. The cut-off date for public commenting closed on November 15, 2014 and the first registration deadline for teams closed on 15 Feb, 2015. A second round of registration ended on December 31, 2015. The Homeostatic Capacity award will be given on 15 June this year, while the Longevity demonstration prize will be awarded on September 9, 2018. Teams that are officially registered can take on new team members and also collaborate with other entities.

COMPETING TEAMS, JUDGES

The terms of the competition contain a number of restrictions on potential entrants that are intended to prevent conflicts of interest. And members of the judging panel of the Prize may neither participate in – nor have financial interest in – any team. Members of the judging panel will have cross-functional and relevant backgrounds in order to ensure that the judging panel will be able to address all of the requirements of the competition.

FUNDING

While the Palo Alto Prize organisation itself does not provide teams with funding, they work with a number of angel investors, venture capital firms, corporate venture arms, institutions and private foundations to provide access to additional capital to the teams during the competition.

PRIZE TIMELINE

- NOV 15 2014 — Public commenting on rules closes
- FEB 15 2015 — First registration deadline for teams closes
- DEC 31 2015 — Second registration deadline for teams closes
- SEP 9 2018 — Longevity demonstration prize ends


il Kindle di Erika
E=mc²



eBOOK REVOLUTION:

BREAKING THROUGH IN THE DIGITAL AGE

A study in UK schools on the role of technology and education throws up interesting insights

Electronic books are increasingly being used in classrooms by children as young as three in the UK – and they are making a big difference to the reading habits of boys, says research.

But there are also concerns that the expansion of electronic devices in schools may undermine the position of traditional paper books.

The National Literacy Trust conducted a fascinating study of the role of technology and education.

The research, titled "The Impact of ebooks on the Reading Motivation and Reading Skills of Young People: a study of schools using RM Books", is one of the first and largest studies to explore the effect ebooks have on the reading habits among children.

The study shows a remarkable improvement in reading ability amongst boys who do their reading online through ebooks.

The Trust recognises the importance of technology as a tool for teaching literacy skills and was keen to explore this in greater detail. ›

PROPORTION OF CHILDREN READING IN PRINT AND ON ELECTRONIC DEVICES IN 2012

Source: National Literacy Trust's annual literacy survey 2012; N = 34,910)



Print	Tablet	Mobile	Computer	eReader
61.8%	70.2%	68.8%	67.1%	77.3%

Research shows that one of the most effective ways of helping children to reach their potential is to engage them in reading for enjoyment.

Children who read for enjoyment often make more progress in maths, vocabulary and spelling between the ages of 10 and 16 than those who rarely read for enjoyment, and young people who read regularly are significantly more likely to attain a professional or managerial position than those who do not read.

Finding ways to help children to enjoy reading more, and motivating them to read more often, has the potential to address longstanding achievement gaps, according to one of the main findings of the study.

Below: Children who read for enjoyment often make more progress in maths, vocabulary and spelling between the ages of 10 and 16.



NATIONAL CHARITY

The National Literacy Trust is a national charity dedicated to raising literacy levels in the UK. Its research and analysis make it the leading authority on literacy. The Trust runs projects in the poorest communities, campaigns to make literacy a priority for politicians and parents, and support schools.

JOINT STUDY

In September 2014, the National Literacy Trust and RM Books embarked on a joint study to explore the impact of ebooks on the reading motivation and reading skills of children and young people in around 100 primary and secondary schools across the UK.

The study covered nearly 500 eight to 16-year-olds in 40 schools – and ran from between two to eight months.

Final conclusions were published in October 2015. It was found that boys made significantly greater progress over the course of the study than girls, with boys' reading levels increasing by an average of 8.4 months compared with girls who made an average gain of 7.2 months.

FANTASTIC RESPONSE

According to a teacher who took part in the project, "...23 of 24 pupils made progress, some rapid and others steady. It has also been vital in encouraging underachieving boys to develop a love of reading. The stigma of 'reading' has been removed and the pupils are actually sharing their experiences with their friends across the school and creating somewhat of a 'reading frenzy' which is fantastic!"

A survey of 30,032 children alongside the

study showed 88.6 per cent said they read using technology.

One of the students commented: "I like reading now, it's more simple, it's easier to use – I read a lot more at home even. I'm more comfortable reading online, I'm not sure why. I read at home on my phone, my iPad, my brother's game console… A lot more people should give it a try."

Many children and young people in surveys and focus groups named the ability to control the number and size of words on the screen to suit their own preference as the most important benefit of this new reading format.

RISING ENJOYMENT

Enjoyment of reading increased significantly over the course of project activities, particularly with respect to enjoyment of reading using technology: 59.4 per cent of pupils enjoyed reading either very much or quite a lot before the project began. This rose to 64.1 per cent post-project. 68.1 per cent of pupils enjoyed reading using technology in the pre-project survey; this increased to 74.3 per cent post-project.

More pupils thought reading was "cool" after the project. Fewer said that they found reading difficult or that they could not find things to read that interest them. There was a 27 per cent increase in the number of pupils who thought that reading was cool over the course of the project, rising from 51.8 per cent before the project to 65.9 per cent after the project.

The number of pupils who said that they cannot find things to read that interest them decreased by 37 per cent, from 31.3 per cent to 19.7 per cent.

The number who felt that reading was difficult halved over the course of the project, decreasing from 14.8 per cent to 6.8 per cent.

Positive attitudinal changes were more pronounced for boys. There was an 11 per cent increase in the number of boys who enjoyed reading using technology over the course of the project (60.9 per cent pre, 67.9 per cent post); a 25 per cent increase in the number who read daily using technology (30.9 per cent to 38.7 per cent) and a 22 per cent increase in the number who read for an hour or longer using technology.

Twice as many boys felt that reading was cool at the end of the project (36.4 per cent pre, 66.5 per cent post) and the percentage that felt reading was difficult almost halved (28.0 per cent pre, 15.9 per cent post).



Reading enjoyment increased in particular for boys who started the project with the lowest levels of reading enjoyment. The percentage of this subgroup who enjoyed reading using technology increased over the course of the project from 49.2 per cent to 64.2 per cent.

However, the percentage that enjoyed reading on paper also increased fourfold, from 10.0 per cent at the beginning of the project to 40.0 per cent at the end of the project. Boys from this group also read for longer using technology, with the number reading for more than an hour tripling from 8.1 per cent to 24.5 per cent.

DECISIVE SHIFT

It may be noted that the number reading ebooks tripled between 2010 and 2014.

It was during National Literacy Trust's annual literacy survey in 2012 that children reported reading more on computers and other electronic devices than in print form for the first time, confirming the central role of technology in young people's literacy lives.

READING ENJOYMENT INCREASED IN PARTICULAR FOR BOYS WHO STARTED THE PROJECT WITH THE LOWEST LEVELS OF READING ENJOYMENT.



Virtual Education in Conflict Zones

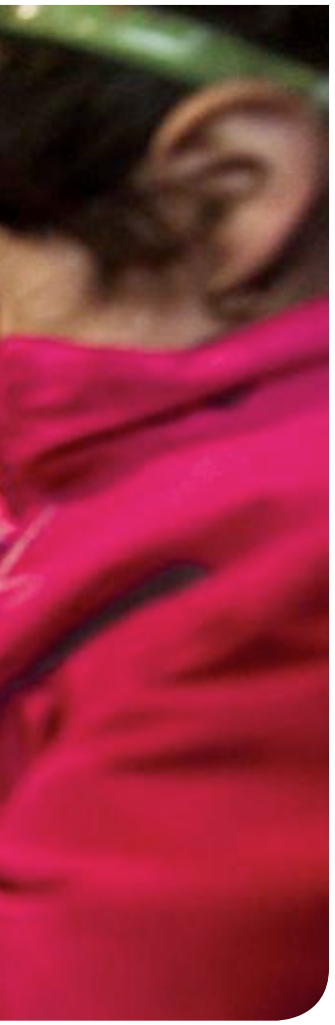
Some remarkable initiatives are underway to provide refugees with access to education, writes former British PM Gordon Brown

Educating refugees and children in conflict zones is one of the biggest challenges facing the international community. Their schools have been reduced to rubble. Their teachers have fled or are struggling to survive. Their libraries have been looted or burned.

Fortunately, solutions are possible. After all, these days, compelling lectures and well-stocked libraries are available at the click of a button. A bold pilot project, sponsored by the Dubai-based MBR Foundation, reflects this reality. The best coursework on offer – in mathematics, science, foreign languages, and literature – can be loaded onto a mobile phone and placed in a student's hand. If the 58 million children who are currently unable to attend school cannot be brought to a classroom, then the classroom must be brought to them.

Aid groups are already blazing the trail, using the Internet to provide Syrian refugees with educational opportunities. The Norwegian Agency for Development Cooperation, for example, is holding an international competition – called eduapp4Syria – to develop smartphone applications that "can build foundational literacy skills in Arabic and improve psychosocial wellbeing for Syrian refugee children aged five to 10."

Similarly, in Lebanon, the Beirut-based non-profit organisation Sawa for Development and Aid, facilitates the work of NaTakallam, a service that offers unemployed



Source: Project Syndicate

> *A bold pilot project, sponsored by the Dubai-based MBR Foundation, reflects this reality. The best coursework on offer – in mathematics, science, foreign languages, and literature – can be loaded onto a mobile phone and placed in a student's hand.*

Syrian refugees a chance to work as Arabic tutors. And in Egypt, the Nafham platform allows its users to upload educational videos on topics in the country's K-12 public school curriculum.

From abroad, the British Council offers online courses in English, through a program called "FutureLearn." And the Silicon Valley-based NGO ReBootKAMP and UNICEF's Raspberry Pi coding classes offer young refugees a chance to learn computer programming.

The Internet is being used to help refugees pursue higher education as well. The European Union is funding a three-year e-learning course to prepare 3,100 Syrian refugees in Jordan and Lebanon for university. And the American nonprofit The University of the People has offered 10,000 Syrian refugees a tutor-supported online university education.

These efforts prove that, with the press of a button and the swipe of a finger, two million refugee children in Lebanon, Turkey, and Jordan could be offered the opportunity to continue their studies.

The advantages of online learning are manifold. Prefabricated schools are expensive to ship and often unsuited for real learning. As these become less of a priority, funds will be freed for providing appropriate learning materials and on-site tutors.

This shift in emphasis opens opportunities for contributions by the private sector as well, revolutionising how education is provided in conflict zones and other emergency situations. The Khan Academy, Google, Apple, and roughly 50 other companies have recognized this need, providing some $70 million in funding, low-cost tablets, online education programs, and assistance with logistics. And in September, Facebook CEO Mark Zuckerberg announced that his company would work with the UN High Commissioner for Refugees (UNHCR) to provide Internet access to all refugees.

History shows how much broad coalitions that transverse the private, public, and nonprofit sectors can accomplish. Private companies are often well positioned to deliver goods more quickly and less expensively than public institutions, allowing the latter to focus their efforts elsewhere. Examples of this dynamic include the startups and multinationals that have joined the Bill & Melinda Gates Foundation to help find a cure for Ebola and entrepreneurs using solar panels to provide off-grid electricity to remote villages in Africa.

But when it comes to providing education for out-of-school children, making the most of the opportunities provided by technology will require a clear, overarching vision. Efforts must be coordinated so that initiatives do not compete or interfere with one another.

Already, UNHCR has established a task force in Jordan to explore how information and computing technology can be leveraged to provide refugees with greater access to higher education. The Global Business Coalition for Education has offered to coordinate educational organizations and their private-sector partners. And in the lead up to the World Humanitarian Summit in Istanbul in May, private companies have already begun to mobilize resources and harness their capabilities in the service of innovation.

When the library at Alexandria burned in 48 BC, humanity did not crawl back into caves and stop learning. What went up in smoke was only the physical manifestation of human knowledge; the desire for discovery and progress remained intact. When the flames died down, our ancestors set out to recover the knowledge that had been lost.

That experience has been repeated throughout recorded history, and it should inform our response to the destruction of libraries and schools in Syria. Instead of asking the country's children to accept the end of their education, we must help them rebuild – with the most modern tools at our disposal.



GORDON BROWN, former Prime Minister and Chancellor of the Exchequer of the United Kingdom, is United Nations Special Envoy for Global Education and Chair of the International Commission on Financing Global Education Opportunity.



A Visionary Short Story Competition

Mohammed Bin Rashid Al Maktoum Foundation (MBRF) has joined hands with the Ministry of Education to launch the 'Qesaty' (Arabic for My Story) competition to promote Arabic language and culture among Secondary and Preparatory level school students and school faculty: The aim is to keep alive the country's cultural heritage and traditions in the hearts of the people. The participants to the competition are required to write a short story based on events related to UAE heritage.

MBRF announced the new initiative at a press conference on 23 February at the venue of the Nobel Museum Exhibition at Children's City in Dubai Creek Park, in the presence of HE Hussain Bin Ibrahim Al Hammadi, Minister of Education, HE Jamal Bin Huwaireb, Managing Director of MBRF, and media representatives.

The competition is part of the Dubai International Programme for Writing in the Youth Category, launched by MBRF years ago to empower budding writers of various ages who have the ability to write content in various areas of knowledge, including science, research, literature, novels and poetry.

On the occasion, HE Al Hammadi stated that the Ministry of Education will continue its efforts to support Arabic language and expand the framework of its partnerships in this area with various entities, including MBRF, to restore the glory of the language. "To achieve this, the ministry has launched several initiatives and events earlier



MBRF announced the new initiative in the presence of HE Hussain Bin Ibrahim Al Hammadi, Minister of Education, and HE Jamal Bin Huwaireb, Managing Director of MBRF.





"The 'Qesaty' competition reflects the ministry's keenness to protect and preserve Arabic language as our identity in the modern world. This initiative is also aligned to the vision and guidance of our wise leadership to preserve Arabic language and literature in the fields of arts and sciences and uphold our culture and history"

HE Hussain Bin Ibrahim Al Hammadi, Minister of Education

to contribute to the growth of Arabic language in all fields. The 'Qesaty' competition reflects the ministry's keenness to protect and preserve Arabic language as our identity in the modern world. This initiative is also aligned to the vision and guidance of our wise leadership to preserve Arabic language and literature in the fields of arts and sciences and uphold our culture and history," HE Al Hammadi said. He pointed out that the 'Qesaty' competition will be a major tool to target talented students and inspire them to develop their writing skills, especially in the field of short story writing.

The Minister expressed the hope that the competition will receive extensive participation from students and staff in the field, and become the launch pad to prepare new writers and enhance their abilities in the field of writing and language. HE Bin Huwaireb said the Dubai International Programme for Writing has been supporting talented young writers to extend their reach to global levels through a range of successful categories. "Today we have launched 'Qesaty' competition as the first step within the Youth Category, which is targeted at school students of different ages to enhance their abilities in different kinds of writing."

He said the competition involves the participation of talented students and teachers from the Preparatory and Secondary levels of schools, and will help them build ideas and characters and empower them to create integrated literary work in accordance with the required standards in short story writing. The literary works in the competition will be selected by a committee of leading experts in the field through the joint cooperation of MBRF and the Ministry of Education.



LAILA LALAMI IS A CONTEMPORARY NORTH AFRICAN NOVELIST WHOSE WRITING MERGES PAST AND PRESENT SEAMLESSLY

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Born and raised in Morocco, novelist, short story writer and essayist Laila Lalami is a rapidly rising star in North African literature. Lalami's latest book, *The Moor's Account*, was a finalist for the 2015 Pulitzer Prize for Fiction, depicting the life of the first black explorer of America, a Moroccan slave. Following a shipwreck of the Narváez expedition, three Spanish colonisers and a Moroccan slave survived with Native American tribes for six years before managing to escape. Years later, while the Spaniards were allowed to write about their adventures, the slave, Mustafa al-Zamori, also known as Estebanico, was never allowed to share his tale. Lalami's novel toys with this intriguing historical gap in *The Moor's Account*, which has won her global acclaim. Some of the themes Lalami is known to tackle in her literature are immigration, the Middle East, North Africa and race. Indeed, Lalami represents a generation that has broken the shackles of the colonial novel in Morocco: the novel was introduced to Morocco by French colonisers and informed much of its 20th century literary history; however, authors like Lalami are steering the Moroccan novel in the light of 21st century globalisation.

When interviewed by the website of the Man Booker Prize for *The Moor's Account*, which was longlisted in 2015, Lalami spoke of why Mautafa al-Zamori's character fascinated her. "Among the crew of the Narváez expedition, and the indigenous people it encountered in America, there were many interesting characters: captains, treasurers, warriors, tribal chiefs. But none of them held my attention or interest as much as Mustafa/Estebanico—an outsider, an interloper, a natural storyteller.

Lalami is equally dexterous with the politics of her identity. In an article titled "My Life as a Muslim in the West's 'Gray Zone'" in *The New York Times*, Lalami articulated her mixed heritage rather beautifully: "Whose lives are gray? Mine, certainly. I was born in one nation (Morocco) speaking Arabic, came to my love of literature through a second language (French) and now live in a third country (America), where I write books and teach classes in yet another language (English). I have made my home in between all these cultures, all these languages, all these countries. And I have found it a glorious place to be."

Lalami's debut collection of short stories, *Hope and Other Dangerous Pursuits*, was inspired by a snippet in a French newspaper. It mentioned, in barely a few lines, that 15 Moroccan would-be-immigrants had drowned crossing the Straits of Gibraltar in the hope of a better life in Morocco. *Hope and Other Dangerous Pursuits* is a collection of short stories about a group of immigrants attempting to escape Morocco. Lalami explores the thin line between her own life and the lives of

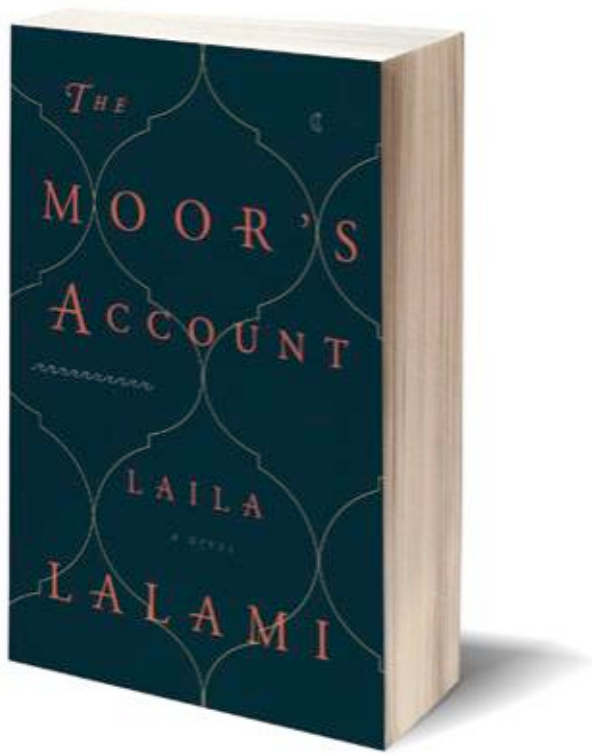




Photo: PEN American Center

these fictional immigrants, while throwing light on the issue of immigration.

After graduating from Université Mohammed-V in Rabat, Lalami also attended University College in London and the University of Southern California, where she acquired a PhD in linguistics. In addition, she is also the recipient of a Fulbright Fellowship, a British Council Fellowship, and a Lannan Foundation Residency Fellowship. She teaches creative writing at the University of California at Riverside. Interesting, she only started writing in English in high school and university since her basic education was in French. It was during the course of her PhD dissertation that she decided to work with fiction. "I felt that there was too much of a colonial relationship with French. It's used in Morocco to indicate social class and educational level – it's not neutral," she said in an interview in *The National*.



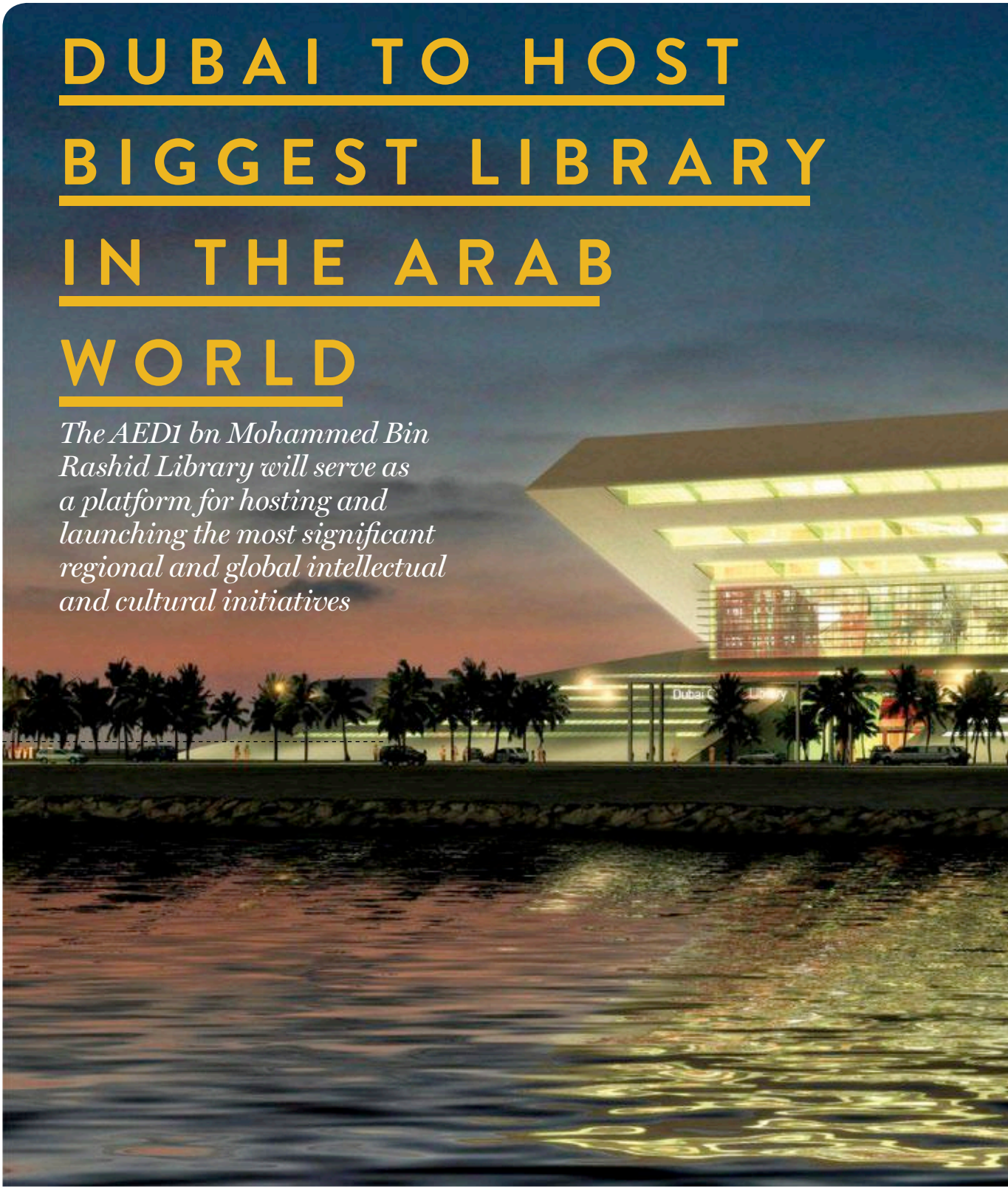
MOROCCAN LITERATURE: THE FRENCH CONNECTION

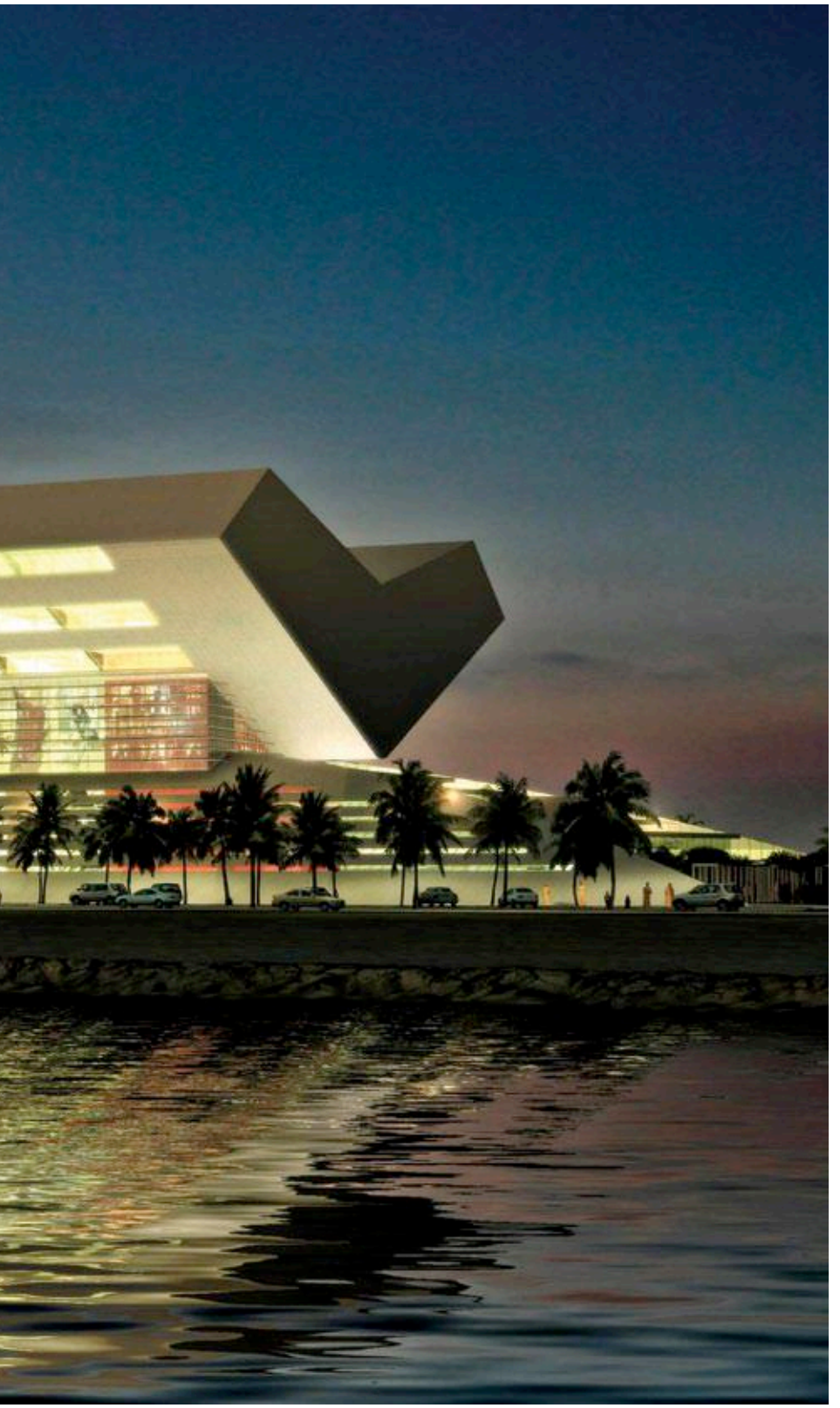
Modern literature in Morocco bloomed during French colonialism in the 20th century. French rule brought the genre of the novel to its shores, in addition to many foreign writers. Many of these writers settled in Tangier because they were drawn to it by its cosmopolitanism. Tangier continued to remain a cultural hub after independence in 1956. Moroccan writers mixed with bohemian foreigners such as Jean Genet, Tennessee Williams and William S Burroughs, and with the American writer Paul Bowles, who lived in Tangier from 1947 until his death in 1999. It was Bowles who took under his wing an impoverished young Moroccan named Mohammed Choukri and translated his autobiographical tome For Bread Alone into English in 1973. Choukri is considered a pioneer of Moroccan literature. Some writers, including Choukri, wrote in Arabic. Others used French, a colonial language that still dominates much of Moroccan cultural life, business and education. "I grew up with books in the house," says Lalami of her early reading life in Rabat, the capital. "Most bookstores carried children's literature in French, so when I started writing it was in French."

Above: Laila was born in Morocco speaking Arabic, came to her love of literature through a second language – French and now lives in America, where she writes books and teaches classes in English language.
Top: Laila Lalami & Rigoberto González

DUBAI TO HOST BIGGEST LIBRARY IN THE ARAB WORLD

The AED1 bn Mohammed Bin Rashid Library will serve as a platform for hosting and launching the most significant regional and global intellectual and cultural initiatives





A unique AED1 bn project to build the region's biggest library was launched at the beginning of last month.

The world-class Mohammed Bin Rashid Library, with a size of one million square feet, and a collection of 4.5 million print, audio and ebooks, will make it the world's largest electronic collection and the biggest library in the Arab world.

The announcement was made by His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, on 1 February in the presence of Dr. Amal Abdullah Al Qubaisi, Speaker of Federal National Council (FNC), HE Sheikh Nahyan bin Mubarak Al Nahyan, Minister of Culture, Youth and Community Development, other top dignitaries, ministers, senior officials and members of the literary community.

YEAR OF READING

The Year of Reading was announced on 5 December by President His Highness Sheikh Khalifa Bin Zayed Al Nahyan.

HH Sheikh Khalifa had said: "We directed to declare 2016 as the Reading Year because reading is the basic skill for a new generation of scientists, intellectuals and innovators."

The Mohammed Bin Rashid Library will be an iconic seven-storied structure in the form of an open book in Al Jaddaf and will open by the end of 2017, with construction expected to begin in mid-2016.

HH Sheikh Mohammed said the library "will directly benefit 42 million people each year, as well as distribute 10 million books around the Arab World."

The library will embrace and support the Arab Reading Challenge, which helps 2.6 million students in 20,000 schools across the Middle East.

EVENTS, ACTIVITIES

Besides housing more than 4.5 million books, the building will include several areas for interaction, events, activities, educational and cultural festivals. The library will also host several cultural ›





and cognitive initiatives, such as the Dh2.4 million 'Arabic Language Award', launched recently to help people embrace their Arab identity.

There will also be a museum of the Arab heritage and the history of human civilisation as well as venues for arts and literary exhibitions, heritage preservation initiatives and a 500-seat theatre for lectures, seminars and launching of intellectual and cultural initiatives regionally and globally.

"We are the leaders of civilisation, duty and culture, and so we need to revive the spirit of learning and curiosity within our culture through innovative initiatives that push our boundaries," said HH Sheikh Mohammed at the grand launching event.

"This is why we decided to start the Year of Reading by launching this state-of-the-art library and to let everyone know that we will transform the UAE into an Arab and global cultural and learning centre while strongly establishing reading as a societal norm.

"We want a dynamic library which will reach you before you reach it, visit you before you visit it, and which encourages you to start reading from childhood, while supporting you as a scientist, researcher or specialist, when older. The library will be a compound for books, a community for readers and writers, and an association for content, culture and thought owners," HH Sheikh Mohammed added.

CULTURAL INITIATIVES

The library will also serve as a platform for hosting and launching the most significant intellectual and cultural initiatives regionally and globally.

"The human mind is the centre of development and the book is the tool used to renew the mind. A nation can never grow without a renewed mind and a lively, knowledgeable spirit," HH Sheikh Mohammed noted.

SIX PILLARS

The library is based on six pillars: the first is the main library, which includes eight specialised sections: Children, Youth, Family, Business, Arabic, International, Popular and Multimedia.

The second pillar is promoting reading; the library will pursue the Arab Reading Challenge project, launched in September last year by HH Sheikh Mohammed.

The third pillar will focus on spreading content via an e-library with over 2 million titles, and 1 million audio books. The library will also print and distribute 10 million books in the next few years, which will be distributed to people in need.

The fourth pillar will focus on supporting authoring and translation, through its initiative, which aims to translate 15,000 titles into Arabic every year.

The fifth pillar focuses on protecting the Arabic language. This will be done by hosting the main headquarters of The International Council for the Arabic Language and publishing the Mohammad Bin Rashid Contemporary Arabic Language Dictionary.

The sixth pillar will include preserving cultural heritage by displaying rare publications, including a special section for the collection of Al Maktoum and an exhibition for Arab arts.

WILL REVIVE SPIRIT OF LEARNING: PAPER

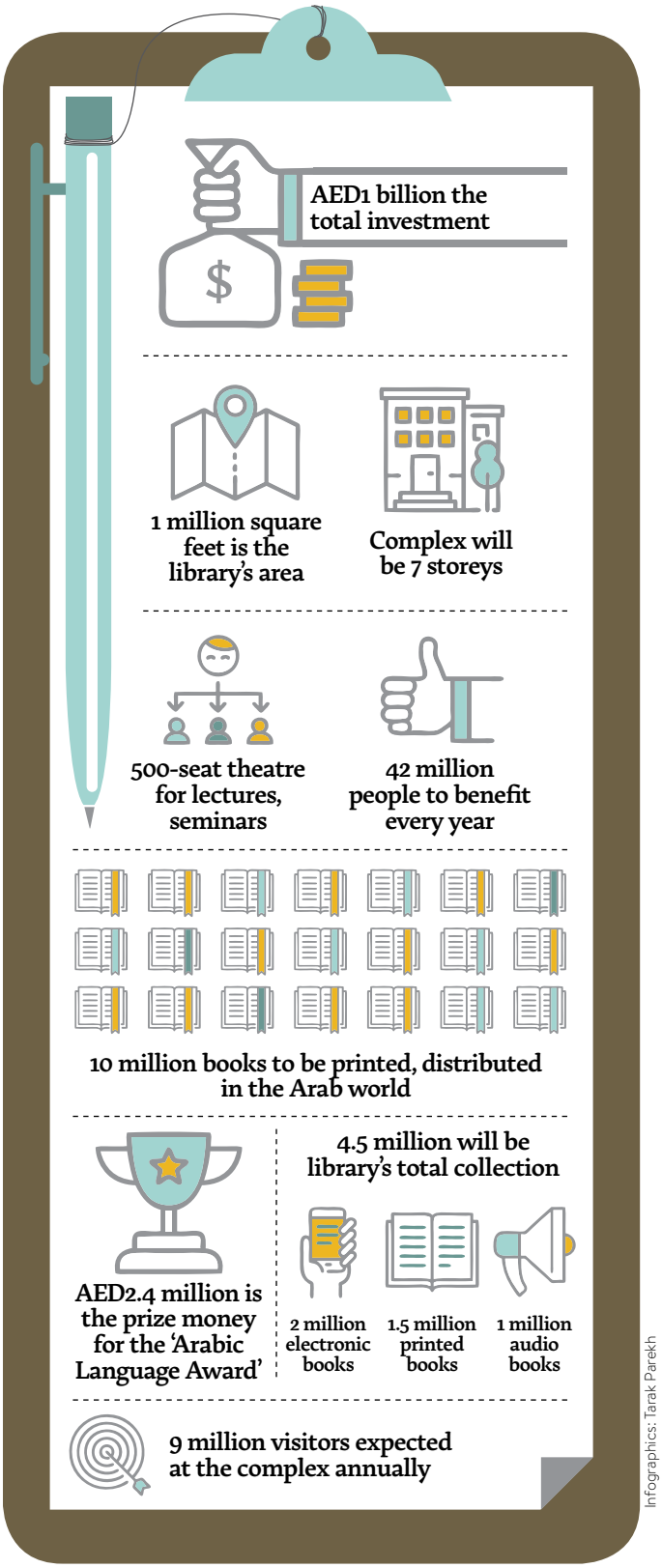
Sharjah-based UAE newspaper *The Gulf Today* said that facilitating access to books is very important for any society to grow intellectually. The newspaper said in its editorial that Sheikh Mohammed's project to build the largest library in the region "will undoubtedly help transform the UAE into an Arab and global cultural and learning centre while strongly establishing reading as a societal norm" .

"While books have been targets for those who reject freedom and tolerance, it should be noted that a vast majority the world over still holds the printed word in great esteem. "If there is one clear indication that technology cannot easily wipe away the power of the print, it is the continued positive response to various book fairs that draw thousands and thousands of visitors.

HOW LIBRARIES SHAPE SOCIEITIES

"Books shape an individual's mind and wield tremendous power to transform lives for the better. It is the duty of every society to promote the book in order to fight illiteracy and build sustainable societies, which eventually help strengthen the foundations of peace."

The Abu Dhabi-based *The National* newspaper in its editorial wrote: "Libraries are more than the sum of the books they hold: at their best, they serve as community centres, seats of learning and knowledge foundations. This is why the announcement of the opening of the Mohammed bin Rashid Library in Al Jaddaf is so welcome. The open book analogy is apt. The challenge for any new library is how to stay relevant at a time when people prefer digital devices over the analogue pleasure of sitting down and devouring a good book."



Infographics: Tarak Parekh



BIBLIOTECA ISLÁMICA AWARDED THE 2015 UNSECO-SHARJAH PRIZE

The Islamic Library of Spain's Agency for International Development Cooperation (AECID) has received the prize for disseminating Arab culture

The concept of collecting all the world's knowledge under one roof is not a modern development at all, as exemplified by the largest and most significant libraries of the ancient world – the Royal Library of Alexandria.

Lasting damage to the world culture and knowledge was caused by the burning down and loss of its collections covering mathematics, astronomy, physics, natural sciences and other subjects.

Libraries function as global centres of scholarship and exchange of ideas. So it was fitting that the honour of receiving the latest UNESCO–Sharjah Prize for Arab Culture should go to Biblioteca Islámica – the Islamic Library of Spain's Agency for International Development Cooperation, (AECID). The 2015 UNESCO-Sharjah Prize for Arab Culture has been announced in January this year.

The other laureate selected was Palestinian writer Elias Sanbar.

The jury comprising global experts chose the recipients for their commitment to the dissemination of Arab culture around the world.

The laureates will receive the prize on April 14 from UNESCO Director-General, Irina Bokova, at the organisation's headquarters. ›



Created in 1998 at the initiative of the UAE, the UNESCO-Sharjah Prize for Arab Culture rewards, every two years, two laureates – individuals, groups or institutions – who, through their work and outstanding achievements, endeavour to disseminate greater knowledge of Arab art and culture.

Applicants to the UNESCO-Sharjah Prize for Arab culture must have contributed significantly towards the development, dissemination and the promotion of Arab culture in the world. The Prize carries a monetary value of $60,000, equally divided between the two laureates.

FORMER WINNERS OF THE SHARJAH-UNESCO PRIZE

- The Arab Image Foundation is a non-profit organisation, which collects, preserves and studies photographs from the Arab world and its diaspora.
- Farouk Mardam-Bey (Syria) has been the leading publisher of translated Arab literature in France. Through his career, he has introduced the French and European publics to Arab literature classics
- Mustapha Cherif (Algeria) is an internationally renowned specialist in Arab-Muslim culture who teaches intercultural and interreligious dialogue.
- The Arab British Centre (UK) is an independent non-political non-religious charitable organisation which works to improve the British public's understanding of the Arab world.
- Elias Khour (Lebanon) is a novelist, playwright and academic critic, and is considered one of today's leading Arab intellectuals.
- João Baptista de Medeiros Vargens (Brazil) is a publisher, author, translator, lexicologist and professor of Arabic language and civilisation.
- Chérif Khaznadar (Syria) is a stage director, writer and poet whose invaluable contribution to promoting dialogue, in particular between Arab culture and other cultures, for nearly 50 years has been internationally acknowledged.
- Ghani Alani (Iraq) is a poet and calligrapher. He is one of the greatest contemporary calligraphers and an internationally acclaimed artist whose works were exhibited in every major capital city around the world.



CLASSIC COLLECTION

As an institution on the other hand, due to the wealth of its collections and the services it provides, the Biblioteca Islámica, the Islamic Library of Spain's Agency for International Cooperation and Development, has become an essential international reference in the field of Arabic and Andalusian studies. Based in Madrid since its founding in 1954, the library has a collection of 100,000 volumes.

Arab and Islamic classics are part of the collection, along with critical editions of great universal Arabists, including the works and editions of texts of Spanish Arabists.

Notable publications to be found among its prized possessions include the Lexicon arabicum by Franciscus Raphelengius (1613), Thesaurus linguarum Orientalium Turcicae-Arabicae-Persicae by Franciszek Mesgnien MeniÐski, published from 1680 to 1687, and Gramática Arábigo-Española by Francisco Cañes, published in Madrid in 1775.

The collection at Biblioteca Islámica, besides shedding light on cultural, artistic, humanistic, social, economic and political aspects of the Arab world and the Islamic world, is all the more richer with the Spanish research on these subjects, and the historical backdrop of Spain from its Andalusian roots.

The Islamic Library collaborates actively with university departments offering courses of Arabic and Islamic culture.



Left: The Islamic Library collaborates actively with university departments offering courses of Arabic and Islamic culture.

It takes part in international conferences organised by the European Association of Middle East Libraries (Melcom) and promotes intercultural dialogue by entering into partnerships with scientific and educational associations in the Arab world.

The Library also brings its support to other Arab libraries through training and exchanges.

ORIGINS OF THE LIBRARY

The founder of the Islamic Library, the Jesuit Félix María Pareja, set the tone at the outset in 1954 when he developed the selection criteria for the formation of the collection.

Pareja was tasked with creating the library under the auspices of the Hispano-Arab Cultural Institute.

The funds were utilised with the main aim of providing documentary support for students from the Arab-Islamic world.

EXHAUSTIVE DATABASE

The UNESCO-Sharjah Prize for Arab Culture has had 12 successful editions and has also announced that it has launched the creation of an exhaustive database encompassing individuals, as well as national, regional or international institutions, with an artistic, scientific or educational vocation, and working towards the promotion of Arab Culture in accordance with the founding principles of UNESCO's Constitution.

HOW THE WINNERS ARE CHOSEN

The winners are chosen by the Director-General of UNESCO, on the recommendation of an international jury of experts in the field of Arab Culture. Thus, the winners contribute to the promotion of cultural dialogue and the revitalisation of Arab culture.

Twenty-two laureates have so far been awarded the Prize, in recognition of their contribution – in their respective disciplines – to Arab art and culture, or for participating in the dissemination of the latter outside the Arab world.

Together, the Prize winners have come to represent a new generation of researchers, artists, philosophers, authors and translators with a profound desire to achieve a genuine dialogue between Arab culture and the outside world.

In an era of globalisation and profound political and social changes facing the world, this Prize fully meets the values of mutual understanding that is cited in the Constitution of the Organisation. By rewarding careers and lives whose efforts have been to promote a culture to which they owe so much, the UNESCO-Sharjah Prize for Arab culture strives to foster a better understanding of other civilisations, thus promoting, and encouraging international exchange.

Arab arts and culture have left traces all over the world. Arab culture not only is a mosaic of cultures in the Middle East, but also cultures far beyond.

RETURNING THE GAZE

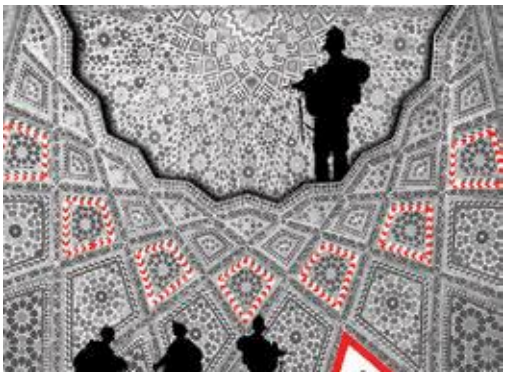
The recently-concluded first Biennial of Contemporary Arab World Photography offered a great chance for the world to see the Middle East from a different lens























Right: Caroline Tabet's Perdre La vue







The timing could not have been more perfect: at a time when so much of global attention has fallen on the Arab world, the inaugural Biennial of Contemporary Arab World Photography in Paris, has been an important cultural landmark to dig deeper into the Middle Eastern context. Held in the IMA and the Maison Européene de la Photographie (MEP), Paris, the biennial showcased work by more than 50 artists who have worked in the Arab world since 2000. Here are some of the stars who shone bright at this historic event:











CAROLINE TABET

Caroline Tabet from Lebanon works with Beirut's cartography. Depicting modernity and transition eroding a once-beautiful city, her works are aptly titled Perdre La Vue (Losing Sight). Her works literally "lose sight" of Beirut and "only shadows remain, shapes, watercolours". The resulting work has a quiet elegance and an unsettling sense of loss. Using film that had been exposed to X rays, her photographs have a dream-like quality. "This Biennial shows the Arab world in all its various identities, whether linguistic or cultural; beyond clichés. You have the impact of politics on the work, but not only [politics]," said Tabet to Paris-based journalist Olivia Snaije. ›



Above: Leila Alaoui's "The Moroccans"

LEILA ALAOUI

Using a mobile studio transported around Morocco, Franco-Moroccan photographer Leila Alaoui's "The Moroccans", a series of life-sized photographic portraits, dives deep into her Moroccan heritage. "I spent time staying with different communities to create photographs from the perspective of the participant observer, aiming for a more informed angle than an external documentarian might take," says the artist of her work. "This hybrid position echoes the postcolonial correction that globally conscious contemporary artists are now mounting worldwide to counterpoint the tired exoticisation of North Africa and the Arab region by Euro-American artists through history."

STEVE SABELLA

Developed over several years, Berlin-based Palestinian artist Steve Sabella's work use memory and exile as their themes: historical layers and iconographic patterns offer views of the glimpse of a nation. "38 days of Re-collection", for instance, is a suite of photographs printed on paint fragments collected in Jerusalem's Old City. He tries to capture the track of his country, left by several fragments of images on his memory space.

YAZAN KHALILI

Khalili is a Palestinian photographer born in Syria in 1981. His series "Landscape of Darkness" (2010) is based on a nighttime walk that he and a friend took in 2002 during an Israeli-implemented

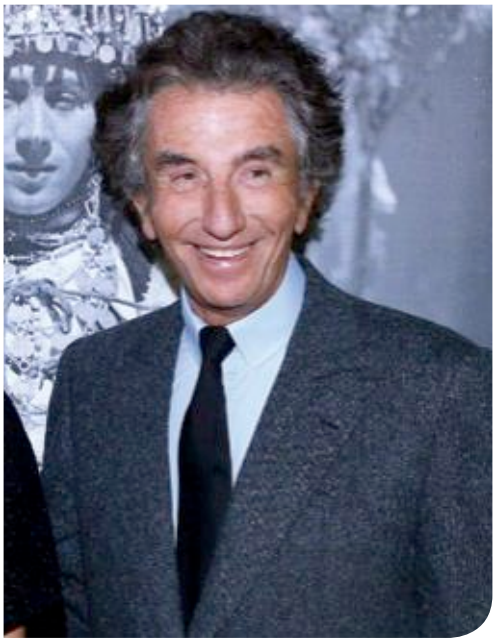


Steve Sabella's work use memory and exile as their themes: historical layers and iconographic patterns offer views of the glimpse of a nation.

curfew in the West Bank city of Birzeit. Mr. Khalili thus started working with "the ways darkness can reshape a landscape". His work has been picked up by the British Museum and the Imperial War Museum in London.

A MAN WITH A VISION

Jack Lang, President of The Institut du Monde Arabe (IMA), in an interview with *L'Oeil de la Photographie* magazine, stressed the need to push contemporary Arab photography. "It's an idea that crossed my mind two or three years ago, partly by chance. My participation in the contemporary art fairs in Dubai, Doha, Abu Dhabi, in Lebanon, in Morocco let me glimpse the extraordinary proliferation of photographs linked to the Arab world... be they Arab photographers living in the Arab world or not, be they Westerners who pass on their vision, their view of the Arab world. So, I asked myself at that moment, what was the role of the IMA: a bridge between the Arab world and the other worlds, and our mission is to act when others do not. Now, even if photography is far from absent from museums and other institutions, there has never been, to the best of my knowledge, except in Houston in the USA, an event that, every two years, shines a light on photographers of the Arab world in connection with imaginary or real life (since it's art photography, not reportage). Besides, recently we had an exhibition of photojournalism that was very interesting but was totally different in nature."



"It's an idea that crossed my mind two or three years ago, partly by chance. My participation in the contemporary art fairs in Dubai, Doha, Abu Dhabi, in Lebanon, in Morocco let me glimpse the extraordinary proliferation of photographs linked to the Arab world..."

JACK LANG, President of the Institution du Monde Arabe (IMA)

ICELANDIC CINEMA





JUST GOT HOTTER

Rams, *a tale of elderly sheep-rearing brothers, has become the nation's biggest international art-house hit in recent times*

The plot of the film is rather simple: two estranged brothers run neighbouring farms in Iceland's bleak landscape. They haven't had much communication in almost 40 years, but when an epidemic breaks out in the sheep community, their lives fall apart and they have to set aside their differences to save their hamlet. The film won the Un Certain Regard category at Cannes last year – and the film has a distinctly Icelandic sense of humour.

"If you think of the old Icelandic sagas, describing battle and death, we find some of these descriptions funny. It's a very bleak sense of humour, but we come from the far north, without much light, and depression is intrinsic to our humour. ›





Above and top: On the sets of *Rams*

Perhaps it's more accurate to describe *Rams* as a tragi-comedy. There's a cocktail of drama and comedy in the script that is very subtle, and the comedy comes from the ridiculousness of the situation. It's absurd that elderly men who live next door to each other have to rely on a dog to pass messages, it's sad and funny at the same time," said the film's director Grimur Hakonarson in an interview to BBC Bews.

Rams is indeed a moment in Nordic cinema. While Scandinavian fiction has found an international audience, thanks to internationally-acclaimed crime fiction, feature films from the region have had a tougher time breaking into the global market. The last time an Icelandic film was nominated for an Oscar was 1991 – Fridrik Thor Fridriksson's *Children of Nature*. Though *Rams (Hrutar)* has not been nominated, it's the biggest blockbuster from the region; it has been released in 40 countries.

Yet, in an interview with film magazine *Videology*, director Grimur Hakonarson was candid about the issues facing Icelandic cinema: "You know, if you think about the size of Iceland's population, which is 320,000 people, there's still a lot of culture. We have all these most important institutes like film funds, national theatre and symphony orchestra. There's a lot of bands coming from Iceland, too, so there's a really active scene. The problem is that because it's not a big country, there's not so much money in the film business. I think it's actually [like that] for the whole art scene; artists who want to really live from their art, they really need to find money somewhere else. They need to get grants from Europe and Scandinavia. Iceland movies are usually co-produced films, so we get money from Scandinavia, Norway, Sweden, and Denmark."

Another reason that the film has resonated with cinephiles is the quality of its acting:

"Of course, the main reason the film registers so affectingly is the casting of two of Iceland's best thesps. As the older, angrier brother, Juliusson shows a range that makes one long to see him as King Lear. But the audience sympathies are carried by Sigurjónsson, through whose kindly eyes the story unfolds," said leading film trade magazine Variety. Sigurður Sigurjónsson has been associated with The National Theatre of Iceland for many years now.

Rams recently added another feather to its Icelandic cap at the 2016 HARPA Awards, at the Nordic Embassies during Berlinale on February 15, 2016. Composer Atli Örvarsson won the award for Best Film Score.

"The award for Best Film Score goes to a man with a unique sound," said the jury, which consisted of Thomas Robsahm, Konrad Sommermeyer and Christineauf der Haar. "The accordion perfectly matches the loneliness, the nature and the sound of the sheep calling out for each other – the bleating. The music, the atmosphere and the pictures fit perfectly together. It feels as if the director and the composer really are in close contact – and telling their story together."

Above all else, it is the authenticity of the film that has attracted the attention of film critics. Using Iceland's bleak landscape, and inherently droll humour, Rams represents an essentially national zeitgeist. The director, for instance, himself worked on a sheep farm as a teenager. "I've experienced the life of the sheep farmer and I know people who have a great passion for sheep," says its director to BBC News. "I know this may sound humorous to you, but there seems to be a strong connection between men and sheep in Iceland, stronger than other animals."



Sigurdur Sigurjónsson is Iceland's top actor



Rams makes great use of the bleak Icelandic landscape.





BODY DOUBLE

Hiroshi Ishiguro has built many versions of himself as a roboticist. He was also one of the recipients of the Sheikh Mohammed Bin Rashid Al Maktoum Knowledge Award 2015

When Mary Shelley wrote her pioneering science fiction novel, *Frankenstein*, it warned about the dangers of creating a machine that resembles mankind. Hiroshi Ishiguro, a roboticist at Osaka University, in Japan, is doing exactly that. Yet what sets him apart is that his creations are not like Frankenstein's monsters. His creations look like ordinary folks, people like you and me. In fact, so revolutionary have been his contributions to the field of robotics that he was one of the winners of the $1 million Sheikh Mohammed Bin Rashid Al Maktoum Knowledge Award.

Yet, during his interview with *Flashes*, Ishiguro is clear that he is not about robots at all. "I'm into humans. You can't be into robots unless you're into humans. We want to create something akin to us. I'm not into machines. I'm more into robots like me," he says. While he has been designing robots that look like him, he at present is also working on a younger version. "A young child might be afraid because I feel my face looks too severe," he jokes.

Coming back to robotics, he says the equation is rather simple: "It's animal meets technology. There is nothing new with this equation. The human and technology is one couple. They have always existed together."

How does he respond to the criticism that robots are making us far removed from normal human interaction? "I disagree. The robot actually involves physical interaction, since it was ›

originally created to replace the physical tasks done by the human brain. With the robot we're giving the public more variety of media. But it's a more interactive media. They say that the internet is interactive media, but in reality it is extreme media. The robot is, as I mentioned before, about physical interaction."

How does he see the robotic revolution helping society? "Well, for starters, I see robots as being of significant assistance to an ageing population. Japan just doesn't have enough young people. And some of the challenges with such a demographic can be neutralised using robotics. Moreover, elderly people don't merely need physical care; they thrive on communication. That is what robots do too."

For a nation that has a deeper relationship to the robot than any other nation, what is the next curve for Japan? "The small robot is the next curve for Japan. Small robots work well with children. If we use these small robots to enhance the educational inputs of children in our society, then that is the next curve."

Is he related to Kazuo Ishiguro, author of the science fiction novel based on clone culture, *Never Let Me Go*, which was shortlisted for the Booker Prize. Hiroshi Ishiguro gives a hearty laugh. "You know what? I travel all over the world and people always ask me that, but I'm not, though I so wish I was."

For someone who is a professor of robotics (though he aspired to become an oil painter once), Ishiguro thrives on a hectic almanac. He works at four labs, supervises 50 students, has co-founded a robotics start-up, and is jet-setting to conferences around the world. His relationships to robots began 10 years ago.

His first creation was Robovie. Robovie was essentially a trash can with arms. His other baby, Wakamaru, funded by Mitsubishi Heavy Industries, looked like a very large insect. It is when Ishiguro observed people's varied reactions to his creations that he reached his eureka moment: appearances are very important to communication, and this held true to robotics as well. And that was the start of his decision to create robots that look like us.



Robot engineer Hiroshi Ishiguro (L), US actress Bryerly Long (2nd R) and Japanese actor Nijiro Murakami (R) help android actress Geminoid F wave to the audience before the premiere of new movie 'Sayonara'

Not all has been hunky-dory for the legend. Ishiguro's "network" approach (by which societies would need to build sensor nets in environments where robots operate) has come under some criticism. But the guru takes it on the chin. In an interview to robotcommunity.com, he said, "I am open to different ideas, and recently the Japanese government has become very encouraging of the robot network approach. Sensor networks will allow robots to move easily among crowds without running into people, which is a hard problem to solve with just local sensors on the robot. Building sensor networks into big public spaces would not be difficult. Such robots might work in shopping malls directing people or explaining new products. They might push your luggage trolley at the airport. Everyone expects better service but it's hard to recruit people into these jobs in Japan."

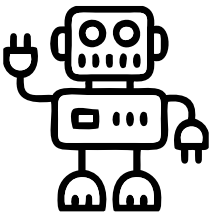


Hiroshi Ishiguro, director of the Intelligent Robotics Laboratory, receives the Sheikh Mohammed Bin Rashid Al Maktoum award from HH Sheikh Hamdan bin Mohammed Bin Rashid Al Maktoum, Crown Prince of Dubai.



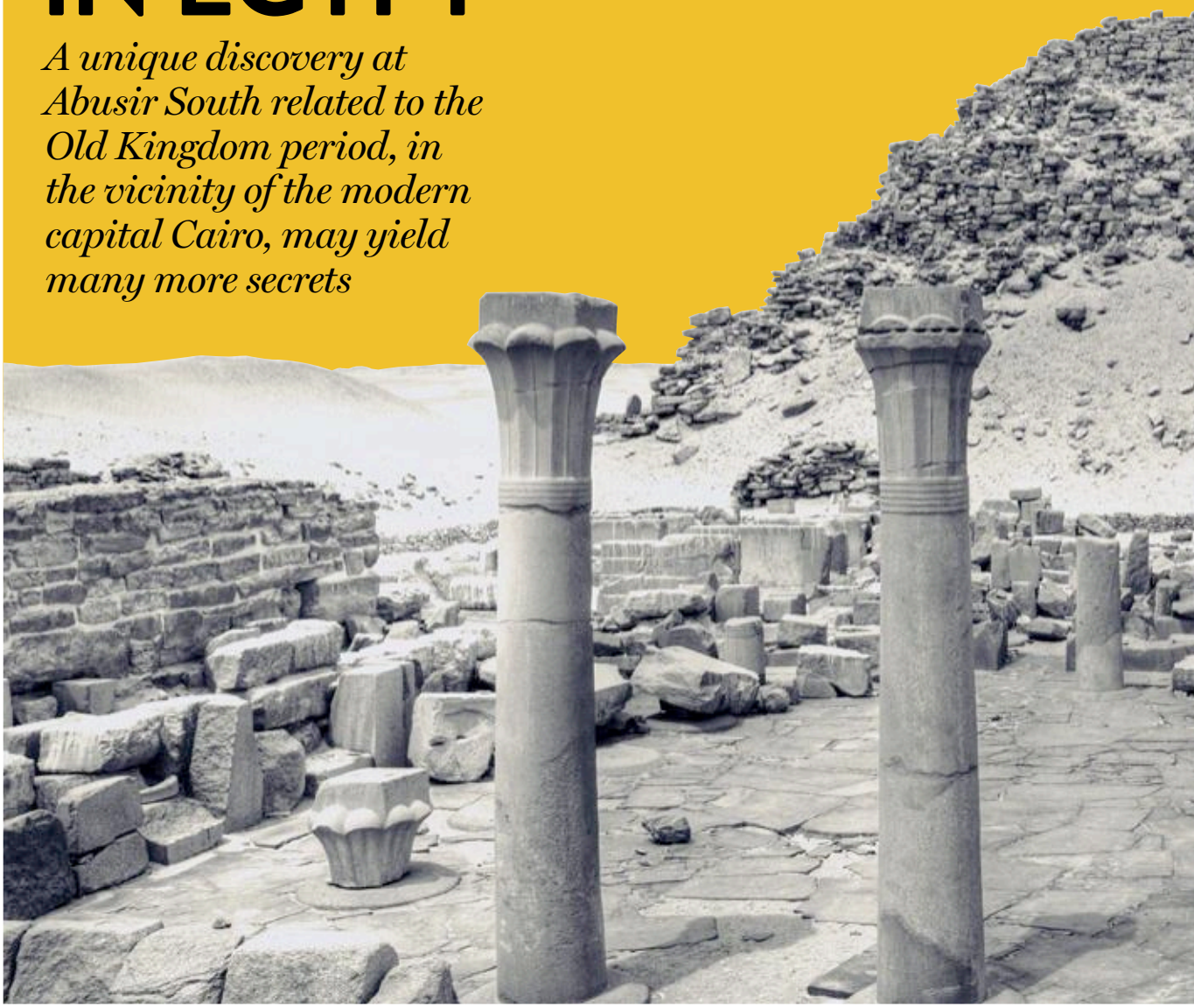
SO HOW MANY ROBOTS ARE THERE ON THIS PLANET?

According to IEEE, the world's largest professional association advancing innovation and technological excellence for the benefit of humanity, the world population of industrial and service robots is estimated to be at 8.5 million. This number includes manufacturing robots, palletising robots, surgical robots, bomb-disposal robots, milking robots, meat-handling robots, underwater and aerial robots, 4 million home vacuum cleaners (yes, the vacuum cleaner also qualifies as a robot), and one that cleans the Louvre's glass pyramid.



4,500-YEAR-OLD ANCIENT FUNERARY BOAT UNEARTHED IN EGYPT

A unique discovery at Abusir South related to the Old Kingdom period, in the vicinity of the modern capital Cairo, may yield many more secrets



Getty Images

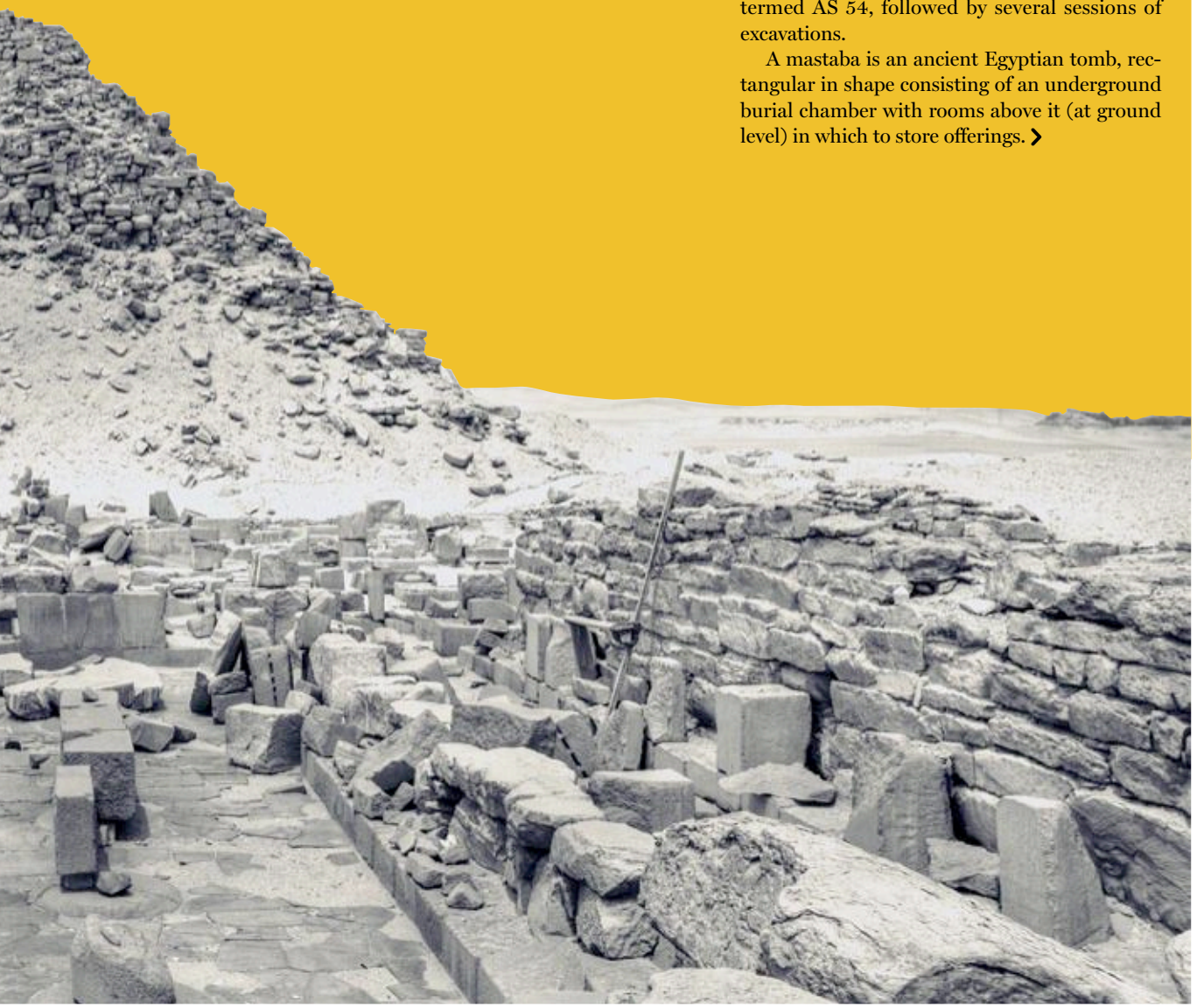
Czech archaeologists have uncovered an ancient funerary boat, a unique discovery whose wooden planks have lasted through millennia.

The 62-foot-long boat, dating back more than 4,500 years, was found in a tomb or 'mastaba' made of mud bricks. The discovery is notable not just because it is so well-preserved but also because the practice of boats burials began in Egypt's early dynastic period. We dive deep into this fascinating past:

BURIAL SITES

In 2009, archaeologists from the Czech Institute of Egyptology, Faculty of Arts, Charles University in Prague, commenced work on a large mastaba termed AS 54, followed by several sessions of excavations.

A mastaba is an ancient Egyptian tomb, rectangular in shape consisting of an underground burial chamber with rooms above it (at ground level) in which to store offerings. ›





Above right: The Czech archaeological mission working at Abusir South.
Below: The name of King Huni inscribed on a stone bowl found in the northern underground chamber of Mastaba AS 54.

During Egypt's Early Dynastic Period and Old Kingdom, mastabas marked the burial sites of many eminent people. During the Old Kingdom, Kings began to be buried in pyramids, although use of mastabas continued for more than a thousand years for non-royals.

This mastaba which the Czech archaeologists discovered is located at Abusir South, which is an Egptian archaeological locality – specifically an extensive necropolis of the Old Kingdom period, in the vicinity of the modern capital Cairo.



Its exceptional size (52.60 x 23.80 metre), orientation, architectural details, as well as the name of King Huni (Third Dynasty) discovered on one of the stone bowls buried in the northern underground chamber, indicate the high social standing of the person buried in the main (so far unlocated) shaft, according to a press release from Charles University.

Unfortunately, the name of the buried person remains unknown due to the bad state of preservation of the cruciform chapel. While clearing the area approximately 12 m south of Mastaba AS 54, an 18-metre-long wooden boat was revealed during the 2015 excavation session.

It was covered by wind-blown sand and was lying on a tafla (strata of gravel and clay). Despite the distance between the mastaba and the location of the boat, clear connections have been found between the structure and the vessel such as its orientation, length and the pottery collected from the interior. Both date back to the very end of the Third or beginning of the Fourth Dynasty, ca 2550 BC.

The boat by the southern wall of Mastaba AS 54 indicates the extraordinary social position of the tomb's owner. Since it is not located adjacent to a royal pyramid, the owner of the mastaba was probably not a member of the royal family: both the size of





the tomb, as well as the presence of the boat itself, however, clearly places the deceased within the elite of his time with strong connections to the reigning pharaoh.

It is a remarkable discovery as most of the ancient Egyptian boats and ships that have survived are either in poor state of preservation, or were dismantled in pieces. Only "brown dust in the shape of the original boat" remains in some of the pits designed to hold them.

There are two very interesting aspects to this unique find. The roughly 4,500-year-old planks will shed new light on ship building in ancient Egypt.

Also, the habit of burying boats has been well-documented for royal structures. Boats of such a size and construction were, during this period, reserved solely for top members of the society, who usually belonged to the royal family.

This suggests the potential for additional discoveries during the next spring season.

Wooden pegs that are still visible in their original position joined the wooden planks. Extraordinarily, the desert sand has preserved the plant fibre battens, which covered the planking seams. Some of the ropes that bound the boat together are also still in their original position with all their details intact, which is a unique discovery in the study of ancient Egyptian boats.

HULL CONSTRUCTION

During the 2016 season, the Czech Institute of Egyptology will launch a project, together with experts from the Institute of Nautical Archaeology (INA) at Texas A&M University, to study the techniques used in the hull's construction.

The practice of burying wooden boats alongside the tombs of Egyptian royals began in the Early Dynastic Period, just after the reunification of upper and lower Egypt around 3100 B.C.

Egyptologists still don't know exactly why boats were buried in tombs. ›

L-R: The Abusir boat recently discovered; Close-up of the Abusir boat. **Below:** Ancient Egyptian papyrus, 11th-10th century BC. Detail from a funerary papyrus dating from the 21st Dynasty. Four figures in a boat, including the Ibis-headed god Thoth and the scarab-headed god Khepri.







Top: Khufu's Solar Boat on display at the Solar Boat Museum.
Above: Fragments of the boat

Did they serve the deceased in the afterlife, or might they have functioned as symbolical solar barges or sun boats, used during the journey of the owner through the underworld?

The solar barge or sun boat was a Neolithic concept (a mythological representation of the sun riding in a boat), which is found in ancient Egyptian myths.

The Old Kingdom kings adopted the earlier tradition, and often had several boats buried within their pyramid complexes.

The only other time archaeologists discovered well-preserved boats were the two boats of Khufu that have survived, and were reconstructed or are in the process of reconstruction.

One of them was a 144-foot-long vessel, which was carefully reconstructed and put on display. However, no boat of such dimensions from the Old Kingdom has been found in a non-royal context, until the new discovery at Abusir.

"The careful excavation and recording of the Abusir boat will make a considerable contribution to our understanding of ancient Egyptian watercraft and their place in the funerary cult. And where there is one boat, there very well may be more," adds director of the excavations, Dr. Miroslav Bárta.

This discovery may provide fundamental evidence corroborating Dr. Bárta and the Czech mission's quest to provide an explanation for the rise and, especially, the fall of the Old Kingdom, one of the first great civilisations in history.

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من ٢١ فبراير- ٢١ مارس ٢٠١٦
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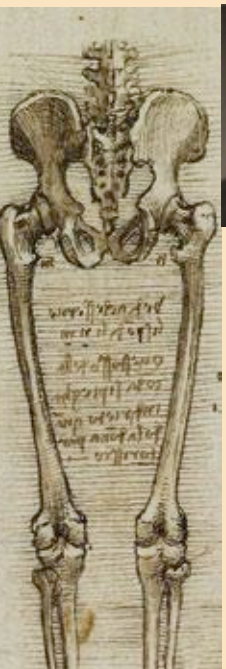
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