

80 MOMENTS THAT SHAPED THE WORLD



FOREWORD

I would like to thank the British Council for inviting me to be involved with this project to mark its 80th anniversary. I've been involved with the organisation for many years, both in South Africa and across the world; I respect its commitment to building trusting relationships between peoples of the world by sharing culture and education.

I said this when I delivered the British Council Annual Lecture in London to mark its 75th anniversary.

It is of course impossible to choose just one moment out of the last 80 years that has shaped our world more than any other. But I know that this year, for the fifth time, I was proud to see long lines of eager people, of all races and colours and creeds, gathering across South Africa to do something that will once again shape my country. They voted. Twenty years ago, when we had the first free and fair democratic elections in South Africa the world watched as the Rainbow Nation was born, and democracy dispatched the terrible injustices of Apartheid. As I have written elsewhere, a human life is a great mixture of goodness, beauty, cruelty, heartbreak, indifference, love and so much more. All of us share the core qualities of our human nature and so sometimes we are generous and sometimes selfish. Sometimes we are thoughtful and other times thoughtless; sometimes we are kind and sometimes

cruel. But democracy gave hope to South Africa, and sent a message to the world that men and women working together can reshape the world they live in peacefully, and with forgiveness.

This publication will be a fascinating read – and the more so for the diversity of views. I look forward to seeing the opinions and perspectives of others on the things that have shaped their world. Cultural and educational organisations like the British Council are at their very best when they stay open and reach out to make connections in places of conflict, turbulence and discord. It can be difficult, but it is right that the British Council is for engagement and against isolation, no act is unforgivable; no person or country is beyond redemption and the world needs more people to reach out to one another. I wish the British Council every success and look forward to toasting its centenary three short years after my own!



**Archbishop Emeritus
Desmond Tutu**

INTRODUCTION

IN OUR TIME

This report has been produced by the British Council to mark our 80th anniversary. We hope that it will stimulate discussion in the UK, and the many countries in which we work, about the events and the people who have helped shape our world in the past 80 years; and about our shared hopes and aspirations for the future.

In 1934, the world was facing a time of immense change. The traumatic effects of the Great Depression continued to be felt in many countries around the globe. In the United States, Franklin D Roosevelt had introduced the 'New Deal' to combat the economic and social devastation it had caused. Parts of the UK, particularly South Wales and the North of England, continued to experience mass unemployment. Authoritarian regimes were emerging in several countries in Europe and South America. Further afield, Mahatma Gandhi was leading the movement for Indian independence, and in China the ruling Kuomintang and the rebel Communist Party were fighting a protracted civil war for control of the country.

Adolf Hitler united the chancellorship and presidency of Germany under the new title of Führer. He and Benito Mussolini met for the first time, at the Venice Biennale. The British politician Arthur Henderson was awarded the Nobel Peace Prize, in recognition of his efforts to bring about enduring peace against a backdrop of growing German and Japanese militarism.

In the UK, Dylan Thomas published his first collection, *18 Poems*, including 'The Force that Through the Green Fuse Drives the Flower'. The composers Edward Elgar, Gustav Holst and Frederick Delius died within three months of each other. Stanley Matthews made his debut

for the England football team, beginning a record 23-year international career, and Alan Bennett, Judi Dench, Eileen Atkins and Maggie Smith were born.

In the same year the British Committee for Relations with Other Countries was established, shortly to become the British Council. Its purpose was to help counter the anti-British propaganda being generated in the eastern Mediterranean, the Middle East and Latin America, and to spread and strengthen the UK's international influence through the development of cultural relations.

This publication describes some of the most significant events that have happened since we were founded in 1934. We are fortunate to have had a panel of eminent people from around the world – leaders in their field, in science, the arts, politics and business – to help us, by proposing the individuals, events, trends and inventions that they felt have had a significant impact on today's world. We asked them to put forward three nominations in each of three categories: arts, culture and sport; education, science and technology;

and politics, society and human rights. From their nominations we drew up a long-list and asked members of the public – 1,000 people in each of ten countries (Brazil, China, Egypt, Germany, India, Japan, Russia, South Africa, UK, USA) – to vote on which they thought were the most significant. The result, presented in this publication, is merely a snapshot of a period in our time. We hope, though, it will provide an insight not only into how our world has developed, and some of the subtle or radical ways in which it continues to change, but also an understanding of how the world sees the world. We hope that it will prompt discussions in workplaces, in coffee shops, around dinner tables and on social media, between people from different communities and countries, about what has shaped the world we share and about our common challenges for the future.

1. THE INVENTION OF THE WORLD WIDE WEB

It took broadcast radio 38 years to reach the first 50 million users. Television took 13 years. The web got there in four. It is the fastest-growing communication medium of all time.

Twenty-five years ago in March 1989, Tim Berners-Lee, a British software engineer working at the European Particle Physics Laboratory (CERN), wrote a paper proposing an 'information management' system that became the conceptual and architectural structure for the world wide web. Many scientists participated in experiments at CERN for extended periods of time before returning to their laboratories around the world. They were eager to exchange data and results, but had difficulties doing so. Berners-Lee understood this need, and recognised the unrealised potential of millions of computers connected together through the internet.

By October 1990, Berners-Lee had specified the three fundamental technologies that remain the foundation of today's web:

- **HTML:** HyperText Markup Language, the publishing format for the web, including the ability to format documents and link to other documents and resources.
- **URI:** Uniform Resource Identifier – an 'address' that is unique to each resource on the web (also URL).
- **HTTP:** Hypertext Transfer Protocol, which allows the retrieval of linked resources from across the web.

By 1991, people outside CERN were able to join the new web community he had created, and in April 1993 CERN announced that the world wide web technology would be available for anyone to use on a royalty-free basis.

Since that time, the web has changed the way we teach and learn, buy and sell, inform and are informed, agree and disagree, build communities, exchange ideas, share and collaborate, and tackle problems ranging from putting food

on our tables to curing cancer. Most of its history is ahead of us, but already it has changed forever the shape of modern life.

Yet it is far from reaching its full potential. New technologies will enable billions more (mostly in the developing world) to join the web community. But once connected, what people are able to do on and with the web is increasingly monitored and controlled by governments and by certain commercial practices. The ability of the private sector to filter and sell its customers' data, and the balance between the right to digital privacy and the need to protect individuals – particularly children – are becoming the defining arguments of our age.

'Our success will be measured by how well we foster the creativity of our children', says Berners-Lee. 'Whether future scientists have the tools to cure diseases. Whether people, in developed and developing economies alike, can distinguish reliable information from propaganda or commercial chaff. Whether the next generation will build systems that support democracy and promote accountable debate.'

Berners-Lee designed the web. He let it loose on the world. And he, more than anyone else, has fought to keep it open, non-proprietary, and free. His vision is a world in which all people can use the web to communicate, collaborate and innovate freely, building bridges across the divides that threaten our shared future. The fear is that those who seek to profit from his vision may ultimately corrupt it.

Internet cafés on the streets of Thamel in Kathmandu, Nepal





Penicillin specimen c.1950

2. THE DISCOVERY OF A METHOD TO MASS PRODUCE PENICILLIN

In 1929 Alexander Fleming, a bacteriologist at St Mary's Hospital in London, published a paper on a chemical he called 'penicillin', which he had isolated from the mould *Penicillium notatum*. Penicillin, he wrote, had prevented the growth of a neighbouring colony of germs in the same petri dish.

In 1938, Howard Florey, Ernst Chain and their colleagues at Oxford University turned it from a laboratory curiosity into a life-saving drug. They expanded on Fleming's work and developed methods for isolating, growing, extracting and purifying enough penicillin to prove its therapeutic value. The main research effort was moved to the United States in 1941 to protect it from air raids

over the UK, and work began on how to grow the mould efficiently to make penicillin in the large quantities that would be needed for many thousands of wounded soldiers after the Normandy landings. The scientists knew they were in a race against death, because an infection was as likely to kill a wounded soldier as the wound itself. The co-operative efforts of British and American chemists, chemical engineers, microbiologists, mycologists, government agencies, and chemical and pharmaceutical manufacturers were equal to the challenge, and as production was increased, the cost dropped from being prohibitively expensive in

1940, to US\$20 per dose in July 1943, to US\$0.55 per dose by 1946.

The introduction of penicillin began the era of antibiotics, and has been recognised as one of the greatest advances in therapeutic medicine. Fleming, Florey and Chain shared the 1945 Nobel Prize for medicine for their work on it. But antibiotics are not a universal panacea. Over-use or inappropriate use (for example, against viral infection) has led to significant growth in antibiotic resistance and the spread of multidrug-resistant bacterial infections such as MRSA. Developing a new generation of antibiotics is a major challenge for scientists today.

3. HOME COMPUTERS

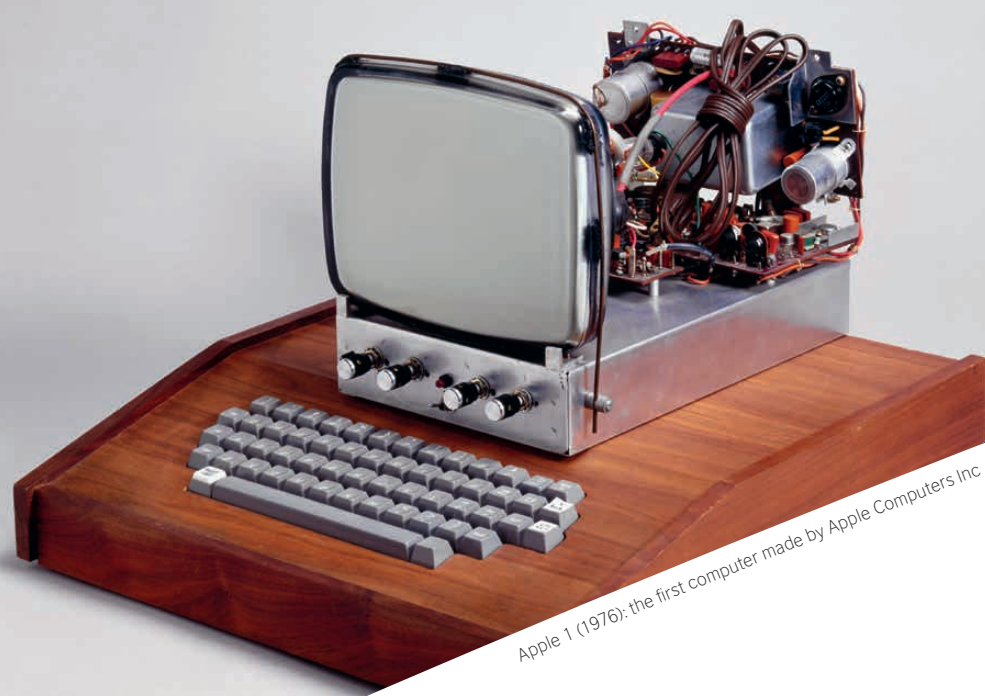
In 1975, two computer enthusiasts, Steve Jobs and Steve Wozniak, founded a company called Apple Computer. What distinguished them from others was their determination to make a 'microcomputer' – a scaled-down version of a mainframe computer, a consumer product aimed at households and non-expert individuals: the home computer. They packaged the product as a self-contained unit in a plastic case, which could be plugged into a standard wall socket just like any other appliance. It would incorporate a keyboard to enter data, a screen to view the output and some form of storage to hold data and programs. It would also need software, in order to appeal to anyone other than a computer enthusiast. Apple I came out in 1975, followed by Apple II in 1977. In 1979 they added spreadsheet and word-processing software, and the early

success they enjoyed convinced many others of the feasibility of this approach.

One of these was IBM, the most dominant firm in the computer industry at that time. They moved with remarkable speed, and did a deal with Bill Gates of the fledgling company Microsoft to run their machines on what became the MS-DOS operating system. The IBM personal computer became an instant and runaway success, driven by IBM's brand name and extraordinary marketing effort. While many business users had hesitated over buying an Apple or another relatively unknown brand at that time, the presence of the IBM logo – the most venerated brand in the industry – convinced them that this technology was for real. IBM legitimised the personal computer, and it became an industry standard. IBM's decision to allow it to have an open

architecture meant that others such as Compaq could copy its design and take advantage of the huge demand that had been created.

The company that benefited the most was Microsoft. Almost every model of the IBM PC and its clones were supplied with its MS-DOS operating system. As hundreds of thousands and eventually millions of machines were sold, money poured into Microsoft. This allowed Microsoft to diversify into computer application software without having to rely on external venture capital, and to cross-subsidise some of the software that did not initially succeed: including, for example, a word-processing package called Word. When it was released it had a negligible impact on the market, but the cash flow from MS-DOS allowed Microsoft to continue to market Word



Apple 1 (1976): the first computer made by Apple Computers Inc

at a loss until the opportunity came later to bundle it properly with its new generation of operating systems, Windows.

Despite the enormous sales which IBM and others enjoyed, a major deficiency of MS-DOS was its lack of user-friendliness, preventing PCs from being truly acceptable as a consumer product. In 1984, Apple, which had triggered the boom which others had then capitalised on, burst back into the market when it introduced its Macintosh model – named by one of its designers

after his favourite apple. It was the first mass-market personal computer to feature an integral graphical user interface (what we know as icons) and a mouse.

Bill Gates, the founder of Microsoft, is now one of the wealthiest people in the world (he and his wife intend to eventually donate 95 per cent of their wealth to charity). IBM sold its personal computer business in 2005 to concentrate on technology services, including cloud computing and mobile technology. Apple has seemingly

survived the early death in 2011 of the charismatic Steve Jobs and continues to wield four competitive strengths: extraordinarily good hardware, an efficient supply chain, compelling marketing, and strong partnerships with content and app suppliers.

And as the home computer evolves into laptops, tablets and smartphones, and the internet fuses with mobile telephony, we the consumer continue to embrace its possibilities: e-commerce is now the fastest growing retail market in Europe.

4. THE UNIVERSAL DECLARATION OF HUMAN RIGHTS

The Universal Declaration of Human Rights (UDHR) was adopted by the United Nations General Assembly in December 1948 at the Palais de Chaillot, Paris. The Declaration arose directly from the horrors of the Second World War and the Holocaust and represents the first global expression of rights to which all human beings are inherently entitled. It built on the 'Four Freedoms' – freedom of speech, freedom of religion, freedom from fear, and freedom from want – adopted by the Allies as their basic war aims, and was described by Pope John Paul II as 'one of the highest expressions of the human conscience of our time'.

The Declaration consists of 30 articles which have been elaborated in subsequent international treaties, regional human rights instruments, national constitutions, and other laws. It has been translated into more than 300 languages and dialects, from Abkhaz to Zulu.

The French jurist René Cassin, who was closely involved in drafting the Declaration, compared it to the portico of a Greek temple, with a foundation, steps, four columns, and a pediment.

Articles 1 and 2 are the foundation blocks: all human beings are free and equal in dignity and rights; and all are entitled to rights without distinction

based on race, colour, sex, language, religion, opinion, origin, property, birth or residency.

The seven paragraphs of the preamble – setting out the reasons for the Declaration – represent the steps. The main body of the Declaration forms the four columns. The first column constitutes rights of the individual such as the right to life and the prohibition of slavery. The second column constitutes the rights of the individual in civil and political society. The third column is concerned with spiritual, public, and political freedoms such as freedom of association, thought, conscience, and

religion. The fourth column sets out social, economic, and cultural rights.

The final three articles of the Declaration provide the pediment which binds the structure together: everyone is entitled to a social and international order in which these rights can be realised fully;

everyone has duties to the community; and none of the human rights in the Declaration can be used to justify violating another human right.

Though not legally binding, the Declaration has been adopted in, or has influenced, most national

constitutions since 1948. It has also served as the foundation for a growing number of national laws, international laws and treaties, and is a powerful tool in applying diplomatic and moral pressure to governments that violate any of its articles.

5. THE TERRORIST ATTACKS OF 11 SEPTEMBER 2001, AND THE EMERGENCE OF INTERNATIONAL TERRORISM

After several years of detailed planning, four passenger planes were hijacked in September 2001 by members of the terrorist group al-Qaeda, to be flown into major buildings in co-ordinated suicide attacks against the United States.

Two were flown into the North and South towers of the World Trade Center complex in New York City. Within two hours, both towers collapsed completely; others around it were partially or wholly destroyed. A third plane was crashed into the Pentagon building in Washington DC. The fourth, United Airlines Flight 93, was also targeted at Washington. It crashed into a field in Pennsylvania after its passengers attempted to overcome the hijackers.

The al-Qaeda leader Osama bin Laden initially denied any involvement. 'I stress that I have not carried out this act which appears to have been carried out by individuals with their own motivation', he stated. In 1998 bin Laden had co-signed a fatwā (usually an opinion,

or interpretation, given by an Islamic scholar) which referred to the US military presence in the Arabian Peninsula, the blockade of Iraq, and American support for Israel. It purported to provide religious authorisation for indiscriminate killing of Americans and Jews everywhere. Al-Qaeda claimed responsibility for the bombing later that year of US embassies in Dar es Salaam and Nairobi.

In a 'Letter to America' published two months after the 9/11 attacks, bin Laden stated explicitly that al-Qaeda was motivated by the presence of US troops in Saudi Arabia, the sanctions against Iraq, and US support of, variously, Israel, Russian 'atrocities against Muslims' in Chechnya, authoritarian regimes in the Middle East such as Egypt, Saudi Arabia and Jordan, Indian 'oppression against Muslims' in Kashmir, and 'attacks against Muslims' in Somalia. In 2004, bin Laden publicly acknowledged his direct link to the 9/11 attacks which, he said, were carried out because 'we

are free ... and want to regain freedom for our nation. As you undermine our security we undermine yours.'

Close to 3,000 people died in the 9/11 attacks, including several hundred who were killed at street level in New York by burning debris. The world watched, appalled and horrified, as some of the most iconic moments of recent times unfolded on its television screens.

The United States responded to the attacks by launching the 'War on Terror', and by invading Afghanistan to depose the Taliban, which had harboured al-Qaeda. (Those they fought were often fighters they had trained in the battle against Russian forces in Afghanistan in the 1980s.) Many countries considerably strengthened their anti-terrorism legislation and law enforcement powers. Words and phrases such as Guantanamo, waterboarding, forced rendition, jihadist electronic surveillance, began to enter our everyday vocabulary.



6. THE RISE IN GLOBAL AWARENESS OF ENVIRONMENTAL PROTECTION AND CONSERVATION

On 22 April 1970, 20 million Americans took to the streets and parks in organised protests against the deterioration of the environment. Groups that had been fighting against oil spills, polluting factories and power plants, raw sewage, toxic dumps, pesticides, the loss of wilderness, and the extinction of wildlife suddenly realised they shared common values.

Earth Day achieved a rare political alignment, and led to the creation of the US Environmental Protection Agency and the passage of the Clean Air, Clean Water, and Endangered Species Acts. In 1990 the movement went global, mobilising 200 million people in 141 countries. It lifted environmental and conservation issues onto the world stage and helped pave the way for the 1992 UN Earth Summit in Rio de Janeiro. Earth Day 2000, focusing on global warming and a push for clean energy, involved 5,000 environmental groups in 184 countries reaching out to hundreds of millions of people. It sent world leaders the loud and clear message that citizens around the world wanted quick and decisive action on clean energy.

Meanwhile, the Intergovernmental Panel on Climate Change (IPCC) concluded in 1990 that it is likely that carbon dioxide, emitted by the burning of fossil fuels, was raising global temperatures. In 2001, it reported new and stronger evidence that humanity's emissions of greenhouse gases were causing global warming. In 2007 it reported that it is more than 90 per cent likely that manmade emissions of greenhouse gases are changing the climate. In 2013 it said that scientists are 95 per cent certain that humans have been the dominant cause of global warming since the 1950s. In 2014 it addressed the effects of climate change as a series of risks that will ultimately increase exponentially as temperatures warm: any future increase of temperature could lead to 'abrupt and irreversible changes'.

In December 2015 the parties to the UN Convention on Climate Change will meet in Paris. The overarching goal of the Convention is to reduce greenhouse gas emissions in order to limit the global temperature increase to 2°C above current levels. The objective of the Paris conference is to achieve a legally binding and universal agreement, from

all the nations of the world. Despite near collapse of negotiations at each of the last four annual conferences, no country is willing to abandon the goal of such an international regime. Consensus and positive action is slow in coming although in November 2014 the leaders of China and the US announced an agreement to work towards a reduction of their greenhouse gas output.

Archbishop Desmond Tutu is one of those who has put reticent politicians, climate change deniers, well-funded oil lobbyists and others on notice. He describes the reduction of our carbon footprint as 'not just a technical scientific necessity; it has also emerged as the human rights challenge of our time ... the most devastating effects of climate change – deadly storms, heat waves, droughts, rising food prices and the advent of climate refugees – are being visited on the world's poor. It is a deep injustice.'

7. THE INFLUENCE OF NELSON MANDELA

Fifty years ago in South Africa, on 20 April 1964, ten African National Congress (ANC) leaders were put on trial accused of sabotage, furthering communism and aiding foreign powers.

Instead of testifying as a witness and submitting to cross-examination,

Nelson Mandela chose to make a speech from the dock. In effect, he put the state on trial by pointing out the injustices of South African society and its legal system. He worked on the speech for some weeks before the trial, and was helped in editing and polishing

it by the writer Nadine Gordimer and the journalist Anthony Sampson. Mandela spoke for three hours, and concluded with these words:

'During my lifetime I have dedicated my life to this struggle of the African people. I have fought against white domination,



Nelson Mandela

and I have fought against black domination. I have cherished the ideal of a democratic and free society in which all persons will live together in harmony and with equal opportunities. It is an ideal which I hope to live for and to see realised. But, my Lord, if it needs be, it is an ideal for which I am prepared to die.'

These words are now inscribed on the wall of South Africa's Constitutional Court building in Johannesburg.

At many points during the 27 years Mandela subsequently spent in prison, and in the period following his release in 1990 at the age of 71, a catastrophic collapse into violent chaos was a real prospect for South Africa. We know now, from his memoir *Long Walk to Freedom*, that Mandela thought deeply about how he should act on his release. He wrote:

'As I walked out the door toward the gate that would lead to my freedom,

I knew if I didn't leave my bitterness and hatred behind, I'd still be in prison.'

In 1994 he became the first black head of state in South African history, as well as the first to take office following the dismantling of apartheid and the introduction of constitutional democracy. At his inauguration, he stood hand on heart, saluted by white generals as he sang along to two anthems: the apartheid-era Afrikaans 'Die Stem' ('The Voice') and the multi-language 'Nkosi Sikelel' iAfrika' ('God Bless Africa').

8. THE BREAK-UP OF THE SOVIET UNION

In December 1991, the Soviet Union disintegrated into 15 separate countries, bringing an end to the Cold War and reformulating political, economic and military alliances all over the globe.

When Mikhail Gorbachev came to power in 1985, the USSR had deep economic and political problems. Economic planning had failed to meet the needs of the State, which was caught up in a relentless and debilitating Cold War arms race with the United States. At the same time, non-Russian ethnic groups (more than 50 per cent of the total population of the Soviet Union) had a long-standing desire for greater autonomy or independence from the centralised Soviet state.

To tackle these issues, Gorbachev introduced a major set of reforms: an economic programme known as

perestroika, or rebuilding; and a policy of *glasnost*, or openness: making the country's governance more transparent and open to debate, and introducing a degree of democracy including elections for the leaders of each Soviet republic. *Perestroika* introduced some important and liberalising reforms such as decentralisation, but price controls remained, as did the rouble's inconvertibility and most government controls over the means of production. Tax revenues declined because republic and local governments withheld them from central government under the growing spirit of regional autonomy; and new production bottlenecks were created, especially in the consumer goods sector. At the same time, *glasnost* was permitting a greater freedom of speech and a relaxation of censorship. Before long, the media began to expose

severe social and economic problems which the Soviet government had long denied and covered up, such as: poor housing, food shortages, alcoholism, widespread pollution, and increasing mortality.

In 1989, pro-democracy revolutions overthrew the communist regimes in the six Warsaw Pact countries of Eastern Europe, widely recognised as satellite states of the Soviet Union. Gorbachev refused to use Soviet military force against these changes. Internal disintegration began on the peripheries, in the non-Russian areas. The first to produce mass, organised dissent were the Baltic states, incorporated into the Soviet Union as a result of the Molotov Pact in 1940. They were followed by secessionist demands in the Armenian-populated

autonomous region of Nagorno-Karabagh, in the Republic of Azerbaijan. Nationalist movements emerged in Georgia, Ukraine, Moldova, Byelorussia, and the Central Asian republics. In August 1991, in a last-ditch effort to preserve the previous authoritarian system, a group of hard-line Communists organised a coup d'état and arrested Gorbachev. Massive protests were staged in Moscow, Leningrad and other major cities. When the coup organisers

tried to bring in the military to quell the protestors, the soldiers themselves rebelled, saying that they could not fire on their fellow citizens. After three days of protest, the coup organisers surrendered, knowing that without the co-operation of the military they were powerless.

On 25 December 1991, Gorbachev declared his office extinct as the Soviet Union splintered into its constituent

republics and handed over its attributes – including control of the Soviet nuclear missile launching codes – to the man who had politically outmanoeuvred him, Russian President Boris Yeltsin. What followed was a decade of chaotic privatisation and the rise of the oligarchs: well-connected entrepreneurs who started from nearly nothing and prospered through their connections to the government.

9. THE INVENTION OF THE ATOMIC BOMB, AND THE EXPLOSION OF ATOMIC BOMBS OVER HIROSHIMA AND NAGASAKI

At breakfast time on 6 August 1945, a US B-29 aircraft dropped an atomic bomb on the Japanese city of Hiroshima, instantly killing around 75,000 people. Three days later, a second bomb was dropped on the city of Nagasaki, causing the deaths of an estimated 40,000 people. The anticipated Japanese surrender, which came on 15 August – six days after the detonation over Nagasaki – ended the Second World War. The first western scientists, servicemen and journalists to arrive on the scene produced vivid and heartrending reports describing a charred landscape populated by hideously burnt people, coughing up and urinating blood and waiting to die. In the months following, it is thought that a further 100,000 people did indeed die, slowly, of radiation poisoning.

These bombings, which remain the only nuclear attacks in history, were the

culmination of the most secret wartime project in history: the Manhattan Project. More than 100,000 scientists had been working on the development of the bomb since 1942, many of them operating in isolation in different parts of the US, unaware of the magnitude of the project in which they were involved. In 1943 the project was centralised and moved to an isolated laboratory in Los Alamos in the New Mexico desert. Its only mailing address was a post office box, number 1663, in Santa Fe. On 16 July 1945, scientists carried out the first trial of the bomb in Alamogordo, an area of New Mexico that had been inhabited for 11,000 years.

President Truman received news of the successful test whilst negotiating the post-war settlement in Europe at the Potsdam Conference. In the previous six months, the US Air Force had been firebombing 67 Japanese

cities: on a single night, 9 March 1945, an estimated 100,000 people had been killed in Tokyo and 16 square miles of the city devastated. Truman was nevertheless convinced that use of the bomb represented the best means of forcing a Japanese surrender and ending the war. The alternative, an Allied invasion of the Japanese home islands, was expected to cost hundreds of thousands of casualties.

The role of the bombings in Japan's surrender and the justification for them has been the subject of debate for decades. The fundamental issue that has divided scholars and historians is whether the use of the bomb was necessary to achieve victory in the war in the Pacific. It was the end of the Second World War, but with a terrible human cost.

10. THE MOVE TOWARDS GREATER EQUALITY FOR WOMEN IN MANY PARTS OF THE WORLD

In 1957 Betty Friedan, an American housewife, mother and freelance journalist, sent questionnaires to her old classmates asking them to describe their lives since leaving college, 15 years earlier. From their answers and other research came her 1963 book *The Feminine Mystique*, an instant best-seller. It was much influenced by Simone de Beauvoir's 1949 study *The Second Sex*, which argued that men fundamentally oppress women by characterising them, on every level, as 'the Other': he creates, acts, invents; she waits for him to save her, said de Beauvoir. Friedan's thesis was that suburban middle class housewives were not necessarily fulfilled by housewifery and childbearing. She criticised psychiatrists, social scientists, educators, and businessmen who used the 'mystique' – the theory that women's fulfilment could be found only in motherhood and family – to encourage women to live segregated lives in the suburban ghettos of the post-war world. The perfect nuclear family image depicted and strongly marketed in the mainstream media, she wrote, did not reflect happiness and was in fact degrading for women. It created a huge response from unhappy, dissatisfied women who realised that Friedan had identified their 'problem with no name', and arguably kick-started what became known as second-wave feminism. Germaine Greer, in her 1970 book *The Female Eunuch*, similarly took issue with the 'traditional' suburban, consumerist, nuclear family, arguing that it repressed women sexually and devitalised them, rendering them eunuchs.

Much water has passed under the bridge since then. Legislation, affirmative action policies and international conventions dealing with gender equality have been critical in bringing about changes in societal attitudes, particularly in the developed world. A strike by sewing machinists at the Ford car factory in Dagenham for equal pay and against sex discrimination ultimately led to the passing of the Equal Pay Act 1970, the first legislation in the United Kingdom aimed at ending pay discrimination between men and women. Nevertheless, it is argued that jobs traditionally done by women, such as cleaning, catering and caring, continue to be undervalued and paid less than jobs traditionally done by men, such as construction, transportation and manually skilled trades. Inequalities within power structures such as caste, tribe, language, religion, region and class have posed a challenge for women's rights campaigners around the world, who have acknowledged that fulfilling the demands of one group might create further inequalities for another.

Rebeca Grynspan, the Costa Rican economist and former UN Under-Secretary-General, has argued that if only one global development goal was to be adopted from 2015, it should be gender equality because empowering women has such broad ripple effects. Families can prosper, children's health and education improve and national growth expand by investing in women. 'The character of this century will be determined by our ability to walk towards gender equality', she says. In many countries, however, domestic violence, forced marriage, honour killings and female genital mutilation are still part of the status quo. In the words of the Egyptian writer and commentator Mona Eltahawy, 'Until the rage shifts from the oppressors in our presidential palaces to the oppressors on our streets and in our homes, our revolution has not even begun.'

Empowering women has far-reaching effects in education, health and prosperity





Social media played an important role in the Egyptian revolution in 2011

11. THE SPREAD OF ENGLISH AS A GLOBAL LANGUAGE

Emerging from a colourful history, and thanks to its Darwinian capacity to evolve and adapt, English has come of age as the global common language. Its seemingly irresistible spread, begun in past centuries but accelerating intensely in recent decades, means that different varieties have emerged. It is constantly moulded and altered by new communities of users, whether geographical or digital. It is now spoken at a useful level by some 1.75 billion people worldwide – one person in every four. By 2020, it is forecast that two billion people will be using it, or learning to use it. It has come to belong to all its speakers. It no longer has a single centre, such as the UK, which influences its norms of usage, but instead has many centres and hubs around the world which individually and collectively shape its character.

12. THE GROWTH AND INFLUENCE OF SOCIAL MEDIA

At its launch in 2004, membership of Facebook – arguably the most mature of the top social networks – was restricted to Harvard University students. By 2011 the network had grown so large, its population was being compared to that of a country. Today, it has more than one billion registered users and has ambitions to connect five billion people. By January 2014 the company's market capitalisation had risen to over US\$134 billion. With platforms such as Twitter (645 million registered users), Google+ (1.38 billion), Weibo (503 million), Instagram (200 million), Badoo (200 million) and Renren (210 million), social media is as ubiquitous as the computer itself; and investment in social media

strategies is becoming a necessity for business and governments alike.

Social media platforms, enabling the creation and exchange of user-generated content, have fundamentally changed the nature of communication between organisations, communities, and individuals. They differ from traditional or industrial media in many ways, including quality, reach, frequency, usability, immediacy, and permanence. Building virtual ties among like-minded people and with the potential to turn individualised, localised, and community-specific dissent into structured movements, they can be used to allow individuals to hold leaders accountable and expose corruption and human rights abuses. They can connect local and opposition groups to the outside world, to other states or diaspora populations, supporting political communication and activism across national borders. They can help build a political identity among otherwise indifferent youth, but they can also inhibit face-to-face human engagement and allow anonymous individuals to harass and bully.

13. SATELLITE TECHNOLOGY AND ITS IMPACT

The world's first artificial satellite, the Sputnik 1, slightly smaller than a basketball, was launched by the Soviet Union in 1957. Since then, almost 7,000 have been launched of which some 1,000 are currently operational; the rest have become part of the debris of space. They bring us television pictures; they authorise our credit card purchases; they track hurricanes; they measure the changing size of glaciers; and they tell us where we are when we are lost.

14. THE HOLOCAUST IN NAZI-OCCUPIED EUROPE

The word is derived from the Greek *hólos*, 'whole' and *kaustós*, 'burnt'. The Holocaust was a genocide in which six million Jews, including a million children, were killed by the Nazi regime throughout the German Reich and German-occupied territories during the period 1941–45. This genocide was part of a broader aggregate of acts of oppression and killings of various ethnic and political groups in Europe by the Nazis, including Gypsies, Poles, communists, homosexuals, Soviet prisoners of war, and the mentally and physically disabled. In total, approximately 11 million people were killed.

27 January, the anniversary of the liberation of Auschwitz-Birkenau, the largest Nazi death camp, is commemorated worldwide as Holocaust Memorial Day. In Britain, the commemoration events are organised by the Holocaust Memorial Day Trust, which also honours the victims of subsequent genocides in Cambodia, Rwanda, Bosnia, and Darfur. 'It is a time when we seek to learn the lessons of the past,' says the Trust, 'and to recognise that genocide does not just take place on its own, it's a steady process which can begin if discrimination, racism and hatred are not checked and prevented. We're fortunate here in the UK; we are not at risk of genocide. However, discrimination has not ended, nor has the use of the language of hatred or exclusion. There is still much to do to create a safer future and Holocaust Memorial Day is an opportunity to start this process.'



The Jewish Museum in Berlin, designed by Daniel Libeskind



German troops remove the border barrier between Poland and Germany during the invasion of Poland

15. THE MOBILE PHONE

The first-ever call on a handheld mobile phone was made by a Motorola employee, Martin Cooper, in April 1973 using a 2kg handset. In 1979, Japan became the first country to have a city-wide commercial cellular network. By 1993 the first SMS text messages were being sent and data services were beginning to appear on phone screens. From 1990 to 2011, worldwide mobile phone subscriptions grew from 12.4 million to over six billion, reaching about 87 per cent of the global population. The United Nations has reported that mobile phones have spread faster than any other technology and can improve the livelihood of the poorest people in developing countries by providing access to information in places where landlines or the internet are not available, especially in the least developed countries.

16. THE HUMAN GENOME PROJECT

The Human Genome Project has been one of the great feats of exploration in history – an inward voyage of discovery rather than an outward exploration of the planet or the cosmos; an international, collaborative research effort to sequence and map all of the genes – together known as the genome – of members of our species, *Homo sapiens*. It is the world's largest collaborative biological project, with co-ordinated work carried out in 20 universities and research centres in the United States, the UK, Japan, France, Germany and China. Completed in April 2003, the project has given the world a resource of detailed information about the structure, organisation and function of the complete set of approximately 20,500 human genes: nature's complete genetic blueprint for building a human being.

17. DENG XIAOPING AND HIS 'OPEN DOOR' POLICY

Following the death of Mao Zedong in 1976, Deng became the core of the 'second generation' of Chinese leadership. He is considered the architect of a new brand of socialist thinking, and led Chinese economic reform through a synthesis of theories that became known as the 'socialist market economy', which included a variety of reforms aimed at decentralising the economy and opening the country to foreign investment, the global market and limited private competition. It helped to lift many millions of people out of poverty and made possible China's rise as a modern global power. Deng resigned from his last official Party post in 1989 but remained highly influential until his death in 1997.

18. THE INVASION OF POLAND ON 1 SEPTEMBER 1939, MARKING THE BEGINNING OF THE SECOND WORLD WAR

At 4.45 a.m. on 1 September 1939, some 1.5 million German troops began crossing into Poland along the length of its 1,750-mile border with German-controlled territory. Simultaneously, the German Luftwaffe bombed Polish airfields, and German warships and U-boats attacked Polish naval forces in the Baltic Sea. Britain declared war after Germany ignored its ultimatum, delivered on 3 September, demanding the withdrawal of German troops, and was swiftly followed by Australia, New Zealand, India and France.

The Polish army was able to mobilise one million men but was hopelessly outmatched. By 8 September, German forces had reached the outskirts of Warsaw; and on 28 September the Warsaw garrison finally surrendered to a relentless German siege. That day, Germany and the USSR concluded

an agreement outlining their zones of occupation. For the fourth time in its history, Poland was partitioned by its more powerful neighbours. Nine months later Hitler attacked the USSR and seized all of Poland. During the German occupation, nearly three million Polish Jews were killed in the Nazi death camps; the Slavic majority was persecuted in an attempt to destroy the intelligentsia and Polish culture. Over the six years of war that followed the invasion of Poland, an estimated 60–85 million people died.

19. THE DEVELOPMENT OF NUCLEAR ENERGY

The pursuit of nuclear energy for electricity generation began soon after the discovery in the early 20th century that radioactive elements, such as radium, released immense amounts of energy. The discovery of nuclear fission in the late 1930s provided the means to harness such energy, and in the post-war years there was a drive to develop 'peaceful' uses of nuclear power. In 1954, the USSR's Obninsk Nuclear Power Plant became the world's first nuclear power plant to generate electricity for a power grid. Nuclear energy produces virtually no conventional air pollution, such as greenhouse gases and its use decreases dependence on imported energy sources. Its opponents claim that it nevertheless poses many threats to people and the environment, citing the disasters of Chernobyl and Fukushima, and point to the problems of processing, transport and storage of radioactive nuclear waste, the risk of nuclear weapons proliferation and terrorism, and health risks and environmental damage from uranium mining. In 2011, *The Economist* reported that nuclear power 'looks dangerous, unpopular, expensive and risky', and that 'it is replaceable with relative ease and could be forgone with no huge



Astronaut Edwin E Aldrin Jr, lunar module pilot, walks on the surface of the Moon during the Apollo 11 moon landings



Statue of Yuri Gagarin outside the British Council office, London

structural shifts in the way the world works.' In 2012, nuclear (fission) power stations were providing about 5.7 per cent of the world's energy and 13 per cent of the world's electricity.

20. THE WORK AND INFLUENCE OF ALBERT EINSTEIN, 1879–1955

Albert Einstein developed the general theory of relativity, one of the two pillars of modern physics, and was awarded the Nobel Prize in 1921. He settled in the United States in the 1930s, after Hitler's rise to power in his native Germany, and became an American citizen in 1940. On the eve of the Second World War, he endorsed a letter to President Franklin D Roosevelt alerting him to the potential development of 'extremely powerful bombs of a new type' and recommending that the US began similar research. This eventually led to what would become the Manhattan Project and the development of the atomic bomb, but he largely denounced the idea of using nuclear fission as a weapon. Later, with the British philosopher Bertrand Russell, Einstein signed the Russell–Einstein Manifesto, which highlighted the danger of nuclear weapons. A year before his death he said 'I made one great mistake in my life – when I signed the letter to President Roosevelt recommending that atom bombs be made; but there was some justification – the danger that the Germans would make them...'

Einstein was a passionate, committed anti-racist. He joined the National Association for the Advancement of Colored People (NAACP) and campaigned for the civil rights of African Americans. He considered racism America's 'worst disease,' seeing it as 'handed down from one generation to the next.'

21. THE DISCOVERY OF THE DOUBLE HELIX STRUCTURE OF DNA

The sentence 'This structure has novel features which are of considerable biological interest' may be one of science's most famous understatements. It appeared in April 1953 in the scientific paper where James Watson and Francis Crick presented the structure of the DNA helix, the molecule that carries genetic information from one generation to the other. They based their findings on the work of one of their colleagues at King's College in London – Rosalind Franklin, an x-ray diffraction expert whose images of DNA proteins in the early 1950s revealed a helix shape. In 1962, Watson and Crick, with Maurice Wilkins, shared the Nobel Prize in Physiology or Medicine for solving one of the most important of all biological riddles. Rosalind Franklin had died four years earlier and despite her key experimental work, the prize could not be awarded posthumously. Her pivotal contribution was not acknowledged for many years. Half a century later, important new implications of this contribution to science are still being recognised, such as the identification of the genes that trigger devastating diseases or the creation and manufacture of drugs to treat them.

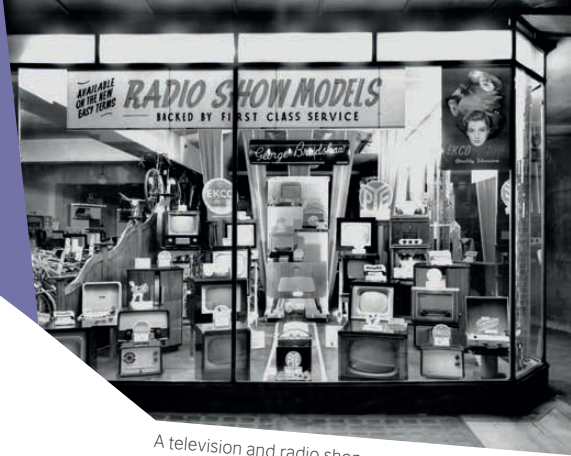
22. THE INVENTION OF THE CONTRACEPTIVE PILL

Access to advice about contraception was not available to women in most countries until well into the latter half of the 20th century. Before this, individual campaigners such as Marie Stopes (1880–1958) set up birth control clinics in the face of much opposition. The contraceptive pill first became available in 1960. It uses female hormones to control fertility and became commercially

viable when a team led by Carl Djerassi, an Austrian-American chemist, novelist, playwright and social activist, discovered in 1951 that the Mexican wild yam was a cheap natural source of these hormones. In the words of *The Economist*, it 'was arguably the first [...] drug to control a normal bodily function – fertility – rather than a dread disorder. It transformed the lives of millions and helped reshape the role of medicine in reproduction.' Its social impact was massive, helping to empower women by giving them choice.

23. SPACE EXPLORATION

Humans have dreamed about spaceflight since antiquity, but it was not until after the Second World War that rockets were developed with sufficient power to overcome the force of gravity and reach orbital velocities. Both the Soviet Union and the United States took advantage of captured German rocket technology and personnel. The Soviet Union launched the first artificial satellite, Sputnik 1, in October 1957 and with it launched the so-called 'Space Race', a public manifestation of the Cold War. The first US satellite, Explorer 1, went into orbit in January 1958. On 12 April 1961, Russian Lt Yuri Gagarin in Vostok 1 became the first human to orbit Earth. His flight lasted 108 minutes, and Gagarin reached an altitude of 327 kilometers (about 202 miles). Eight years later, US astronaut Neil Armstrong stepped from Apollo 11 onto the surface of the moon and spoke these famous words to a live, worldwide television audience: 'That's one small step for a man, one giant leap for mankind.'



A television and radio shop in southern England, 1955

The Space Race sparked increases in spending on education and pure research, which led to beneficial spin-off technologies. It also contributed to the birth of the environmental movement by providing sharp colour images of the Earth taken by astronauts in translunar space.

In September 2014, India followed Russia, the US and the EU in sending an operational mission to Mars. Its Mangalyaan satellite was confirmed to be in orbit around the planet after a ten-month journey. The cost of the mission has been estimated at 4.5 billion rupees (US\$74 million): the Indian Prime Minister Narendra Modi noted that this was less than the budget for the Hollywood film *Gravity*.

24. THE FIRST PUBLIC TELEVISION SERVICE

On 2 November 1936 the BBC began transmitting the world's first public television service, from Alexandra Palace in north London. The formal opening ceremony was followed by a Movietone newsreel and then a variety show, featuring Adele Dixon and the BBC Television Orchestra. A short documentary, *Television Comes to London*, revealed the preparations leading up to the launch. In all, the service was on the air for two hours on its first day. Two competing technical systems, Marconi-EMI's 405-line system and Baird's 240-line intermediate film system, were installed, each with its own broadcast studio. They transmitted on alternate weeks until the Marconi system was chosen in 1937. During the BBC Television Service's first three years, the prohibitive cost of television sets reportedly limited the number of viewers to 20,000. The service gradually increased viewership, reaching an estimated 25,000 to 40,000 homes

before the outbreak of the Second World War, which caused it to be suspended in September 1939. The service resumed in June 1946, when 100,000 viewers in the greater London area watched a broadcast of the victory parade celebrating the end of the war, and reached a high point on 2 June 1953, with the televising of Queen Elizabeth II's coronation inside Westminster Abbey.

25. THE DEVELOPMENT OF NANOTECHNOLOGY

Nanoscience and nanotechnology are the study and application of extremely small things. The prefix 'nano' means one-billionth, and there are 25,400,000 nanometres in one inch.

The concepts behind nanoscience and nanotechnology were first publicly explored by the physicist Richard Feynman in 1959, when he described a process in which scientists would be able to manipulate and control individual atoms and molecules. Over a decade later, in his explorations of ultraprecision machining, Professor Norio Taniguchi coined the term nanotechnology. However, it was not until 1981, with the development of the scanning tunnelling microscope that could 'see' individual atoms, that modern nanotechnology began. The areas of its applications are as varied as food science, water quality and space technology.

26. THE INVENTION AND WIDESPREAD USE OF EMAIL

Email had very simple beginnings. Originally, it was used to send messages to other users of the same computer. Once computers began to talk to each other over networks, however, users needed to be able to put a message

in an electronic envelope and give it an electronic address. A US computer engineer, Ray Tomlinson, is credited with picking the @ symbol from the computer keyboard to denote sending messages from one computer to another. The first email message, sent over the ARPANET network in 1972, was 'QWERTYUIOP'. Today, email has become the predominant form of business communication, with over 100 billion emails sent and received each day. Consumer email traffic, estimated at 82 billion per day, is predicted to level off or decline due to the increased usage of social networking, text messaging and other forms of communication.

27. THE FALL OF THE BERLIN WALL IN 1989 AND THE REUNIFICATION OF GERMANY IN 1990

Between 1949 and 1961, some 2.5 million people – many of them engineers, technicians, doctors, teachers, lawyers and skilled workers – fled the repressive living conditions in East Germany. This haemorrhage of talent threatened to destroy the economic viability of the East German state. On the night of 12 August 1961, trucks with soldiers and construction workers rumbled through East Berlin. While most Berliners were sleeping, crews began tearing up streets that entered into West Berlin, dug holes to put up concrete posts, and strung barbed wire across the border between East and West Berlin. Over the next 28 years, with the barbed wire replaced by concrete slabs, it stood as the great physical symbol of the Iron Curtain.

East Germany's hard-line communist leadership was forced from power in October 1989 during the wave of democratisation that was sweeping through Eastern Europe. At midnight on 9 November 1989, the new



Chipping away at the Berlin Wall, 1989

leadership gave permission for gates along the Wall to be opened. They were met by jubilant West Berliners on the other side, and ecstatic crowds immediately began to clamber on top of the Wall and hack large chunks out of the 28-mile barrier. Once the Wall had been breached, East Germany effectively disintegrated. On 3 October 1990 the two countries merged to form a new united Germany.

28. THE CREATION OF THE STATE OF ISRAEL

The State of Israel was proclaimed on 14 May 1948, the culmination of nearly 2,000 years of hopes by Jewish people that they would one day return to the land from which the Romans had expelled them. The Holocaust in the Second World War strengthened their determination.

The Balfour Declaration by the British government in 1917, enshrined in a League of Nations mandate in 1920, had said that a 'national home for the Jewish people' would be founded in Palestine, while preserving the 'civil and religious' rights of non-Jewish communities there. The British struggled to reconcile these conflicting principles.

On 29 November 1947, the United Nations General Assembly voted to partition Palestine between a Jewish and an Arab state, with Jerusalem under an international regime. The Jews agreed but the Arabs did not. They called the declaration of the State of Israel 'al-Nakba', the catastrophe.

Inter-communal fighting had preceded the declaration and after it, five Arab armies invaded. By the time of an

armistice in 1949, the Israelis had extended their territory, leaving Jordan with the West Bank, Egypt with Gaza, and Jerusalem divided. Hundreds of thousands of Palestinians had fled or had been driven out.¹

29. THE INFLUENCE AND ACHIEVEMENTS OF MAHATMA GANDHI

MK Gandhi led India to independence and inspired civil rights movements across the world. He spent 20 years working in South Africa where he saw at first-hand the treatment of Indian immigrants, and joined the struggle to obtain basic rights for them. He was imprisoned numerous times but in 1914 the South African government conceded to many of his demands. He returned to India shortly afterwards and by 1920 had become a dominant figure in national politics. Employing non-violent civil disobedience against British rule, he led India to independence and inspired movements for civil rights and freedom across the world. He was assassinated in Delhi in January 1948.

During his lifetime Gandhi was a hugely divisive figure, but one major achievement still resonates today: his theory and practice of bringing together great masses of highly motivated and disciplined protesters in public spaces. Here his spiritual beliefs were crucial: in particular the assumption that, regardless of the regime people lived under – democracy or dictatorship, capitalist or socialist – they will always possess a freedom of conscience, an inner capacity to make moral choices in everyday life.

30. THE US CIVIL RIGHTS MOVEMENT

The protest against racial segregation and discrimination in the southern United States came to national prominence during the mid-1950s. It had its roots in the centuries-long efforts of African slaves and their descendants to resist racial oppression and abolish the institution of slavery.

It was triggered by the refusal in December 1955 of a 42 year old woman, Rosa Parks, to give up her seat on a bus to a white man in Montgomery, Alabama. She was arrested and fined US\$14, but it led to major campaigns of civil resistance and acts of nonviolent protest and civil disobedience. In August 1963 an estimated 200,000 to 300,000 demonstrators gathered in front of the Lincoln Memorial in Washington. Here Martin Luther King delivered his famous 'I Have a Dream' speech, hailed as a masterpiece of rhetoric, in which he departed from his prepared text and spoke of his dreams of freedom and equality arising from a land of slavery and hatred.

After the assassination of John F Kennedy three months later, President Lyndon Johnson used his influence in Congress to bring about much of Kennedy's legislative agenda including the Civil Rights Act (1964) that banned discrimination based on 'race, color, religion, or national origin' in employment practices and public accommodations. Subsequent legislation included the Voting Rights Act (1965); the Immigration and Nationality Services Act in the same year, opening entry to the US to immigrants other than traditional European groups; and the Fair Housing Act of 1968, banning discrimination in the sale or rental of housing.

1. Source: BBC.



The Martin Luther King Jr memorial in Washington, D.C.



Demonstrations outside government buildings in Tunis, December 2010

31. THE EMERGENCE OF HIV/AIDS IN THE EARLY 1980S

The AIDS epidemic officially began in June 1981 when the US Centers for Disease Control and Prevention reported unusual clusters of a type of pneumonia in five homosexual men in Los Angeles. Over the next 18 months, more such clusters were discovered among otherwise healthy men in cities throughout the United States. Health authorities soon realised that nearly half of the people identified with the syndrome were not homosexual men: the same opportunistic infections were being reported among haemophiliacs, heterosexual intravenous drug users, and Haitian immigrants. By August 1982, the disease was being referred to as Acquired Immune Deficiency Syndrome (AIDS). In 1983, Dr Luc Montagnier of the Institut Pasteur in France and Dr Robert Gallo of the Institute of Human Virology in the US identified the human immunodeficiency virus (HIV) as the infectious agent responsible for AIDS. It is believed to have had its origins in the emergence of one specific strain in Léopoldville in the Belgian Congo (now Kinshasa in the Democratic Republic of the Congo) in the 1920s. Since it was first identified, AIDS has caused an estimated 36 million deaths worldwide (as of 2012) and a similar number are living with HIV globally. The development of antiretroviral drugs has meant that in many parts of the world HIV has become a chronic condition in which progression to AIDS has become increasingly rare. In many African countries, however, where access to such drugs is limited, it remains a leading cause of death.

32. THE ERADICATION OF SMALLPOX

Smallpox is believed to have emerged in human populations around 10,000 BC

and the last naturally occurring case was diagnosed on 26 October 1977. It had been responsible for an estimated 300–500 million deaths during the 20th century. An eradication campaign, initiated by the World Health Organisation in 1958 and intensified in 1967, deployed a range of strategies including vaccination programmes, surveillance and prevention measures which aimed to contain epidemic hotspots and better inform affected populations, to combat the disease. It was the first disease to have been fought on a global scale, with unprecedented collaboration by countries around the world, and was officially declared eradicated in 1980.

33. THE POPULAR PROTESTS AND UPRISINGS IN NORTH AFRICA AND THE MIDDLE EAST, KNOWN AS THE 'ARAB SPRING'

Mohamed Bouazizi, a Tunisian street vendor, set himself alight on 17 December 2010 in protest at the confiscation of his wares and the harassment and humiliation that he reported was inflicted on him by a municipal official. His act was a catalyst for demonstrations and riots throughout Tunisia in protest at the endemic and long-standing corruption, repression and inequality in the country. Ten days later, President Zine El Abidine Ben Ali and his family fled the country after 23 years in power. The Tunisian protests inspired uprisings in other countries, including Libya, Egypt, Bahrain and Syria. One year on, Tunisian writer and academic Larbi Sadiki wrote that Bouazizi's self-immolation 'would change the course of Arab political history ... it will be years before 17 December 2010 and the subsequent chain of events his act set off in Tunisia – and later on across the Arab world – are profoundly grasped by historians and social scientists. The man and the act spawned a hugely unprecedented movement, forever

altering the Arab political landscape.' Parliamentary elections in Tunisia and Egypt in 2014 were peaceful and marked a significant milestone in the political transition to democracy, although there is continuing armed conflict in Libya.

34. THE INVENTION OF THE CREDIT CARD IN 1950

The idea of a payment card that could be used at multiple locations, and which was operated by a middleman between companies and their customers, was invented in 1950. Until then, individual retailers – such as large department stores – would offer charge accounts for their customers which could be accessed by a loyalty card. The first Diners Club credit cards were given out in 1950 to 200 people, and were accepted by 14 restaurants in New York. It was joined in 1958 by American Express, which was the first to use plastic in their material instead of paper or cardboard. The Barclaycard, launched in 1966, was the first all-purpose credit card scheme to be operated by a British bank. Two particular challenges it faced were overcoming the attitude that credit cards were 'undesirable American influences'; and the widely held view that the credit card was an inflationary system that encouraged people to spend money they did not have.

35. THE INVENTION OF THE LASER

The process of light amplification by the stimulated emission of radiation was first mooted by Albert Einstein in 1917, but it was not until 1960 that scientists were able to develop the first functioning laser.

The laser differs from other sources of light because it emits light coherently, allowing extremely narrow and precise



Barclaycard advert, 1960s

focus and over a long distance. It is used in fibre optic communication, CD players, bloodless surgery, dentistry, welding, fingerprint detection, missile guidance systems, spectroscopy, fluorescence microscopy, printing, barcode scanning and cellulite reduction.

36. THE INDEPENDENCE OF FORMER COLONIES OF EUROPEAN POWERS

There was no one single process of post-war decolonisation. In some areas, it was peaceful, and orderly. In many others, independence was achieved only after a protracted revolutionary struggle. Some acquired stable governments almost immediately; others were ruled by dictators or military juntas for decades, or endured long civil wars.

In 1946, there were 35 member states in the United Nations; as newly independent nations joined the organisation, this number swelled to 127 by 1970. The majority of the new members had a few characteristics in common: they were non-white, with developing economies, facing internal problems that were the result of their colonial past, which sometimes put them at odds with European countries and made them suspicious of European-style governmental structures, political ideas, and economic institutions. A significant number became ideological battlegrounds in the Cold War between the US and the Soviet Union, with the widespread use of aid packages, technical assistance and sometimes even military intervention.

The unravelling of empires and the creation of a swathe of new countries, some of which occupied strategic locations, others of which possessed significant natural resources, and many of which were desperately poor,

forever altered the balance of power within the United Nations and the political complexity of every region of the globe.

37. THE COLD WAR, FROM THE 1940S TO THE 1990S

The Cold War split the temporary wartime alliance against Nazi Germany, leaving the USSR and the US as two superpowers with deep-seated economic and political differences. In truth, though, tensions between the Russian Empire, other European countries and the United States dated back to the middle of the 19th century, and in the mid-1920s Joseph Stalin was already describing a bipolar world of socialist and capitalist countries.

Its defining features included the threat of nuclear war and the accompanying doctrine of mutually assured destruction; the rise of the military-industrial complex that thrived on such a threat; the creation of the CIA; the NATO alliance; the Berlin Wall; the 1956 Hungarian Uprising; the Cuban missile crisis; the Soviet crushing of the 'Prague Spring' in 1968; proxy wars in countries such as Korea, Vietnam and Afghanistan; competition for influence in Latin America, the Middle East and the newly independent countries of Africa; psychological warfare, propaganda and espionage; and technological competition such as the Space Race.

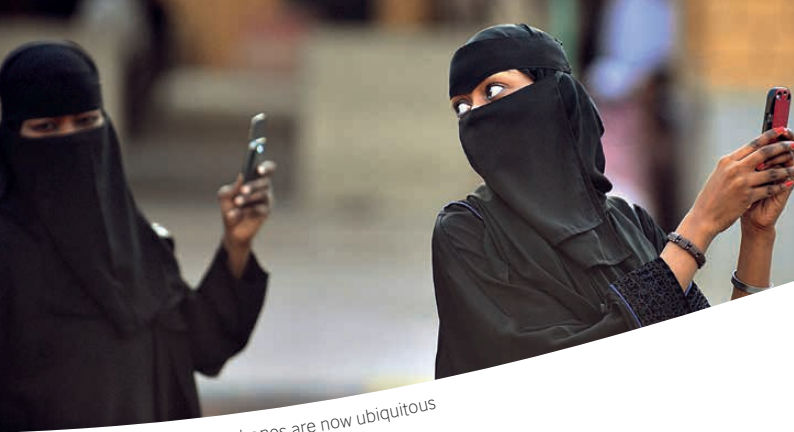
East-West tensions subsided through the mid-to-late 1980s, culminating in START, the most significant nuclear arms reduction treaty, signed in 1991. With President Gorbachev's liberalising reforms of *perestroika* ('reorganisation') and *glasnost* ('openness'), the debilitating cost to the Soviet economy of the arms race, and pressure for democratisation in Eastern Europe, the Cold War was effectively over.

38. THE DEVELOPMENT OF OPEN SOURCE SOFTWARE AND OPEN LICENCE

The licences for most software packages are designed to take away the purchaser's freedom to share and change it. By contrast, open source software and computer code can be freely used, changed, and shared by anyone. It is typically produced collaboratively: programmers improve and share the source code and allow others to improve it further, and the right to do so is often protected and guaranteed under a GNU General Public License. (The GNU Project was conceived in 1983 as a way of bringing back the co-operative spirit that prevailed in the computing community in earlier days – to make co-operation possible once again by removing the obstacles to co-operation imposed by the owners of proprietary software.) The underlying principle has since spread into different fields, from discovering new drugs to content production on Wikipedia.

39. THE INVENTION OF THE CT SCANNER

The CT (computerised tomography) scan was invented by Sir Godfrey Hounsfield FRS in the early 1970s at the EMI Laboratories in England. The technology uses x-rays and computer imaging to create cross-sectional slices of the body. It ushered in a new age in medicine and diagnosis as the images provided extremely high detail at the specific location, or slice, of body structures such as bones, soft tissue, brain, organs and blood vessels. It introduced the concepts of digital data acquisition, sophisticated interactive display systems and powerful image processing to *in vivo* biological studies. Hounsfield first practised 'on a brain of a cow my colleague got from a kosher house



Digital camera-phones are now ubiquitous

on the other side of London', and submitted his own head for the first human trials. For this work, the self-taught Hounsfield (he never went to university) shared the 1979 Nobel Prize for Physiology or Medicine with the South African scientist Allan Cormack.

40. CHINA'S HOSTING OF THE 2008 OLYMPICS

The announcement in 2001 that Beijing would host the 2008 Olympic Games, building on 30 years of economic reform and gradual opening out to the West, marked China's emergence as a major global player. The Beijing Games were to be an important political test for Xi Jinping, at the time China's leader-in-waiting, who took personal charge of preparations. As an exercise in public diplomacy, despite controversies and setbacks this was to be a resounding success for him, helping to project a successful national brand image of China as an emerging global power. The Games left behind a legacy of a transformed Beijing – symbolised by the National Stadium, nicknamed the 'Bird's Nest', and the National Swimming Centre, known as the 'Water Cube' – and an improved environment and better reputation for business and tourism. During the Games themselves, Tajikistan, Afghanistan, Mauritius and Togo all experienced podium finishes for the first time; athletes from Mongolia and Panama achieved their countries' first Olympic gold medals; Michael Phelps bettered Mark Spitz's achievement at the 1972 Munich Games by claiming eight swimming gold medals; and the incredible Jamaican sprinter Usain Bolt broke both the 100 metre and 200 metre world records and claimed a third gold and world record with the Jamaican 4x100 metre relay team.

41. THE INVASION OF IRAQ IN 2003 WHICH DEPOSED THE GOVERNMENT OF SADDAM HUSSEIN

The 2003 invasion of Iraq lasted from 19 March to 1 May 2003. It consisted of 21 days of major combat operations, in which a combined force of troops from the United States, the UK, Australia and Poland invaded Iraq and deposed the Ba'athist government of Saddam Hussein. The invasion phase concluded with the capture of the Iraqi capital Baghdad by American forces. According to US President George W Bush and British Prime Minister Tony Blair, the coalition mission was 'to disarm Iraq of weapons of mass destruction, to end Saddam Hussein's support for terrorism, and to free the Iraqi people.' Saddam Hussein was captured in December 2003, put on trial for crimes against humanity, and hanged three years later.

The invasion was strongly opposed by some long-standing US allies, including the governments of France, Germany and New Zealand. Opponents of military intervention criticised the decision to invade Iraq along a number of lines, including calling into question the evidence used to justify the war and warning that it could potentially destabilise the surrounding region.

42. THE INVENTION OF THE DIGITAL CAMERA

The world's first digital camera was invented in 1975 by Steven Sassoon, an engineer at Eastman Kodak. This so-called 'portable' digital device, the size of a domestic toaster, weighed 8lbs (3.6kg) and was powered by 16 nickel cadmium batteries. It used a lens from a Super-8 movie camera and the image was recorded onto a digital cassette recorder (a process which reportedly took 23 seconds).


George Eastman's US\$1 Brownie camera had turned photography into a hobby for the masses back at the beginning of the 20th century. From his intention 'to make the camera as convenient as the pencil' he developed a global, instantly recognisable, multi-billion dollar business, Kodak, characterised by the slogan 'You press the button, we do the rest'. Sassoon's invention was a classic example of disruptive innovation: creating a new market and value network, eventually disrupting an existing market and value network, and displacing an earlier technology. In 1976 Kodak accounted for 90 per cent of film and 85 per cent of camera sales in America. In January 2012 it filed for bankruptcy protection but has survived the digital revolution with plans to continue as a smaller digital imaging company.

43. THE LONG MARCH (1934–35)

This began the ascent to power of Mao Zedong and the Chinese Communist Party. It was in fact three military retreats, rather than one single march, undertaken by the First, Second and Fourth Red Armies to escape from the Kuomintang (Chinese Nationalist Party) army.

The year-long march by the First Red Army, the most well-known, was from Jiangxi province in the south-east of the country through western China, and then north to Shaanxi, where all three armies linked up once again. The Communists, under the eventual command of Mao Zedong and Zhou Enlai reportedly travelled over 6,000 miles, crossing 18 mountain ranges. Of the original 87,000 who set out, only 10,000 survived.

The Long March decisively established Mao's leadership of the Chinese Communist Party. It enabled the Red



After the tsunami: Banda Aceh, Indonesia

Army to reach a base area in Yan'an, beyond the direct control of the Nationalists, from where they grew in strength and eventually defeated the Nationalists in the struggle to control mainland China.

44. THE CREATION OF THE EUROPEAN UNION AND THE PROCESS OF INTEGRATION WHICH FOLLOWED

The European Union is a political and economic union intended to draw a line under the series of frequent, bloody conflicts that had characterised Europe in the years leading up to the Second World War. The brainchild of the political economist Jean Monnet and the then French Foreign Minister, Robert Schuman, it started life in 1951 as the European Coal and Steel Community. Monnet and Schuman believed that uniting the coal and steel industries – essential for the production of munitions – across France and Germany under an innovative supranational system would ‘make war not only unthinkable but materially impossible.’ The ECSC also included Belgium, Italy, Luxembourg and the Netherlands.

The same six countries signed the Treaty of Rome (1958) which established the European Economic Community with four basic principles (the ‘four freedoms’): free movement of labour; capital, goods, and services.

A succession of further treaties led to closer European political integration, including a wider trade remit, a single currency, and in areas such as justice, home affairs and foreign and security policy. Two treaties in particular triggered a strong public response in the UK and elsewhere. The 1993 Maastricht Treaty turned the European Community into the European Union and expanded the Union’s policy remit

significantly. Amongst other things, it led to the creation of the euro. The 2004 proposed Constitutional Treaty sought to replace previous treaties with a single foundational document for the EU but was rejected by French and Dutch voters. The Lisbon Treaty, which amended rather than replaced all earlier treaties, was subsequently adopted in 2009.

Through progressive rounds of enlargements, membership of the union has developed into what we now know as the EU. It currently consists of 28 states: the original six plus Denmark, Ireland, the UK, Greece, Spain, Portugal, Austria, Finland, Sweden, the Czech Republic, Cyprus, Estonia, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia, Slovakia, Bulgaria, Romania and Croatia. Current ‘candidate’ countries hoping to join are Turkey, Iceland, Montenegro, Serbia and the Former Yugoslav Republic of Macedonia.

45. THE GLOBAL POPULARITY OF FOOTBALL AND THE WORLD CUP

The history of football dates back to at least the eighth century AD. The modern rules of the game are based on mid-19th century efforts to standardise the widely varying forms in which it was played in the public schools of England. It is the one sport that has overwhelming global appeal, transcending national, cultural, religious and gender boundaries, as well as socio-economic class. Football’s governing body, FIFA, estimated that at the turn of the 21st century approximately 250 million people (including 30 million women) were playing football on a regular basis. The World Cup is the most widely viewed sporting event in the world: over one billion people around the world watched the 2014 final between Germany

and Argentina including, in Germany, an all-time-high audience of 41.89 million (an 86.3 per cent share).

46. THE 2004 TSUNAMI IN THE INDIAN OCEAN

Tsunami is a Japanese word from a double root: tsu, meaning port or harbour, and nami, meaning wave. The word looks innocuous in simple translation, but to those who live on the rim of the Pacific or Indian Oceans it can spell disaster.

On 26 December 2004, off the coast of Sumatra, an undersea earthquake caused a 750-mile section of the Earth’s crust to jolt upwards by about 30 feet, displacing hundreds of cubic kilometres of water. The energy released was estimated to be equivalent to 26 megatons of TNT, more than 1,500 times powerful than the Hiroshima atomic bomb. It was the third largest earthquake ever recorded on a seismograph.

In deep water waves travel quickly, but remain low. On reaching shallower water their height increases. This tsunami reached speeds of up to 500mph and heights of almost 100 feet. The Nicobar and Andaman Islands were the first coastlines to be hit, less than ten minutes after the initial quake. The tsunami reached Thailand and Sri Lanka after two hours, and Somalia after seven hours. The wave spread around the world, with tidal fluctuations being recorded as far away as Iceland and the Eastern United States. Indonesia suffered the greatest number of casualties, with an estimated loss of nearly 168,000 people, and more than half a million people left homeless. Some 275,000 people were killed in 14 countries.

About US\$14 billion was raised internationally for disaster relief. The scale of the generous public response was unprecedented, not only in the amount of money raised but also in the proportion of funding from the general public, and the speed with which money was pledged or donated.

47. THE CREATION OF WIKIPEDIA IN 2001

Wikipedia, a free, open-source, collaborative encyclopedia, was launched by Jimmy Wales and Larry Sanger in January 2001 and is now the sixth-most popular website and constitutes the internet's largest and most popular general reference work. As of February 2014, it had 18 billion page views and nearly 500 million unique visitors each month. It is supported and hosted by the non-profit Wikimedia Foundation.

In a 2004 interview, Wales outlined his vision for Wikipedia: 'Imagine a world in which every single person on the planet is given free access to the sum of all human knowledge. That's what we're doing.' Sanger coined its name, a portmanteau of wiki (from the Hawaiian word for 'quick') and encyclopedia. Although Wikipedia's content was initially only in English, it quickly became multilingual, through the launch of versions in different languages. The English Wikipedia is now one of more than 200 Wikipedias, but remains the largest one, with over 4.6 million articles.² The vast majority of the top 100 websites on the world wide web are run by corporations. The only real exception is Wikipedia.

48. THE ASSASSINATION OF US PRESIDENT KENNEDY

On 22 November 1963, John F Kennedy was hit in the head and throat when three shots were fired at his open-topped car. The presidential motorcade was travelling through the main business area of Dallas, Texas. He died in hospital shortly afterwards. Ninety minutes later, Lyndon B Johnson was sworn in on board Air Force One as the 36th President of the United States. Standing dignified at his side, Jacqueline Kennedy faced slightly away from the camera so that bloodstains on her pink Chanel suit would not be visible.

Perhaps for the first time, mass media was capable of uniting the world in instant shock and disbelief at a life cut short. He had inspired a generation, and the grief that many felt was for the sudden loss of a sense of hope, ambition and possibility. Almost everyone of that generation is able to say where they were when they heard Kennedy had been shot. The suspected gunman, Lee Harvey Oswald, was never tried as he was shot dead himself two days later by nightclub owner Jack Ruby.

The Warren Report, commissioned to investigate the President's death, concluded he had been killed by shots fired by Mr Oswald, but conspiracy enthusiasts quickly turned the assassination into one of the most disputed events in modern history. Why Oswald shot Kennedy, and whether he acted alone or was part of a wider conspiracy, has been the subject of official inquiries and countless films, books, and newspaper and magazine articles over the past 50 years.

49. THE INFLUENCE OF THE AMERICAN SINGER MICHAEL JACKSON

Michael Jackson (1958–2009) morphed from a lovable, pint-sized pre-teen with a puffy Afro and an electric voice into a superstar whose eccentricities drove one tabloid headline after another. But like Elvis and Bob Dylan before him, Jackson reshaped pop culture and influenced just about every popular musician who came after him in one way or another.

50. THE LIVE AID CONCERT IN 1985

Live Aid was a dual-venue concert held on 13 July 1985, organised by Bob Geldof and Midge Ure to raise funds for relief of the famine in Ethiopia. Billed as the 'global jukebox', the event was held simultaneously in London and Philadelphia, with concerts inspired by the initiative taking place in other countries such as Australia and Germany. The event was the most ambitious international satellite television venture that had ever been attempted: an estimated global audience of 1.9 billion, across 150 nations, watched the live broadcast. It is estimated that around £150 million was raised for famine relief as a direct result of the concerts.

On its 20th anniversary a further set of concerts, known as Live 8, was held in support of the UK's Make Poverty History campaign and the Global Call for Action Against Poverty. More than 1,000 musicians performed at the concerts, which were broadcast on 182 television networks and 2,000 radio networks.

2. Source: Wikipedia.

51. THE BRETTON WOODS AGREEMENT

In 1944, with the end of the Second World War in sight, 730 delegates from all 44 Allied nations met at a hotel in New Hampshire, USA. The meeting was held in an attempt to 'outlaw practices which are agreed to be harmful to world prosperity'. In short, an international banking system was to be established. Following this meeting, the International Monetary Fund (IMF) was founded, all currencies were required to be convertible for trade, and exchange rates were modified so that one nation would not be favoured over another. The ideas founded at this conference led to the development of the World Bank.

52. GREATER EQUALITY IN MANY PARTS OF THE WORLD FOR GAY AND LESBIAN PEOPLE

A turning point for gay liberation came on 28 June 1969, when patrons of the Stonewall Inn in New York's Greenwich Village fought back against years of ongoing police harassment, humiliation, brutality and entrapment tactics. In the words of one participant, 'it was total outrage, anger, sorrow, everything combined... There was something in the air, freedom a long time overdue, and we're going to fight for it. It took different forms, but the bottom line was, we weren't going to go away. And we didn't.' Stonewall has been commemorated ever since with 'Pride marches' held every June. It was the drag queens who led the spontaneous uprising against the police at Stonewall, and it is they who traditionally lead the New York march.

The gay liberation movement that then emerged in the 1970s saw myriad political organisations spring up in Britain, the US and other parts of the world, and the last decade of the 20th century heralded a new era of gay celebrity power and media visibility. At the same time a quieter gay rights battle was being won in the workplace: a growing number of companies today are paying attention to treating their lesbian, gay, bisexual, and transgender (LGBT) employees the same way as their straight peers. Same-sex civil unions or civil partnerships are now possible in Australia, Finland, several central European and central American countries; and same-sex marriage has become legal in Argentina, Belgium, Brazil, Canada, Denmark, France, Iceland, the Netherlands, New Zealand, Norway, Portugal, Spain, South Africa, Sweden, various US states and the UK. But there is a long way to go: homosexuality remains illegal in 40 of the 53 Commonwealth countries.

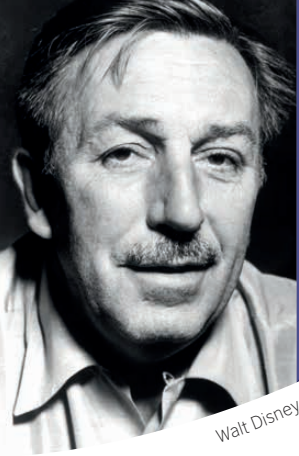
Live Aid concert, Wembley Stadium, London 1985





People celebrating World Pride in London, 2012





Walt Disney

53. THE INFLUENCE OF WALT DISNEY ON CINEMA AND POPULAR CULTURE

Walt Disney (1901–66) was an American business magnate, animator, cartoonist, producer, director, screenwriter, philanthropist and voice actor. With his brother Roy he founded Walt Disney Productions, which later became one of the most powerful film production companies in the world. He and his staff created some of the world's best-known fictional characters including Mickey Mouse, for whom Disney himself provided the original voice. During his lifetime he won 22 Oscars from a total of 59 nominations, including a record four in one year, giving him more awards and nominations than any other individual in history.

54. THE GULF WAR, 1990–91

On 2 August 1990, after weeks of sabre-rattling, Iraq bombed Kuwait City and launched a ground invasion with 120,000 troops, putting its army within easy striking distance of Saudi oil fields. US President George HW Bush sent troops to Saudi Arabia at the request of King Fahd and Saddam Hussein responded by declaring Kuwait to be Iraq's 19th province.

These events followed the bloody and prolonged Iran–Iraq war (1980–88) which had left Iraq with some US\$80 billion worth of debts, mainly to Kuwait and Saudi Arabia. Iraq pressured both nations to forgive the debts, but they refused. Over-production by Kuwait and UAE drove down the price of oil, with a devastating effect on Iraq's attempts to rebuild its war-ravaged infrastructure.

After a series of UN Security Council and Arab League resolutions,

a coalition of forces from 34 countries opposing Iraq's aggression was formed, the largest coalition since the Second World War. On 16 January 1991 a massive air campaign was launched. The main targets were military, but the Iraqi capital Baghdad was heavily hit and there were many civilian casualties. After six weeks of intense bombing and a three-day ground campaign, much of it heavily televised (thanks to new satellite technology), Iraqi troops retreated from Kuwait. There was some criticism of the Bush administration, which chose to allow Saddam to remain in power instead of pushing on to capture Baghdad and overthrow his government, but there were persuasive arguments that this would have breached the UN mandate and fractured the coalition, and would have had considerable human and political costs associated with it.

55. SOUTH AFRICA WINNING THE RUGBY WORLD CUP IN 1995

The Rugby World Cup was the first major sporting event to take place in South Africa following the end of apartheid. On the day of the final, President Nelson Mandela chose to wear the Springbok jersey, regarded by some as the ultimate symbol of the regime that had imprisoned him. 'When Nelson Mandela walked into the changing room wearing that Springbok rugby jersey,' said the winger Chester Williams, 'it was done. We had to win that game. Everybody expected him to wear a suit and tie. It changed the attitude and spirit of the team – and it changed the whole mind-set of the nation.' South Africa defeated New Zealand 15–12, with Joel Stransky scoring a drop goal in extra time to win the match. The achievement of Francois Pienaar and his teammates

stretched far beyond normal sporting boundaries. As Pienaar said at the end of the game, 'We did not have 63,000 fans behind us today; we had 43 million South Africans.' Nelson Mandela later became a godfather to Pienaar's son and the two men remained life-long friends.

56. THE GROWTH OF LOW-COST AIR TRAVEL

Regional airlines in the US built the low-cost model in the 1970s: they held down maintenance and training costs by using just one kind of aircraft, bought in large numbers with bulk discounts, and charged for, or did away with, 'extras' like meals, drinks and reclining seats. Their planes used smaller airports with lower landing charges, and with quick turnarounds could spend less time on the ground and more time in the air. Laker Airways, the first to offer a no-frills transatlantic service, was undone by the recession of the early 1980s and by predatory competitors, but in Europe three other airlines led the way. Ryanair began in 1985 with a 15-seat turboprop aircraft flying between Waterford on the south coast of Ireland and London Gatwick, Air Berlin grew in the 1980s out of a charter airline, and Easyjet followed ten years later with two routes, Luton to Glasgow and Luton to Edinburgh. All three took full advantage of booming consumer demand, the arrival of internet booking and the deregulation of the European aviation industry, and their low-cost operations currently embrace 186, 150 and 140 destinations respectively.

57. THE DESIGNATION OF WORLD HERITAGE SITES BY UNESCO, WHICH BEGAN IN 1972

UNESCO's World Heritage Programme was established in 1972 and has been ratified by 191 countries. It catalogues, names, and conserves sites of outstanding cultural or natural importance (these may be a forest, mountain, lake, island, desert, monument, building, complex, or city). Over 1,000 sites are currently listed including Angkor in Cambodia; Ilulissat Icefjord on the west coast of Greenland; the Old Walled City of Shibam (Yemen) and the Old City of Dubrovnik (Croatia); and the Ngorongoro Conservation Area in Tanzania, which has the largest concentration of wild animals in the world.

The genesis of the programme was in 1954 when the government of Egypt decided to build the Aswan Dam, which would deluge a valley containing treasures of ancient Egypt such as the Abu Simbel temples. A worldwide safeguarding campaign led by UNESCO, in which the Abu Simbel and Philae temples were taken apart, moved to a higher location, and put back

together piece by piece, led to similar campaigns, saving Venice and its lagoon in Italy, the ruins of Mohenjodaro in Pakistan, and the Borobudur Temple Compounds in Indonesia.

58. THE ESTABLISHMENT OF THE PARALYMPIC GAMES

On 29 July 1948, the day of the Opening Ceremony of the London 1948 Olympic Games, the neurologist Dr Ludwig Guttmann organised the first competition for wheelchair athletes, at the National Spinal Injuries Centre which he had established at Stoke Mandeville Hospital in the English countryside. In 1952, the International Stoke Mandeville Games were founded and grew into the Paralympic Games which were first held in Rome in 1960 and featured 400 athletes from 23 countries. The Games are now the second biggest sporting event in the world. Professor Sir Ludwig 'Poppa' Guttmann FRS, a pre-war refugee from Nazi Germany, died in 1980 at the age of 80.

59. GEORGE ORWELL'S NOVEL NINETEEN EIGHTY-FOUR

George Orwell, novelist, essayist, journalist and polemicist, was one of the most admired and controversial writers of modern times. His 1945 novel *Animal Farm*, based on Stalin's betrayal of the Russian Revolution, made his reputation; *Nineteen Eighty-Four*, set in an imaginary totalitarian future, cemented it. It opens with the line 'It was a bright cold day in April, and the clocks were striking thirteen.' Originally titled *The Last Man In Europe*, it tells the story of Winston Smith, an everyman for his times, and was described by Orwell's publisher, when he received the manuscript, as 'amongst the most terrifying books I have ever read'. The adjective 'Orwellian' derives from this book alone and Orwell's belief that wellbeing is crushed by restrictive, authoritarian and untruthful government. The Big Brother state which he describes aims at nothing less than the control of language and thought. According to the slogans repeated by the Ministry of Truth, 'War is Peace, Freedom is Slavery, Ignorance is Strength.' Deprive people of the words with which to resist, Orwell told us, and you will crush resistance. In increasingly poor health as he struggled to finish the novel, Orwell died seven months after it was published.

The Stoke Mandeville Games, the precursor to the Paralympic Games, Photo courtesy of WheelPower





The first cloned sheep, Dolly with her lamb Bonny. Photo courtesy of The Roslin Institute, The University of Edinburgh

60. THE FIRST SUCCESSFUL CLONING OF A MAMMAL, IN 1996

Dolly, who was named after the singer Dolly Parton and had three mothers, was born on 5 July 1996 and died from a progressive lung disease five months before her seventh birthday. Known as the world's most famous sheep, she was the first mammal to be cloned from an adult somatic cell, by scientists at the Roslin Institute, part of the University of Edinburgh. Of her mothers, one provided the egg, another the DNA and a third carried the cloned embryo to term. She had six lambs: Bonnie, the twins Sally and Rosie, and the triplets Lucy, Darcy and Cotton. Dolly represents one of the most important milestones in the history of animal cloning, as it proves that cloning of adult animals is possible.

61. THE CREATION IN 1969 OF THE OPEN UNIVERSITY IN THE UK, THE WORLD'S FIRST SUCCESSFUL 'DISTANCE TEACHING' UNIVERSITY

In 1969, when only five per cent of Britons went on to higher education and more than half of UK employees had no qualifications, the Open University was a hugely innovative idea. It had no entry requirements. It welcomed part-time and mature students. It was 'open', and meant it. Prime Minister Harold Wilson described its creation as the greatest achievement of his premiership.

The concept of distance learning, powered and supported by radio and television, was revolutionary. Today, in the age of the internet and MOOCs, with a huge and growing global market for education, driven by a young population in the developing world and an increasing commitment to lifelong learning in the developed world, it is easy to forget the trail the Open University blazed.

It is now the largest academic institution in the United Kingdom (and one of the largest in Europe) by student number. Since it was founded, more than 1.5 million students have studied its courses, and it was rated the top university in England and Wales for student satisfaction in 2005, 2006 and 2012.

62. DAW AUNG SAN SUU KYI

In the 1990 Burmese general election the party which Aung San Suu Kyi had founded, the National League for Democracy, won 59 per cent of the national vote and 81 per cent of the seats in Parliament. Daw Suu Kyi, however, had already been detained under house arrest before the elections, as someone 'likely to undermine the community peace and stability' of the country. She remained under house arrest for almost 15 years between 1989 and 2010, becoming in the process one of the world's most prominent political prisoners. She became an international symbol of peaceful resistance in the face of oppression and was awarded the Nobel Peace Prize in 1991. In her acceptance speech, delivered in Oslo two decades later, Daw Suu Kyi spoke of the virtue of kindness:

'Of the sweets of adversity, and let me say that these are not numerous, I have found the sweetest, the most precious of all, is the lesson I learnt on the value of kindness. Every kindness I received, small or big, convinced me that there could never be enough of it in our world. To be kind is to respond with sensitivity and human warmth to the hopes and needs of others. Even the briefest touch of kindness can lighten a heavy heart. Kindness can change the lives of people.'

In 2012 Daw Suu Kyi was elected to the lower house of the Burmese parliament, and intends to stand in the presidential elections in 2015.

63. THE INVENTION OF THE INSTANT NOODLE

In 1958 Taiwan-born Momofuku Ando invented the instant noodle in Japan. It was first marketed in 1958 by his company Nissin, under the brand name Chikin Ramen. By 2013 the global demand for instant noodles had reached 105 billion packets. The Momofuku Ando Instant Ramen Museum in Osaka includes a recreation of the garden shed in which he carried out his research and created a new food culture.

64. THE ADOPTION OF THE EIGHT MILLENNIUM DEVELOPMENT GOALS (MDGS)

In 2000, 191 nations made a promise to free people from extreme poverty and deprivation. This pledge turned into the eight Millennium Development Goals which embody basic human rights – the rights of each person on the planet to health, education, shelter and security.

The MDGs – which range from halving extreme poverty rates to halting the spread of HIV/AIDS and providing universal primary education, all by the target date of 2015 – form a blueprint agreed to by all the world's countries and all the world's leading development institutions. They have galvanised unprecedented efforts to meet the needs of the world's poorest. The UN is also working with governments, civil society organisations and other partners to build on the momentum generated by the MDGs and carry on with an ambitious post-2015 development agenda.



Daw Aung San Suu Kyi at the British Council, London, October 2013



Global trade is dependent on the unglamorous shipping container

65. DISCOVERY OF THE FOSSIL 'AUSTRALOPITHECUS SEDIBA' IN 2008 IN SOUTH AFRICA

The fossil skeletons of *Au. sediba* were discovered at the Cradle of Humankind World Heritage Site near Johannesburg. The six skeletons – a juvenile male, an adult female, an adult male and three infants – were found together at the bottom of the Malapa Cave, where they apparently fell to their death, and have been dated to almost two million years ago. The remains were unusually complete, and through a combination of high resolution scans and precision measurements of the skull, pelvis, hand and foot, scientists have argued that *Au. sediba*, was an immediate ancestor of *Homo erectus*, the ancient form from which modern humans arose.

66. THE AMERICAN ATHLETE JESSE OWENS

Jesse Owens was described by the *New York Times* as 'perhaps the greatest and most famous athlete in track and field history'. His 1935 achievement of setting three world records and tying another in less than an hour has never been equalled. At the 1936 Olympics in Berlin, he won four gold medals, in the 100 metres, 200 metres, long jump, and 4x100 metre relay. He was the most successful athlete at the games. In the words of the American sportswriter Larry Schwartz, 'When Owens finished competing, the African-American son of a sharecropper and the grandson of slaves had single-handedly crushed Hitler's myth of Aryan supremacy.'

67. THE WORK AND INFLUENCE OF THE JAPANESE FILM DIRECTOR AKIRA KUROSAWA

Akira Kurosawa (1910–98) is regarded as one of the most important and influential film-makers in the history of cinema,

and directed 30 films in a career spanning 57 years. His multi-perspective drama *Rashomon* became the surprise winner of the Golden Lion at the 1951 Venice Film Festival. Its subsequent commercial and critical success opened up Western film markets for the first time to the wealth of Japanese films that already existed, which in turn led to international recognition for other Japanese film-makers. Kurosawa's best-known films are his samurai epics *Seven Samurai* and *Yojimbo*. His mix of Eastern and Western styles and stories had a massive impact on other directors, including Steven Spielberg and George Lucas. In 1990, he received the Academy Award for Lifetime Achievement.

68. THE ACHIEVEMENTS OF THE CHINESE BASKETBALL PLAYER YAO MING

Shanghai-born Yao Ming played for the Houston Rockets of the National Basketball Association in the USA. He was the first overall draft pick of 2002, the most coveted of all the new players joining the league that year: a previously unimaginable achievement for a Chinese athlete. Following in the footsteps of American sporting giants like 'Magic' Johnson and Shaquille O'Neal, in nine years with the Rockets the 7ft 6in Yao became a star in his own right and one of the most famous people in China.

69. THE DEVELOPMENT OF THE SHIPPING CONTAINER

The shipping container has all the romance of a tin can but it made shipping cheap, and by doing so changed the shape of the global economy.

Until the middle of the 20th century most ship-borne cargo was loaded and unloaded by dockers on the quayside and stevedores working on the ships,

also known as longshoremen in the United States, or 'wharfies' in Australia. An American transport entrepreneur, Malcom McLean, is credited with introducing the concept of the container in 1956. At a stroke he created huge increases in port and ship productivity. By making shipping so cheap that industry could locate factories far from its customers, the container paved the way for Asia to become the world's workshop and brought consumers a previously unimaginable variety of products from around the world. The container transformed economic geography, devastating traditional ports and fuelling the growth of previously obscure ones such as Tanjung Pelepas in Malaysia and Yingkou in north-east China.

70. THE ACHIEVEMENTS AND INFLUENCE OF THE CHAMPION BOXER MUHAMMAD ALI

Muhammad Ali, born Cassius Marcellus Clay, is one of the greatest heavyweights in the history of boxing. A controversial and polarising figure during his early career, Ali is today widely regarded not only for the skills he displayed in the ring but also the values he exemplified outside of it: religious freedom, racial justice and the triumph of principle over expedience. He is one of the most recognised sports figures of the past 100 years, crowned 'Sports Personality of the Century' by the BBC. He transformed the role and image of the African American athlete by his embrace of racial pride and his willingness to antagonise the white establishment in doing so. In the words of the writer Joyce Carol Oates, he was one of the few athletes in any sport to completely 'define the terms of his public reputation.' *New York Times* columnist William Rhoden wrote, 'Ali's actions changed my standard of what constituted an athlete's greatness. Possessing a killer



Guernica, in the Museo Reina Sofia

jump shot or the ability to stop on a dime was no longer enough. What were you doing for the liberation of your people? What were you doing to help your country live up to the covenant of its founding principles?

71. THE WORK AND INFLUENCE OF THE ARTIST PABLO PICASSO, 1881–1973

Picasso's painting *Guernica* is perhaps his most famous work and certainly his most powerful political statement. It was created in response to the bombing of Guernica, a Basque Country village in northern Spain, by German and Italian warplanes at the behest of the Spanish Nationalist forces on 26 April 1937 during the Spanish Civil War. The painting shows the tragedies of war and the suffering it inflicts upon individuals, particularly innocent civilians. It has gained a monumental status, becoming a perpetual reminder of the tragedies of war, an anti-war symbol, and an embodiment of peace. Painted in Paris in 1937, it now hangs in the Museo Reina Sofia in Madrid, Spain's national museum of 20th century art.

72. THE PROTEST SONG 'WE SHALL OVERCOME'

The song was popularised by the American folk singer Pete Seeger in 1963 and became an anthem of the African-American Civil Rights Movement. The title and structure of the song are derived from an early gospel song, 'I'll Overcome Someday', by African-American composer Charles Albert Tindley. Seeger and others, such as Joan Baez, sang the song at rallies, folk festivals, and concerts around

the country. With its strong emotional appeal and simple dignity, it has been used in a variety of protests worldwide.

73. THE ACHIEVEMENTS AND INFLUENCE OF THE NORWEGIAN ATHLETE GRETE WAITZ

Grete Waitz achieved an iconic status in women's distance running, winning the World Marathon title in 1983, the New York Marathon nine times, the London Marathon twice, and the World Cross Country Championship on five occasions. Without fanfare she inspired women at all levels of ability to become runners. 'She was the first world-class distance runner and she opened the doors for everyone. If it wasn't for Grete, women's distance running would not be where it is now,' said Liz McColgan, herself a winner of the New York and London marathons.

74. THE WORK AND INFLUENCE OF ANDY WARHOL

Andy Warhol (1928–87) was a film-maker, photographer, painter, commercial illustrator, music producer, writer, and even fashion model. The world of pop art that engaged him was distinctly American and reflected the burgeoning commercialism and vitality of America after the Second World War. He challenged traditional boundaries between art and life, art and business, and between different media. In the process he turned everyday life into art and art into a way to live the everyday. As the Warhol Museum puts it, perhaps his greatest innovation was that he saw no limits to his practice: 'His Pop sensibility embraced an anything-can-be-art approach – appropriating images, ideas and even innovation itself.'

75. THE FOUNDING AND LASTING INFLUENCE OF AMNESTY INTERNATIONAL

After learning of two Portuguese students imprisoned for raising a toast to freedom in 1961, British lawyer Peter Benenson published an article, 'The Forgotten Prisoners' in the *The Observer* newspaper. That article launched the 'Appeal for Amnesty 1961', a worldwide campaign that provoked a remarkable response. Reprinted in newspapers across the world, his call to action resonated with the values and aspirations of people everywhere. This was the genesis of Amnesty International. Today, with over three million members and activists, it is the world's largest grass-roots human rights organisation. It investigates and exposes abuses, educates and mobilises the public, and helps transform societies to create a safer, more just world. It received the Nobel Peace Prize in 1977 for its campaign against torture.

76. THE INFLUENCE OF THE NEW WAVE

The New Wave (*La Nouvelle Vague*) was a collaborative group of young French film critics in the late 1950s and early 1960s who turned themselves into screenwriters and directors: principally François Truffaut, Claude Chabrol, Jacques Rivette, Eric Rohmer, Jean-Luc Godard, with Andre Bazin of *Cahiers du Cinema* and Henri Langlois of the Cinémathèque Française as their father figures. As with the so-called 'Angry Young Men', the working-class British novelists and playwrights of the late 1950s, they were linked by their rejection of literary period pieces, by their willingness to experiment with form, and to engage with social and political change.



The symbol of Amnesty International

77. WAITING FOR GODOT

Samuel Beckett's play *En attendant Godot* (*Waiting for Godot*) was written between October 1948 and January 1949. It was first staged in 1953 at the Théâtre de Babylone, Paris, directed by Roger Blin. The first English production, of Beckett's own translation, was directed two years later in London by Peter Hall. The durability of the play, with its underlying premise that human life is determined by chance, lies in its ambiguities, its openness to constant interpretation, the fact that it is not limited to a particular place or era, and not least in its enigmatic humour.

78. THE CONTINUING INFLUENCE OF THE NORWEGIAN PLAYWRIGHT HENRIK IBSEN

Ibsen died in 1906 at the age of 78, but his influence can be felt in most of the great 20th century dramatic realists, from Chekhov to Osborne – in particular the psychological depth of his later characters and his constant questioning of moral and political conventions. His earlier,

more impressionistic work, *Peer Gynt*, is arguably one of the sources of both the surrealist and expressionist movements. *A Doll's House* is a powerful critique of how an exclusively male society treated women; and the eponymous heroine of *Hedda Gabler*, remains one of the most celebrated and sought-after female roles in world theatre.

Although most of his plays are set in small coastal communities in Norway, Ibsen wrote in Danish and spent much of his working life in Italy and Germany.

79. WRAPPING THE REICHSTAG, 1995

The artists Christo and Jeanne-Claude were a married couple who created environmental works of art. Their projects included the wrapping of the Pont Neuf bridge in Paris, a 24-mile-long artwork called *Running Fence* in California, and *The Gates* in New York City's Central Park. Although their work is visually impressive and often controversial as a result of its scale, the artists repeatedly denied that their projects contained any deeper meaning than their

immediate aesthetic impact. In 1995, with the support of the President of the Bundestag and following a parliamentary debate, they were permitted to wrap the Reichstag building in Berlin which was undergoing a nine-year period of reconstruction. The wrapping took seven days and required 100,000m² of fireproof polypropylene fabric, covered by an aluminium layer, and 15km of rope. The spectacle was seen by five million visitors.

80. THE WORK AND INFLUENCE OF THE DANCER AND CHOREOGRAPHER PINA BAUSCH

Philippina 'Pina' Bausch (1940–2009) was a German dancer, choreographer, dance teacher and ballet director. With her unique style, a blend of movement, sound, and prominent stage sets, and with her elaborate collaboration with performers during the development of a piece, she became a leading influence in the field of modern dance from the 1970s on. In 2005, the director and performer Neil Bartlett celebrated her work in *The Guardian*: 'No theatre was as brutally or as elegantly in the present tense as Bausch's, no women are more powerful than hers, no men more tender, no steps, slaps, looks or touches were ever as real.'

Wrapping the Reichstag



PANELLISTS' BIOGRAPHIES

ASSIA BENSALAH ALAOUI is Ambassador at large for His Majesty the King of Morocco. She has been a professor of English and of law at Mohammed V University in Rabat. In 2002–03 she co-chaired the EU high-level panel on dialogue between cultures and peoples in the Euro-Mediterranean area, which produced the Prodi Report. Her latest publication is *Climate Change and Arab Food Security*.

NADIA AL-SAKKAF has been Editor in Chief of the *Yemen Times* since 2005 and is active with many organisations defending freedom of expression, human rights and democracy. She has successfully recruited female journalists, who presently represent half of the staff, a gender balance which is an unusual achievement in Yemeni organisations. In 2012 she launched the FM station Radio Yemen Times, the first free platform for public expression.

AYO BAMBOSE was educated at University College, Ibadan and the University of Edinburgh. He is a renowned expert on the importance of language as a significant factor in the realisation of Millennium Development Goals. He is Professor Emeritus at the University of Ibadan. He was awarded the Nigerian National Order of Merit in 1990.

DR TIAN BELAWATI is Rector of Universitas Terbuka (Indonesia Open University). She has been working in the field of distance education since 1985 and is President of the International Council for Open and Distance Education (ICDE).

DAME CLAIRE BERTSCHINGER is Director of Tropical Nursing Studies at the London School of Hygiene and Tropical Medicine. She has worked with the emergency disaster relief group of the International Committee of the Red Cross in over a dozen zones of conflict including Afghanistan, Kenya, Lebanon, Sudan, Sierra Leone, Ivory Coast and Liberia. Her work in Ethiopia in 1984 inspired Band Aid and subsequently Live Aid, the biggest relief programme ever mounted.

DR GRO HARLEM BRUNDTLAND is a former Prime Minister of Norway. She is now an international leader in sustainable development and public health. She is also Deputy Chair of The Elders, and a board member of the UN Foundation. Until 2010 she was a Special Envoy on Climate Change for the United Nations Secretary-General. Dr Brundtland served as the Director General of the World Health Organization from 1998–2003.

PROFESSOR TONY CHAN was appointed President of Hong Kong University of Science and Technology in 2009. His main research interests are in mathematics, computer science and engineering. He is a member of the Board of Trustees of King Abdullah University of Science and Technology in Saudi Arabia, and the President's Advisory Council of the Korea Advanced Institute of Science and Technology.

DR HEESUN CHUNG is one of the world's leading forensic scientists and President of the International Association of Forensic Sciences (IAFS). She is currently Dean of the Graduate School of Analytical Science and Technology at Chungnam National University in Korea, and was recently made an Honorary CBE.



Nadia al-Sakkaf



Dr Tian Belawati



Dr Gro Harlem Brundtland



Professor Tony Chan

ARIEL DORFMAN is an Argentine-Chilean-American novelist, playwright, essayist, academic, and human rights activist. A citizen of the United States since 2004, he has been a professor of literature and Latin American Studies at Duke University, in Durham, North Carolina since 1985.

DR LYKKE FRIIS is Pro-Rector of Copenhagen University and President of the Danish Foreign Policy Society. She was formerly Minister for Climate and Energy (2009–11) and Minister for Equal Rights (2010–11) in the Danish government.

DR SEUNGSOO HAN is a former Prime Minister of the Republic of Korea (2008–09), and is Special Envoy for Disaster Risk Reduction and Water for the UN Secretary-General.

DR NIRMALYA KUMAR is a member of the Group Executive Council of Tata Sons and is responsible for strategy at group level. He was previously Professor of Marketing and Director of the Aditya Birla India Centre at London Business School. He is regarded as one of the world's leading thinkers on strategy and marketing, and his most recent book is *Brand Breakout: How Emerging Market Brands Will Go Global*.

DR ATIA LAWGALI is Chairman of the Libyan National Commission on Civic Education and served as a Deputy Minister of Culture and Civil Society in the Libyan transitional government. During the revolution, he was a member of the executive office of the National Transitional Council.

DR PAUL KAN MAN-LOK CBE developed the world's first Chinese and multilingual wireless communication software in 1987, and has been making significant contributions to the IT industry in both Hong Kong and China for the last 40 years. He is currently Chairman of the Hong Kong Information Technology Industry Council and of the Hong Kong–UK Business Partnership. In 1990, Dr Kan set up the educational and culture charity *A Better Tomorrow*.

JOSEPH V MELILLO has been Executive Producer of the Brooklyn Academy of Music (BAM) in New York since 1999. He has been honoured by the governments of France, Britain, Sweden and Taiwan for his commitment to fostering international relations through the arts.

BRUCE ONOBRAKPEYA is a Nigerian printmaker, painter and sculptor. He has exhibited at the Tate Modern in London, the National Museum of African Art of the Smithsonian Institution in Washington DC and the Malmö Konsthall in Sweden. In 2010 he became the second winner, after Chinua Achebe, of the prestigious Nigerian Creativity Award.



Ariel Dorfman



Dr Lykke Friis



Dr Seungsoo Han



Joseph V Melillo

RITA PAYNE is President of the Commonwealth Journalists Association and editorial director of *Global* magazine. She was previously Asia Editor, BBC World News. She is a member of the London executive committee of the Commonwealth Human Rights Initiative.

SANJOY ROY is a Delhi-based international producer and arts activist, and the founder and Managing Director of Teamwork Arts which has widespread interests in the performing and visual arts, film and television. He runs the Jaipur Literature Festival, and Teamwork currently designs and produces arts festivals in 13 countries around the world.

DR DOROTHEA RÜLAND is Secretary-General of the Deutscher Akademischer Austauschdienst (DAAD), the German national agency for international academic co-operation. She has worked in Thailand and Indonesia, and between 2008 and 2010 was Director of the Centre for International Cooperation, Freie Universität Berlin.

HRH PRINCESS MAHA CHAKRI SIRINDHORN is the second daughter of the King of Thailand. She is closely involved in community and social development in Thailand and elsewhere in South-East Asia. She is currently Head of the Department of History of the Chulachomklao Royal Military Academy.

BONGANI TEMBE is Chief Executive and Artistic Director of the KwaZulu-Natal Philharmonic Orchestra and is widely regarded as one of Africa's leading artists and arts administrators. He studied at the Juilliard School in New York and the London Business School.

DR PAUL THOMPSON is the Rector of the Royal College of Art, the world's oldest art school in continuous operation, and the only art and design university in the UK operating exclusively at postgraduate level. From 2001–09 he was Director of Cooper-Hewitt, Smithsonian Design Museum in New York, and Director of the Design Museum in London from 1993–2001. He is a Trustee of the Victoria and Albert Museum.

XU TONGWU is an Academician of the Chinese Academy of Social Science, the country's highest academic research organisation in the fields of philosophy and social sciences.

YU MINHONG (Michael Yu) is the founder and Chief Executive of New Oriental Education & Technology Group Inc. and a member of the central committee of the China Democratic League. In 2006 New Oriental was the first Chinese private education company to be listed on the New York Stock Exchange, and by 2010 it was the largest private educational enterprise in China.

MAUNG THURA ('ZARGANAR') is a popular Burmese comedian, film actor, and film director as well as a fierce critic and often political prisoner of the Burmese military government.



Rita Payne



Sanjoy Roy



Dr Paul Thompson



Maung Thura
(‘Zarganar’)

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