



The Imagine Science Films festival in Abu Dhabi will showcase research in the Arab world and elsewhere.

LISTINGS

Science in culture 2015

Explore the gory glories of forensic science, grapple with Tom Stoppard's take on consciousness, learn what it takes to live on Mars, re-enter Jurassic Park, dive into a coral reef and dally with Robert Oppenheimer. **Daniel Cressey** reports.



Oppenheimer examines the Manhattan Project.

Oppenheimer

Swan Theatre, Stratford-upon-Avon, UK
15 January – 7 March

The secret work of scientists in the Second World War has proved fertile ground for drama, from Michael Frayn's 1998 play *Copenhagen* to John Adams's opera *Doctor Atomic* (2005). The latest to explore that tension are British playwright Tom Morton-Smith and the Royal Shakespeare Company, who follow Adams by peering inside the Manhattan Project — the US programme that spawned the nuclear bomb. Morton-Smith has said that he sees something of the Bard's conflicted antiheroes in the "ambition, frailty and indecision" of nuclear pioneer Robert Oppenheimer. Whether the father of the bomb emerges as closer to Macbeth or Henry V remains to be seen.

Countdown to Zero: Defeating Disease

American Museum of Natural History, New York City
13 January – 12 July

Despite stunning medical advances, smallpox is the only human disease that has been eliminated worldwide. This exhibition at New York's natural history museum focuses on what could be the next conquest: guinea-worm disease. Debilitating and extremely painful, the condition is caused by migration of the nematode *Dracunculus medinensis* through tissues. In the mid-1980s, it affected 3.5 million people a year in Africa and Asia; incidence is now reduced by 99.9%. The show is a collaboration with the Carter Center in Atlanta, Georgia, established by former US president Jimmy Carter, which has led much of the global fight against the disease.

Imagine Science Films

New York University Abu Dhabi
19–21 February

Since 2008, Imagine Science Films has been pushing scientists into close collaboration

MAIN PICTURE: BERT MADSEN; OPPENHEIMER: HUGO GLENDINNING



Left: EXPO 2015 in Milan includes a digital 'augmented' supermarket; right: the Countdown to Zero exhibition looks at efforts to eradicate guinea-worm disease.

with film-makers for its annual multiregional festival. This year, the event — whose many sponsors include *Nature* — branches out with a satellite festival in Abu Dhabi, a relatively new arena for sci-art collaboration. Sessions have been organized for fiction and documentaries focused on issues of particular relevance to the Middle East. From science-fiction exploring the region's role on the world stage to factual forays into neuroscience and resource exploitation, the festival promises an edgy, multidimensional look at the Arab world now.

Forensics: The Anatomy of Crime

Wellcome Collection, London
26 February – 21 June

Flashy television programmes often warp the truth and obscure the uncertainty inherent in forensic techniques such as DNA analysis and fingerprinting. Bioscience-funding behemoth the Wellcome Trust promises a corrective in its blockbuster show, aiming to reveal the realities of teasing truth from what crimes leave behind. The trust's newly enlarged exhibition space will display disturbing evidence, including a sketch of a crime attributed to Jack the Ripper. Forensic instruments, artworks and films from the Wellcome's archive and beyond will be on show.

Emerge

Arizona State University
March 2015

Arizona State University is becoming a player in the confluence of science and art. Its annual Emerge festival, which launched in 2012, brings together artists and scientists, including digital-performance pioneer Lance Gharavi and roboticist Srikanth Saripalli, in a challenging public science carnival. This year's will examine "the future of choices and values" through "performance

sci-fi". Art from dance to sculpture will appear across the enormous university campus, exploring how scientists are shaping the future alongside — or antagonistically to — the creative industries.

Arsenic and New Medicine: Paul Ehrlich's Pioneering Research

Berlin Museum of Medical History at the Charité
15 April – 27 September 2015

Nobel laureate Paul Ehrlich introduced fundamental biological concepts, such as the idea of cell-surface receptors and the necessity of quantifying data. He devised staining techniques to identify and distinguish immune cells, developed antisera for diseases such as diphtheria and, perhaps most famously, found a cure for syphilis with his 'magic bullet', Salvarsan (arsphenamine, **pictured**). On the centenary of his death, this joint exhibition by the Berlin Museum of Medical History at the Charité and the Historical Museum Frankfurt examines Ehrlich's extraordinary scientific life, and looks at how he has been memorialized.

In his native Germany, for example, streets named after him were renamed during the Third Reich because he was Jewish. The show will move to the Frankfurt museum from 29 October 2015 to 3 April 2016.

EXPO 2015

Milan, Italy
1 May – 31 October

The world's fair comes to Milan to ponder a pressing global concern: food. Architect Carlo Ratti's Future Food District offers a digital 'augmented reality' experience of the supermarket as a nexus of products, producers and consumers. Arts & Foods, curated by radical critic Germano Celant, will examine the edible in art — and its cultural and industrial implications — since



MY HIGHLIGHT OF THE YEAR

Philip Ball, science journalist and author of *Invisible: The Dangerous Allure of the Unseen*

The Hard Problem

National Theatre, London
21 January – 16 April

The "hard problem" is consciousness — just the sort of intellectual puzzle that excites playwright Tom Stoppard, whose dramas have probed chaos theory and quantum physics. In his latest work, starring Olivia Vinal and Jonathan Coy, a psychologist at a brain-research institute confronts this issue while grappling with a private sorrow, and is forced to question whether scanners and computers can provide all the answers about the human mind. Three major brain-research projects are currently hoping to do just that, so Stoppard has proved himself as timely as ever — and we can be sure that he will not be offering any glib resolution.

1851. Biodiversity Park's 8 greenhouses will showcase agro-biodiversity in 250 plant types, and Pavilion Zero will trace the transformation of environments by agriculture from prehistory on. As the expo's tagline has it, "*Nutrire il pianeta, energia per la vita*" — "Feeding the planet, energy for life".

Jurassic World

Director: Colin Trevorrow
Opens 10 June

Resurrected dinosaurs, their photogenic victims and scientists playing God get another airing in *Jurassic World*. It is more than 20 years since Steven Spielberg's *Jurassic Park* (1993) ignited public fascination with the revivification of long-extinct species

FRUIT: CARLO RATTI ASSOCIATI; READING: THE CARTER CENTER/L. GUBBB

CHRISTOPH WEBER, CHARITÉ/HOECHST ARCHIVE, FRANKFURT



The Catlin Seaview Survey explores a reef at Bonaire in the Caribbean Netherlands.

Coral Reefs: Secret Cities of the Sea

Natural History Museum, London
27 March – 13 September

One of nature's most enthralling tableaux, the coral reef, will be recreated alongside the dinosaurs in London's Natural History Museum. More than 200 individual denizens of reefs — both live and preserved — will be on show to create an artwork rivaling displays at the nearby design mecca, the Victoria and Albert Museum. Corals from Charles Darwin's collection will be joined by videos from the Catlin Seaview Survey — a global project to image the world's reefs involving Google and the University of Queensland, Australia. Although visitors will not be able to pop into the tank to join the live marine creatures, they are promised a virtual dive.

▶ using DNA. How the franchise will fare in a world where genome science is mainstream rather than a strange new rarity remains to be seen. The fourth outing ups the role of genetic modification, as a new generation is introduced to heavy-handed warnings against tinkering with Mother Nature.

A Brief History of the Future

The Louvre, Paris
Mid-September – mid-December

Delving into the past to conjure what comes next is the focus of a major exhibition at the venerable Paris museum. A broad mix of ancient and contemporary art is promised, with specially commissioned pieces covering pioneers in engineering, science, architecture and the arts. The exhibition's overarching theme originated in a 2006 book of the same name by writer and civil servant Jacques Attali. That volume chronicles the trajectory of humankind from prehistory, ranging over innovations from printing in Belgium to the piston engine in Massachusetts, and

extrapolating a technology-dominated future of shifting empires and nomadism.

The Martian

Director: Ridley Scott
Opens 25 November

Ridley Scott, director of science-fiction blockbusters including *Blade Runner* (1982), is heading for Mars. His dramatization of Andy Weir's self-published 2012 sleeper hit *The Martian*, a scientifically grounded novel about an astronaut's struggle to survive on the red planet, is due to air in November. Although Scott received mixed reviews for 2012's *Prometheus*, his much-hyped return to science-fiction, his take on isolation in space in *Alien* (1979) has never been bettered. Hopes are high that he can translate Weir's protagonist's struggle to survive into compelling drama. ■

Daniel Cressey is a reporter for *Nature* in London. Additional reporting by Alison Abbott.

MY HIGHLIGHT OF THE YEAR

Danny Birchall, digital manager at the Wellcome Collection in London

Designers in Residence 2015: Migration

9 September 2015 – 28 February 2016
Design Museum, London

In a world on the move, immigration is top of many government agendas. But subtler forms of migration are always happening, as reflected in the eighth annual Designers in Residence exhibition, where product technology meets the art of form. With the museum itself moving across London next year to the former Commonwealth Institute, early-career designers in a range of disciplines have been invited to ponder mobility in everything from data to people, and to explore the neutrality of migration over the duality of emigration/immigration.

Ruth Wylie, assistant director of the Center for Science and the Imagination at Arizona State University, Tempe

It's Alive! — Frankenstein on Film

23–25 January
SIFF Film Center, Seattle, Washington

For nearly 200 years, Mary Shelley's *Frankenstein* has shaped how we see science and its ethical impacts. I am excited about this mega-screening of adaptations, co-hosted by the Seattle International Film Festival and my own university's Frankenstein Bicentennial Project. Among the offerings are James Whale's iconic 1930s *Frankenstein* and *Bride of Frankenstein* (pictured), and Paul Morrissey's transgressive *Flesh For Frankenstein* (1973). An electrifying weekend of film and analysis.



BRIEFLY NOTED

Marvellous Creatures

This exhibition at Qatar's Museum of Islamic Art in Doha, opening in March, looks at how animals real and unreal feature in art and fables such as *The Thousand and One Nights*.

Frida Kahlo's Garden

In a display of flowers, paintings and more starting in May, the New York Botanical Garden explores how artist Frida Kahlo's was inspired by the plants of her native Mexico.

Lava

A singing volcano stars in this short animation from Pixar, released with full-length film *Inside Out* in June. Geology has never looked so adorable.

The Francis Crick Institute, London

These interdisciplinary medical-research facilities promise to be an architectural highlight. Designed by HOK and PLP Architecture, they open towards the end of the year.