

SCIENCE MUSEUM GROUP



GLOBAL CLIMATE INFLUENCERS

ANNUAL REVIEW 2020-21



TOWARDS
NET ZERO



MAKING
COVID HISTORY



REACHING
NEW AUDIENCES



MUSEUM
OF THE YEAR

Cover, from top, left to right Emily Shuckburgh, Kira Peter-Hansen MEP, Julia King, Jane Goodall, Cassidy Kramer, Zamzam Ibrahim, Jennifer Wilcox, Wanjūhi Njoroge, Jon Snow, Partha Dasgupta, Maggie Aderin-Pocock, Ghilleen Prance, Joanna Haigh, Hannah Fry, Dia Mirza, Jim Al-Khalili, Gaia Vince, Gideon Henderson, James Lovelock, Kwasi Kwarteng MP, Anushka Asthana, Anote Tong, Tim Peake, Tamsin Edwards, Helen Sharman, Kevin Fong

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HRH Prince Philip, The Duke of Edinburgh, at the opening of the *Engineer's Day* exhibition at the Science Museum, London, on 18 November 1966. The event was also attended by Her Majesty The Queen and the President of Pakistan. Prince Philip (1921–2021) became a Fellow of the Group in 2014

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RISING TO THE COVID CHALLENGE



The pandemic brought unprecedented difficulties to the Group, but our teams' expertise and ingenuity allowed us to 'stay open' for a global audience online, says Dame Mary Archer

A year that might otherwise have been dominated by the Science Museum winning our sector's most prestigious prize, Art Fund Museum of the Year, has instead been defined by Covid-19.

The pandemic brought into sharp relief our mission to inspire the next generation of scientists, engineers, mathematicians and technologists – exactly the people who have so brilliantly developed tests, vaccines and therapies.

When we had to close our doors for the first time since the Second World War, colleagues across the Group rose to the challenge of putting museum life online. Major events, such as the Manchester Science Festival, the Yorkshire Games Festival and a series of panel discussions, including one on vaccine hesitancy featuring Dr Anthony Fauci, the US chief medical adviser, and Nadhim Zahawi, the UK vaccines minister, were presented virtually.

Visits to our online collection rose from more than 800,000 to 1.2 million and those using our learning resources almost doubled to 270,000 visits.

My colleagues in learning developed bright, uplifting videos with the BBC to inspire families trapped in lockdown. Our curators mobilised an extraordinary Group-wide effort to record the greatest health crisis of a generation, and to create an exhibition, generously supported by Wellcome, on the race for a vaccine.

Our exhibitions have continued to tour worldwide. Remarkably, one on antibiotic resistance – *Superbugs* – opened in Wuhan, where the pandemic is thought to have started. Back in South Kensington, we hosted an NHS vaccination centre at the Science Museum.

Our virtual visitors jumped at the opportunity to be the first to see one of our objects online (more than a quarter of a million obliged) and to contribute our objects to the game *Animal Crossing*.

Yes, the past year has been difficult, but it has spurred us on to engage more with online visitors than ever before. In the coming year, we look forward to welcoming many back in person.

Above Dame Mary Archer, right, with Judith McNicol, director of the National Railway Museum, and Group director Sir Ian Blatchford, at the reopening of Locomotion in Shildon

TOWARDS NET ZERO

The pandemic has underlined our commitment to climate science and sustainable practices, says Group director Sir Ian Blatchford

While the Covid-19 pandemic has been the defining issue of the past year, climate change will be the dominant theme for the coming century. Indeed, the human impact on the Earth's ecosystems can be seen as much in the increasing risk of animal viruses causing novel diseases, as in the relentless increase in global temperatures.

The Science Museum Group has long had a focus on sustainability and climate, not least with the opening of its pioneering *Atmosphere* gallery in 2010. That focus has intensified since February 2020 when Sir David Attenborough planted trees with school children in the Science Museum garden to help us launch our decade of climate action.

Since then, following the approval of the Board of Trustees in March, Julia Knights, deputy director of the Science Museum and our lead for sustainability, has led the Group to follow a 'net zero by 2033' pathway across all our work, from Masterplan projects to procurement and conservation. This plan builds on our Sustainability Policy, which encapsulates our vision to be public engagement leaders on climate science, guided by the international

scientific consensus that calls for radical decarbonisation to keep global temperature rise below 1.5°C above pre-industrial levels.

As we adapted to the pandemic, we were reminded of the power of technology to bring that public engagement to a global audience and the opportunity to hear from global voices.

Each of our series of Climate Talks in the run-up to the COP26 international climate conference is being live-streamed, amplifying our museum audiences from hundreds to many thousands.

Our first talk, chaired by Group trustee Hannah Fry, illustrated our international and diverse approach with a panel including conservationist Jane Goodall, Kenyan climate activist Wanjūhī Njoroge and Danish MEP Kira Peter-Hansen.

At the Manchester Science Festival, we heard from prominent figures such as Brian Eno and James Lovelock, but also from diverse voices on a youth panel in conversation with Myles Allen, head of the Climate Dynamics group at Oxford University.

Climate change will remain at the core of the Group's programming in the coming years, exploring the work that scientists around the world are leading to develop technologies that can mitigate and adapt to humankind's impact on our planet.

'We are grateful to the sponsors, funders and supporters who have continued to work with us during the pandemic'

Sir Ian Blatchford



Left Sir Ian Blatchford with Oliver Dowden MP, Secretary of State for the Department for Digital, Culture, Media and Sport
Below Orthophoto of SS *Thistlegorm* by Simon Brown, winner of the Science Photographer of the Year Award (General Science category)

We are launching this renewed focus with *Our Future Planet* at the Science Museum, a landmark exhibition that showcases the cutting-edge technology and nature-based solutions being developed to remove carbon dioxide from the atmosphere.

Decarbonising our heating systems is also a central consideration in our long-term work to transform each of our six sites in the Science Museum Group, perhaps best illustrated in the choice of architects Feilden Fowles to design the centrepiece of our Vision 2025 project to transform the National Railway Museum; their elegant and uplifting proposal for Central Hall will provide an exemplary low-carbon building to welcome our visitors.

Sustainability has been equally central to the revolution in our collections care, centred around the National Collections Centre, near Swindon, where we have completed work on our most energy-efficient building to date that will ultimately house 300,000 incredible objects from our collection. Our approach to environmental conditions at the NCC, by managing humidity but not temperature, is already providing inspiration across our sector.

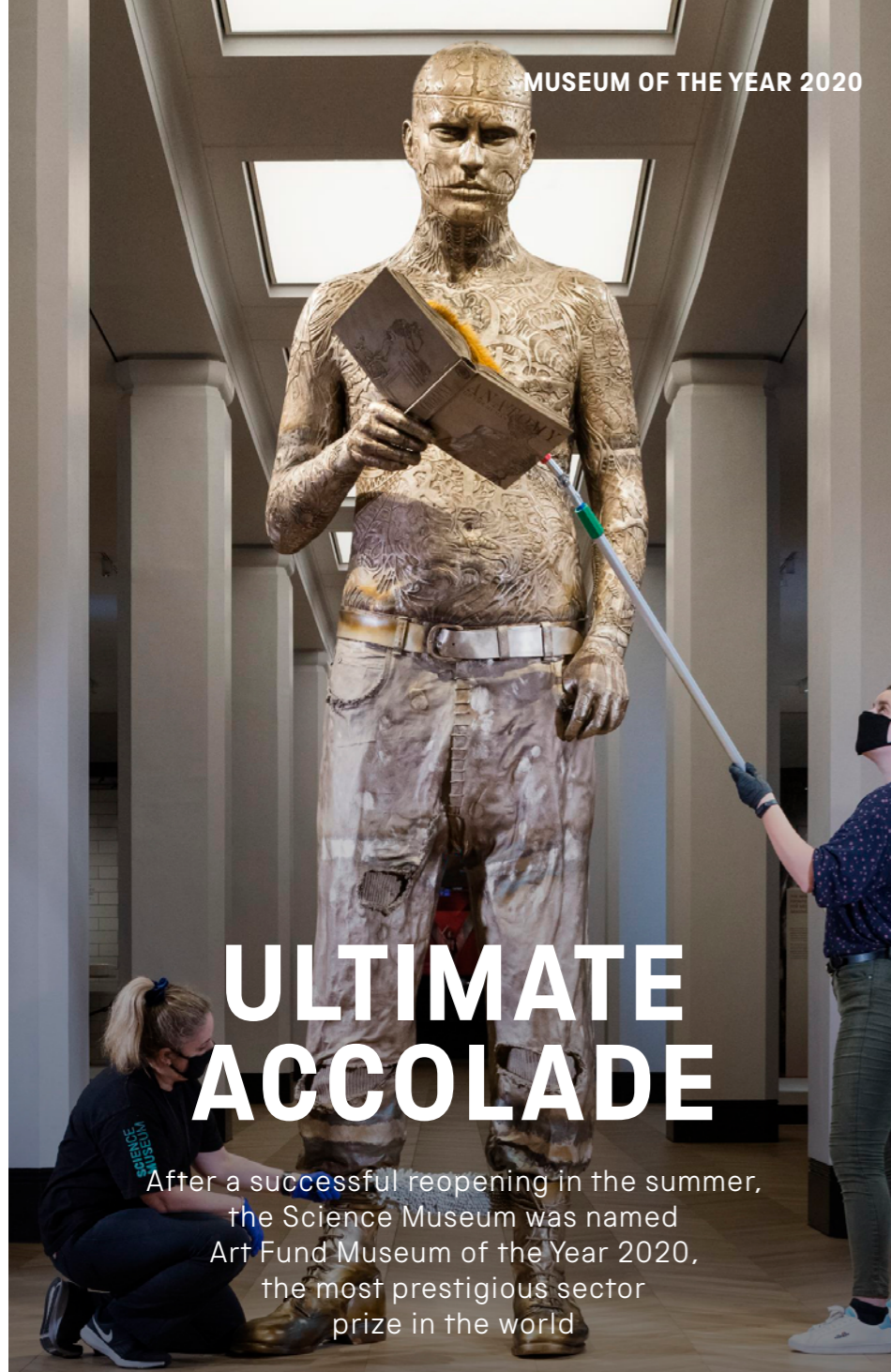
We put sustainability at the heart of the upgrade of IMAX: The Ronson Theatre in the Science Museum, made possible by the generosity of the Gerald and Gail Ronson Family Foundation, and have eliminated the sale of single-use plastic bottles across our retail outlets and cafes. We have also cut carbon emissions from our operations by more than two thirds, despite an increase in the size of our estate by one quarter. Still, there is so much more to do.

As we demand more of our ourselves, so we expect more of our partners. Vital to our net zero ambition are the changes to our approach to procurement to ensure that our supply chain is lessening its environmental impact.

We are also committed to working with funders who are also on a journey to decarbonise, becoming the first cultural institution to use the respected Transition Pathway Initiative (TPI) to assess partners' progress with the support of the Grantham Research Institute on Climate Change and the Environment. We are grateful for how the TPI has embraced working with the Science Museum Group.

We are also grateful to the sponsors, funders and supporters who have continued to work with us during the pandemic, from the Department for Digital, Culture, Media and Sport to the Huo Family Foundation, Russian Railways and Urenco. The Science Museum Foundation has evolved tremendously under the leadership of Donald Brydon, who became chair in 2016 and has now stepped down after his third term. We owe him our thanks for shaping the current board that we are so fortunate to have today and for working tirelessly to build the momentum of the Foundation.

Partnership and innovation have been at the core of a century and a half of our organisation's history. And they will be central to the way we evolve as an organisation, engage with the public and inspire young people, who will go on to provide the solutions to future challenges, not least that of tackling climate change and the energy revolution ahead.



MUSEUM OF THE YEAR 2020

ULTIMATE ACCOLADE

After a successful reopening in the summer, the Science Museum was named Art Fund Museum of the Year 2020, the most prestigious sector prize in the world

In a unique edition of the Art Fund Museum of the Year award and in recognition of the unprecedented challenges that all museums faced in 2020, the Science Museum was among five institutions given the top gong in 2020, with the £200,000 prize money being shared equally among them.

The Science Museum was joint winner with Aberdeen Art Gallery in Aberdeen, the Gairloch Museum in Wester Ross, the South London Gallery in Camberwell, London, and the Towner Art Gallery in Eastbourne, East Sussex.

The artist Grayson Perry announced the news on BBC's *The One Show* and Radio 2, which began a week of celebrations. Sir Ian Blatchford, director of the Science Museum Group, and Laura Southall, head of learning at the Science Museum, took part in media appearances and panel discussions.

The Science Museum also created a raft of bespoke digital content to engage new audiences with our work – particularly ahead of half-term – with a special focus on *Wonderlab: The Equinor Gallery*.

'Congratulations to the Science Museum. The UK's museums – admired worldwide and vital locally – were thriving before Covid-19. Now they can help rebuild our communities and confidence as we emerge from the virus'

Jenny Waldman, director of Art Fund

The accolade acknowledged the radical transformation of the Science Museum over the past decade, culminating in a landmark year in 2019 which saw the finale of the *Tim Peake's Spacecraft* tour, presented by Samsung and the Science Museum Group. The museum hosted the biggest ever sleepover to celebrate the Apollo 11 anniversary, and opened spectacular new permanent galleries – *Medicine: The Wellcome Galleries* and *Science City 1550–1800: The Linbury Gallery* to critical acclaim.

The Art Fund Museum of the Year judges cited our work with local communities across the country to inspire the next generation of scientists. The award reflects the extraordinary work of hundreds of colleagues over many years, and the steadfast support and expert contributions from our partners.

Sir Ian said: 'It means a great deal to have the Science Museum's achievement acknowledged by this magnificent prize. Our museums are at the heart of national cultural life and, particularly during this time of uncertainty, provide solace, inspiration and joy to so many. We'll be using the prize money to support local school children from communities that aren't able to currently visit the museum with special outreach sessions, so that we continue to inspire futures beyond our museum walls.'

Above *Zombie Boy*, by Marc Quinn, in the *Medicine* galleries of the Science Museum

Funder Art Fund



VISION 2025

MAKING TRACKS

Vision 2025, our transformation of the National Railway Museum in York and Locomotion in Shildon, has taken huge strides forward

Vision 2025, our £55.3 million project to transform the National Railway Museum and Locomotion, has been a beacon of progress and hope in a difficult year. Three elements of the programme – Station Hall and *Wonderlab* at the National Railway Museum, and the new building at Locomotion – have taken huge strides forward.

Station Hall, a Grade II-listed former goods depot and now home to the national collection of original royal carriages, is set to receive a £500,000 refurbishment, thanks to the Friends of the National Railway Museum. The charity organisation, which supports the work of the museum, has raised £300,000 from members to develop and refresh Station Hall's permanent exhibition.

Due to start in spring 2021, the project will see an estimated 200 new collection items and 25 rail vehicles go on display. The Station Hall project will provide a greater focus on the roles of railway workers and passengers and under-represented stories from railway history.

Wonderlab, our £5 million engineering-focused gallery, is due to open in 2023. It will inspire young people to become the problem-solvers and innovators of the future. In the past year we have appointed De Matos Ryan to design the space, which will feature up to 25 interactive exhibits with a rail engineering theme. It follows the success of two STEM-focused interactive galleries at the Science Museum and National Science and Media Museum.

In Shildon, AOC Architecture has been appointed to start work on a £4.5 million project to deliver a new collection building at Locomotion. This ambitious redevelopment will see the entire museum transformed in time for the 200th anniversary of the Stockton and Darlington Railway in 2025.

Once complete, the new building will house up to 50 rail vehicles, bringing the total at Locomotion to 120 and creating the UK's largest rail vehicle display. AOC will create a sustainable, low-maintenance and low-energy-usage building, sympathetic to the local area.

Construction is due to start in April 2022 subject to planning permission, with work scheduled to be complete by early 2023.

This is the most significant change to Locomotion since its opening and will create a more inviting and accessible museum, emphasising Locomotion's pivotal role as a cultural cornerstone for the community.

The new building is the largest in a series of regeneration projects planned for the museum. These include the refurbishment of the site's historic Grade II-listed railway buildings, the relocation of Gaunless Bridge – one of the world's first iron railway bridges created for the Stockton and Darlington Railway, and the return of *Locomotion No. 1* which set off from Shildon to haul the world's first steam-powered passenger train in 1825.

Above An artist's impression of the transformed National Railway Museum in York
Top right The *Wonderlab* concept by De Matos Ryan



BRITISH SCIENCE WEEK

'It's been very interesting to hear from you all. I hope the children have enjoyed it, too. Thank you for the wonderful work you are doing'

Her Majesty The Queen



We were delighted to welcome Her Majesty The Queen during British Science Week in March as she joined a virtual science showcase. The event involved Maggie Aderin-Pocock MBE, Caroline Smith, and primary school children from Thomas Jones School, which is local to the Science Museum.

The session, hosted by Aderin-Pocock, focused on space exploration and Smith shared the latest updates from the NASA Mars Perseverance mission. Our Learning team showed first-hand how we had adapted our content to deliver it virtually during the pandemic, and the pupils demonstrated for The Queen their own rocket experiments.

Her Majesty said: 'It's been very interesting to hear from you all. I hope the children have enjoyed it, too – they might learn something from it as well! Thank you very much indeed. It's wonderful work you are all doing.'



Her Majesty The Queen joined a virtual event hosted by the Group to celebrate British Science Week

ROYAL VIRTUAL VISIT



BUILDING ONE

'Our collection management facility will enable us to sustain and grow our collection and inspire future generations with the wonders it contains'

Sian Williams, programme director,
One Collection

PRIZE COLLECTION

With Building One, the new home for the Group's collection completed, staff have continued to digitise hundreds of thousands of objects before they move into this spectacular space in Wiltshire

In the midst of the pandemic, we reached a significant milestone on our journey to transform public access to the Science Museum Group Collection and provide for its long-term care, by safely completing construction of our collection management facility at the National Collections Centre, in Wroughton, Wiltshire.

This purpose-built and sector-leading facility brings together our vast collection under one roof for the first time. It enables us to better study, conserve, photograph and digitise items, prepare and transport objects to exhibitions at our museums, and loan more items for display.

It has sustainability at its heart as the Group's most energy-efficient building. Taking a 'fabric first' approach to

maximise performance of the facility's materials has dramatically increased energy efficiency while reducing energy needs, operational costs and carbon emissions.

Work is underway to study and digitise 26,000 objects at the National Collections Centre, many thousands of which will move into the new facility. Meanwhile, at Blythe House in London, the team has achieved staggering results. By March 2021, we finished processing and barcoding all 260,000 objects, with 175,000 objects photographed and 75,000 already packed ready to travel to their new home.

This vitally important but often unseen work to better document and digitise the collection dramatically increases our knowledge and its accessibility,

100,000

A growing audience is exploring our digitised collection, with more than 100,000 sessions now regularly recorded each month and over three million visitors since the online collection launched in December 2016

creating new opportunities for object research, display and loans. Over a quarter of the objects we care for (112,000 items) now have a photograph published online, with thousands more added each month.

Rapid digitisation enables colleagues and the public to engage with more of the collection than ever before – we have never been better placed to share and celebrate the stories of our objects. Online audiences have explored technologies we encounter around us through popular long-form articles and blog posts created for our second annual theme, Everyday Technology, which was planned before the pandemic but published while many people were working from home.

An accompanying podcast, *A Brief History of Stuff*, the Group's first experiment with this intimate form of storytelling, released in April 2021, invites global audiences to discover the collection. And more than 84,000 people have uncovered hidden gems through our Never Been Seen webpage, which displays objects not seen online before.

As final preparations were underway to move the collection into its new home, we launched an exciting participatory art commission for the National Collections Centre, with internationally acclaimed artist Bedwyr Williams. Williams will collaborate with local communities to produce a significant film and accompanying book inspired by the collection and its new home. The film is expected to premiere at the National Collections Centre in 2024, when our facility opens for public tours, school and research visits.

OPEN FOR ALL

The Group stepped up its commitment to addressing issues of equity and inclusion

The issue of discrimination and inequality came sharply into focus across the world in 2020, and in the months since it has become clear that the Science Museum Group's ambition to be Open for All has never been more relevant.

Our response was to intensify our work to prioritise diversity and inclusion across all areas of the Group – our ways of working, our people and culture, our public programme and our curatorial research. Recognising the importance of transparency, an *Open for All* blog was launched to provide regular updates on our progress and the challenges we face.

INCLUSIVE COLLECTING AND CURATION

The global discourse about the importance of black lives during 2020 undoubtedly sharpened our focus on colonial history. We have brought more urgency to work to address omissions in our galleries, including uncomfortable aspects of our history. A fine example of this is new research by the National Railway Museum on the unofficial 'colour bar' that was prevalent in the 1950s and 1960s and which denied promotion to black employees that British Rail had recruited among the Windrush generation. Following a guiding principle of 'additions not subtractions', we are focusing more curatorial resource on the untold stories of people forgotten by, or airbrushed out of, history.

This focus was reflected in our most recent Collection Development Policy, and an Inclusive Display and Interpretation Action Plan setting out our intent for each site. For example, at the Science and Industry Museum in Manchester we are working with academic and cultural partners as well as with local communities to tell deeper, more diverse and personal stories

'About women in medicine – we now have more than 50% of medical students who are women, and you can do anything. When I came in there was a glass ceiling. So, enjoy it and let it take you where you want to go'

Dame Sally Davies, *The Guilty Feminist: Women in Medicine*



Above and left Asquith Xavier, a West Indian Briton who was the first non-white train guard at Euston railway station; Ruth and James by Siân Davey, part of a series of portraits in the Science Museum's *Medicine* galleries

about Manchester's involvement in the transatlantic slave trade. And upon reopening the Science Museum in the summer, we highlighted new research by Stephen Mullen at the University of Glasgow, which showed that steam-age pioneer James Watt was directly involved with the trade in enslaved people. This has also been reflected in changes to interpretation at the museum.

All of this is an ongoing process, but we are deeply committed to reflecting our audiences better in the stories we tell, whether in our museums or across our digital channels.

Clockwise from right *Open Talk* contributors Dame Sally Davies, Deborah Frances-White, Amanda Khozi Mukwashi, Jo Brand and David Lammy MP



'I realise that my "identity" doesn't actually belong to me; it belongs to wherever I happen to be in the world, and it belongs to people looking at me and deciding what I am. I don't get to decide it sadly – but none of us do'

Angela Saini, *The Guilty Feminist: Women in Medicine*



Sir Ian returned in January 2021 to be joined by Science Museum curator Elizabeth Bruton, and Chris Bryant MP to discuss his latest book, *The Glamour Boys: The Secret Story of the Rebels Who Fought for Britain to Defeat Hitler*, highlighting a fascinating and vital story hitherto unheard by many.

To mark International Women's Day in March 2021, *Open Talk* joined forces with award-winning comedy podcast *The Guilty Feminist* for a special live edition of the show celebrating women in medicine. Co-presenters Deborah Frances-White and comedian and former psychiatric nurse Jo Brand were joined by special guests Angela Saini and former chief medical officer Dame Sally Davies, as well as surprise guest Dame Mary Archer, to present Dame Sally with the Science Museum Group Fellowship. The show was poignant, hilarious, informative and inspiring in equal measure.

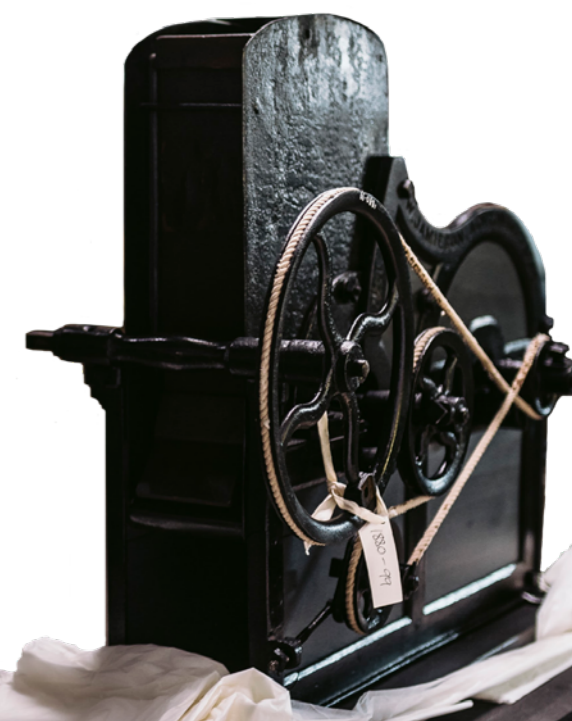
Later that month, a panel chaired by *Gadget Show* presenter Ortis Deley explored issues of discrimination and bias in technology, followed by a brilliant conversation between Sir Ian and Amanda Khozi Mukwashi, CEO of Christian Aid and author of *But Where Are You Really From?*

More events are planned for later in 2021, as we continue to engage with these vitally important issues.

'The *Open Talk* event series gives SMG an opportunity to explore different perspectives within science and society more broadly, and ensures that our work remains meaningful in a time of change'

Susan Raikes, director of learning

Below Model cotton gin made around 1860. The invention sped up the processing of raw cotton on plantations, leading to a huge increase in the exploitation of enslaved people to plant and pick it



OUR SPECIAL SPACE

Our Special Exhibitions Gallery at the Science and Industry Museum is ready to welcome visitors to its cutting-edge exhibitions

A spectacular new gallery is now complete at the Science and Industry Museum, ready for us to originate and host some of the world's best science exhibitions and experiences in the North.

Designed by award-winning architectural practice Carmody Groarke, the transformation of the lower ground floor of the museum's Grade II-listed New Warehouse reveals grand industrial beauty with stunning modern and sustainable design, setting a new standard for the rest of the museum's Masterplan.

It opens up a previously hidden part of this much loved museum for the first time, allowing visitors to experience the grandeur and scale of the original warehouse space.

This gallery will enable the museum to display larger objects and exhibition sets, as well as provide a better visitor experience and facilities for audiences to explore science in all its forms.

Beautifully restored Victorian industrial architecture is enhanced with high-quality contemporary materials and design, including illuminated fibreglass panels, which welcome visitors on arrival with a warm glow. In the gallery, new walls house all necessary services and are a blank canvas for exhibitions.

An improved outdoor welcome area provides stunning vistas under the historic viaduct. This beautiful colonnade will shortly connect the museum with The Factory, a spectacular new arts venue under construction, as this vibrant area of the city comes alive.

This gallery is the first project to be completed in a multimillion-pound, long-term programme of investment (including The Power Hall, improvements to the 1830 Station and Warehouse, and site-wide decarbonisation). This will enable crucial restoration work, open up new spaces and perspectives and create a more sustainable museum to inspire, educate and entertain visitors. Revolution, after all, is in this site's DNA.

'This new gallery opens up a wealth of opportunity for the Science and Industry Museum and demonstrates the importance of not only the heart of Manchester but the whole of the North West'

Culture Minister Caroline Dinenage

Funders The Special Exhibitions Gallery was made possible with the support of Department for Digital, Culture, Media and Sport
Principal funder Wellcome **Major funder** Garfield Weston Foundation **With support from** Kirby Laing Foundation, The Zochonis Charitable Trust

DIGITAL PIONEERS

Innovative thinking meant Bradford's popular festival programme enjoyed another successful year in spite of Covid restrictions

All our museums had to adapt swiftly to the changing situation in 2020, and our popular festival programme at the National Science and Media Museum was no different.

The Bradford Science Festival, which usually takes place during July and in previous years has welcomed up to 40,000 visitors, was pushed back to October half-term as a result of lockdown. The festival team explored a different programme of activities, including a focus on digital events, radio programmes, and online learning resources. Despite its different look, the festival proved to be a huge success, welcoming 4,000 visitors to its live



shows, alongside 85,000 page views on the museum website. In total, it hosted 120 online activities in partnership with more than 25 organisations, including lead partner PPG.

To help bridge the digital divide during lockdown, the Learning team also distributed 10,000 Science at Home packs to communities in Bradford – where access to the internet is limited – featuring STEM learning activities

for families. The team's excellent work in distributing these packs during the pandemic was recognised by the Kids in Museums' 'Family Friendly Museum Award From Home' and shortlisting in the 'Going the Extra Mile' category.

The Yorkshire Games Festival also moved online in February for a special 'Bonus Level' edition. The popular Game Talks returned, hosted on Zoom webinar alongside a brand-new Discord server, with expert speakers from Epic Games, Ubisoft and Polish game developer CD Projekt Red. More than 1,300 tickets were sold for the event, which attracted much wider audiences than the usual in-museum offering, including international delegates and educational institutions. This resulted in online unique user admissions of 2,760 across all individual events.

The festival also included online resources from BAFTA Young Game Designers and the Northern Games Showcase. Taking the lead from the Bradford Science Festival, the organisers distributed printed packs of offline games, maths and coding resources to 2,000 households in Bradford.



Above and left Taking place in October half-term, the festival welcomed 4,000 live visitors, and provided 120 activities online

Funders Bradford Science Festival
Lead partner PPG
Sponsors The Broadway, Bradford
Bid Supported by Players of the People's Postcode Lottery

EARTH MATTERS

As part of the Group's climate-focused public programme for 2021, we hosted Climate Talks, a series of global free online debates from distinguished climate experts in the run-up to COP26, the international climate summit

The Science Museum Group is committed to engaging audiences around the world with the science of and solutions to the urgent challenges facing our planet. As part of our work in this area, the Group announced at the end of 2020 that it would focus on sustainability and climate change in its public programme throughout 2021.

The series of Climate Talks, which are broadcast from the Group's museums and streamed to connect with our expanding global audience, brings together a diverse, distinguished line-up of international speakers, from climate scientists and economists to activists and politicians, to debate the technological and nature-based solutions to tackling the climate crisis.

The discussions began in January 2021 with *Climate Change: Why Should We Care?*; this panel included the renowned conservationist Jane Goodall, activist Wanjūhī Njoroge, Danish politician Kira Peter-Hansen and climate scientist Tamsin Edwards. Hosted by Hannah Fry, mathematician and Science Museum Group trustee, the event looked at how we can track the global impact of climate change and what can be done to help shift societies and industries to more sustainable practices.

The subsequent talks examined the subject from particular viewpoints. At the climate-themed Manchester Science Festival, at the Science and Industry Museum, the scientist James Lovelock, now aged 101, joined our discussion *Earth, But Not As We Know It: Lovelock's Legacy and Our Future*. This fascinating talk explored his seminal Gaia Theory; the panellists included journalist Gaia Vince, physicist Helen Czerski, climate scientist Chris Rapley and climate activist Zamzam Ibrahim.

The series also looked at climate activism, in a talk involving the musician Brian Eno and James Thornton, chief executive of ClientEarth, and economics, in which leading experts discussed whether capitalist economies are compatible with sustainable development. The latter talk took place between Sir Partha Dasgupta, lead author of the ground-breaking Economics of Biodiversity report, climate scientist Joanna Haigh, US economist Robert Pollin, Anusha Shah, vice-president of the Institute of Civil Engineering, and the broadcaster Jon Snow.

'One of the difficult things with climate science is trying to unpack these numbers which seem small when you look at the global averages but on a local level can have a huge impact on people's lives.'

Tamsin Edwards, climate scientist

As testament to the truly global nature of the talks, one discussion, *Why Half a Degree Really Counts*, with panellists Cassidy Kramer speaking from Alaska and Anote Tong in Kiribati, involved a 21-hour time difference.

Other talks looked at *The View from Space* – with contributions from astronauts Helen Sharman and Tim Peake – and the science of greenhouse gas removal, whose panel included Emily Shuckburgh, director of Cambridge Zero, and Gideon Henderson, chief scientific adviser for DEFRA. Further talks looked at *The Clean Energy Revolution*, *The Future of Fuel* and *How are our Oceans Responding to Climate Change?*

More events in the Climate Talks series were announced at the time of going to press. The full list of talks and speakers can be found at: [sciencemuseum.org.uk/see-and-do/climate-talks](https://www.sciencemuseum.org.uk/see-and-do/climate-talks)

30,000

30,000 people have tuned in or booked a free ticket to Climate Talks so far

OUR NET ZERO PLAN

The Group is determined to reduce carbon emissions by demanding more of ourselves and our suppliers

To become a leader in public engagement around climate change, we recently launched an ambitious target of net zero by 2033 – work led by our Group sustainability lead, Julia Knights. To achieve this, we are already taking decisive action to decarbonise across our five museums and collections sites.

Our approach to this vital subject is guided by science, following the internationally respected Science Based Targets Initiative (SBTi) tool and including in our calculations both our direct emissions and those that arise in our supply chain (known as Scope 3 emissions) – as all credible net zero targets should.

Our net zero target builds on our Sustainability Policy and represents our response to the science of climate change that requires radical decarbonisation across all sectors to keep global temperature rises below 1.5°C above pre-industrial levels by the end of the century.

In driving further change in our own behaviours, we are building on sound foundations; we have already cut

carbon emissions from our operations by 69% since 2011–12 despite a 24% increase in floor area of our estate.

But we have so much more to do. Scope 3 emissions account for 94% of our carbon footprint and we are challenging all our biggest suppliers to join us on the journey to decarbonise. Each year we will work with a further 20 suppliers, while raising the bar on sustainability for all new suppliers, until the majority of our Scope 3 emissions have been tackled.

As we demand more of ourselves and our suppliers, so we expect more of our partners. This year we set out our commitment to working with funders who are also on a journey to decarbonise, becoming the first cultural institution to use the respected Transition Pathway Initiative (TPI) to assess partners' progress.

Using publicly disclosed data, TPI assesses the progress that companies are making on the transition to a low-carbon economy, supporting efforts to mitigate climate change.

Faith Ward, co-chair of Transition Pathway Initiative, says: 'Science is at the forefront of finding solutions to the most pressing challenges facing the world... and is also at the heart of TPI's robust, independent data to assess whether high-emitting companies are aligning with the goals of the Paris Agreement.'

'The Science Museum Group is the first cultural institution to join our membership and TPI is delighted that it has chosen to use our data as part of its sustainability policy'

Faith Ward, co-chair of Transition Pathway Initiative

As well as reducing our carbon emissions, we are enhancing biodiversity across all our Group's sites. We are also removing carbon from the atmosphere via the 1,000 native trees we have pledged to plant every year on our collections management site in Wiltshire until 2030 with our new partners, the Woodland Trust. This is in addition to 43,000 native trees we have already planted there.

There is a resounding scientific consensus about the scale of the challenge facing the world in mitigating climate change. As we join the public, businesses and governments in changing the way we live and work we can expect that path ahead to be bumpy, but there is no more important task.

Below, from left Matt Moore, head of the National Collections Centre, Julia Knights, Science Museum deputy director, and Jeremy Evans, outreach adviser for the Woodland Trust, plant trees at our Wroughton site



'We hope that visitors will leave feeling inspired by the ambition of scientists and engineers to build a greener future'

Sophie Waring, curator of contemporary science

TOWARDS A GREENER FUTURE

The Science Museum has opened Britain's first significant exhibition on carbon capture, featuring objects never seen before in the UK

Opening at the Science Museum on 19 May 2021, *Our Future Planet* explores how scientists and researchers across the world are researching ways to remove and store carbon dioxide, a small but significant area of innovation in the fight against climate change.

Carbon dioxide is essential to life on Earth but over the past century industrialisation has caused levels of it to rise in the atmosphere, with devastating results. *Our Future Planet* inspires our visitors by showing some of the incredible technologies under development which, in combination with large reductions in emissions, have the potential to reduce the environmental impact of the industries we rely on, from transport to agriculture and from construction to energy.

Our Future Planet forms a key part of the Science Museum Group's climate-focused public programme for 2021 in the run-up to Britain hosting the COP26 UN Climate Change Conference (see *Director's welcome*, page 3).

While the Group is a leader in raising climate awareness through exhibitions and events, its approach to sustainability has also led to a transformation in its working practices, including setting a target this year to achieve net zero by 2033. In keeping with this commitment, sustainability has been at the core of the development of the exhibition. The majority of objects are locally sourced and the exhibition reuses sets, display furniture and audio-visual equipment from previous exhibitions at the museum.

On first entering the exhibition, visitors encounter ancient means of carbon capture, trees and plants. Natural carbon sinks, from forests to peat bogs to oceans, absorb around half of human carbon dioxide emissions, and scientists are working to understand, preserve and protect these vital habitats.

Inspired by trees and driven to contribute to the fight against climate change, many scientists and engineers are now developing artificial ways to capture carbon dioxide. The exhibition includes a striking early prototype: Klaus Lackner's Mechanical Tree. The Group has acquired this historically significant object for our permanent collection, and this is the first time it has been displayed in the UK.

The exhibition explains how carbon dioxide that has been pulled from the atmosphere can be stored or utilised to prevent it from being re-released. It showcases the Climeworks Direct Air Capture machine from Switzerland, the only direct-air-capture technology operating in Europe.



1st

This is the first time the Klaus Lackner Mechanical Tree has been displayed in the UK

Our Future Planet also shows systems being developed to remove carbon dioxide at the point of emission, effectively preventing it from entering the atmosphere at source.

Visitors can see how these technologies will impact their lives, from large-scale projects like the Northern Endurance Partnership, which will store captured carbon dioxide under the North Sea, to everyday commercial products that will help consumers reduce their carbon footprints.

Below Items made with captured carbon: toothpaste, crayons, concrete tiles, sandal, hand sanitiser, yoga mat, vodka, sunglasses, bracelet, plastic cutlery, pen with case, and toy car that runs on fuel made of carbon dioxide



'The community has really come together from different backgrounds and cultures, faith and no faith. That's what has kept people going'

Hussain Master, train manager, Avanti West Coast



BEST PRACTICE

The Group has introduced reforms to the way we work to ensure we meet our sustainability targets

The Science Museum Group launched its Group Exhibitions Strategy in March 2020, with a renewed focus on sustainability, both in our practices and content. Although the pandemic drastically reduced the number of exhibitions we produced in 2020, we were nevertheless able to make progress towards more sustainable ways of working as a result of the strategy's initiatives.

These have included improving our reuse of assets such as audio-visual hardware and display cases, as well as producing guidance on disposing of old networks and building materials sustainably. We are working on ways to embed sustainability in our procurement processes.

Collaborating with colleagues in Corporate Records, our exhibition teams are shifting from one of the most paper-rich departments in the Group to greater emphasis on digital record-keeping.

Working with the Registration team, we have also been trialling virtual couriering to reduce our carbon footprint when we move objects around the world. For the deinstallation of *The Sun* exhibition at the Science and Industry Museum, for example, loans from the National Museum of Denmark were condition-checked and packed with remote supervision from the Danish team. The programme has also focused on improving sustainable ways of reaching our audiences. Online exhibitions, such as *Pathology: Diagnosing Disease* at

Left The *Our Future Planet* exhibition at the Science Museum
Right and below Hussain Master, part of the *Railway Heroes* exhibition: Science Museum Conservation staff working on the install of objects for the *Our Future Planet* exhibition



0.41 ton

Estimated carbon footprint saving from the use of virtual couriering in *The Sun* deinstallation: 0.41 ton/CO₂e. A return flight London – Copenhagen uses 0.3 ton/CO₂e

the National Science and Media Museum, *Railway Heroes* at the National Railway Museum and *RPS Science Photographer of the Year* at the Science and Industry Museum, have negated the energy costs of producing physical exhibitions. Meanwhile, our digital Blueprint Packs continued to reach audiences globally, removing the environmental impact of international shipping – *Superbugs* from the Science Museum opened in South Korea in November 2020 and *Never Alone* from the National Science and Media Museum opened in Saudi Arabia in January 2021.

We also began building sustainability as a subject into our exhibition programme, with *Our Future Planet* opening in spring 2021 at the Science Museum. This year's *RPS Science Photographer of the Year* was part of the climate-focused Manchester Science Festival.

Funders *Our Future Planet* **Major funder** UK Research and Innovation **Major sponsor** Shell **Associate funders** AKO Foundation, The Huo Family Foundation

IDEAS FOR A BETTER WORLD

'This year's Science Photographer of the Year is more relevant than ever before in documenting how science and climate change are impacting all our lives. The selected images are striking and will make us think more about the world around us'

Michael Pritchard, director, Education and Public Affairs at the RPS



Above *Comet Neowise over Sycamore Gap* by Mark McNeill

Right Sally MacDonald, director of the Science and Industry Museum, at the launch of the festival

Funders Manchester Science Festival
Major sponsors Chiesi Waters
Sponsor Electricity North West
Event sponsor Cadent Gas
Supporter Renold



The Manchester Science Festival, a highlight of the city's cultural calendar, returned in February 2021 as an online-only event, with a packed programme focused on our changing climate. In the middle of lockdown, it brought the joy and fascination of the Science and Industry Museum into people's homes.

Headlining the festival was a digital exhibition revealing the winners of the Royal Photographic Society's Science Photographer of the Year, which included a new climate change category chosen from more than 1,000 entries.

Well-known names and scientists at the forefront of the fight against climate change presented fascinating discussions alongside voices from Manchester's communities.

Physicist, oceanographer and broadcaster Helen Czerski asked the question, 'How can I be a good citizen of the world?' during a series of three lively discussions about transport, food and social justice. These took place with communities and campaigners who are making a difference, including Paul Dennett, the mayor of Salford, Corin Bell, director of Open Kitchen MCR, Ayesha Arif, community director at Bury Asian Women's Centre, and many more.

Young people have been at the heart of the festival this year, with a dedicated Young People Panel, aged between 14 and 24, who ensured the voices and interests of young people were represented. This culminated in an insightful discussion about eco-anxiety, which they curated. It was chaired by Nile Henry, founder and CEO of The Blair Project, and featured discussions from *Newsround* presenter Martin Dougan, environmentalist Mya-Rose Craig and Caroline Hickman, a lecturer in social work at the University of Bath.

As the birthplace of the Industrial Revolution, Manchester was the catalyst for scientific innovation and unprecedented change all over the world. Now, with Greater Manchester's vision of becoming carbon neutral by 2038, the city is once again uniquely placed to influence future progress across the globe.



The Science and Industry Museum is located on a site of global significance in the heart of the world's first industrial city, and our new garden planted in the museum's Upper Yard is in the spirit of that forward-thinking tradition.

Historically, our cobbled Upper Yard would have been a hive of coal-fuelled commerce, receiving and distributing goods from across the world, transported via steam-powered locomotives.

Today, this outdoor space is particularly precious to us, providing much-needed areas in which to sit and relax, as well as giving visitors a sense of how the historic site developed over time. Over the past year, we have installed seating and a garden designed by Alexandra Froggatt, who in 2018 created our Bee Garden. Planting is in two clusters, representing both the goods that would once have been transported on the railway to feed Manchester's growing population, as well as the sorts of materials that were brought to site to fuel industry in the city.

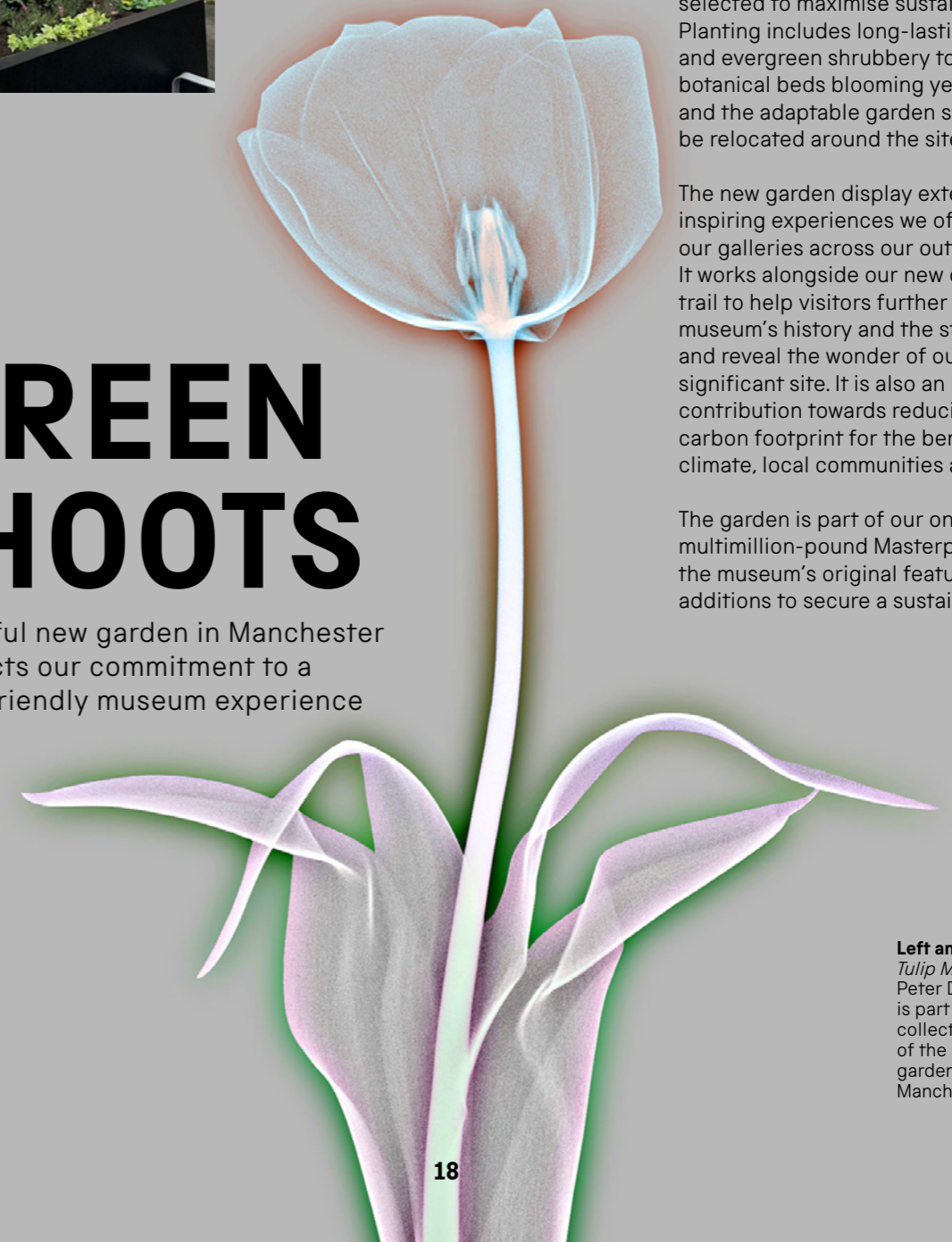
The materials and structures used in the garden have been specifically selected to maximise sustainability. Planting includes long-lasting perennials and evergreen shrubbery to keep the botanical beds blooming year after year, and the adaptable garden structures can be relocated around the site as required.

The new garden display extends the inspiring experiences we offer inside our galleries across our outdoor spaces. It works alongside our new outdoor trail to help visitors further explore the museum's history and the stories we tell, and reveal the wonder of our globally significant site. It is also an important contribution towards reducing our carbon footprint for the benefit of the climate, local communities and wildlife.

The garden is part of our ongoing, multimillion-pound Masterplan to unite the museum's original features with new additions to secure a sustainable future.

GREEN SHOOTS

Our beautiful new garden in Manchester reflects our commitment to a climate-friendly museum experience



Left and top *Black Tulip Mammogram* by Peter Dazeley, which is part of the Group's collection; a detail of the sustainable garden at our Manchester museum

SCREEN IDOL

IMAX: THE RONSON THEATRE

The Science Museum's spectacular new cinema, IMAX: The Ronson Theatre, opened with the UK premiere of BBC Earth's *Antarctica 3D*

'The 12-channel, precision, crystal clear sound system isn't just heard, it's also felt... it left the hairs on my arms saluting the realness I was witnessing!'

Chloe Cowan, On in London

The enormous new screen is installed at the IMAX cinema at the Science Museum

Following 10 months of closure to allow for a major revamp, the Science Museum's popular IMAX® cinema returned in December 2020 to cement its place as Europe's leading destination for film fans. Bringing together next-generation IMAX® with Laser and IMAX 70mm film – the original champion of analogue cinema – the newly named IMAX: The Ronson Theatre presents an immersive storytelling experience with decades of scientific ingenuity at its core.

As one of only two screens in Europe to feature the very best of both digital and analogue cinema, IMAX: The Ronson Theatre is sure to become a favourite among film buffs and museum-goers, promising an array of newly released blockbusters, 3D educational films and cinema classics as well as live events.

Complementing the Science Museum Group's focus on climate change for 2021 and beyond, the cinema opened with the UK premiere of BBC Earth's *Antarctica 3D* narrated by the actor Benedict Cumberbatch. The thought-provoking documentary, exploring how changes on the icy continent affect us

all, allowed cinema-goers to experience Antarctica's breathtaking landscape, treacherous climate and incredible wildlife through the wonders of 3D and immersive sound.

Sustainability has been at the heart of the refurbishment, with carpets woven from recycled plastic, new LED lighting and 3D glasses that will last over four times as long as previous models. Modern cinema seating is made of recycled fibre, while a transformed concessions area completes the experience with a bar stocked with refreshments from local suppliers who share the Science Museum Group's passion for a more sustainable future.

The Group has also championed the work of independent cinemas while ensuring the continued legacy of the Science Museum's much-loved former IMAX space. Seats from the theatre, which witnessed incredible guest speakers at live events – from will.i.am and Bill Gates to Stephen Hawking and astronaut Helen Sharman – have found new homes at the Leigh Film Society and Showroom Workstation, while

'A screen that is now undoubtedly a jewel in the crown for London big-screen cinema'

Benny Har-Evan, *Forbes*

former digital equipment has been donated to the historic Tyneside Cinema in Newcastle upon Tyne and the Oban Phoenix, a community-owned cinema in Oban, Scotland.

Sir Ian Blatchford, Group director, said: 'We're delighted to be safely welcoming back audiences to our revamped IMAX cinema, hopefully projecting some joy as well as igniting curiosity in our visitors with incredible stories of scientific endeavour. Cinema has a tremendous power to spark our imagination and transport us to other worlds, a means of escape that is much needed by us all today.'

Funders IMAX: The Ronson Theatre
Title sponsor The Gerald and Gail Ronson Family Foundation

DAILY HERALD ARCHIVE

PICTURE PERFECT

In a collaboration with Google Arts & Culture, the Group is digitising our historic *Daily Herald* photographic archive

The Daily Herald Archive is the largest single collection in the Science Museum Group. It comprises more than 3.5 million individual photographs from the photo library of the daily British newspaper, which was published in London from 1912 to 1964. It includes prints from press agencies and freelance photographers alongside work created by *Herald* staff photographers.

With the support of Google Arts & Culture, we have been able to begin a pilot phase of digitisation of the Daily Herald Archive, an ambitious project that aims to create 18,000 new digital images of the paper's photographs.

This project will help us unlock one of the most compelling visual collections in the Science Museum Group. This photographic archive represents everything that was newsworthy for a

British newspaper in the middle of the 20th century. It documents significant international moments in history, such as the Spanish Civil War, the rise of fascism, the abdication crisis and the General Strike, alongside regional and national events. It is a treasure trove of portraits of public figures, celebrities and ordinary people.

Beyond the images themselves, the captions and editorial marks tell us rich stories about how these images were created and used by the editors and art directors of the *Daily Herald*.

We have borrowed image scanners and hired a team to start documenting and digitising the collection. New stories will be created for Google Arts & Culture and the Group's online collection. This, however, is just the first step. We are also launching a three-year research-funded

Left Winston Churchill and Charles de Gaulle (Anthony Eden stands behind Churchill) at the Liberation of Paris, August 1944

Below Dean Martin and Frank Sinatra arrive at London Airport in 1961; Bernard Cribbins and Barbara Windsor star in *Carry on Spying* (1964)



project called 'Communities and Crowds'. This is a collaboration between the National Science and Media Museum, the University of Oxford and the Adler Planetarium to create a volunteer-led digitisation process for the Daily Herald Archive, which will ultimately result in an online 'citizen-science' platform.

Over the next three years we will be delving into the Daily Herald Archive to make this incredibly rich collection more visible, relevant and open for all.

HISTORY IN THE MAKING

The Group has set up a dedicated project to ensure historically significant artefacts from the UK's pandemic response form part of our collections



Perhaps the most unexpected challenge posed to the Science Museum Group's 'rapid-response' curatorial team has been the Covid-19 pandemic. As Britain began to enforce measures to combat the crisis, our curators quickly established the Covid-19 Collecting Project in an effort to ensure artefacts from this important period in history were acquired by the Group.

Since the opening of the Science Museum's acclaimed *Medicine: The Wellcome Galleries* in November 2019, our curators have sought to expand the collection of medical-related objects to ensure that the latest scientific and biomedical research is captured for future study and display. In March 2020, the team set up the Covid-19 Collecting Project, advised by an external advisory panel chaired by Julia Knights, deputy director of the Science Museum.

The team have been collecting acquisitions on behalf of the nation to reflect the medical, public health, industrial and scientific responses to the pandemic. When the Science Museum reopened, visitors were able

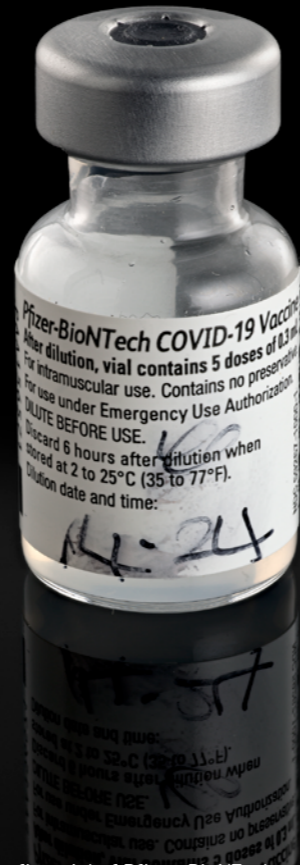
to see selected objects from this project on display in the *Medicine and Communities* gallery. Central to this display is the syringe and vial used to vaccinate Margaret Keenan, the world's first person to receive the Pfizer-BioNTech vaccine to protect against Covid-19 outside the clinical trials. It also includes the vial that contained the first Oxford Astra-Zeneca vaccine to be administered, and examples of lectern signage used during the UK government's press conferences to reinforce public health messaging in their pandemic response.

It's been an exciting challenge for the curatorial team. When *Medicine: The Wellcome Galleries* opened in November 2019 at the end of an eight-year project, no one could have guessed that their first year of opening would be abruptly cut short by a global pandemic. The carefully planned schedule of public events and learning activities were instead conducted online, while the pleasure of seeing our visitors enjoying the galleries had to be postponed. However, these five vast exhibition spaces were designed to have a

Above The first vial of Pfizer-BioNTech vaccine to be administered outside clinical trials
Left Emily Lawson, vaccine lead for NHS England; Julia Knights, deputy director, Science Museum; Sir Ian Blatchford, Group director; Natasha McEnroe, keeper of medicine, Science Museum; Felicity Buchan MP; Oliver Dowden MP, Culture Secretary

25-year lifespan and were waiting for our audiences when the Science Museum reopened its doors in the spring. The medicine collection in these new Wellcome galleries is one of the finest in the world. Comprising both the Sir Henry Wellcome Historic Museum Collection, on loan from Wellcome since 1979, and the Science Museum's own medicine collection, it has more than 150,000 objects. It is expanding all the time – as the Covid-19 Collecting Project has already demonstrated.

Funders *Medicine: The Wellcome Galleries*
Title funder Wellcome **Supported by** National Lottery Heritage Fund **Principal sponsor** GSK **Major funder** The Wolfson Foundation **Major sponsor** Vitabiotics **Funders** Art Fund, Stavros Niarchos Foundation (SNF) **Thanks to** Brifford Bridge Trust, Medical Sciences Historical Society, Dr Martin Schoernig and an anonymous donor **Media partner** *The Observer*



'It has been so much work to try and develop the vaccine in time, but we did it! The moment we saw Margaret get vaccinated was incredibly emotional'

Berkeley Phillips,
UK medical director of Pfizer

PANDEMIC RESPONSE

As part of an organised response to Covid-19, the Group interviewed scientists, published blogs to help the public understand the disease, and offered its museums to the NHS as vaccination and test centres

The Science Museum Group was proud to be engaged in a busy programme of activities over the course of the past year as part of its response to Covid-19, with a particular focus on improving public understanding and helping the vaccine rollout.



Above Health Secretary Matt Hancock receives a first dose of Covid-19 vaccine from Jonathan Van-Tam, deputy chief medical officer, at the Science Museum

Top HRH The Duke of Cambridge receives his first dose of vaccine at the NHS vaccination centre at the Science Museum



During the pandemic, we opened the Science Museum as an NHS vaccination centre, organised a major online event to examine vaccine hesitancy, and provided extensive detailed information about rapidly emerging Covid-19 science.

While vials for the first coronavirus vaccines were collected and put on display in *Medicine: The Wellcome Galleries* at the Science Museum, the Group was already taking part in the nationwide testing and vaccination programmes. Locomotion in Shildon opened as a Covid testing site in July 2020, while in March 2021, the Science Museum in London opened as a vaccination centre for the NHS Clinical Commissioning Group for six months.

Prior to this, the Science Museum had hosted the first in a series of three online vaccine events in February about the growing problem of vaccine hesitancy. This featured a distinguished panel of speakers, including Anthony Fauci, chief medical adviser to US President Joe Biden, and Nadhim Zahawi, the UK's vaccine deployment minister. The talk was widely reported in the media.

In an accompanying blog, Group curator Imogen Clarke looked back at the history of vaccine hesitancy, which emerged after the first vaccination against smallpox, carried out by the English country doctor Edward Jenner in 1796, through the lens of the Science Museum Group Collection.

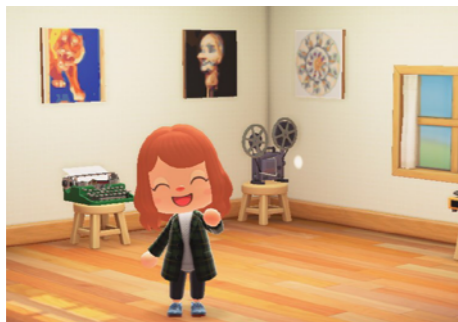
'With genomic epidemiology, we've created an observatory that reveals the genetic life of the virus in real time'

Oliver Pybus, professor of evolution and infectious disease, University of Oxford

From the first lockdown in March 2020, Roger Highfield, science director of the Group, wrote a series of fascinating long-form Q&A blogs about the pandemic, in which he interviewed leading scientists (quotes are highlighted, top left and above). These provided insights into the global research effort, from the use of modelling and electron microscopy to the role of organoids in understanding the long-term effects of the disease.

Many leading figures took part in the Q&As, including the developers of the Oxford-AstraZeneca, Pfizer, Valneva and Janssen vaccines, Neil Ferguson, head of the Imperial College Covid-19 Response Team, and Kate Bingham, who chaired the UK's Vaccine Taskforce. A large online readership across the world consulted more than 110,000 words Highfield wrote on the subject for the blogs. In addition to his Group work, Highfield also advised the Medical Research Council and the Academy of Medical Sciences.

Right and below
A still from the *Animal Crossing* computer game; Michael Bailey and Peter Davidson reveal the secrets of the 'Hetton Mystery' at Locomotion



Above and left Visitors admire our vintage Rolls-Royce in the Science and Industry Museum; a shipper's ticket featuring a tiger, c1880-1920



SCIENCE CHANNELS

Online events and customised games were some of the ways in which we kept audiences inspired and entertained during lockdown

Following the temporary closure during lockdown, our museums came up with many creative ways to keep in touch with our audiences through digital channels.

At Locomotion, in Shildon, the team invited Michael Bailey and Peter Davidson, who are world-leading specialists in the field of locomotive investigation, to reveal the results of their latest research project via an online event. This aimed to solve the 'Hetton Mystery' – a locomotive in the Group's collection thought at one time to be an original Stephenson engine.

A select group of early railway experts and journalists logged on to hear Bailey

announce his findings, followed by a detailed Q&A session. The locomotive was found to have been built circa 1849 and named *Lyon* after a local landowner. A story of deception from the turn of the century was discovered, which ironically saved the engine from the scrapheap.

Colleagues at the Science and Industry Museum in Manchester hosted the popular Manchester Science Festival digitally for the first time this year. Online visitors were treated to a host of free talks, exhibitions and activities to enjoy from home during 10 days of scientific celebration. Discover more about the festival on page 17.

Another Science Museum Group team developed a way to use the computer game *Animal Crossing: New Horizons* to introduce new audiences to our collections. The game, which has sold more than 31 million copies worldwide, enables players to create customisable worlds and to upload artwork.

The team selected objects to represent each museum and made these available for people to upload to the game. Objects featured included 'Stookie Bill', one of the dummy heads used by TV pioneer John Logie Baird in his experiments with broadcasting images, from the National Science and Media Museum, and a colourful shipper's ticket from the Science and Industry Museum's collection.

Our programme of digital outreach formed part of the Group's broader Covid-19 response. In addition to our talks and blogs, our curators researched stories, and identified objects related to the pandemic to collect on the nation's behalf (see page 21). This project aimed to give future generations the chance to learn about this unprecedented period through the physical objects at the centre of the story.

TEAM EFFORT

Pooling our expertise and resources across the Group allowed us to adapt to changing lockdown rules, and to reopen our museums swiftly and safely

'We have sanitised our museums, but not the experience'

Sir Ian Blatchford, Group director

Ordinarily, our museums provide cultural and learning experiences for more than five million visitors a year. During the pandemic, when they were unexpectedly forced to close for long periods, they rapidly switched to supporting families and individuals with online learning resources, games, apps and a BBC Bitesize partnership.

Our Learning teams have also helped local communities, notably in Bradford, where 10,000 home-learning packs were delivered to families, in addition to 27,000 printed resources distributed

during the first lockdown. When the museums were able to reopen in the summer of 2020, hundreds of colleagues across the organisation worked tirelessly to adapt the sites for the post-coronavirus world, ensuring visitors and staff had a 'Covid-safe' experience without diminishing the enjoyment of the visit.

From new signage to hand sanitiser, enhanced booking systems to Covid-safe toilets, we reaped the rewards of having shared access to expertise across the Group's museums. Staggered

reopenings also allowed us to learn from one another. The smallest museum in the Group took on the largest challenge: Locomotion in Shildon led the way by reopening in July and helped to shape the other museums' responses.

Consistent, clear messaging across the Group, both internally and externally, ensured that colleagues and visitors felt confident in the measures put in place to protect them. Widespread media coverage highlighted the key messages about booking tickets and the new health and safety measures.

400%

Our online learning resources saw a 400% increase in visits in April 2020



The requirement of all visitors to book a ticket to any of our museums not only enabled us to maintain social distancing, but also to introduce donation options at the point of booking. Visitor feedback has been consistently positive throughout the reopening periods and we have continued to adapt and refine our approach in line with government regulations.

Above and left
Preparing our museums to welcome back visitors in summer 2020

TOUR DE FORCE

The Science Museum Group is continuing to inspire futures across the globe with touring exhibitions that thrived even in the face of a pandemic

500,000

The *Robots* exhibition has been experienced by over 500,000 people around the world



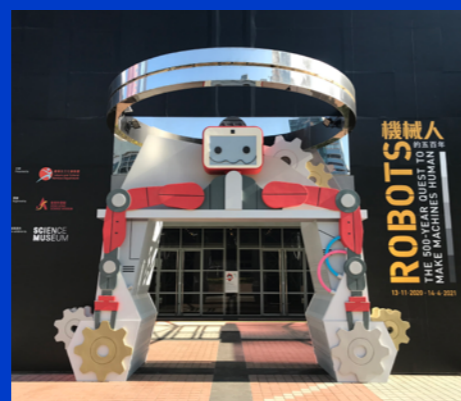
Three years after its original exhibition at the Science Museum, *Superbugs: The Fight for Our Lives*, which explored the rise of antibiotic resistance, has proven its importance yet again.

In partnership with Guangdong Science Center in China and the National Council of Science Museums in India, *Superbugs* embarked on a tour of China and India in spring 2019. Made possible by support from Wellcome, the tour ended at Science City in Kolkata in March 2021 with a last hurrah in time for India's National Science Day.

The exhibition also weathered the pandemic to reach all four of its planned venues in China, welcoming 945,330 visitors from July 2019 to February 2021, when it closed its doors at the Wuhan Science and Technology Museum.

To date, more than 1.5 million people around the world have interacted with *Superbugs* on its tour, including sustainable Blueprint versions of the exhibition, which allow venues to create their own unique experience. These have been seen at three venues in South Korea: Gallery Puesto, Seoul, in partnership with Pfizer; the National Science Museum of Daejeon; and Busan Science Experience, as well as in Argentina, Mexico, Russia and the USA.

Meanwhile, our 2017 *Robots* exhibition exploring the 500-year story of humanoid robots continues to prove popular and has been seen by more than 500,000 people around the world. Following a multi-venue tour in the UK, *Robots* travelled to its first international location in Sweden in 2019, attracting nearly 300,000 visitors. In the midst



Above *Superbugs* on display at the Science Cultural Centre in Argentina **Far left** *Never Alone* on display at Ithra, Saudi Arabia **Left** *Robots* at the Hong Kong Science Museum

517,846

Superbugs in India has been visited by over half a million people

of the pandemic, our teams were then faced with the enormous task of safely transferring *Robots* to the Hong Kong Science Museum, despite increased travel restrictions, where it successfully opened in November 2020.

The National Science and Media Museum's thought-provoking 2018 exhibition *Never Alone*, exploring what it means to be connected in the internet age, also toured to the stunning location of Ithra, the King Abdulaziz Center for World Culture in Dhahran, Saudi Arabia, in early 2021, ensuring our inspiring exhibitions continue to reach audiences across the world.

Funders *Superbugs* at the Science Museum **Major sponsor** Pfizer **Associate sponsor** Shionogi **Supported by** UKRI, University of East Anglia **Funders** *Superbugs* international tour **In partnership with** Guangdong Science Center in Guangzhou, China, and the National Council of Science Museums in India **With thanks to** Wellcome (principal funder), the British Council in India. The *Superbugs* Blueprint Pack exhibition toured to Argentina and Russia with support from the Foreign, Commonwealth and Development Office **Funders** *Robots* at the Science Museum **Supported by** NHLF **Media partner** *The Guardian*

LOCKDOWN LEARNING

Our teaching resources and collaboration with the BBC brought science education into homes across the country

1M

More than 1m young people engaged with our learning content and resources

Last summer, we partnered with BBC Bitesize to bring the excitement of science into living rooms across the country. As the BBC's biggest education offer, BBC *Bitesize Daily* programmes and online lessons have played a pivotal role in helping young people to learn during the pandemic.

We conducted table-top experiments with everyday items, encouraging learners to take part at home and delivered spectacular experiments straight from the Science Museum's *Wonderlab: The Equinox Gallery* to reveal the wonder of science.

The programmes have been hugely successful, featuring on BBC Two and CBBC, and available on BBC iPlayer and BBC Red Button with more than 1.5 million views in one week.

'We are delighted to have been able to collaborate with BBC Bitesize to bring our inspirational and fun STEM activities to so many young people, parents and teachers in this incredibly difficult year'

Susan Raikes, director of learning

STEM LEARNING RESOURCES

Demand for our online home learning resources increased by 400% last year when our focus moved to providing teachers, parents and carers with STEM activities and inspiration for young people at home while schools were shut. We released family-friendly videos, alongside a suite of new maths resources and an environmental object hunt. We also distributed thousands of printed Science at Home packs via schools, social workers and foodbanks to help support children and families without access to the internet.

SCIENCE MUSEUM GROUP ACADEMY

While our training hubs in London and Manchester remained closed, we developed a range of online STEM engagement training sessions for teachers. Our team delivered training to over 470 teachers, museum and STEM professionals, sharing practical tips to ignite curiosity in STEM.

Funders Science Museum Group Academy **Founding partner** bp **Funders** Maths Resources **Supported by** MathWorks

Above An educational experiment in *Wonderlab* at the Science Museum **Right** 'Ear gongs' demonstration using a coathanger and string



CREATIVE MEASURES

Our research and teaching projects adapted well to lockdown, and the lessons learnt will help us once we return to face-to-face engagement



The word 'research' conjures up images of the lone scholar working silently at their desk. If so, it might seem that a pandemic year spent working from home would be ideal. Well, yes and no. A major museum group's research is not all like that – much of it is done socially in groups, and even doctoral students ploughing their more solitary furrows are used to regular contact with their supervisors and archivists. So how has the Science Museum Group's research enterprise adjusted to online working?

Normally, conferences and seminars are the most vivid signs of research activity. Online alternatives have filled some of the gap, including the Scientific Instrument Commission event in September 2020, and the Sound Instruments and Sonic Cultures Conference in December 2020. Online conferencing can increase participation globally, even if the opportunities for longer conversations are curtailed.

Teaching our UCL Master's course 'Curating Science and Technology' online, and making short video lectures, readings and other resources available to the students online, has taught us much that we will continue to apply after we return to face-to-face teaching.

Above Sir Charles Parsons' Auxetophone, attached to a gramophone. The Group hosted a Sound Instruments and Sonic Cultures Conference in December

'Over the past ten years there has been a massive change in the role of research in the Science Museum Group'

Ludmilla Jordanova,
Group Trustee

Our Arts and Humanities Research Council projects showed real creativity in responding to the strictures of lockdown; *Bradford's National Museum*, which explored how the National Science and Media Museum can become locally rooted and more open, engaged and collaborative, was completed online, and *Sonic Futures*, a series of digital experiments to help the public discover our collection of sound technologies, created a suite of online interactives, in the place of a gallery experience. *Heritage Connector*, our project using artificial intelligence techniques to link our collections with external data, has made wonderful progress, with everyone working from home.

Some of this online project technique will continue to be valuable post-pandemic.

But we have long been a force online: two issues of the *Science Museum Group Journal* also appeared in the past year, including our fourteenth edition, a special issue on displaying medicine inspired by *Medicine: The Wellcome Galleries*. In many ways, over the past year our other activities have simply followed the Journal's pioneering path online.



SUPPORT NETWORK

'It's been really good to work with SMG, as part of the Character Matters UK Museums Workforce Steering Group'

Isabel Churcher, senior manager, Museums,
Museums and Cultural Property, Arts Council England

Despite the challenges, the past year has been a remarkable one for volunteering. We have enabled volunteers to help us harness the power of digital, created innovative ways for people to get involved and acted as the leading voice for volunteering in the sector.

Over the past 12 months, our volunteers have helped us to exceed audience expectations in new ways. At the Science and Industry Museum, they used their gallery experience to support the Gallery Access Review and got their hands dirty with a planting project that will engage visitors in the fascinating history of the site.

Locomotion's new Ambassadors provided visitors with a safe and enjoyable experience after reopening in 2020. To celebrate International Women's Day, Science Museum tour guides also participated in a Group patrons event, highlighting the stories of extraordinary women in science.

In particular, our volunteers helped to harness the power of digital technology. At the National Science and Media Museum, volunteer blogs received over 3,000 views; one was picked up by both the local and international press – the *Telegraph & Argus* and *MailOnline* respectively.

Our army of volunteers worked tirelessly to ensure the Group's digital offering and research projects went smoothly

In York, National Railway Museum volunteers contributed 3,000 hours to the Railway Work, Life and Death Project, helping to create an invaluable research resource for railway historians. At our storage facility in Blythe House, in West London, chemistry cataloguing volunteers worked online with curatorial colleagues to research chemical glassware. At the Science Museum, CoderDojo mentors used their expertise to review resources, choose new equipment and reshape the activity for its return once our doors were open again.

Through our leadership of national and local volunteer management groups, and our work with the Department for Digital, Culture, Media and Sport and Arts Council England, we have provided guidance and support to the sector throughout the pandemic. Alongside this, we continued to extend our international reach by working in Russia with the Department of Cultural Heritage of the City of Moscow, the Association of Cultural Managers and the Vladimir Potanin Charity Foundation.

Above Volunteers Rachael Appleby and Brian Goodfellow with *Green Arrow* at Locomotion, Shildon

Below, left to right Volunteers at The Type Archive, London. Bob Richardson, Doug Ellis, Sallie Morris, Duncan Avery, Ian Gabb, Parminder Kumar Rajput and Robert Hetherington



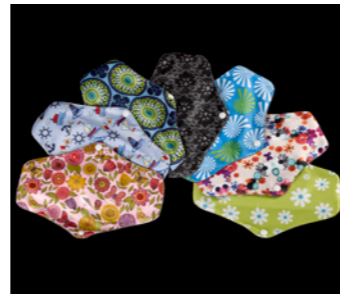
WHAT WE ACQUIRED

In 2020–21 we added 733 objects to the Science Museum Group Collection. Here are 10 highlights



Cottam Power Station Unit Control Desk

At one time 50 Unit Control Desks such as this one controlled up to 70% of the UK's entire power generating capacity. Each allowed a single operator to manage a 500-megawatt generator, feeding electricity to the National Grid.



Menstruation collecting project

Collecting examples of menstrual products today has filled a significant gap in the collection. From tampons to Mooncups, pads to period pants, curators have identified items to add to our historic examples and those from the 1960s and 1980s.



Protest sign used at youth strike against climate change

This sign was made for the youth strike against climate change on 15 March 2019. An estimated 10,000 young people protested in London, joining 2,000 protests in 100 countries. Young people walked out of school, college and university to express their anger that their concerns about climate change were not being taken seriously.



Mark 3 buffet car No. 40732

The Mark 3 buffet car was designed for British Rail's 125mph high-speed train service. It set new standards of safety and comfort, with first class sit-down dining and a trolley service. For over 40 years this buffet car operated across Britain's rail network, most recently on the East Coast Main Line.



Greater Anglia railway poster: Thank you key workers

This design, by 12-year-old Ella Young, was the winning artwork in a poster competition held to demonstrate support for key workers during the Covid-19 pandemic. It is one of many items collected by the Science Museum Group to document the impact of the coronavirus on our lives.



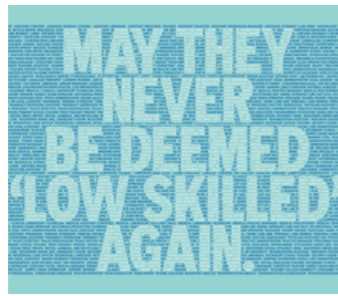
Britain's Railways All Change Archive

Over 120 oral history interviews were recorded to document the process of privatising Britain's railways from 1994 to 1997. The archive was created in partnership with the Friends of the National Railway Museum and the Retired Railway Officers Society.



Coiler can

Coiler cans like this one were used widely in Lancashire's textile mills. Workers used the cans to collect strips of parallel cotton fibres known as sliver, with the cylindrical design enabling large quantities of sliver to be collected in a continuous coil, ready to be processed by the next machine.



'May they never be deemed low-skilled again' poster

Designed by Mancunian Craig Oldham, this poster appeared nationwide from April 2020. The typographic design features jobs that earn below £25,000, a threshold used to define low-skilled jobs by the government's points-based immigration scheme.



Alfred Swaine Taylor photographs

Photographs and notes related to the work of Alfred Swaine Taylor, a doctor, teacher, early pioneer of photography and 'father of forensic medicine', have joined the collection in a significant addition to our history of photography and medicine holdings.



For Science

Jenny Holzer's new work *For Science* creates a space of rest and reflection for visitors exploring *Medicine: The Wellcome Galleries*. Two stone benches made from Silver Cloud granite feature texts sandblasted into their seats.

WHAT WE LOANED

In the past year, the Group loaned 2,143 objects to 156 different venues in the UK and 103 objects to another 14 venues overseas. Here are 10 highlights



Great Northern Railway GRN 4-4-2 No. 251, 1902.

To: Danum Gallery, Library and Museum, Doncaster. This locomotive's innovative large boiler design gave it superior performance. It has been loaned to this new museum in the town where it was built.



Set of 12 rubber and steel measuring rings, for Clinocap diaphragms, 1934.

To: British Library, London. Made for Dr Marie Stopes, these measuring rings established the size of contraceptive diaphragm for each woman. Loaned for the exhibition *Unfinished Business: The Fight for Women's Rights*.



Septimus Edwin Scott, 'New Brighton and Wallasey' – illustrated with a lady on a diving board at an outdoor pool, 1923–47.

To: Sainsbury Centre, Norwich. This London Midland & Scottish Railway poster was loaned for the touring exhibition *Art Deco by the Sea*. A filmed tour was featured in the BBC's *Culture in Quarantine* season.



John Littlejohns, 'Whitley Bay' – beach scene with bathing belles, undated.

To: Laing Art Gallery, Newcastle upon Tyne. Lent for the touring exhibition *Art Deco by the Sea*, this London and North Eastern Railway poster promoted a Tyneside destination so was an appropriate choice for display in Newcastle.



Whole model (rigged) of the screw steamship Great Britain, 1840–78. Unknown maker, United Kingdom. Scale 1:48.

To: Being Brunel, SS Great Britain, Bristol. The model shows the vessel designed for the Great Western Steamship Company by Isambard Kingdom Brunel. Details include four lifeboats, and the coat of arms of England on the bow.



Sokol KV-2 emergency suit, 2015. Made by Zvezda Research, Development and Production Enterprise, Russian Federation. To: National Space Centre, Leicester.

Space suit as worn by British ESA astronaut Tim Peake during the Principia mission to the International Space Station, 2015–16. Loaned to an exhibit charting an astronaut's journey.



William Henry Fox Talbot, 'A Scene in a Library', 1841–44.

To: Gallerie Estensi, Modena, Italy. One of the pioneers of photography, Talbot developed photographic processes: this is a salt print from calotype negative. His connections with Italy were examined in the exhibition *Impression of Reality*.



Cecil Beaton, 'Flowers' – still-life of flower bouquet on cloth backdrop, circa 1936. Print made in the 1970s.

To: Dulwich Picture Gallery, London. This silver gelatin copy print by the acclaimed photographer was loaned for the exhibition *Unearthed: Photography's Roots*, the first major photography show at the gallery.



Model of 'Firefly' class locomotive, 1838. Scale 1:8.

To: Tate Britain, London. This superb model was the personal property of Sir Daniel Gooch, representing his first independent locomotive design for the Great Western Railway. Loaned for the exhibition *Turner's Modern World*.



De Dion Bouton motor tricycle, 1898. Made by the Motor Manufacturing Company, Coventry.

To: Coventry Transport Museum. This tricycle is a Coventry-made copy of French machines, and features improvements patented by Count Albert De Dion and Charles Bouton in 1895.

'Brass, Steel and Fire celebrates the joy of making, which is as relevant now as it was in the 1800s. It lets us unwind, experiment, gain new skills and craft something unique'

Anthony Coulls, senior curator at the National Railway Museum

STEAMING AHEAD

The Science Museum was delighted to host *Brass, Steel and Fire*, which celebrates the golden age of locomotive design, after its successful run at the National Railway Museum

In the midst of the uncertainty posed by the Covid-19 pandemic, the award-winning *Brass, Steel and Fire* exhibition opened at the Science Museum in October 2020 following an eight-month run at the National Railway Museum in York. This fascinating exhibition journeyed through a century of model-making in the age of the railways, exploring the skills, endeavour and pride of pioneering makers and their elaborate home-made machines.

Brass, Steel and Fire featured several of the oldest model locomotives in the world, lovingly handmade from scratch in the 19th century. The rare early railway models, which were brought together for the first time for this show, included the world's oldest model locomotive, *Salamanca*, loaned by Leeds Museums and Galleries; *Topsy*, which helped spread narrow-gauge railways around the world, loaned by Ffestiniog Railway in Wales; and a model of *Fire King*, made in the 1840s by apprentice Josiah Evans, and one of three rare models loaned by the Rahmi M. Koç Museum in Istanbul, Turkey.

The exhibition, which ran until 3 May, won the Interpretation Award at the 2020 Heritage Railway Association Awards, and was kindly supported by Hornbeam Park Developments and players of the People's Postcode Lottery.



Above Visitors admire the detailed hand-crafted models in the exhibition



Right Model steam locomotive, made by J. Dawson, of a standard passenger locomotive c1837

FINANCIAL SUMMARY 2020-21

FINANCIAL OVERVIEW

The year 2020-21 was one of the most challenging financially in the Group's history, with our museums shut for the majority of the period. We are grateful to government for its support measures, which included additional Grant in Aid, business rates relief for hospitality industries and the Coronavirus Job Retention Scheme ('furlough'), and to our other funders for their continued support in these times. Despite these measures, we were forced to make difficult decisions to reduce our workforce, aiming at securing the operational viability of the Group over the coming years. We have also

deferred or cancelled elements of our public programme in support of our core operations.

Grant in Aid from DCMS included the emergency Covid support package as well as significant contributions to the One Collection, Vision 2025 and Power Hall conservation projects. Non-Grant in Aid fell to only 20% of our total income, with trading revenue down 85% on 2019-20 due to closures. Donations and grants totalling £5 million were gratefully received from all our donors and supporters for a variety of activities. Our non-capital expenditure fell by

20% from 2019-20, while our capital expenditure on major projects and on collection items reduced by 50% during the year, as we delivered on the projects described above, but paused non-core activities. Full statutory results will be available in our Annual Report & Accounts, which are laid before Parliament each summer.

The Group has secured a funding settlement for 2021-22 that will allow us to focus on rebuilding over the coming year and support the delivery of our ambition as set out in *Inspiring Futures*, our long-term strategic framework.

SCIENCE MUSEUM GROUP VISIT NUMBERS 2020-21

Total number of visits to the museums	London	Manchester	York	Locomotion	Bradford	Group
2019-20	3,160,000	539,000	698,000	189,000	421,000	5,007,000
2020-21	208,000	36,000	89,000	16,000	11,000	360,000

Any anomalies in totals and % differences arise from roundings

PHYSICAL VISITS

This year, despite museum closures, we welcomed 360,000 visitors to our museums where usually we enjoy over five million visits. Each site was able to open for approximately three to four months between July and December with capacity limits in line with social distancing supported by a system of pre-booked tickets. Out of holiday periods the offer was reduced to a five-day-a-week operation, opening Wednesday to Sunday. Encouragingly, take up of pre-booked tickets was strong with available tickets sold out in holiday periods and visitor numbers performing ahead of our initial expectations. Reassuringly, our visitor feedback surveys across each of our sites indicated at least 81% of visitors rated their visit as good or excellent and the vast majority reported feeling either completely or very safe.

OFF-SITE VISITS

With our usual programme of off-site learning programmes not possible because of the pandemic, we switched to engaging people through mediated online activities, such as our Climate Talks series and online festival activities including Manchester Science Festival and Yorkshire Games Festival. We were also able to reach thousands of children through our partnership with BBC Bitesize. In addition, while our touring exhibitions programme was more limited this year with worldwide museum closures, 557,000 visits were made to our exhibitions touring in the UK and to China, India, Mexico and Saudi Arabia.

OUR DIGITAL AUDIENCE

Use of the Group's digital content was at an all-time high as we promoted at-home digital content across our websites and other channels with 6.5 million visits (compared with 5.7 million 2019-20), peaking during the lockdown periods with more than 700,000 visits per month. However, overall visits to our websites declined compared with the previous year as around half of online visits are driven by audiences planning a visit to our museums, which were closed for the majority of the year.

OUR GENEROUS SUPPORTERS

The financial support of visitors and partners provides critical funding for the Science Museum Group’s core priorities and future plans. We are hugely grateful to everyone who has supported our work during 2020–21

SCIENCE MUSEUM
Individual philanthropists, trusts, foundations and government
A.G. Leventis Foundation
AKO Foundation
Art Fund
Arts and Humanities Research Council
Blavatnik Family Foundation
Iain Bratchie
The Britford Bridge Trust
Cancer Research UK
John S Cohen Foundation
Dana and Albert R Broccoli Foundation
The David and Claudia Harding Foundation
DCMS/Wolfson Museums and Galleries Improvement Fund
Department for Digital, Culture, Media and Sport
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Fidelity UK Foundation
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Department for Digital, Culture, Media and Sport
Garfield Weston Foundation
Kirby Laing Foundation
Players of the People’s Postcode Lottery
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Corporate partners
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LOCOMOTION
Trusts, foundations and government
Players of the People’s Postcode Lottery

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The Science Museum Foundation is a registered charity committed to providing resources and advocacy to support the vision and mission of the Science Museum Group.

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SUPPORT THE SCIENCE MUSEUM GROUP

Do you have a passion for inspiring the next generation of scientists? Does your organisation need a STEM-literate workforce? Or do you want to ensure that the wider public engage with science and our scientific heritage? If the answer is yes, then you have a stake in our mission to inspire futures. We can only achieve this with your support and hope you will consider partnering with us to continue our vital work.

By partnering with the Science Museum Group, you will get to know our work, collections, and experts better, gain insight into how science has shaped the world we live in, and how it can tackle the pressing issues of today and tomorrow. You can help us fulfil our mission, while we support you to fulfil your philanthropic or business objectives in creative and tangible ways. Together we will inspire the nation, including your staff, customers, and stakeholders.

For further information please contact us at development@sciencemuseum.ac.uk



THE WORLD'S GREATEST ALLIANCE OF SCIENCE

‘Surely the best positioned
when it comes to the
technicalities of a pandemic,
the Science Museum is
back in business’

Time Out



Above The 2-HAP
passenger train
at Locomotion, in
Shildon, Co Durham

Left Tim Peake's
Soyuz spacecraft at
the Science Museum,
London

Right Film screenings
at the National
Science and Media
Museum in Bradford



Right The National
Collections Centre in
Wroughton, Wiltshire



Above New lower-
level entrance
and gallery at
the Science and
Industry Museum
in Manchester

Bottom
Visualisation of the
new Central Hall at
the National Railway
Museum, York

SCIENCE MUSEUM

The Science Museum has pioneered interactive science for more than eight decades. Over the past 10 years, under Sir Ian Blatchford's leadership, the museum has undergone a transformation, culminating in the opening in 2019 of the five galleries that make up *Medicine: The Wellcome Galleries*. The Group's world-class collection forms an enduring record of scientific, technological and medical advancement from across the globe. Key objects on display include Tim Peake's Soyuz capsule (2015) and a copy of Isaac Newton's seminal text *Principia Mathematica* (1687). The museum's Library and Archives care for more than half a million items.

SCIENCE AND INDUSTRY MUSEUM

The Science and Industry Museum in Manchester tells the stories of ideas that change the world, from the Industrial Revolution to today and beyond. Located on the site of the oldest surviving passenger railway station, in the world's first industrial city, the museum explores the greatest innovations of the past 200 years, from light bulbs and locomotives to textiles and computers. Our programme of exhibitions, experiences and events, including the Manchester Science Festival, brings science to life for people of all ages. A multimillion pound restoration and renovation is underway to restore this globally significant site and open up new spaces for all to enjoy, learn, play and be inspired in.

NATIONAL SCIENCE AND MEDIA MUSEUM

The National Science and Media Museum in Bradford explores the science and culture of image and sound technologies and their impact on our lives. We hold world-famous collections in photography, film and television, from the first experiments to the digital revolution, while our three-screen cinema, Pictureville, including an IMAX theatre, allows us to showcase films and formats from around the world. The *Sound and Vision* galleries, due to open in 2024, will bring together star objects from our collection for the first time to present a comprehensive history of the still and moving image.

NATIONAL RAILWAY MUSEUM

The National Railway Museum in York is home to the world's greatest collection of railway objects from the past 250 years. Set in former railway buildings near York station, the museum attracts visitors from around the world and tells inspiring stories of railway history and engineering. It has an unrivalled collection of famous locomotives and royal carriages and a programme of exhibitions and events. Vision 2025 is a £55 million transformation of the museum that will reimagine the story of the railways, showcasing the latest technology and providing an interactive and engineering focused experience for visitors.

LOCOMOTION

Locomotion displays highlights of the national collection of rail vehicles in Shildon, the world's first railway town, in Co Durham. The museum celebrates early pioneers of the Stockton and Darlington Railway and their impact on the global railway story. It is home to historic vehicles such as Timothy Hackworth's *Sans Pareil*, the prototype Deltic, British Rail's experimental Advanced Passenger Train, North Eastern Railway No.1, and the High Speed Train prototype. The on-site workshop allows visitors to watch the engineering skills of staff and volunteers, who restore a wide variety of vehicles, including the 2-HAP, the most travelled train in the national collection.

NATIONAL COLLECTIONS CENTRE

This year we celebrated the 40th anniversary of the National Collections Centre as part of the Science Museum Group. The site is home to half a million items from the Science Museum's Library and Archives and around 35,000 large objects from the Group's collection. Located on the former RAF Wroughton airfield near Swindon, this 545-acre site has large open grasslands, native woodlands and runways. The centre plays a vital role in the Group's sustainability and biodiversity activities. It hosts one of the UK's largest solar farms, and has established new habitats for wildlife and trees. The facility will open regularly for public tours, school and research visits from 2024.

'Well, I want to preserve it but I have no place to put it. But yes, I'll take it'

Dame Margaret Weston's reply when she was asked whether she wanted to buy Concorde 002 after it came to the end of its test service



Above Dame Margaret welcomes Indira Gandhi, prime minister of India, to the *Science in India* exhibition at the Science Museum in 1982

Above right With Dame Mary Archer, chair of the Group



VISIONARY LEADER

Dame Margaret Weston brought a fresh, dynamic approach to her role as director of the Science Museum, and her legacy lives on across the Group

This past year we waved a fond farewell to the one person who did more than any other to create the Science Museum Group: Dame Margaret Weston, who died in January, aged 94, became the first woman in the UK to run a national museum when she took over the Science Museum.

While director, from 1973 to 1986, Dame Margaret opened the National Railway Museum in York and created the National Museum of Photography, Film and Television in Bradford, which opened in 1983 and is today known as the National Science and Media Museum.

She acquired a 220-hectare (545-acre) former airfield in Wroughton, near Swindon, to collect large objects such as

planes, nuclear missiles and submarines. She also negotiated the transfer to the Science Museum of Sir Henry Wellcome's extraordinary collection of 100,000 objects, shifting the museum's emphasis from technology and physical sciences to include medicine.

The legacy of her bold move has taken shape under the museum's current director, Sir Ian Blatchford, with the Group expanding to include the Science and Industry Museum in Manchester; the opening of five galleries under the title *Medicine: The Wellcome Galleries* that fill an entire floor of the museum; and creating the collections management building at the National Collections Centre in Wroughton, accompanied by a vast effort to digitise our collections.

Dame Margaret's engaging spirit also lives on in our interactive galleries. In 1986, the year of her retirement, the landmark *Launchpad* interactive gallery opened at the Science Museum, continuing its tradition of using innovative ways to connect with young audiences, which began in 1931 with its *Children's Gallery*.

Launchpad marked a vital first step in creating a museum for the modern age – perhaps best illustrated in our *Wonderlab* galleries in Bradford and London. More are planned in coming years to inspire future generations of scientists and engineers – and all are a lasting testimony to Dame Margaret's visionary and energetic leadership.

WHO'S WHO IN OUR GREAT SCIENCE ALLIANCE

THE SCIENCE MUSEUM GROUP COMPRISES:

Science Museum, London
National Railway Museum, York
Science and Industry Museum, Manchester
National Science and Media Museum, Bradford
Locomotion, Shildon
National Collections Centre, Wroughton
SCMG Enterprises Ltd

BOARD OF TRUSTEES OF THE SCIENCE MUSEUM GROUP

The Board of Trustees of the Science Museum is responsible for the whole of the Science Museum Group. The trustees, who may number between 12 and 20, are appointed by and responsible to the prime minister through the Department for Digital, Culture, Media and Sport (DCMS). The director of the Science Museum Group, as chief executive officer, is responsible to the Board of Trustees; and, as accounting officer, is accountable to DCMS for compliance with the management agreement. Within the framework of their statutory duties as stated under the National Heritage Act 1983, the role of the trustees is to establish Group policy, review performance and endorse appointments to key management positions. Their primary activity is to assist the chair in meeting the board's overall responsibilities, in accordance with the policies of the secretary of state, and in compliance with charity law. The Board of Trustees also offers guidance and expertise on setting and implementing the strategy for the Group.

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Ms Nicki Sheard

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Mr Peter Ovenstone
Ms Vicky Stretch
* Joint members

NEW FELLOWS OF THE SCIENCE MUSEUM

The Science Museum Fellows Programme recognises scientists and individuals who have changed our world through academic research, design, technology and philanthropy.

Mr Charles Bolden Jr in recognition of his exceptional dedication to technology and engineering through his great distinction as a test pilot, then as an astronaut, Space Shuttle pilot and commander, and latterly as administrator of NASA.

Professor Dame Ottoline Leyser in recognition of her exceptional dedication to science through her distinguished research on plant genetics, her roles in the Royal Society, UKRI and Nuffield Council on Bioethics, and advice for the Science Museum.

Sir Roger Penrose in recognition for his dedication to science through his seminal work in the field of general theory of relativity and black holes, recognised by a Nobel Prize, his bestselling books on mathematical physics, consciousness and cosmology, his work on geometry, and his support of the Science Museum's *Pattern Pod*.

Professor Simon Schaffer in recognition for his remarkable scholarship as a historian and philosopher of science, bringing science to a wide audience through his books, TV programmes, and his contribution to the Science Museum through his membership of its advisory board.

FIRST PLACE

On 27 September 1825, George Stephenson's *Locomotion No.1* set off from outside the Mason's Arms public house in Shildon – just a short distance from where one of our museums is based – and began one of the most important journeys in human history: the first steam-powered public passenger train journey in the world.

In March 2021, *Locomotion No.1* made the nine-mile journey north (from Darlington where it had been on long-term loan) to Shildon. Our priority throughout with an object of this age and importance was not speed, but to protect the locomotive, and to do so safely. Our brilliant team of conservators worked closely with colleagues at Head of Steam and our move contractor to manage the move.

Since the relocation, we have completed asbestos remediation and conservation work as part of preparing the engine for public display, as well as for a detailed, forensic investigation that will reveal so much more about the history of a locomotive that is so well-known but has been so little understood.

As we head towards the significant railway anniversaries of 2025, the whole of the UK – and the world – will turn their attention towards the North East, where not only *Locomotion No.1*, but also the world's railway history, was forged. We will work together with Darlington and many other towns, organisations, and enthusiasts of all ages along the 26 miles of the Stockton and Darlington Railway to make these celebrations truly memorable.

'A travelling exhibition about bacterial infection is proving to be a remarkably well-timed hit with visitors in China after it reopened following the lifting of restrictions on movement as part of efforts to combat the novel coronavirus outbreak'

Julian Shea, *China Daily*

'*Superbugs: The Fight for Our Lives* will be very relevant in India, where AMR poses a major risk to public health. The project will further strengthen the bond between the two leading Science Museum networks in India and the UK'

Arijit D Choudhury, director-general of the National Council of Science Museums, India

'The incredible new experiences that this spectacular gallery will bring will be integral to the cultural and skills recovery of our city through science, arts, technology and innovation for everyone'

Richard Leese, leader of Manchester City Council, on the new gallery at the Science and Industry Museum

OUR FIVE WORLD-BEATING MUSEUMS

Science Museum, London
National Railway Museum, York
Science and Industry Museum, Manchester
National Science and Media Museum, Bradford
Locomotion, Shildon

SUPPORT OUR MUSEUMS

Visit sciencemuseum.org.uk/about-us/support-us or for corporate membership and patrons see page 33

ANNUAL REVIEW ONLINE

sciencemuseumgroup.org.uk/about-us/annual-review

SCIENCE MUSEUM GROUP ANNUAL REVIEW 2020–21

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An aerial photograph of a coral reef system. A large, irregularly shaped lagoon with deep blue water is the central feature. To the right of the lagoon is a small, elongated island with a mix of green vegetation and brown sandy areas. Further to the right, another smaller island is visible. The surrounding ocean is a lighter turquoise color, showing the intricate patterns of the coral reef. The bottom of the image shows a sliver of a brown, rocky coastline.

‘We’re delighted to support the Science Museum’s India tour of *Superbugs*. We’ve been inspired by India every day of the last 70 years and we hope *Superbugs* will inspire young people across India to tackle one of the most critical challenges of our time’

Alan Gemmell, director,
British Council in India

‘*Our Future Planet* is a wonderful opportunity to involve and engage British and global audiences in how we can decelerate climate change and bring it to a halt’

Duncan Wingham, chairman of the
Natural Environment Research Council
and UK Research and Innovation
COP26 lead

‘Earth observation satellites are providing vital data to aid our understanding of climate change, but it is only our actions that can make a difference’

Tim Peake, astronaut

‘Take a minute to visit the Science Museum Group’s *Never Been Seen* collection’

The New York Times

‘We need a planet that’s based on renewable energy... we need to ensure that it’s more profitable to invest in green products’

Kira Peter-Hansen, MEP, speaking
at our series of Climate Talks

‘Every single day we are on this planet we make some impact and we have a choice as to what sort of impact we make’

Jane Goodall, conservationist, speaking
at our series of Climate Talks