memo
mass extinction monitoring observatory
MEMO is a collaboration of artists and scientists dedicated to upholding the diversity of life on Earth as of fundamental, universal and wondrous value. Life is a cosmic rarity. Though we have seen far into the reaches of space, all life known to science is to be found here on Earth. Biodiversity describes this glorious, glittering whole. However it is now under threat from the accumulated impact of human activities on a scale comparable to that which extinguished the dinosaurs.

From Stonehenge to the Taj Mahal we have always built monuments of stone. We seek to build a monument for our time, to bring together the best of the arts and sciences in reflection on the true wonder of this world: the variety of its life.

The stones of MEMO will embody an important but neglected record in the history of life. When compared to the fossil record, the 860 species of plants and animals assessed as extinct in modern times indicate the beginnings of a ‘mass extinction event’ akin to that which wiped out the dinosaurs 65 million years ago. Yet their images have never been collected together in one place, in any medium, anywhere. We propose that all of them be carved in simultaneous sculptors’ residencies, in schools and other public spaces all over the world, in a great global symbol of respect for the natural world.
Public engagement is a crucial task because, as with so many such scientific issues, there is the persistent difficulty that by the time the issue seems urgent it will be largely too late to do anything about it. While biodiversity loss proceeds like geological lightning, it remains incrementally slow in ‘human-time’. Therefore those initiatives which can bridge the imaginative gap between geological and human timescales are essential.”

Dr. Eric Chivian
Nobel Laureate and founder of the Center for Health and Global Environment at the Harvard School of Public Health

“MEMO is an inspirational project that is sure to raise the profile of extinct and threatened species and reach out to previously untapped and wide ranging audiences.”

Simon Stuart Chair, IUCN, Species Survival Commission

These carved stones will form the walls of MEMO. The space enclosed will become a living arena for projection and performance, exhibition and installation, conference and festival with the mission to inform, to educate, to inspire. On-site and on-line, all programmes will link to schools and conservation initiatives all over the world. The ‘epic of evolution’ will be told and the solutions to halting biodiversity loss will be show-cased. While history is written in stone, the future is yet ours to shape.

The project is being pursued by MEMO, an educational charity based in the UK, in partnership with the E.O. Wilson Biodiversity Foundation in the US. The project was first conceived in 2006 by stonecarver and Project Director Sebastian Brooke. MEMO is led as Chair by Sir Ghillean Prance who, as Director of Kew Gardens, initiated the wonderful Millennium Seedbank in the 1990s. Sir Tim Smit, who co-founded the multi award-winning Eden Project, is Principal Adviser. We have a ‘triple-A’ design team headed by internationally acclaimed architect, David Adjaye, engineers, ARUP, and AECOM as cost consultants.

Support for the project is heartwarmingly wide-ranging. HRH The Duke of Edinburgh is the Royal Patron. Other Patrons include many leading scientists – and communicators of science – including Professor E.O. Wilson and Sir David Attenborough. The principal international authorities – the IUCN Species Survival Commission, which produces the ‘Red List’; and the Secretariat of the UN Convention on Biological Diversity – are committed supporters of MEMO.
MEMO will be built on the Isle of Portland on the south coast of Britain where a spectacular cliff-top site is being provided by the Crown Estate. Portland draws together themes of architecture, geology, and the natural environment to provide a photogenic setting of profound symbolic resonance and great educational power.

The source of fine Portland limestone, the island has provided the materials for great works of architecture ever since Roman times. Much of central London is built of Portland stone and the UN building in New York is faced with it.

Set within the landscape from which its materials were cut, MEMO will be an unusually vivid example of sustainable construction. Fine carving stone, rough quarry blocks and aggregate for concrete – as well as the stonemasonry skills necessary to build the monument – will all be sourced from within a stone’s throw of the site.

Portland is also part of England’s only natural World Heritage Site for its geological importance. The Jurassic Coast charts 185 million continuous years of the history of life. MEMO will bring that record up to date, above ground, by the indigenous skills of Portland – the architectural art of the stonemason. The Jurassic Coast not only grounds MEMO within the conceptual territory of ‘world heritage’, but also, the story of modern extinction, within the vast narrative of the geological history of life.

"The MEMO Project is beautiful, it is powerful and its message is simple. Its location, like a sentinel surveying the vast landscape of life past and present on our fragile planet, is perfect. Its creation will provide a global icon to our need to respect and protect the natural world and will ask, in its mute testament whether we are worthy of the name we gave ourselves: Homo sapiens – the wise hominid."

Tim Smit KBE co-founder and CEO of the Eden Project, and Principal Adviser to MEMO

MEMO will be built on the west cliffs of Portland, overlooking Hallelujah Bay and Chesil Beach, draws together themes of architecture, geology and the natural environment to provide a setting of profound symbolic resonance and great educational power.
a place of discovery

The very idea that species could go extinct was first deduced from Portland fossils after Christopher Wren had chosen Portland stone for the rebuilding of London’s public buildings following the Great Fire of 1666. The discovery was made by Wren’s great collaborator, Robert Hooke, the Surveyor of the City of London. Like Wren, Hooke was a pioneer scientist of the nascent Royal Society as well as an architect.

The giant ammonites commonly found in Portland stone were so large, said Hooke, so unlike any living species, that they must be the remains of species ‘totally destroyed and annihilated’. His discovery of ancient extinction on Portland was made just as the dodo was dying out on Mauritius, the iconic and among the first of the extinct species on the Red List.

restoration and regeneration

Despite centuries of extraction, Portland’s quarries are pregnant with the potential for natural renewal. The island is internationally important for limestone plants, lichens, butterflies and especially birds. The building of MEMO will entail ten acres of quarry being permanently restored to species rich limestone grassland to form part of the coast-to-coast ‘Portland Quarry Park’.

MEMO is a global monument with authentic local roots. Portland and its people have given much in the service of architecture; six million tonnes have gone to London alone. MEMO will be a great work of architecture to be retained by the island. Operating as a visitor attraction it will transform tourism locally by attracting new visitors and creating permanent jobs while showcasing Portland’s proudest stonemasonry traditions.

“The potential cultural, economic and educational benefits are huge.” Tom Grainger outgoing CEO, Weymouth and Portland Borough Council 2010

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left: blocks, quarried, squared up, but never used for the rebuilding of London East Weares, Portland

top right: Guillemot, Portland cousin of the extinct Great Auk which also used to nest on the island’s cliffs © Ken Canning

below: art and science - the stairwell in the Monument to the Great Fire of London designed by Wren and Hooke to house a 200ft zenith telescope

right: Titanites giganteus as drawn by Martin Lister FRS, 1693
an iconic structure

Set into the stony ground of the island, David Adjaye’s design is inspired by a second characteristic fossil found there: the Portland Screw. A ‘turreted’ gastropod, this is a creature with architecture built into its very biological description. The image is of a great spiral of stone growing out of the cliff.

The floor of the monument is accessed via a ‘cut’ and finally a tunnel into the ground. Inside is a continuous spiral walkway, lined with the carvings of the extinct, linking Earth to sky, wrapped around a great central space. In the middle of the floor will be the bell facing an ‘oculus’ of sky above.

The walkway spirals up at disabled access gradient towards, and ultimately right through, the oculus to a colossal sea view and Chesil Beach stretching away into the distance. At 21m above ground, the height of the monument marks the same dimension removed below ground by quarrying. An exterior ramp winds down to the education centre which is built into the ground in order to maximize the area of restored landscape.

Written feedback from public consultation on Portland, April 2011. The Project received 95% approval ratings.

"Beautiful, I love the way it seems to spiral out of the cliff.

"Its local and international nature is the very kind of project Portland needs.

"Economic benefit plus a sense of pride.

"Marvellous idea. As a Portlander, very proud to have it here."
“The current loss of biological diversity on Earth is one of the greatest crises of our time with profound long-term consequences for mankind. One of the reasons that it continues unabated is a lack of public awareness of the issue and the value that biological systems provide including everyday fundamentals like fresh air, clean water and fertile soil. We urgently need to rectify this. And that is why MEMO is so important to the world. Combining art, science and public participation, MEMO is a truly unique educative tool of global significance.”

Ahmed Djoghlaf
Executive Secretary of the UN
Convention on Biological Diversity
education

From the Paleolithic caves to Disney and Dreamworks, we have been telling animal stories forever. Especially to children.

The stories of the extinct bear witness to exactly the same threats now faced by endangered species and those who seek to conserve them. The dodo tells of invasive species; the Bali tiger of habitat loss; the passenger pigeon, overharvesting and the golden toad, climate change. Meanwhile species like the gastric brooding frog illustrate the implications of biodiversity loss for biomedical research.

The conservation solutions to biodiversity loss will be explained and the success stories will be told – like that of Przewalski’s horse which was reintroduced into the Mongolian steppe in the 1990s. And the sheer mysterious beauty of our fellow creatures – the original inspiration of all the arts – will be explored along with our myriad ecological, economic and cultural connections.
The site frames the subject within the vast geological picture, within the narrative of scientific discoveries of the early Royal Society and the story of the rebuilding of London. The architecture itself will provide many creative teaching opportunities from the lichens that will grow on it to the role of limestone deposition in the global carbon cycle. Like all limestones, Portland, both stone and island, is largely comprised of the bodily remains of ancient creatures.

The on-site education programmes will mobilize stone carving and all the arts to interpret the science for all ages. Schools parties will carve patterns based on the forms of micro-organisms and the geometry of organic growth, while all visitors will be invited to mark their visit – and make their mark for biodiversity – by carving their initials beneath a (yet to be revealed) inscription: the Portland Memo.

**residencies in schools**

Making the necessary carvings will involve both the training apprentices on Portland and international carving festivals, but many of the carvings for the monument will also be created in artist’s residencies in schools all over the world. In a pilot at Royal Manor Arts College on Portland, we found biodiversity so fundamental that it migrated quite naturally across subject boundaries. Each residency will include the making of a sculpture of an endangered species to remain in the Earth it self, which lyes so neer us, under our feet, shews quite a new thing to us, and in every little particle of its matter, we now behold almost as great a variety of creatures as we were able before to reckon up on the whole Universe it self.”

Robert Hooke on putting a speck of stone dust under his microscope and discovering the form of a seashell: *Micrographia*, 1665

Robert Hooke, human head louse *Micrographia* 1665

MEMO at the Lyme Regis Fossil Festival 2009

above: MEMO Residency in Portland schools 2010 extinct/endangered fauna-head masks at Underhill Primary

extinct/endangered Janus-head masks at Underhill Primary

The extinct golden toad...
the big bell

In order to make all future extinctions audible as well as visible, in the middle of the monument will be a great ‘geological’ bell to be tolled whenever another species goes extinct. Following the success of a final scale model cast at Taylor’s Bell Foundry in Loughborough in February 2012, it will be cast the Bronze Age way - from a stone mould. In particular it will be cast from ‘roach’, the youngest of the Portland strata which is riddled with the fossil hollows of Jurassic shellfish.

Upside down, Earth mounted, with mouth facing the sky, it will be nearly 30 feet in diameter, the height of a basketball player, and weigh 9 tonnes. It will be cast at Taylor’s within the original cast iron ‘flask’ which yielded Great Paul in St. Paul’s Cathedral - the biggest bell ever cast in the UK. The connections with the City of London will be further cemented by naming the 4 foot diameter maquette in honour of ‘London’s Leonardo’, Robert Hooke, who first alerted the world to the possibility of extinction. Hopefully it can be permanently sited in the City.

bells for biodiversity

On 22 September 2010 our first experimental roach-cast bell was rung at the UN in New York as heads of state gathered to discuss biodiversity for the first time. Hundreds of bells around the world were rung in concert with it that day.

Bells are for celebration as well as mourning and warning. They exist in all cultures and in everyday life – in schools, on ships, in farmyards and town halls, as well as churches and temples – the world over. As the International Decade on Biodiversity begins, we aim, with our international partners, to celebrate Biodiversity Day on 22 May each year, with a cacophony of such international bells.
funding & business plan

David Adjaye has gifted his wonderful spiral design. The Crown Estate has granted a long lease on the spectacular site for a peppercorn rent. And the local authority has voted unanimously to grant full planning permission.

The total capital cost is £30 million. This includes construction, planning of the interpretative programmes, and setting up the necessary business infrastructure for operations. The business model describes a self-sustaining ticketed visitor attraction with a top entry price of £10. Visitor numbers to the site are projected at 300,000 p.a.

Phase I, including the development of both architectural design and business plan for the submission of the planning application, and proof of concept activities to test the project with both the public and with potential partners, has been successfully completed.

Phase II - the trustees are now actively seeking major grants and sponsorship partnerships for the construction phase. Naming opportunities from £500,000 - £10 million are available for segments of the buildings, collections of carvings, and other bespoke recognition of leadership support. With funding in place work on site could begin in Spring 2015.

Phase III - the construction phase is estimated at 18 months until completion with opening day anticipated before the end of 2016.

“I was deeply moved on learning of this brilliant, profound, and ultimately humanitarian enterprise. I believe it can be the seed and soul of a renaissance in public engagement with biodiversity.”

Professor E.O. Wilson, MEMO Patron of Harvard University, the ‘father of biodiversity’
a geological moment

The web of life is the cradle of our species and remains our only conceivable home. Our instinctive wonder at it has been the well-spring of so much of both the arts and sciences since the beginning. Perhaps biodiversity is that rarest of beasts, a subject on which people around the world can unite.

Thanks to the early warning system that is science we are witnessing ‘mass extinction’ by rate – but not yet sheer scale. If 860 species have been assessed as extinct since the dodo, the more than 20,000 which have been assessed as endangered are still with us today. The ultimate goal of MEMO is to inspire their protection. A global symbol which combines all the soul of the arts with the authority of science can provide the kind of cultural lightening rod which the geological drama of the moment surely demands.

As powerful and imperative as I believe the practical arguments for conservation are, a change in perception and value about our place in nature could achieve vastly more.”
Tom Lovejoy

“Halting biodiversity loss is the great challenge of the coming decade. It’s on a par with putting a man on the moon... Like that first step on the moon, it would be a giant leap for mankind.”
Sir David Attenborough 2010

Part of that challenge now is to capture the public imagination.
The MEMO Project should never have been necessary. But necessary it is, and I am glad to see human imagination involved in commemorating the diversity of life rather than diminishing it. "

Philip Pullman
MEMO Patron

For more information please contact Project Director, Sebastian Brooke: seb@memoproject.org

www.memoproject.org
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right: the Yangtze dolphin declared extinct in 2006, photo: © Nick Gordon

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