SUN

DISCOVERIES

Art, Science & Exploration

FROM THE UNIVERSITY OF CAMBRIDGE MUSEUMS

NIGHT

TWO TEMPLE PLACE



DISCOVERIES Art, Science & Exploration

FROM THE UNIVERSITY OF CAMBRIDGE MUSEUMS





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Cover Image:

Detail of *System According to the Holy Scriptures*, Muggletonian print, plate 7. Drawn by Isaac Frost. Printed in oil colours by George Baxter Engraved by Clubb & Son. Whipple Museum of the History of Science, University of Cambridge.

Inside Front/Back Cover:

Detail of *Kitagawa Utamaro* (1753-1806), *Komei bijin mitate Choshingura junimai tsuzuki* (The Choshingura drama parodied by famous beauties: A set of twelve prints).

The Fitzwilliam Museum, University of Cambridge.

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FOREWORD

Over eight centuries, the University of Cambridge has been a powerhouse of learning, invention, exploration and discovery across the sciences and the arts. It has changed how we understand our own bodies, our own and other cultures, the natural world around us, and the cosmos. Through our research we discover the unknown; through our teaching we make it known to new generations. Discovery has seldom ever been the business of lone individuals, or of colleagues in just one institution; discoveries are made out of engagements between researchers in Cambridge and many other centres, out of engagements with students, and out of engagements with the realities of life and the world.

Cambridge's teaching and research draw on another vital and fertile side to the University. Cambridge is also in the museums business and has been for over two hundred years. The University hosts, as well as collections of many kinds, eight public museums, most of which are embedded within departments or faculties. Two of these institutions are deservedly famous. The Fitzwilliam, founded in 1816, has long been considered one of the world's great museums, and Kettle's Yard, a private residence and collection given to the University in 1966, is similarly renowned as a unique house and collection of twentieth-century art. But it is less widely known that these two institutions are part of a group of museums that embraces the sciences and the humanities, which also hold world-class works of art, uniquely significant historical artefacts, and scientific specimens of various kinds, some of

which were vital to the formation of modern understandings of nature and natural history. The Museum of Archaeology and Anthropology, the Museum of Classical Archaeology, the Polar Museum, the Sedgwick Museum of Earth Sciences, the University Museum of Zoology, and the Whipple Museum of the History of Science all hold extensive and exceptional collections. All of these collections are used in teaching, their analysis and interpretation is part of ongoing scholarship, they showcase University research to wider publics, and they create a host of opportunities for learning and training.

Discoveries offers a sense of the identities of eight remarkable museums and the range of extraordinary artefacts, instruments and specimens they contain. The exhibition reflects upon discoveries past and present, and the range of meaning that 'discovery' possesses. It aims, above all, to stimulate curiosity: it is an invitation to visit and discover these museums in greater depth, and to share with us the excitement of discovery.

Professor Sir Leszek Borysiewicz Vice-Chancellor of the University of Cambridge

DODO

What is left of this bird but a word for loss, and a thousand bones in the mire of Mare aux Songes? 'Wallowbird', 'fulsome foule twice as big as a swan',

prodigious pigeon, she flew across warm seas under the Southern cross in the world's emptiness lonely ages ago, fed on fruits of paradise,

forgot how to fly, laid her single egg on a nest of sticks, warmed it to hatch under her breast. Imagine first meeting of hen and chick, and last.

Her cry's lost on the wind; feathers, flesh rot in the swamp of dreams. What might have been just bones found in the mud by human feet,

skull, scapula, vertebrae, toes - each a hieroglyph of the alphabet by which we read the myth.

© Gillian Clarke, written for Museum of Zoology 2013

The dodo, a native of the island of Mauritius in the Indian Ocean, became extinct in the late seventeenth century.

Single bones used to construct this skeleton were gathered by islanders around 1870, mostly from a swamp called Mare aux Songes 'Sea of Dreams'.

Dodo skeleton, Museum of Zoology

Photography Paul Tucker



DISCOVERIES

Art, Science & Exploration
Nicholas Thomas

The fossilised skeleton of a prehistoric ichthyosaur, unearthed in Dorset in the early nineteenth century; a bronze sculpture of a lion, at least two and a half thousand years old, brought back from the deserts of the Yemen; an eighteenth-century orrery, an apparatus that made visible the motions of the planets around the sun; an egg of the tinamou bird, sole survivor from the collections brought back by Charles Darwin on his voyage on HMS Beagle; the skeleton of a dodo, reconstructed from bones collected on the island of Mauritius centuries after the bird became extinct, and two small carved stone sculptures, one by the modern master Henry Moore, the other by Thomas Akilak, an Inuit artist whose name is known only in specialist circles... What could this extraordinary array of natural specimens, artefacts and works of art possibly have in common? At first sight, nothing. Each is singular, indeed many of the singular objects that invite you into this exhibition are unique.

And yet they all, in different ways, reflect or enable discoveries, and together they ask us in turn to reflect upon a vital aspect of being human. Discoveries are famously made by great scientists, explorers and artists, who uncover the underlying properties of life and the world, who find things or places not known of before, or who invent new ways of seeing and imagining. But in another sense discovery is part of everyone's engagement with the world. Children discover the world as they grow and learn, and we all make 'personal discoveries':

we know ourselves better as we understand more deeply things that are apparently familiar to us, as well as what is distant or different. Captain Cook discovered Australia, I was told in primary school in the 1960s, but – my teacher added – the Aboriginal people who lived there had of course discovered the continent many thousands of years earlier. Discoveries are susceptible to dispute. Their merit and significance may be reevaluated, favourably or unfavourably, over time. Yet discovery has been formative and fertile, especially in recent centuries which have been marked by spectacular advances in science, and by voyages and passages that have brought all parts of the world into contact with each other. This has formed the global cultural order we all now inhabit.

The remarkable exhibits assembled here have something else in common: all are from the collections of one of the eight University of Cambridge museums. The exhibition aims to enlarge our sense of discovery; it is also a revelation of this truly special group of museums. It brings into view not only a set of curious and extraordinary things, but a sense of whole collections, from which they are drawn. These scientific specimens, artefacts and works of art are of interest and relevance not only to specific disciplines; they speak of a wider history of culture, science and discovery, and illuminate what is distinctive about the university museum, a singular space in which objects are not only viewed in static displays but are actively studied and used.

Cambridge's museums – like most others the world over – contain private collections originally acquired by antiquarians and art collectors, as well as those made by researchers aiming to assemble sets of specimens; but each of these museums developed and gained its identity in a university environment.

Some of the remarkable things in these collections are simply single objects, which came by themselves and stand by themselves, raising questions for us. The wood and shell-inlaid Sufi snakes and ladders board from India, for example, is enigmatic and unique – just two others are known, on parchment and paper. We do not know why or for whom it was made in this form. But most objects found in these collections came in sets, joined by some association, some history, some purpose. As collections grew, they incorporated the finds of many specific expeditions; relics and artefacts, but also drawings, photographs, field journals, documents and letters.

Collections can be remarkable, complex, and perplexing things. They often reflect private or personal projects: a set of souvenirs from a journey, or a passion for a particular topic or type of rarity. The founding collection of the Whipple Museum of the History of Science, for example, was assembled by the scientific instrument manufacturer Robert S. Whipple, whose own collecting focused originally on earlier examples of the kinds of devices made by his company, but came to range far more widely, to include a bewildering variety of models and apparatuses of many kinds. Art works and antiquities are often acquired and assembled as expressions of personal status and prestige. Things reach a collection because a collector has actively sought them out, but also because they have been sent or given to them by others. To varying degrees, collections are systematically designed, intended to represent the most impressive or significant works of certain kinds, or to be comprehensive. Yet ambitious collectors are almost always opportunistic, and things come to them that they may not have anticipated, things whose significance may not be recognised at the time, and might become apparent only long afterwards. The naturalist John Woodward's cabinets of fossils include what are probably the earliest artefacts collected from the Pacific by any European extant today, a sling stone and adze blade given him by the explorer and buccaneer William Dampier.

A collection is the consequence of multiple acts of addition, but it may also suffer loss or division. Some antiquarians, scientists and benefactors, bequeathing their personal collections to Cambridge, divided them between more than one of the University's museums: the museums in turn transferred, divided and re-combined collections between themselves at various times, as disciplines were re-defined and the boundaries between them changed. At one time it was thought appropriate for the Fitzwilliam to split its Egyptian antiquities and pass the works of the less 'civilised' pre-dynastic period to the Museum of Archaeology and Anthropology. For related reasons, what we now recognise as outstanding works of African art were similarly transferred.

Collections have multiple lives, embracing private and public histories, personal and scientific interest, the past and the present. Like archaeological sites, they reveal the processes of accumulation and sedimentation that have formed them, and at the same time illuminate the wider activities, histories and environments of the people who made them and the worlds they represent. But they can also be technologies of the imagination that enable us to discover new things: an artist may create a new work in response to them; a researcher can discover a new connection through them; visitors may imagine something differently after their encounter with them. An object within a collection - such as the carved figure of a woman from the Nicobar Islands, nicknamed "Maria" by her British collector

- may for one person be a scientific or scholarly resource; for another it may instead be arresting aesthetically - it may be, simply, magical.

Exhibitions such as this, which make eclectic selections from the collections of a great museum, are often entitled 'treasures from...'. *Discoveries* includes a wide-ranging array of objects and works that are truly wonderful; in different senses they are all things of exceptional historical and artistic significance, and could be labelled 'treasures'. But they are deliberately selected to exemplify and enable us to reflect upon the idea of 'discovery'.

This is in part because the collections feature many things that were discovered, among them archaeological finds from sites near and far, art works and objects, encountered by travellers, from traditions previously unknown to Europeans, fossils, new species and geological specimens. Some reflect the act of discovery itself: sculptures or drawings that signal an artistic breakthrough, an unprecedented way of seeing; paintings that record observations made during a hazardous investigation of the Poles; a telescope that enabled the skies to be studied, a new star to be seen. The exhibition also includes 'first marks' or 'first inscriptions' of new understandings, the first records of new observations, the manuscript drafts of new kinds of narrative.

This focus on discovery is also because the exhibition is the product of dialogue among people who are at once academics and curators, for whom it matters that our collections are more than beautiful antiquities of one sort or another. We are all concerned with the lives these collections lead in the

present and the ways they can empower new imaginings and understandings, not only on the part of students and researchers, but for wider publics, including increasing numbers of schoolchildren. The University's identity is not bound up in the college buildings – much as we may value the distinctive and intensive learning environment that the colleges offer – but in a commitment to ambitious experimentation, to inquiry that makes a difference to what and how we know, inquiry that may be speculative or risky but that ultimately matters. The best research is not necessarily oriented toward short-term impact. It tries to come to grips with what we don't understand or don't fully understand, in culture, society, history, the body, the environment and nature. Part of this commitment is hope: that the better understandings we work toward enable people to act and live, more effectively and more responsibly.

Discoveries begins by turning the museums inside out, by revealing accumulations, in some cases from the institutions' stores, such as the racks of paddles and weapons from the Museum of Archaeology and Anthropology. It asks what difference it makes to see things together, in groups or arrays or series, and how they have happened to come together. It offers a dialogue between these groups and what we call 'singular objects' that seem to stand out, to bear unique stories, in some cases to represent enigmas. To work in, or to visit, a museum is to tack between the 'one' and the 'many'.

'Discovery' is, as we have acknowledged, a complicated and in many ways a controversial category. Scientific rivals, indigenous peoples, artists and critics contest the priority and value of discoveries. Yet the word never necessarily meant to find, or to know first. To discover can also mean to divulge or expose;

in eighteenth-century English, the plot of a play could be discovered, in the sense that it unfolded, and a criminal could discover – that is, reveal and acknowledge – his own guilt.

This exhibition is concerned to enlarge our sense of what discovery was, is and can be. The figures from the Museum of Classical Archaeology embody successive discoveries – of new conceptions of human form and beauty that were retrieved and reproduced. It is concerned with our own capacity to see differently – with the idea, associated above all with modernism and the twentieth century, that the self is something there to be discovered – that it might represent an interior world as uncertain and even as dangerous as any unknown territory ventured into by a navigator.

Giovanni Battista Pittoni's majestic painting, titled An Allegorical Monument to Sir Isaac Newton (1727-29), features a ray of light passing through a prism that alludes to one of Newton's most famous experiments. Knowledge and understanding are profoundly associated with vision. The themes of illumination and light itself become central as this exhibition progresses. Artists struggled to analyse and depict light and to represent the heavens. A procession of scientific instruments made very remote and very small things visible. Many of the exhibits in Discoveries point to this issue in different ways but two sum it up in particular. The Digital Optical Module is a stateof-the-art device; thousands of these modules are buried in deep tubes in the Antarctic ice. They are designed to detect the passage of some of the most elusive particles we know of, neutrinos; they generate clues about their trajectories, about the constitution of the cosmos. On the other hand, the artist Brook Andrew's enormous and spectacular print, The Island I (2008), radically enlarges a nineteenth-century drawing of an Aboriginal Australian sacred mound, transforming an archival image into a public vindication of an indigenous landscape art, a vindication of Aboriginal culture in general. The Artist's project is to bring images of this kind 'into the light'. The University of Cambridge's museums are museums of discovery and for discovery. They are full of strange and remarkable histories, wonders and surprises, and they invite you to make discoveries for yourself.

Object One

REPRODUCTION OF JAMES WATSON & FRANCIS CRICK'S 1953 SKELETAL MODEL OF DNA

Built by Roger Lucke and Claudio Villa, 2003 Metal structure, 200 x 120 x 120cm MRC Laboratory of Molecular Biology, Cambridge

No model in the biological sciences has the iconic status of the double helix. As the main constituent of chromosomes and the carrier of genetic information, DNA (deoxyribonucleic acid) had long been a focus of scientific study, but before the early 1950s its structure remained unknown. Scientists knew that DNA contained four different bases, but not how to model their relationship to each other. The double helix model was striking because it showed how these bases might be paired, so the two complementary spiral strands of the molecule suggested how genetic material could be replicated.

Drawing on the work of other researchers, including the x-ray diffraction photographs of Rosalind Franklin, the very first model of the double helix was announced in 1953 by Francis Crick and James Watson at the Cavendish Laboratory in Cambridge.



KETTLE'S YARD: Art and Life

'The role of a work of Art is to give food for thought, to act as a stimulant, to entice the onlooker to inspect things, people and emotions from a new point of view.'

Jim Ede (1895-1990) wrote these words in 1927; over the next decades he gathered a world-class collection of modern British and international art. Following years living in London, Morocco and then France, Ede moved to Cambridge with his wife Helen. Four dilapidated cottages - a short walk from the city centre - were converted into a house where the Edes could live and the collection could be displayed. 'Kettle's Yard' opened to the public in 1957. The collection is arranged as Ede left it when he and Helen moved to Edinburgh in 1973. Ede insisted that Kettle's Yard was not a 'museum', yet it was a meticulously curated space, designed to achieve a delicate balance of light, space, art and found objects, fundamental to Ede's philosophy as set out in his book A Way of Life (1984). Kettle's Yard remains today a unique place into which visitors of all ages and backgrounds are welcomed to encounter art and nature in equal measure.

OPPOSITE PAGE:

Head, 1928, Henry Moore (1898-1986) Stone carving on plaster base, H 17.3cm Kettle's Yard Reproduced by permission of the Henry Moore Foundation



In Discoveries, the visitor is introduced to Kettle's Yard's collection by a curious stone head, the work of the renowned British sculptor Henry Moore, given to Ede by the artist in 1957. Moore's Head (1928) is an object of unassuming scale and unfinished appearance, yet its form and materiality, poised somehow between ancient and modern, entices us to look at it again, and closely. Head embodies many of the qualities that make Kettle's Yard a unique collection and place for art. The sculpture also speaks of Ede's close relationship with the artists who form the core of the collection; many of them were in the early stages of their careers, or were still positioned on the margins of the art world, when Ede met them. Ede was a curator at the Tate Gallery in London from 1922 to 1936, and invited many contemporary artists to his Hampstead home: rather than 'Curator', he preferred to call himself a 'friend of artists'.

At Kettle's Yard all are invited to discover Moore's *Head* where it sits on a ledge by Ede's bedside light – in a private space made public. Ede admired the ways in which Moore was, at this time, experimenting with stone carving. According to Ede, Moore had brought the stone to life and discovered 'its life contained within its own nature; it is hard to think of it being made'. At Kettle's Yard natural objects, such as pebbles and shells, are placed alongside works of art with no labels to separate them or impose hierarchies and values; visitors are encouraged to make their own discoveries and to enquire about the objects. The presentation of works from Kettle's Yard in this exhibition asks us to re-consider how this highly distinct form of display functions in different spaces and in dialogue with new objects presented in other ways. Here, in the same gallery as *Head*, a characteristically white-walled corner of Ede's home is

imaginatively recreated within the high Victorian interior of Two Temple Place, facing the light and with representative works hung low on the wall, together with the chairs in which Ede invited his visitors to sit in contemplation and discussion.

In 1966, Ede left his collection to the University of Cambridge. It now includes works by over 100 artists, including leading British figures Ben and Winifred Nicholson, Alfred Wallis, Christopher Wood, and David Jones, and international artists such as Joan Miró Constantin Brancusi and Henri Gaudier-Brzeska. Ede's purchases from the sale of Gaudier-Brzeska's estate in 1927 make up the largest group of works by a single artist in the collection. The selection of his drawings in this exhibition, produced in only a couple of years around 1912-14, demonstrate Gaudier-Brzeska's rapid progression from observational naturalism to abstraction – a process of artistic discovery made on the page.

Jim and Helen Ede's house remains an innovative and evocative place; the sequence of interiors continues to inspire new visitors and generations of artists and curators. It is the touchstone from which all of Kettle's Yard's activities radiate, whether exhibitions, music, learning or research.

Andrew Nairne Director, Kettle's Yard



Object Two

ICHTHYOSAUR

Collected in Lyme Regis by Mary Anning, early 19th Century Complete reptile skeleton fossil in wooden frame, 154 x 56 x 15cm Sedgwick Museum of Earth Sciences

This fossilised skeleton is one of many remains of the dolphin-like marine reptiles collected in Britain in the first decades of the nineteenth century. Ichthyosaurs were popular as extinct 'monsters of the abyss'

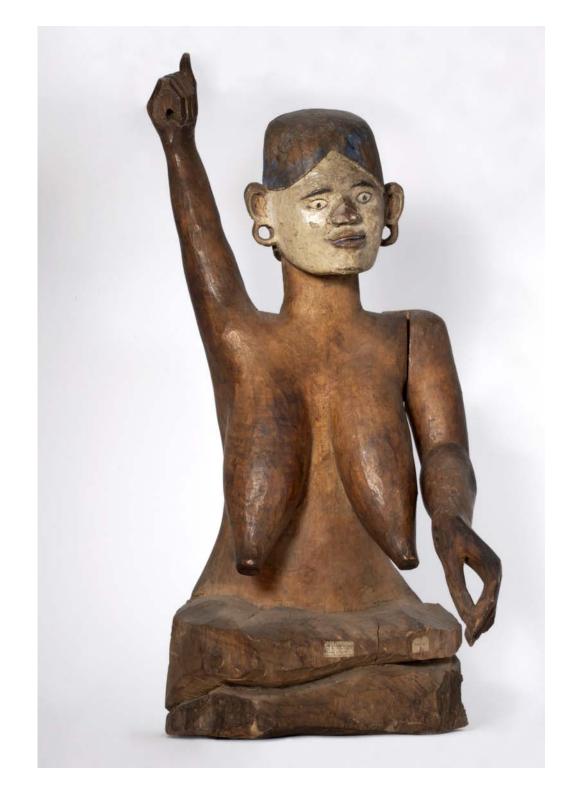
long before dinosaurs were first recognised as a distinct group of fossil reptiles. Some of the most important and well-preserved skeletons were recovered from the Jurassic age seacliffs around Lyme Regis in Dorset by the Anning family. This example was unearthed by Mary Anning (1799-1847), a well-known collector and preparator of large specimens. The Reverend Professor Adam Sedgwick (1785-1873), after whom the Sedgwick Museum is named, was one of Anning's clients: he purchased this specimen in 1835 for £50.

MUSEUM OF ARCHAEOLOGY AND ANTHROPOLOGY: Encountering Objects, Encountering People

In 1883, the Museum of Archaeology and Anthropology came into being as an odd hybrid of local archaeological finds from the Cambridge Antiquarian Society, and a rich and systematic collection of artefacts and art from Fiji, made by the first British governor of the new colony, Sir Arthur Gordon. The University accepted not only his donation but his recommendation for the Museum's inaugural curator, Baron Anatole von Hügel, a young Anglo-Austrian aristocrat who had been Gordon's guest in Fiji and stimulated something of a collecting craze among the colonial elite. He was appointed, and went on to vigorously enlarge the Museum's collections and obtain funding for the evocative purpose-built museum on Downing Street that has been occupied for a century, since 1913.

Objects reached the Museum in many ways but collections were acquired above all through fieldwork. The institution came to hold indigenous art and artefacts from throughout the world. They include archaeological finds ranging from early proto-human tools, Louis Leakey's revolutionary discoveries in

OPPOSITE PAGE:
Maria, about 1903/4
Collected on Nankauri Island, in the Nicobar Islands,
Bay of Bengal
Wood, shell, nautilus shell, 89 x 40cm
Museum of Archaeology and Anthropology



Olduvai Gorge, east Africa, and later Stone Age materials from many parts of the world, through important pre-Columbian textiles and ceramics to Roman and Anglo-Saxon finds from Britain. The cultures of the Pacific, native north America and southern and west Africa and various parts of Asia are represented through masks, sculptures, ornaments, fabrics and many other genres. In all, the collections consist of some 800,000 artefacts, 200,000 historic photographs and an archive of letters, fieldworkers' research notes, and associated documents. Only a small sample is on exhibition, but reserve collections are actively used by research visitors, artists, and members of local communities.

The collections include many artefacts representing the cultures of peoples who have since suffered great upheavals and profound losses. Some are of unique historical significance - the first objects collected from Australia, New Zealand and other places in the Pacific, for example. Things of this kind reached the Museum through far-reaching networks of explorers, travellers, colonial officials, scholars and scientists the result of European expansion over centuries. Von Hügel's networks, and those of his successors, ranged right around the British empire, but were in no sense limited to it: fieldworkers and collectors were active in South America, in central and east Asia and in French and other colonial territories. Many great artefacts came as gifts from the peoples who made or used them, or were bought or bartered on terms that both sides considered fair. Certain collections, though, were acquired under more controversial circumstances and bear the legacy of the Empire's darker side. Either way, these artefacts exemplify not only the cultures that created them, but moments in history, a period of travel, migration and cross-cultural exchange that reflects the formation of the global order we all now inhabit.

In a sense, the selection of objects from the collections for Discoveries turns the Museum inside out. It reveals precisely what the visitor normally does not see: not the tip of the iceberg but the bulk of the collection that lies beneath. Here, some of the many racks in the Museum's stores hold a bewildering variety of spears, arrows, paddles, dance wands, shields, and decorated and sculpted boards. Some bear the names of famous field collectors, others labels from auction houses. Their variety hints at the many histories that constitute the collection and the many singular stories the artefacts tell. Those who work in the collection – not just curators or staff, but students, researchers and visitors – encounter it as a space of discovery. We keep unearthing extraordinary things in the collection, such as the healing figure from the Nicobar Islands, jocularly called Maria by the naval officer who acquired her. This remarkable sculpture – from a culture little represented in world art collections anywhere - enables us to discover an art tradition, a ritual system, and an odd history of crosscultural collecting. The Museum's collections allow us to find out new things, create new things and develop new ideas. The collections are a rich archive, but not a set of stable and stored documents. What the Museum offers is a set of stimuli, that generate conversation, imagination, art and knowledge in the present.

Nicholas Thomas

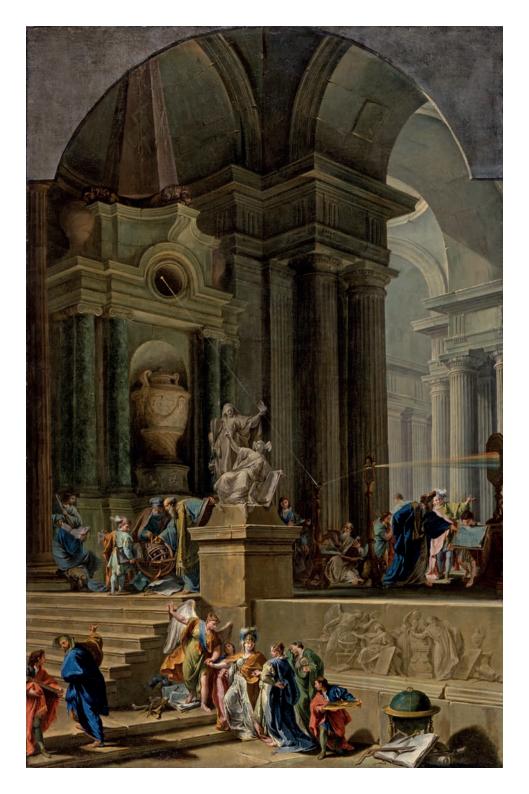
Director, Museum of Archaeology and Anthropology

Object Three

AN ALLEGORICAL MONUMENT TO SIR ISAAC NEWTON, c.1727-29

Giovanni Battista Pittoni (1687-1767), Domenico and Giuseppe Valeriani (d.1761 and 1708-1762) Oil on canvas, 220 x 139cm The Fitzwilliam Museum

This painting celebrates the achievements of Sir Isaac Newton as part of a speculative series of imaginary tomb monuments to illustrious Britons. It was Newton, Fellow of Trinity College, Cambridge and the second Lucasian Professor of Mathematics at the University, who first explained the scientific nature of light in his *Opticks* of 1704. While this painting refers to his discoveries - a prism and a beam of light, central to Newton's experiments, cuts across the canvas – the light is in fact scientifically incorrectly coloured. The project allowed for further artistic licence: an enormous urn within the Valeriani brothers' fantasy church setting and an entourage of allegorical mourners, some long-dead historical figures, by Pittoni. The fact that the painting was commissioned by the Irish playwright, Owen McSwiny, perhaps accounts for this somewhat theatrical interpretation of the loss to humankind of a pioneer of scientific endeavour.



MUSEUM OF CLASSICAL ARCHAEOLOGY: Physical Copies, Metaphysical Discoveries

At Cambridge University's Museum of Classical Archaeology it is appearances that count, for here not one of the objects on display is what it appears to be – all are imitations. In more than 400 plaster casts, this Museum presents the story of Greek and Roman sculpture as no collection of original statues can.

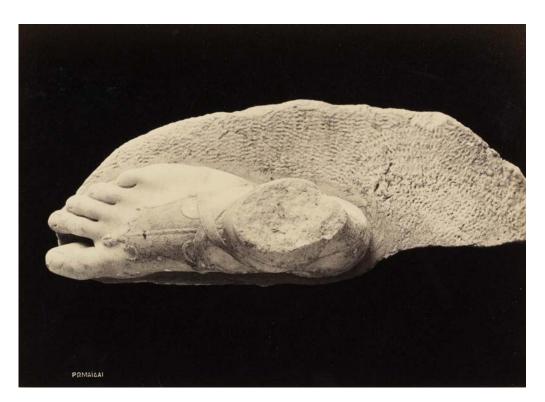
All objects in museums acquire significance by talking to the company they keep. The German excavators who unearthed the statue of Hermes with the infant Dionysus from the temple of Hera at Olympia in 1877 thought that they had discovered an original statue by the Greek sculptor Praxiteles. Putting this statue into the company of Praxiteles' Apollo the Lizard-slayer and Aphrodite of Knidos – known only from Roman copies – reveals that the swing of those hips carries a theological weight. The Hermes who, isolated at Olympia, celebrates the god of wine's precocious fascination with the grape, shows himself to be quite the match for the goddess of love, who has just undressed, waiting for your arrival. In this new company we see Hermes, the god who trades on deceit, luring on the

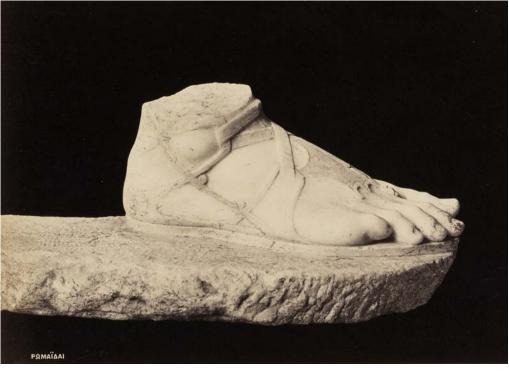
OPPOSITE PAGE:

Plate 10 from The Excavations at Olympia: Volume 5.

Overview of the excavations and finds from the Winter and Spring of 1879–80 and 1880–81 (Berlin 1881)

Curtius, E., Adler, F., Trell, G., & Dörpfeld, W. (eds.), 38cm x 58cm Museum of Classical Archaeology





baby Dionysus with the same patience that Apollo devotes to maximizing his own pleasure in squashing a harmless lizard. Do the gods simply tease? or are they sadistic?

From its inception in 1884, the Museum of Classical Archaeology has enabled scholars and the public alike to see things they had never seen before. Sidney Colvin, the first Director of the Fitzwilliam Museum, who was behind its foundation, was firmly convinced that teaching Greek and Roman sculpture depended upon being able to study it first-hand, and that this was vital both to academic understanding and to the formation of fine artists. The Fitzwilliam Museum had featured casts from the beginning; however, lack of space and Classical Archaeology's evolving status as a science demanded the construction of a designated building. The new museum featured not only extensive galleries but also a dedicated library and a lecture room where the stage was set at the same level as the galleries so that casts could be wheeled in and out, prodded and poked as perfect props for the speaker. These were so integral to the teaching that on one occasion the late arrival of a cast from the ongoing excavations at Olympia caused Colvin to delay an entire lecture-series.

For many years the library of the Museum was more visited than the gallery. The 'mechanical age' had put more premium on authenticity than ever before. The attractions of Greek statues, most of them known only from Roman copies, were trumped by the excavation of Bronze Age sites – Troy, Mycenae, Knossos – associated with myth and Homer. Throughout Europe casts were falling out of favour and being destroyed. Cambridge's collection might have gone the same way had the Laurence Professor of Classical Archaeology in the 1960s,

Robert Cook, not appreciated that casts could reach areas of ancient experience that the genuine article couldn't. He discovered a German expert, Bruno Laymann, who had a special technique for making plaster look more like stone and was willing to help him recreate the possible colour-scheme of some early sculptures. Almost fifty years later, colouring casts of sculpture has again become all the rage: Cambridge's Museum of Classical Archaeology was at the forefront of this experimentation.

When the 100-year lease on the Museum ran out in 1984, the collection was rehoused. The breeze-block warehouse – all a University suffering severe cuts could afford – remains a stunningly effective display-space for the statues, and the engine-room of a world-leading Classics department. The casts are now better visited and better studied than ever. Gods and heroes cast their spell over school children, students, and the general public, who discover that three dimensions reveal what no photograph can – the imitation not simply of divine art but of divine life.

The casts selected for the exhibition offer a glimpse of the way in which the discoveries made by the spade in Greece are re-animated by being put back next to artworks of the same time and place, the originals of which are now scattered in collections across the world. Gazing on classical sculpture turns out to be not just a matter of coming face-to-face with the irresistible charms of young men, babies and naked female beauty but, and at the same time, discovering the fundamental questions of theology.

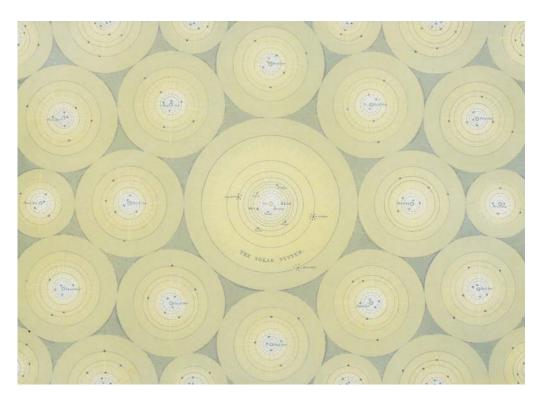
Robin Osborne
Director, Museum of Classical Archaeology

Object Four

THE NEWTONIAN SYSTEM OF THE UNIVERSE & SYSTEM ACCORDING TO THE HOLY SCRIPTURES; MUGGLETONIAN PRINTS 1 AND 10

Drawn by Isaac Frost. Printed in oil colours by George Baxter Engraved by Clubb & Son. 30 x 20cm Whipple Museum of the History of Science Photography Paul Tucker

These prints were included as plates in Isaac Frost's Two Systems of Astronomy (1846). This book attacked the orthodoxy of heliocentric Newtonian astronomy (that the planets moved around the Sun, as demonstrated by the Table Orrery displayed nearby), and presented instead a rival system of the universe based on a particular and literal reading of the Bible. Frost was a member of a small Protestant sect, the Muggletonians, who believed the Earth was stationary and that Heaven existed as a physical reality. Three of these illustrations aim to demonstrate flaws in 'The Newtonian System' of describing the cosmos; the other three illustrate the Muggletonians' own 'System According to the Holy Scriptures'.





MUSEUM OF ZOOLOGY: Discovering Diversity

The Museum of Zoology was established in 1865. The foundation of the Museum is attributed to Professor J. S. Henslow, the Professor of Botany who also established the Herbarium and University Botanic Garden in Cambridge, and was mentor to the young Charles Darwin. The Museum is embedded within the Department of Zoology and houses extremely rich collections covering the extraordinary diversity of the animal kingdom.

Much of the Museum's material derives from the great collecting expeditions of the 19th century, which provided the first documentation of fauna across the globe. The collections provide data against which to assess the current distribution and status of species, particularly in the Red Sea, Indian Ocean, South-East Asia and the Oceanic islands. Important collectors and naturalists represented in the collections include Charles Darwin, Alfred Russel Wallace, Francis Maitland Balfour, Leonard Jenyns, D.M.S Watson and F. Rex Parrington. The unusual objects chosen for *Discoveries* touch upon the contributions made by some of these figures to our understanding of the evolution of the animal kingdom, enabling us to examine significant milestones in scientific discovery, such as Darwin's *The Origin of Species* (1859), in context.



ABOVE:

Tinamou egg, around 1830
Found in Uruguay by Charles Darwin, W 5cm
Museum of Zoology
Photography Paul Tucker

The 'Strickland Chart' of Bird Classification was drawn by hand 16 years before the publication of *The Origin of Species*. It is Hugh Edwin Strickland's attempt at a graphical classification of living birds, showing groups linked by provisional tie-lines. Strickland did not view it as an 'evolutionary tree' in the way that Darwin was later to present his findings; he suggested that its main contribution was as a guide to the arrangement of specimens in a museum display. The chart had been stored rolled-up for many years before its recent conservation and mounting and has never before been on public display. The tinamou egg, collected by Darwin in Uruguay, shows an unusual side to its famous owner. We know from the private notebook of Alfred Newton, a friend of Darwin and a Professor of Zoology at Cambridge, that Darwin caused the crack in it by trying to fit it into a box that was too small.

The butterflies displayed in the exhibition are the specimens used by Reginald Punnett in one of the colour plates in his book *Mimicry in Butterflies*, published in 1915. Punnett held the first ever Chair in Genetics at Cambridge, indeed in the world, and his work helped pave the way for modern genetics. His book summarised what was then known about butterfly mimicry, providing clear evidence of the struggle at the time to integrate the recent rediscovery of Gregor Mendel's rules of inheritance with Darwinian natural selection.

The dodo skeleton in the exhibition is an example of a bird that became extinct in the 17th century, 180 years after the discovery of its island home of Mauritius, due to a combination of hunting, habitat destruction and introduced predators that followed colonisation. The dodo arguably represents the first

occasion on which people realised that their intervention in a pristine ecosystem was responsible for the extinction of an entire species: it has become an iconic symbol of nature's fragility in the face of the human onslaught.

The Museum is housed on the New Museums Site of the University of Cambridge. The building was designed by Sir Philip Dowson and is a highly-regarded example of 1960s/70s brutalist architecture. The Museum galleries with their dramatic atrium space were designed to suit the display of this spectacular and diverse collection of objects of all sizes and shapes, from whale skeletons to tiny specimens, skins and fossils, spirit jars and cabinets. A refurbishment is now under way, to renew the public areas, add a new Discovery Centre and School Room, and construct new storage areas. On reopening in 2016 the museum will share the building with the Cambridge Conservation Initiative, which comprises researchers in conservation science from across the University and representatives from nine international NGOs in conservation. The collections will then showcase not only the evolution of life on earth but also attempts to preserve biodiversity for future generations.

Paul M. Brakefield Director, Museum of Zoology

Object Five

WOODWARD CABINET DRAWERS

Cabinet E Drawer 27: 'Bones, teeth etc of fishes'

Cabinet B Drawer 17: 'The extraneous Fossils, Shells, and the

rest, compared with those produced at this Day'

Sedgwick Museum of Earth Sciences

Photography Eva-Louise Fowler

John Woodward's (1665/8-1728) extensive collection of specimens was the foundation of the Sedgwick Museum. By the late seventeenth century a number of naturalists, including Woodward, had accepted Agostino Scilla's claim, published in 1670, that fossils were the remains of once-living organisms rather than geological phenomena. Woodward catalogued his collection accordingly, although they were arranged in the cabinets after his death. Displayed here are two of those drawers and their contents, which hint at the richness and importance of the wider collection.

Drawer E27 contains 64 well-preserved Cenozoic-age fossils from Belgium, north America and Malta, some of which are easily identifiable as shark teeth. They include some spectacularly large teeth from Malta from Scilla's own collection. Specimen number 33 was later identified as the fragmented tusk of an extinct mammoth. Drawer B17 contains shark jaws and teeth collected at the seaside which he then compared with much older fossilised specimens. He concluded that they 'exactly match these found in the Earth'.







Object Six
THE ISLAND I, 2008

Brook Andrew (b.1970) Mixed media on Belgian linen, 250 x 300cm Museum of Archaeology and Anthropology

Important issues of sovereignty, history and justice remain unresolved in Australia today. Contemporary artist Brook Andrew explores anthropological collections for images and relics of his ancestors' culture. In Cambridge, he was fascinated by a set of flimsy photographic prints from an unpublished and largely forgotten encyclopaedia of Australia, prepared after travels in the 1850s by a German naturalist, Wilhelm Blandowski. Seeking to bring the hidden pictorial archive 'into the light', Andrew has blown up such images, creating spectacular monuments to indigenous sites and arts of the nineteenth century.

Object Seven

UTAMARO ALBUM

Kōmei bijin mitate Chūshingura junimai tsuzuki (The Chūshingura drama parodied by famous beauties: A set of twelve prints)
Kitagawa Utamaro (1753-1806)
Folding album with silk covers containing the set of 12
woodblock colour prints, ōban format published in Edo by
Ōmiya Gonkurō around 1795
399cm (open)
The Fitzwilliam Museum

Japan, isolated from the outside world for centuries, finally opened its borders in the 1860s. Japanese culture reached Europe most rapidly in the form of prints, which were exported in huge numbers and widely collected. This album was one of many traded in Paris by the Japanese dealer Tademasa Hayashi. He sold it in 1885 to the writer Edmond de Goncourt, who uncovered its secrets in his book about the artist Utamaro in 1891.

The album, intended to be viewed from right to left, opens to reveal the only known complete set of this series of woodcuts, which Utamaro conceived as a parody (mitate) of the most famous revenge-play of Kabuki, the popular Japanese theatre. The play's historical warriors are replaced here by contemporary beauties going about their lives in the pleasure quarter of Edo (now Tokyo). Purchasers of these series would have delighted in catching on to allusions to the play and thinly-disguised historical events. In the play's final scene the evil villain is discovered hiding in a coal store: at the end of this album Utamaro depicts himself as the villain, revelling in a brothel.





Object Eight

SELF-PORTRAIT WITH A PIPE (2), 1913

Henri Gaudier-Brzeska (1891-1915) Graphite on paper, 47.5 x 31cm Kettle's Yard

Self-Portrait with a Pipe (2) is the second of a series of three quickly executed drawings in which the French-born artist Henri Gaudier-Brzeska experiments with his own self-image. It was drawn two years before the artist's untimely death in 1915, when serving as a soldier in France. Gaudier-Brzeska moved to Britain in 1911; by 1914 he had aligned himself with the Vorticists – a group of artists and writers who embraced the dynamism of the modern world. Gaudier-Brzeska sketched quickly and often drew the same subject (normally animals or people) multiple times and from life.

Gaudier-Brzeska's drawings are a process of artistic discovery made on the page. In *Self-Portrait with a Pipe* he moves further towards geometric abstraction as the sequence progresses. This is the only drawing of the group to be executed in pen and ink; the cross hatching and shading accentuate the angularity of the artist's face which becomes increasingly faceted. Like his Vorticist friends, Gaudier-Brzeska used angular forms influenced by Cubism from Paris. In both his sculptures and drawings of this period, his forms modulate frequently between naturalism and abstraction. Jim Ede was a champion of Gaudier-Brzeska: the attic room at Kettle's Yard is devoted to drawings by the artist. In 1930, Ede published *Savage Messiah*, the first biography of the artist's life.

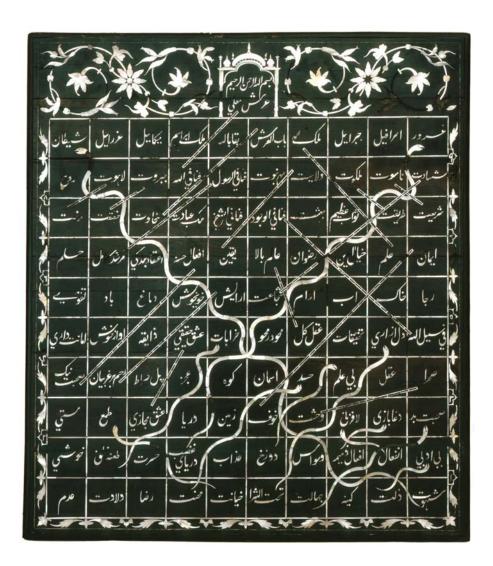
Object Nine 'DISCOVERY' TELESCOPE, 1870s

Brass & leather, L 27.2cm The Polar Museum Photography Paul Tucker

Telescopes were as essential to modern exploration as maps and compasses. This one has travelled further than any other object in the Polar Museum's collections. From 1875–76, it was aboard HMS Discovery during the first British attempt to conquer the North Pole, an expedition led by Sir George Strong Nares, which reached a record farthest north at the time. It was then taken on the Royal Research Ship Discovery during the 1901–04 British National Antarctic Expedition led by Robert Falcon Scott. In 1976, it returned to the Arctic aboard the submarine HMS Sovereign, which was undertaking research in the Arctic Ocean, travelling to the same location that the Royal Navy's sledging party had reached in 1876. In 1984, the telescope was placed on board the Space Shuttle Discovery, completing 96 low Earth orbits, a distance of some two and a half million miles.







Object Ten SNAKES AND LADDERS BOARD

Collected in North India
Wood, pearlshell inlay, 79.8 x 69.5cm
Museum of Archaeology and Anthropology

Introduced to English audiences by John Jacques of London in 1888, the game of Snakes and Ladders originated in India at least eight centuries ago: there have been Hindu, Jain and Buddhist versions, as well as this Sufi Islamic one. Players move through squares depicting virtues (ladders) and vices (snakes) to reach al-'Arsh, or the Throne of God, reflecting the moral path through life.

This early nineteenth-century board was acquired by a British soldier and colonial administrator in north India shortly after the Indian Rebellion of 1857. It is unique. Just two other Sufi boards are known, on paper or parchment - there is no other wood and inlay example. It is finely crafted, but the circumstances of its making and acquisition by the collector remain mysterious: though presumably commissioned by a wealthy Muslim, we do not know whether the collector was given it, bought it, or stole it.

THE SEDGWICK MUSEUM OF EARTH SCIENCES: Discovering the Earth

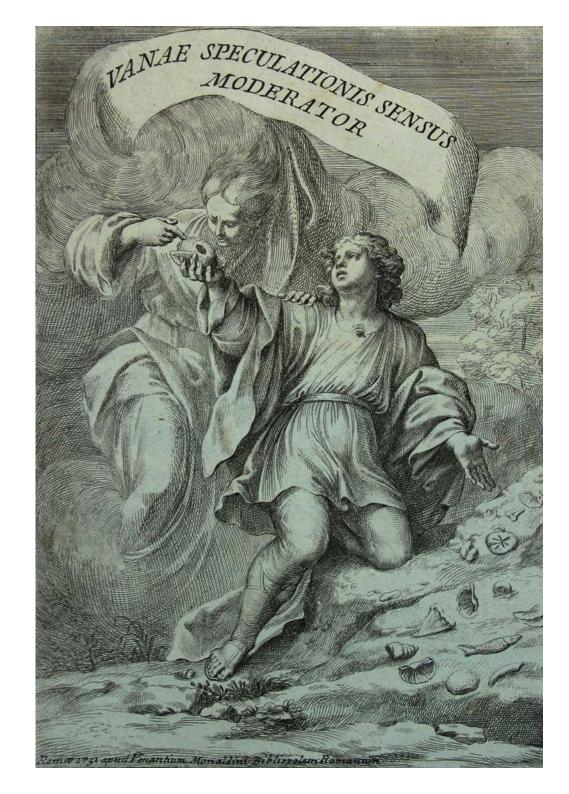
The Sedgwick Museum houses one of the oldest intact geological collections in the world. It was established in 1728 as the Woodwardian Museum on the basis of the geological collection of John Woodward (1665/8-1728). Part of this collection (the English fossils) he left to the University of Cambridge in his will, along with funds for what has become known as the Woodwardian Professorship – academia's longest established geological professorship. The remainder, the 'foreign' collection, was bought shortly after Woodward's death by the University and, like the English fossils, is still housed in its original walnut veneer cabinets.

Woodward's fascination with fossils, rocks and minerals began in 1688. This was a time when most authorities (apart from Robert Hooke in England and Agostino Scilla in Italy) did not accept that fossils were the remains of once-living organisms. By the time of his death Woodward had amassed about 9,400 specimens, most of which survive today in the original cabinets in the Sedgwick Museum.

Woodward did not, like many of his contemporaries, just collect for collecting's sake. He used the fruits of his labours to

OPPOSITE PAGE:

Frontispiece of Dr John Woodward's personal copy of A. Scilla, La vana speculazione disingannata dal senso (Naples 1670)



try to understand the geological processes that had fashioned the Earth. This led to him publish a very influential book, An Essay toward a Natural History of the Earth (1695). Here, he tried valiantly to reconcile his field observations with the scriptures: he argued for a 'Diluvian' origin of stratification of the rocks, suggesting that God had suspended the effect of gravity for the duration of the Flood, and that when he reinstated it afterwards, the heavier elements settled out before the lighter ones. While this explanation was soon shown to be wrong, Woodward had at least tried to establish a theory based on his detailed observations in the field, an unusual practice for the time. Although he might have been way off the mark here, Woodward was spot on with his interpretation of fossils. He argued vehemently, and quite correctly, that fossils were 'originally generated and formed at Sea [and] that they are the real spoils of once living Animals'.

Woodward's is probably the only geological collection put together in the late 17th and early 18th centuries to have survived intact. This was largely due to a cunning clause in his will that encouraged a succession of Woodwardian professors to ensure the collection remained entire. Woodward also actively encouraged his acquaintances, including Isaac Newton, Christopher Wren and the Pacific explorer William Dampier (1651–1715), to donate specimens. Perhaps the most important donation was the fossil collection of the Sicilian artist and paleontologist Agostino Scilla, which Woodward purchased in 1717, along with the original pencil drawings that formed the basis for the engravings used by Scilla in his book *La Vana speculazione disingannata dal senso* ('Vain Speculation Disabused by Sense'), published in 1670. This was the first book devoted in its entirety to arguing that fossils were the

remains of once-living organisms, and as such takes a critical place in the establishment of palaeontology as a science.

Arguably the most famous fossil collector of the 19th century was Mary Anning (1799-1847). She spent her entire life in Lyme Regis, Dorset and from an early age developed the ability not only to find unusual fossils, but also to extract them and prepare them from the rock. She is most famous for being the first to discover fossils of marine reptiles, such as ichthyosaurs and plesiosaurs, at a time when few people accepted that types of animals not living in the present day could ever have lived on Earth. Adam Sedgwick, Woodwardian Professor of Geology at Cambridge, and William Buckland, his counterpart at Oxford, both recognised her outstanding ability and supported her by purchasing her best specimens. From her letters it is clear that Mary Anning was an articulate and very competent self-taught anatomist. Her discoveries paved the way for a greater acceptance of the concept of 'deep time' and Charles Darwin's assertion, in The Origin of Species (1859), that the Earth's fauna and flora have been changing continuously for an extraordinarily long period of time. These specimens highlight the geological collections of the Sedgwick Museum as one of the nation's greatest natural history treasures.

Kenneth J. McNamara
Director, Sedgwick Museum of Earth Sciences

Object Eleven

A DIGITAL OPTICAL MODULE (DOM) FROM THE ICE CUBE NEUTRINO TELESCOPE AT THE SOUTH POLE

Spherical optical sensor with photomultiplier tube and a single board data acquisition computer, 21st Century Diameter 35cm

The Polar Museum

The DOM is one of 5160 detectors buried in a site of one cubic kilometre deep beneath the Antarctic ice sheet, which together form the giant 'IceCube Neutrino' telescope. It is a spherical optical sensor with a photomultiplier tube and a single board data acquisition computer which sends digital data to the counting house on the surface. IceCube Neutrino – which looks very different from most telescopes with which we are familiar – is designed to detect neutrinos released from the highest-energy cosmic activity: it can be used to study the core of the Sun, the centres of supernovae and objects so distant that light from them is radically diminished.

Detecting neutrinos – particles with negligible mass and no electrical charge – is singularly difficult. Unlike light particles, neutrinos do not generally interact with matter or physical forces. When they encounter water molecules in ice, they may decay, emitting a brief flash of light which the DOMs can then detect up to 100 metres away because of the transparency and low radioactivity of ice.

Some modules are nicknamed with a reference to the Harry Potter books: this one is the 'Triwizard Tournament'.



THE FITZWILLIAM MUSEUM: A Remarkable Repository

The looming Neoclassical portico of the Fitzwilliam Museum, with its bristling railings and formidable flight of steps, might not appear at first sight a promising setting for a cultural epiphany, a place of discovery and inspiration. But for many people this extraordinary treasure-house on Trumpington Street has been a potent source of influence on their lives. Here, under one capacious roof, the broad sweep of civilisation may be surveyed and savoured, from a 14,000 year-old fragment of flint engraved with a stylised reindeer, to a set of irreverent prints made a few years ago by the Chapman Brothers.

The largest of the University of Cambridge's museums, the Fitzwilliam was founded in 1816, from the bequest of Richard Fitzwilliam, 7th Viscount Fitzwilliam of Merrion. He left the University his extensive collections – which included manuscripts and musical scores, rare books, Old Master paintings, prints and other works of art – together with the sum of £100,000 to 'cause to be erected and built a good substantial and convenient Museum, Repository, or other Building'. The Museum we know today was designed by the

OPPOSITE PAGE:

Forepart of a hollow cast lion, probably from a door lintel, c. 800BC-601BC. Architectural feature
Found in Shibam Hadramaut, South Arabia. Copper alloy,
H 55.6 cm
The Fitzwilliam Museum



architect George Basevi and finished by C. R. Cockerell and opened its doors some thirty years later, in 1848.

The Founder's collections were soon augmented by generous donors. Highlights included the magnificent granite lid of the sarcophagus of the Egyptian king, Ramesses III, given by the adventurer Giovanni-Battista Belzoni in 1823, and 300 Dutch and Flemish pictures and drawings, bequeathed by Daniel Mesman in 1834. Indeed, the sheer eclecticism of the Museum's collections began to arouse the derision of critics: a *Guide* of 1868 described a cast of 'the Diana of Versailles' next to an idol from the sacred grove near Ava in Burma; a Roman hand-mill found in Coveney Fen; a Japanese umbrella; an Egyptian tombstone, and a marble inscription in Armenian.

The appointment of Sydney Cockerell as curator in 1908 ushered in a renaissance for the Museum. 'I found it a pigstye, I turned it into a palace', was his proud boast, and during his twenty-nine year reign, Cockerell reorganised the Museum, displaying works of art within a civilized, almost domestic context, with furniture, ceramics and carpets, which is still one of the pleasures of the Fitzwilliam today. Dynamic and persuasive, he transformed it from being essentially a 'Grand Tour' collection to one that encompasses Islamic and Oriental art, and works by contemporaries. It was Cockerell who established the parameters of what the Fitzwilliam Museum collected and did not collect. Roman antiquities were acquired, but Romano-British material from local excavations was deposited in the Museum of Archaeology and Anthropology in Downing Street. Exquisite Mughal miniatures and Gandhara sculptures were admitted, but much other material from the Indian subcontinent was not.

The Fitzwilliam is, above all, a collection of collections – important French impressionist pictures bequeathed by Frank Hindley-Smith in 1939; Oscar Raphael's Chinese jades and bronzes, given in 1941; a *Cubist Head* by Picasso from Alastair Hunter in 1974; Lord Fairhaven's array of flower paintings in 1978; the Gompertz collection of Korean ceramics in 1984; Renaissance bronzes from Colonel Boscawen in 1979 and 1997. The generosity of these connoisseur-collectors – many of them Cambridge alumni – stamps a particular character on the holdings of the Museum.

The objects selected for this exhibition give a taste of the rare and curious things that are to be found in almost every gallery. The mysterious bronze lion head - found buried in a Yemeni desert - came to the Museum with a collection of Renaissance bronzes formed by an expatriate plantation owner in Tanzania. The Pembroke Hoard is a reminder of the history in which Cambridge is steeped. The beautiful watercolour of a flowering banana may be the first Western depiction of this now commonplace fruit. Giovanni-Battista Pittoni's canvas - depicting an imaginary monument to Sir Isaac Newton celebrates the Cambridge career of our greatest scientist, and the fusion of art and science itself. They remind us of the important role we play, not just in promoting, as Lord Fitzwilliam put it, 'the Increase of Learning and other great Objects of that Noble Foundation', but also in giving pleasure to the hundreds of thousands of inquisitive visitors who visit the Museum every year.

Tim Knox

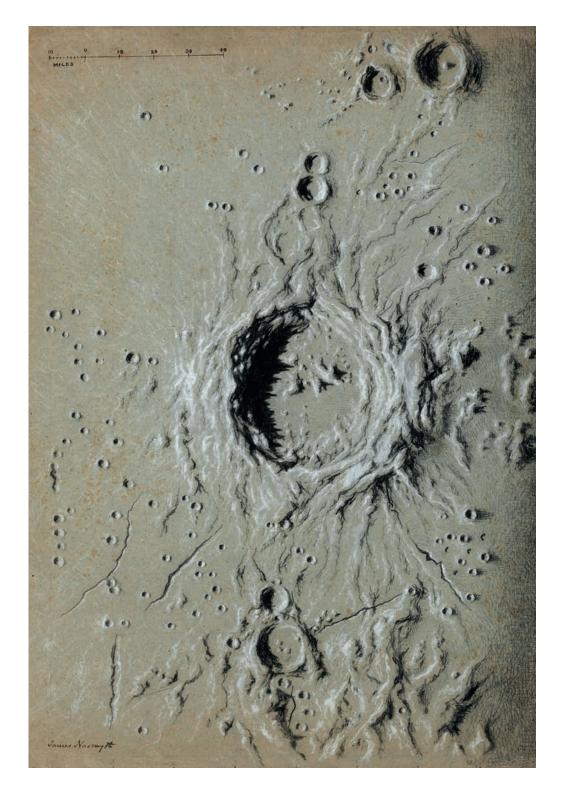
Director and Marlay Curator, The Fitzwilliam Museum

Object Twelve

COPERNICUS, MID-19TH CENTURY

James Nasmyth (1808-1890) Black and white chalk on grey paper, 45.6 x 34.6 cm The Fitzwilliam Museum

James Nasmyth, the Scottish engineer and inventor of the Steam Hammer, had a passion for astronomy. In 1842 he set out to make a minutely detailed study of the moon, which absorbed him for over thirty years. For the purposes of observation he built a 20-inch reflecting telescope in his garden, and he tirelessly produced drawings such as this one, each sheet showing a selected portion of the moon's surface. Nasmyth was interested primarily in the truthfulness of vision – this drawing shows the crater 'Copernicus' and was used for scientific teaching – but he, like many artists, was also concerned with the striking effects of light and shade.



THE POLAR MUSEUM: Exploration into Science

In 1913, the young geologist Frank Debenham returned from Captain Robert Falcon Scott's British Antarctic Expedition (1910–13). Determined to set up a memorial to Scott and his companions who had died on their return journey from the South Pole, he founded the Scott Polar Research Institute in 1920. The fledgling Institute became a meeting place for anyone with an interest in the Polar regions, and a repository for material returned on Scott's expedition ship, *Terra Nova*, for the benefit of those explorers who were to follow. These items, which included sledges, skis, clothing and foodstuffs, formed the nucleus of the Institute's Museum.

With Debenham's encouragement, many explorers and their families donated objects associated with Polar expeditions, including handwritten accounts of sledging journeys (such as Wyatt Rawson's diary from G.S. Nares British Arctic Expedition of 1875–1876, on display here), archives of planning and research, and an extraordinary array of artistic responses to the Polar regions. The Museum continues to collect Polar equipment, scientific data, personal accounts and visual records of expeditions, as well as the art and sculpture

OPPOSITE PAGE:

Drum Dancer, 1987, Thomas Akilak (b. 1961) Grey serpentine and caribou horn, H 30cm The Polar Museum Photography Martin Hartley of the people of the circumpolar North – represented here by the watercolours of Edward Wilson from the British National Antarctic (Discovery) Expedition 1901–04 and the carving by Inuit sculptor Thomas Akilak.

Debenham recognised from the start the vital importance both of the history of exploration of the Polar regions – including first encounters and subsequent interactions with the indigenous peoples of the Arctic – and of knowledge and understanding of the regions in the context of global environmental change. The Museum weaves together the many narratives of Polar discovery and the development of scientific investigations of the Arctic and Antarctic, culminating with the role of ice and climate at the Poles in the environmental future of our world. The Polar Museum's unrivalled collections contain artefacts, artworks, historic documents and photographs of the Polar



regions, including the last letters of Captain Scott, his companion Captain Lawrence Oates's sleeping bag, the four Antarctic expedition diaries of Sir Ernest Shackleton from Discovery (1901–04), Nimrod (1907–09), Endurance (1914–17) and Quest (1921–22) and the pioneering Antarctic photographs taken by Herbert Ponting in 1910–12. It also holds extensive earlier material from the nineteenth-century search for the Northwest Passage and the North Pole, and fascinating collections of Inuit, Greenlandic and Siberian art and material culture.

Polar exploration has always gone hand-in-hand with the development of technologies. Today, technology and scientific discovery remain at the heart of the Museum. Since April 2009 the Museum has undergone comprehensive redevelopment, and its new displays interpret – in ways that are immediate, exciting and relevant – the history of the exploration of both Poles, the indigenous inhabitants of the circumpolar North, and the scientific work in the regions, both historic and current, which now forms a basis for the research on global environmental change conducted by the Scott Polar Research Institute.

The selection of objects for this exhibition provides visitors with an imaginative and direct connection to the curiosity and endeavour of the early explorers. Scientific research and conservation of the Polar regions is represented by a range of technology – from the indigenous technology of early Inuit goggles through the Discovery telescope (the Museum's most travelled object, which was on board both Nares Discovery expedition in 1875 and the Space Shuttle Discovery in 1984) to a Digital Optical Module that forms part of the vast and ongoing IceCube Neutrino project.



Though Captain Scott and his four companions failed to return home after reaching the South Pole in 1912, the scientific data that the Terra Nova Expedition's scientists collected have provided a lasting legacy for research ever since — a fact reflected in the Museum's strapline, 'Exploration into Science'. The Museum upholds Debenham's conviction, a century ago, that Scott should not be forgotten and that his scientific work would lay the foundation for public understanding of our environment and our ability to predict future change.

Heather Lane Keeper of Collections, The Polar Museum

ABOVE:

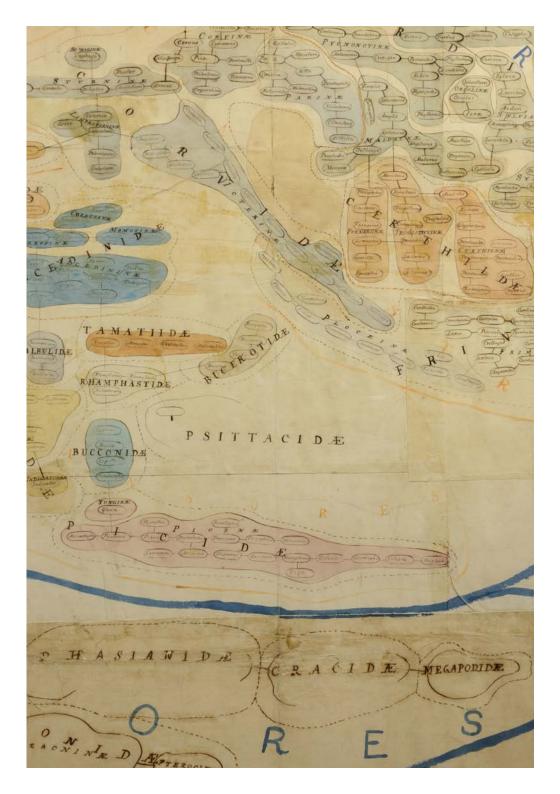
Inuit Snow Goggles, used during Discovery Expedition, 1901-4, Wood, 13.5cm, The Polar Museum Photography Paul Tucker

Object Thirteen THE STRICKLAND CHART OF BIRD CLASSIFICATION, 1843

Hugh Strickland (1811-1853)
Watercolour and Ink on paper, 208 x 100cm
Museum of Zoology
Photography by Paul Tucker

This chart represents Hugh Edwin Strickland's (1811-1853) attempt at a graphical classification of living birds, sixteen years before the publication of Charles Darwin's *The Origin of Species* (1859). It shows groups of birds linked by provisional tie-lines. Strickland noted that its form was tree-like, but neither he nor any contemporary viewed it as a phylogenetic (evolutionary) tree in the later, Darwinian sense. Strickland suggested that its importance was as a guide to the arrangement of specimens in a museum display.

Strickland, an enthusiastic naturalist since boyhood, had a distinguished scientific career as both geologist and zoologist. He was elected to the Royal Society in 1852, but was killed by a train a year later. One of his most important interests was in stabilising zoological terminology, and the chart, which we believe has never previously been displayed to the public, was produced with this in mind.



WHIPPLE MUSEUM OF THE HISTORY OF SCIENCE: Thinking about Discoveries

The very word 'discovery' tends to make historians of science a bit twitchy. How many past discoveries - of the 'correct' theory, the 'best' explanation, or a 'new' phenomenon - have since been rejected or abandoned? And when things are discovered - say, for example, a new planet (which is not to say that all newly-discovered 'planets' retain that status), how often do we keep the tools that were used to make that discovery? Scientists know that instruments - even those used in important discoveries - are often 'cannibalised' for other scientific work; seldom is an expensive piece of kit put away for posterity, to memorialise a particular discovery for which it might have been instrumental. Yet visitors often come to the Whipple Museum keen to see the instruments and tools used in important discoveries made in Cambridge; Newton's prisms (or even that apple?), or the model of the double helix constructed by Crick and Watson. The best we can offer in that line are prisms 'associated' with Newton, rather than his very own.

Most historians of science prefer not to emphasise discoveries; it tends to focus unduly on the great achievements of science,

OPPOSITE PAGE:

Table Orrery, about 1783, Edward Nairne and Thomas Blunt Mahogany; brass; leather; paper, H 33cm Whipple Museum of the History of Science



obscuring the 'normal' work that does not always offer something new. But there is much of interest in the tools of the everyday practice of science. Indeed, the Museum was founded, in 1944, through the generosity of an instrument manufacturer, Robert S. Whipple (1871-1953), the former Managing Director of the Cambridge Scientific Instrument Company, itself founded by the civil engineer Horace Darwin (1851-1928). The founding collection of the Museum includes about one thousand antique scientific instruments and related

70 Ω

rare books from Whipple's personal collection, many of which are on display alongside numerous additions to the collection over the past seventy years.

Few of the objects in the collection of the Whipple Museum are actually associated with original research; many were made for teaching and educational purposes. Yet the kinds of work these objects embody – be it the understanding of a known scientific principle, or the seeing of a phenomenon with one's own eyes – offer a special sense of discovery. The instruments and objects in this exhibition enabled these sorts of discovery: they were used by amateurs, enthusiasts and students – rather than professional scientists – to discover for themselves new insights and understanding of the world in which we live.

The orrery, a heliocentric astronomical model made by Nairne and Blunt (1774-1793), allows viewers to discover the effects of the motions of the Earth, the Moon, Mercury and Venus through the mechanical demonstration of phenomena such as day and night, the seasons, lunar phases and eclipses. Telescopes and microscopes offer their users opportunities to discover new worlds, very distant or very small, previously unseen by them. These may not be scientific discoveries in the sense of finding or observing something for the first time; but discoveries are made in many ways.

In fact, human imagination itself may be the most powerful instrument of discovery, allowing us to question the ideas of others, no matter how illustrious and famous they may be. In the nineteenth century, members of the English Muggletonian religious sect rejected the widely accepted cosmological ideas of Isaac Newton. One of their followers, Isaac Frost, in his *Two*

Systems of Astronomy (1846) argued against the astronomical orthodoxy of heliocentrism (the idea that the Earth and other planets revolve around the Sun, as portrayed by the Nairne and Blunt orrery) prevalent by the nineteenth century. The Whipple's Muggletonian astronomical images contrast the 'discoveries' of Newton with those of Muggletonian believers, who were convinced, from their reading of holy scriptures, of a universe centred around the Earth, and the physical reality of Heaven beyond the stars.

The Whipple Museum has a new *discover* gallery, the latest part of the Museum to be refurbished, featuring a high-density display of almost 600 objects, or nearly one-tenth of the whole collection. The Museum contains objects that are truly unexpected: objects that surprise and delight as well as challenge ideas about how we come to know and tell our histories of science.

Liba Taub

Director, Whipple Museum of the History of Science

Object Fourteen
OBSERVATION 95, 1991/2013 [PLUTO]

Sophy Rickett (b.1970)
Bromide Print, framed, 120cm x 150cm
Supported by the Institute of Astronomy 2013
Courtesy of the Artist

Sophy Rickett works with photography, video and sound installation. In 2012 she was Associate Artist at the Institute of Astronomy, University of Cambridge. This work, made during that year, is drawn from a series of photographic prints, Observations, part of an extended body of work titled Objects in the Field, which reflects upon the artist's encounter with Dr Roderick Willstrop, a retired astronomer, and his archive of photographic negatives made in the 1980s, when Willstrop designed and built The Three Mirror Telescope camera in the grounds of the Institute. Rickett appropriated a number of the now obsolete images, reprinting them by hand using the analogue process and altering them through her own subjective and aesthetic decisions. The resulting works subvert the images' original scientific purpose and at the same time act as a retrieval, or 'rescue' of the archive, in an intriguing and provocative confrontation of scientific and artistic endeavours.

These works and others from the series were exhibited at Kettle's Yard in 2013.



Object Fifteen

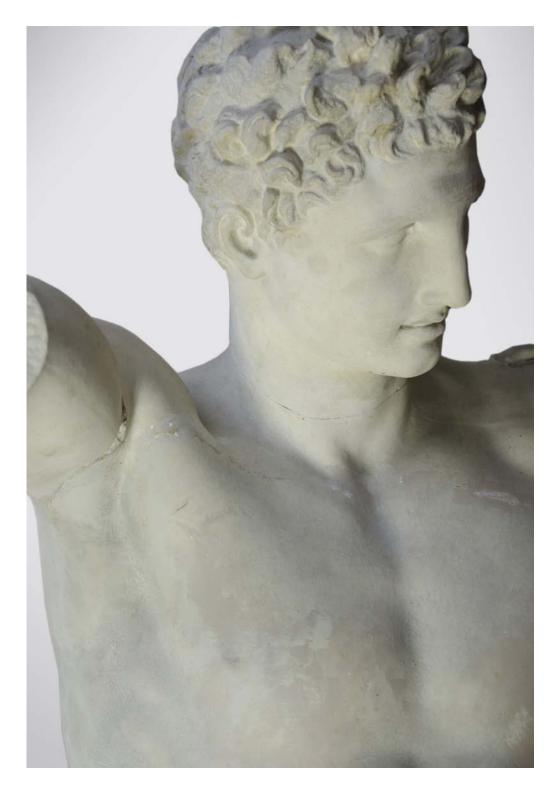
HERMES OF PRAXITELES

Plaster cast of the original Hermes and Infant Dionysos by Praxiteles, found at Olympia in May 1877 and now in the Archaeological Museum of Olympia Mid-4th century BC (date of the original statue, if by Praxiteles) H 2.13m

Museum of Classical Archaeology

Photography © Alicethecamera.co.uk

Prior to the discovery made at Olympia in May 1877, no original sculptures by the Athenian sculptor Praxiteles were known. But this did not mean that his works were unknown. Praxiteles featured large not only in Pausanias' Guide Book to Greece but in many ancient writers - including the Elder Pliny in his Natural History written in the second half of the first century A.D., and Lucian of Samosata writing almost a century later. Numerous Greek epigrams, too, delight in responding to the challenges of Praxiteles' artistry. These descriptions enabled various Roman sculptures to be identified as copies of Praxitelean works. The arguments about Hermes's own authenticity are not well-judged from a cast, but casts enable us to juxtapose new find to long-known copies and so discover both Praxiteles' aesthetic and his theology.



OBJECT LIST

LOWER GALLERY

Forepart of a hollow cast lion, probably from a door lintel, c.800BC-601BC

Architectural feature Found Shibam Hadramaut, South Arabia Copper alloy, H 55.6cm The Fitzwilliam Museum

Head, 1928

Henry Moore (1898-1986) Stone carving on plaster base, H 17.3cm Kettle's Yard

Snakes and Ladders board Collected in North India

Wood, shell, mother of pearl, 79.8 x 69.5 cm Museum of Archaeology and Anthropology

'Maria' c.1903/4

Collected on Nankauri Island, in the Nicobar Islands, Bay of Bengal Wood, shell, nautilus shell, H 89 cm Museum of Archaeology and Anthropology

Tinamou egg c.1830

Found in Uruguay by Charles Darwin, W 5cm Museum of Zoology

Hermes of Praxiteles foot Found at Olympia, May 1877

Mid 4th Century BC (if original)
Plaster cast, L 37cm
Museum of Classical Archaeology

Ammonite Early Cretaceous age, around 120BC

Fossil, found on the Isle of Wight, H 39 cm Sedgwick Museum of Earth Sciences

Drum Dancer, 1987

Thomas Akilak, Qamanittuaq (b.1961) Grey serpentine and caribou horn, H 30 cm The Polar Museum

Table Orrery c. 1783

Edward Nairne and Thomas Blunt Mahogany, brass, leather, paper H 33 cm Whipple Museum of the History of Science

Dodo skeleton, composite Bones found in Mauritius c.1870 H 60 cm Museum of Zoology

Pembroke College Hoard, 41 English and Scottish gold coins, Mid-17th Century

Pembroke College, Cambridge The Fitzwilliam Museum

Opus 9 (W/E 57) c. 1957 Naum Gabo (1890-1977) Wood engraving (monoprint)

on paper 26 x 29.5 cm Kettle's Yard

Flora in Calix - Light, 1950 David Jones (1895-1974)

Graphite and watercolour drawing on paper 57 x 76.8 cm
Kettle's Yard

Goblets, 1962

Ben Nicholson (1894 – 1982) Etching, wash and graphite drawing on cardboard, 33 x 26 cm Kettle's Yard

Sailing Ship and Orchard, c.1935-37 Alfred Wallis (1855 – 1942)

Oil drawing on cardboard, 21.1 x 21.8 cm

Kettle's Yard

Bare Trees and Hills, c.1960 Elisabeth Vellacott (1905 – 2002)

Graphite drawing on paper, 38.4 x 36.9 cm

Kettle's Yard

Words in Music, c. 1966 Jiri Kolar (1914 – 2002) Newspaper cuttings, collage

on paper 32 x 44.2 cm Kettle's Yard

Assortment of 52 Paddles & Weapons displayed on racks from

the museum store

Found mainly in Asia and the Pacific Museum of Archaeology and Anthropology

'Huxley' Hermes

Plaster cast of the head and shoulders of the original Hermes of Praxiteles, found at Olympia in May 1877, Mid-4th century BC (If original) H 0.65m Museum of Classical Archaeology

Die Ausgrabungen zu Olympia. V. Übersicht der Arbeiten und Funde vom Winter und Frühjahr 1879-1880 und 1880-1881 (The Excavations at Olympia: Volume 5. Overview of the excavations and finds from the Winter and Spring of 1879-80 and 1880-81) (Berlin 1881) Curtius, E., Adler, F., Trell, G., & Dörpfeld, W. (eds.), Three sheets, paper 38cm x 58cm

Woodward cabinet drawers:

Cabinet E Drawer 27: 'Bones, teeth etc of fishes'

Cabinet B Drawer 17: 'The extraneous Fossils, Shells, and the rest, compared with those produced at this Day'

Sedgwick Museum of Earth Sciences

La vana speculazione disingannata dal senso, The vane speculation disillusioned by the sense, 1670 Agostino Scilla. (1629-1700) Paper, 21 cm x 24 cm (open) Sedgwick Museum of Earth Sciences

Snow Goggles, 22 pairs 1875 – present day Various measurements The Polar Museum

17 Microscopes and telescopes, Early 18th – late 20th century Various measurements Whipple Museum of the History of Science

Mimicry Butterfly Drawer, c.1915 10 butterflies, including models and mimics 30 x 40 cm Museum of Zoology

Tinamou skin

Bird skin, 25 cm

Museum of Zoology

Ichthyosaur

Collected in Lyme Regis by Mary Anning, early 19th Century Complete reptile skeleton fossil in wooden frame, L 154cm Sedgwick Museum of Earth Sciences

Mimicry in Butterflies Reginald Crundall Punnett, (1875-1967) (Cambridge, 1915) Museum of Zoology STAIRCASE

Reproduction of James Watson & Francis Crick's 1953 skeletal model of DNA Built by Roger Lucke and Claudio

Villa, 2003

Metal structure 200 x 120 x 120cm

MRC Laboratory of

Molecular Biology

Richard, 7th Viscount Fitzwilliam of Merrion,1810 Richard Earlom (1743-1822) Mezzotint on paper 47.4 x 33.2 cm The Fitzwilliam Museum

Jim Ede with David Peace's
Sanctuary Lamp, c 1969
Reproduction from a photograph
by D. Gaye
Kettle's Yard

Baron Anatole Andreas Aloys von Hügel (1854–1928), 1899-1900 P. Voluzan Oil on canvas, 41.6 x 34.9 cm Museum of Archaeology and Anthropology

Sidney Colvin , 1943 William Rothenstein (1872–1945) Lithograph on paper 45.7 x 28.8cm The Fitzwilliam Museum Dr John Woodward, c. 1720s

Unknown artist

Oil on canvas

73.7 x 60.7 cm

Sedgwick Museum of Earth Sciences

Professor Adam Sedgwick , c. 1832 Thomas Phillips (1770 – 1845) Oil on canvas , 125 x 100 cm Sedgwick Museum of Earth Sciences

Frank Debenham and plane table, September 9th 1911 Herbert Ponting (1870-1935) Photographic paper The Polar Museum

Robert Stewart Whipple, c.1930 R.D. Friend Photographic paper, 50.7 x 40.7 cm Whipple Museum of the

John Willis Clark, 1912
A. Goffanti, after a photograph
c.1900 by Scott and Wilkinson
photographic enlargement
70 x 70 cm
Museum of Zoology

History of Science

LIBRARY

Musa Musa Sapientum
Mid 18th Century
Georg Dionysius Ehret (1708-1770)
Watercolour, bodycolour and
gum arabic over graphite outline
on vellum, 37.3 x 53.6 cm
The Fitzwilliam Museum

Kōmei bijin mitate Chūshingura junimai tsuzuki (The Chūshingura drama parodied by famous beauties: A set of twelve prints).

Kitagawa Utamaro (1753-1806)
Folding album with silk covers containing the set of 12 woodblock colour prints, ōban format published in Edo by Ōmiya Gonkurō c1795. L 399cm (open)
The Fitzwilliam Museum

Composed c.1920 Igor Stravinsky (1882 – 1971) Manuscript musical score Ink on paper 29.5 x 21.5 cm The Fitzwilliam Museum

The Dance of the Lilac Fairy

An Island in the Moon c.1784-85 William Blake (1757 – 1827) Manuscript, paper, 30.5 x 18.5 cm The Fitzwilliam Museum

13 drawings 1912-1914 Henri Gaudier-Brzeska (1891 – 1915) Paper, graphite, pen and ink, charcoal Various dimensions Kettle's Yard

3 Watercolours from Captain Scott's British National Antarctic Expedition, 1901-4 Edward Adrian Wilson (1872-1912) Watercolour mounted on cream board The Polar Museum

Wyatt Rawson's Diary 15 July – 9 November 1875 Wyatt Rawson (1853-1882) Leather, paper, ink. 19.4 x 15.5 x 3 cm The Polar Museum

Strickland chart of bird

classification, 1843 Hugh Strickland (1811 – 1853) Watercolour and brown ink on paper 208 x 100 cm Museum of Zoology

Australien in 142 photographischen Abbildungen nach zehnjährigen Erfahrungen zusammengestellt [Australia in 142 photographs from ten years' exploration]. Gleiwitz, 1862 Wilhelm von Blandowski 1822-1878) Haddon Library, University of Cambridge

his son Ernest, describing; his experiences in the Torres Strait.

Thursday Island, Torres Strait,
1888. & letter with a sketch of his laboratory. Mer, Torres Strait, 8
February 1889.

Ink on paper, 20cm x 10cm

Museum of Archaeology
and Anthropology

2 Letters from Alfred Haddon to

GREAT HALL
Hermes of Praxiteles
Hermes and infant Dionysos
by Praxiteles
Found at Olympia, May 1877
Mid 4th Century BC (if original)
Plaster cast, H 213cm
Museum of Classical Archaeology

by Praxiteles

Date of original c.340 BCE,

but this is a later Roman copy

Plaster cast, H 205 cm

Museum of Classical Archaeology

Aphrodite of Knidos

Apollo Sauroktonos by Praxiteles Date of original c.350 BCE, but this is a later Roman copy Plaster cast, H 149 cm Museum of Classical Archaeology

Copernicus, mid-19th Century James Nasmyth (1808-1890) Black and white chalk on grey paper, 45.6 x 34.6 cm The Fitzwilliam Museum

An Allegorical Monument to

Sir Isaac Newton 1727-29 Giovanni Battista Pittoni (1687 – 1767), Domenico and Giuseppe Valeriani (d.1761 and 1708-1762) Oil on canvas, 220 x 139 cm The Fitzwilliam Museum Universe & System According to the Holy Scriptures
6 Muggletonian prints, 1846
Drawn by Isaac Frost, printed by George Baxter and engraved by Clubb & Son
Oil colour printed on paper
30 x 22.7cm
Whipple Museum of the History of Science

The Newtonian System of the

Observation 95 1991/2013 [Pluto] 1991/2013 Sophy Rickett , b.1970 Bromide print, framed, 120 x 150 cm Supported by the Institute of

Astronomy 2013. Courtesy the artist.

Exhibited at Kettle's Yard, 2013

Observation 123 1997/2013

[Hale-Bopp] 1997/2013 Sophy Rickett, b.1970 Bromide print, framed, 120 x 150 cm Supported by the Institute of Astronomy 2013. Courtesy the artist. Exhibited at Kettle's Yard ,2013

'Discovery' Telescope, c.1870 Brass & leather, 27.2 cm The Polar Museum

The Island I, 2008
Brook Andrew (b.1970)
Mixed media on Belgian linen,
250 x 300 cm
Museum of Archaeology
and Anthropology

Royal Century refracting telescope on equatorial mount c. 1910 W. Watson & Sons Wood, metal, glass, 220 x 160 x 130 cm Whipple Museum of the History of Science

Digital Optical Module (DOM) from the IceCube Neutrino telescope at the South Pole 21st Century

Spherical optical sensor with thotomultiblier tube and a single

photomultiplier tube and a single board data acquisition computer, Diameter 35cm The Polar Museum

TWO TEMPLE PLACE

The Bulldog Trust is delighted to partner the University of Cambridge Museums, for the third in the series of Winter Exhibitions at Two Temple Place, to host DISCOVERIES: Art, Science & Exploration from the University of Cambridge Museums. The ornate and hand-crafted interior of Two Temple Place provides an intimate back drop for the ancient artefacts and objects, specimens and works of art on loan from the eight University of Cambridge museums.

We first launched the Winter Exhibition Programme in 2011 and, following successful collaborations with the William Morris Gallery (2011/2) and the Royal Cornwall Museum (2013) we are proud to have the opportunity to realise another important and equally popular exhibition at our venue.

The Winter Exhibition Programme has three objectives: to showcase and raise awareness of museum and gallery collections outside of London; to promote curatorial excellence; and to give the public the opportunity to visit and enjoy Two Temple Place itself, free of charge. The Bulldog Trust is always looking for new and unique ideas for our Exhibition Programme and welcome all proposals from professional curators, representing individual institutions or groups of institutions.

We continually strive to bring new audiences, whether children, families, members of the local community or infrequent museum visitors, to our exhibitions and develop our education and events programme with this goal in mind. In addition to

our work with primary schools across London, we have a wide range of activities for children and families available at weekends and during school holidays. It is our belief that if children can discover at a young age that museums, galleries or historic homes are accessible, friendly, fun and fascinating, it will spark an interest and desire to continue to explore these cultural venues for the rest of their lives.

Two Temple Place was originally built as an estate office for William Waldorf Astor in the late 19th century and the Bulldog Trust, a UK registered charity, has been fortunate to own and be based in this historic and beautiful Victorian mansion since 1999. Two Temple Place is the focal point for many of the Trust's initiatives and hosts regular activities including the Engaging Experience Philanthropy Network and marquee events for small charities that would otherwise not have the opportunity to access a similar setting. The house is also available for private hire, with all revenue earned supporting the work of the Trust.

We must thank the University of Cambridge Museums for lending so generously from their collections and making this exhibition possible, the exhibition Curators Professor Nicholas Thomas and Martin Caiger-Smith, and Programme Curator Dr Lydia Hamlett. We are also very grateful to the Arts Council for their generous support towards this exhibition.

We welcome all visitors to discover and enjoy the University of Cambridge museums and their collections, Two Temple Place and all our future exhibitions.

Charles M R Hoare, Chairman of Trustees, The Bulldog Trust

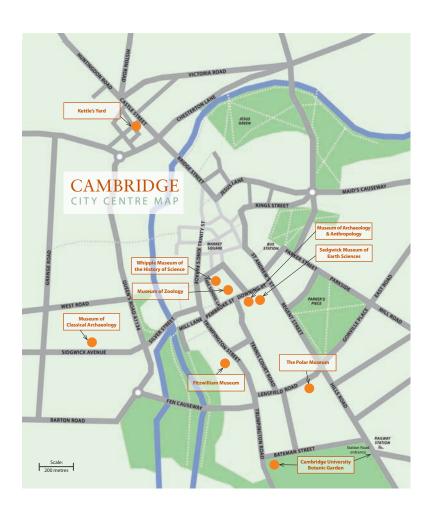
ACKNOWLEDGEMENTS

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The exhibition could not have been achieved without the many people working across the University and its museums, in particular Martin Allen, Rosie Amos, Lyn Bailey, Aidan Baker, Susie Biller, Andrew Bowker, Mike Brooke, Linda Brooklyn, Matt Buckley, Lucilla Burn, Lorena Bushell, Ian Crighton, Bridget Cusack, Dave Evans, Sean Fall, Richard Farleigh, Annette Faux, Sarah Finney, William Foster, Adrian Friday, Rachel Hand, Craig Hartley, Guy Haywood, Michael Jones, Marie Kennedy, Steve Kruse, Rob Law, Elenor Ling, Matt Lowe, Jo McPhee, Frieda Midgely, Jane Munro, Josh Nall, Tom Noblett, David Packer, Douglas Palmer, Stella Panayotova, Dan Pemberton, Adi Popescu, Jennifer Powell, Sue Rhodes, Stuart Roberts, Nicholas Robinson, Christine Rose, Sophie Rowe, Verity Sanderson, David Scrase, Willow Silvani, Thyrza Smith, Russell Stebbings, Lucy Theobald, Jennie Thornber, Susanne Turner, Roz Wade, Claire Wallace, Kathryn Westmore, Lucy Wheeler, Phil Wheeler and Kirstie Williams.

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CAMBRIDGE MUSEUMS MAP



Two Temple Place is part of The Bulldog Trust

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