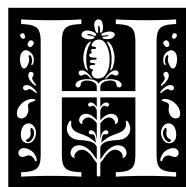


*STORM*  
*Picturing the CLOUD*  
*Origins of Our Climate Crisis*

**LARGE PRINT**



# **STORM CLOUD: PICTURING THE ORIGINS OF OUR CLIMATE CRISIS**

The Industrial Revolution enabled the rapid expansion of Britain and the United States between the late eighteenth and early twentieth centuries. Industrialization changed the relationship between people and nature, transforming the very way most people experienced time, place, and work.

At the same time, advances in the earth and life sciences demonstrated the long geological and climatic history of the planet and the interdependence of all life-forms. The knowledge gathered through the close observation of nature also began to expose the harmful effects of industry: pollution, loss of biodiversity, and the disruption of ecosystems.

Many nineteenth-century artists and writers engaged deeply with these sciences. Their works, in turn, articulate a new understanding of humanity's place in, and impact on, the natural world.

The varied images and texts on display here make clear we have long understood our devastating power over the environment. These objects depict a world remade through human actions and reveal the historical origins of the climate crisis confronting us today.

Generous support for this exhibition is provided by the Tianqiao and Chrissy Chen Science Initiative and the Douglas and Eunice Erb Goodan Endowment. Additional funding is provided by The Gladys Krieble Delmas Foundation, The Neilan Foundation, The Ahmanson Foundation Exhibition and Education Endowment, The Melvin R. Seiden-Janine Luke Exhibition Fund in memory of Robert F. Erburu, and the Boone Foundation.



This exhibition is supported in part by the National Endowment for the Arts.

For more information about PST ART: Art & Science Collide, please visit [pst.art](http://pst.art).



Storm Cloud participated in the PST ART Climate Impact Program.



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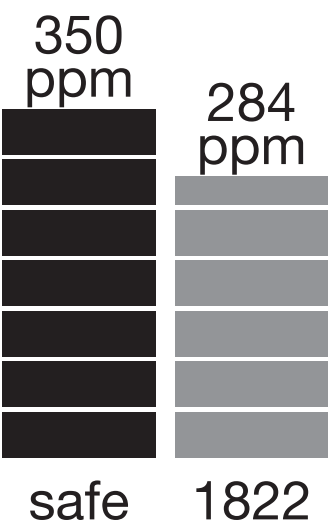
ALICIA MIÑANA & ROB LOVELACE

GETTY PATRON PROGRAM

# CARBON DIOXIDE (CO2) IN THE ATMOSPHERE

Throughout the exhibition, select object labels note the year of that object’s creation and the level of CO2 parts per million in the atmosphere that year (noted as CO2 ppm).

CO2 levels rose throughout the nineteenth century because of increased industrial emissions. The threshold for the safe concentration of carbon dioxide in the atmosphere is 350 ppm.



Look for the diagram that compares the levels of CO2.



For an interactive chart for CO2 levels going back to the eleventh century, scan the QR code.

## **The Storm-Cloud of the Nineteenth Century**

This exhibition's title is a nod to British writer John Ruskin's 1884 lecture series "The Storm-Cloud of the Nineteenth Century." In these lectures, Ruskin presented his observations of a disturbing new weather pattern he believed had not previously been described or recorded.

To represent this strange and novel phenomenon, Ruskin contrasted the appearance of the sky before and after the "storm-cloud." His own drawings of magnificent thunderstorms, billowing ice clouds, and brilliant sunsets were copied onto transparencies and projected by magic lantern into the darkened lecture hall. The "storm-cloud" was not illustrated. Instead, Ruskin conjured it with dramatic, sometimes frightening, language, some of which you see on the walls of this room.

Today, we understand that Ruskin was describing air pollution, but in his time there was no popular understanding of its long-term implications. Ruskin's lectures were an attempt to stoke public concern over a problem yet to be defined.

## OBJECT IN CASE

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### **The Riley Bros.**

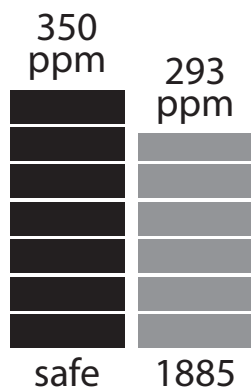
British, nineteenth century

### **The Praestantia magic lantern**

ca. 1885 (CO2 ppm that year: 293.3)

Brass, glass, steel, and tin

Erkki Huhtamo Media Archeology Collection



## **DIGITAL REPRODUCTIONS, PROJECTED AS SLIDES:**

Arthur Severn

British, 1842–1931

After John Ruskin

British, 1819–1900

### **Thunderclouds, Val d'Aosta**

ca. 1884 after 1858 original

Watercolor and gouache on paper

5 × 7 in. (12.6 × 17.4 cm)

© The Ruskin, Lancaster University

### **Cloud Study: Ice Clouds over Coniston**

1884 after 1880 original

Gouache on buff paper

5 × 6 5/8 in. (12.5 × 17 cm)

© The Ruskin, Lancaster University

John Ruskin

British, 1819–1900

### **Sunset at Herne Hill through the Smoke of London**

1876

Watercolor on paper

11 1/2 × 16 in. (29.2 × 40.6 cm)

Ruskin Museum, Coniston, Cumbria, UK

Photo: © Ruskin Museum/Bridgeman Images

## A NEW RELATIONSHIP TO NATURE

Over the last decades of the eighteenth century, rapid technological advancement drove Britain's shift from an agrarian to an industrial economy. Prior to the Industrial Revolution, most people lived in rural communities, and many worked outdoors. By 1900, most lived in cities and worked indoors, often in factories.

Industrialization also altered Britain's landscape itself. The enclosure movement transformed open land into hedged or fenced plots. Manufacturing centers polluted the air and waterways and required new transportation infrastructures, like railroads and canals, to get goods to markets. Artists and writers grappled with how to depict such landscapes.

At the same time, a growing urban audience sought to reconnect with nature. They toured the countryside with the help of guidebooks, in search of beautiful vistas. They bought paintings and read poetry that described an individual and emotional connection to the natural world. This Romantic view of nature fostered a love of wildlands and a desire to preserve them.



## OBJECT ON WALL

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John Constable

British, 1776–1837

### **View on the Stour near Dedham**

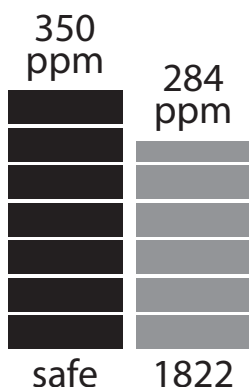
1822 (CO<sub>2</sub> ppm that year: 284)

Oil on canvas

The Huntington, 25.18

Through depictions of carefully observed light and weather conditions, Constable aimed to capture the experience of nature as much as its appearance. Here, a bright patch of meadow connotes sunlight breaking through clouds. White highlights on the reeds sparkle like drops of water left behind by the rain. Suggesting a connection between nature and emotion, the painting invites viewers to recall how it feels to witness a storm passing, an event often associated with hopefulness.

Beneath its naturalism, this is a scene of industrial infrastructure: the River Stour had been canalized to accommodate barges transporting commodities like coal and grain to markets.



## OBJECT ON WALL

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James Ward

British, 1769–1859

**Landscape near Swansea, South Wales**

ca. 1805

Oil on panel

Yale Center for British Art, Paul Mellon Collection

In Ward's small painting, one of Great Britain's industrial centers appears as part of a pastoral scene of rolling hills and wandering cattle. Known as "Copperopolis," Swansea was the world's leading copper-smelting center during the 1700s and 1800s. The artist depicts this heavy industry as if it belongs to the natural landscape, seamlessly blending the smoke rising from its coal-burning smelting furnaces with the clouds in the sky.

## OBJECT IN CASE

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Philippe Jacques de Loutherbourg  
French, 1740–1812, active Great Britain

**“The Ironworks, Coalbrook Dale,” in The Romantic and Picturesque Scenery of England and Wales (London, 1805)**

Etching, aquatint, and color washes  
in printed book

The Huntington, 388992

De Loutherbourg’s 1801 oil painting of the iron ore–smelting works at Coalbrookdale (see illustration) has come to symbolize the birth of the Industrial Revolution. For this publication, however, he tamed the sublime nighttime drama of his earlier image. The same site is now depicted as a destination for tourists. The mill’s furnaces glow softly in the daylight. Industrial debris litters the foreground like classical ruins, adding picturesque interest to the scene.



Philippe Jacques de Loutherbourg,  
**Coalbrookdale by Night**, 1801.

Oil on canvas,  
26  $\frac{3}{4}$  × 42 in.  
(68 × 106.7 cm).  
Science Museum  
Group, London,  
1952-452

## OBJECT IN CASE

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Thomas West

British, 1720–1779

**A Guide to the Lakes in Cumberland, Westmoreland, and Lancashire (London, 1821)**

The Huntington, 298519

In his guidebooks, first published in 1778, West directs artists and tourists to encounter England's Lake District through a series of viewpoints, called "stations." By encouraging travelers to appreciate the landscape's aesthetic qualities, West was among the first to regard nature as something to experience for pleasure. This idea informed later conservationists who sought to preserve areas of natural beauty. Today, the Lake District is protected as a UNESCO World Heritage Site.

## OBJECT IN CASE

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William Gilpin

British, 1724–1804

**Observations, Relative Chiefly to Picturesque Beauty, Made in the Year 1772, on Several Parts of England; Particularly the Mountains, and Lakes of Cumberland, and Westmoreland (London, 1786)**

The Huntington, 606844

Gilpin developed the concept of “the picturesque,” a way of considering nature as a work of art. His writings encouraged people to admire the natural landscape as if they were composing a picture like the vignette shown here. Some picturesque tourists even carried small round, tinted mirrors (called “Claude glasses,” after the seventeenth-century painter Claude Lorrain) to frame their composition and give their view the mellow coloring of a painting.



**Claude Lorrain mirror in fish-skin case.** Brass, felt, fish skin, glass, metal, paper, and wood. Science Museum Group, London, 1980-1751/1

## OBJECT IN CASE

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William Wordsworth

British, 1770–1850

**Poems, in Two Volumes (London, 1807)**

The Huntington, 26242

Several Romantic poets are associated with England's Lake District, including Wordsworth and Samuel Taylor Coleridge. Wordsworth's poems celebrate the region's fells (peaks), dells (grassy hollows), and daffodils, and describe its human inhabitants sympathetically. He used language that was more plain and direct than was standard for poetry at the time and that would have been comprehensible to his rural neighbors.

## OBJECT IN CASE

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William Wordsworth

British, 1770–1850

### **A Guide through the District of the Lakes in the North of England (London, 1835)**

Printed book with foldout engraving

The Huntington, 472946

After being asked to write captions for the illustrations in another author's guidebook, Wordsworth decided to expand his text into his own publication. Unlike his predecessors, West and Gilpin, Wordsworth did not point out picturesque vistas for the enjoyment of genteel visitors from the cities. Instead, he urged readers to recognize the harmony between the region's rural economies and the natural world, a local culture he described as an "almost visionary mountain republic."

## OBJECT IN CASE

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Dorothy Wordsworth

British, 1771–1855

**“The Summiting”**

Early 1800s

Manuscript

The Wordsworth Trust, Cumbria

Dorothy Wordsworth, William’s younger sister, lived with her brother, and later also his family, in Dove Cottage in Grasmere, a small village near a lake of the same name. She was her brother’s constant companion, not only at home but also on William’s long daily walks. “The Summiting” recounts a walk with a female friend to nearby Scafell Peak.



## OBJECT IN CASE

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Dorothy Wordsworth

British, 1771–1855

**Grasmere Journal**

1802

Bound manuscript

The Wordsworth Trust, Cumbria

Dorothy's journals show how attentive she was to nature. They also reveal her influence on her brother's writing. As his secretary and transcriber, she was an active collaborator. For example, William's well-known poem "I Wandered Lonely as a Cloud" (1807) echoes the lines from Dorothy's journal displayed here: "I never saw daffodils so beautiful they grew among the mossy stones . . . some rested their heads upon these stones as on a pillow for weariness and the rest tossed and reeled and danced and seemed as if they verily laughed with the wind."

## OBJECT ON WALL

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Attributed to Peter de Wint  
British, 1784–1849

### **Cumberland**

Undated, ca. 1830–40

Brown and black wash over graphite heightened with white on  
paper

The Huntington, Gilbert Davis Collection, 59.55.428

## THE PICTURESQUE LAKE DISTRICT

By the end of the 1700s, England's Lake District had become a popular destination for tourists, as guidebooks like those on view in the case attest. Artists catered to this interest, producing images of the region's striking lakes, forests, and mountains. Even John Constable, who rarely traveled, made an early sketching trip there. He filled sketchbooks with on-the-spot drawings like the one shown here, which depicts the rocky ridge of Langdale Pikes. By modulating the pressure on his pencil strokes, he contrasts the darker, tree-covered hills around the lake with the bare, rugged peaks in the distance.

## OBJECTS ON WALL

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William Turner of Oxford

British, 1789–1862

**Langdale, Westmoreland**

Undated, ca. 1830–40

Watercolor on paper

The Huntington, Gilbert Davis Collection, 59.55.1305

John Constable

British, 1776–1837

**Langdale Pikes across Lake Windermere**

Undated, ca. 1806

Graphite on paper

The Huntington, Gilbert Davis Collection, 59.55.259

George Beaumont

British, 1753–1827

**Langdale from the Road**

Inscribed 1780 (?)

Pen and brown wash on paper

The Huntington, 73.6

Orra White Hitchcock

American, 1796–1863

## REVEALING DEEP TIME: GEOLOGY AND PALEONTOLOGY

In the nineteenth century, the study of geology complicated the understanding of Earth's origins. The concept we now call "deep time" arose when geologists estimated the planet to be hundreds of millions of years old. This was far older than the roughly 6,000 years calculated through a literal reading of the Bible.

Paleontologists including Georges Cuvier (1769–1832) demonstrated that fossils were the remains of extinct species that had lived and died in an unfathomably distant past. Such discoveries made humanity's presence on Earth seem suddenly fragile and insignificant.

Many lamented how advances in geology threatened spirituality. Others sought to reconcile biblical texts with the geological record. A central debate divided the field between those who argued that oceans and mountains were created by catastrophic events like the flood recounted in the book of Genesis, and those who theorized that Earth's surface was formed through gradual processes that took millions of years. Eventually, geologists would conclude that both slow and sudden changes had shaped our planet.

"[My faith] ... is being beaten into mere gold leaf ... If only the Geologists would let me alone, I could do very well, but those dreadful Hammers! I hear the clink of them at the end of every cadence of the Bible verses."

—John Ruskin

## OBJECT ON WALL

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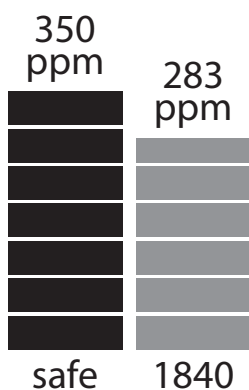
### **Drawing of Ichthyosaurus Skeleton**

ca. 1828–40 (CO<sub>2</sub> ppm in 1840: 283.4)

Pen and ink on linen

Orra White Hitchcock Classroom Drawings, Amherst College Archives and Special Collections

Orra Hitchcock undertook botanical and paleontological investigations around Amherst College, where her husband Edward taught. The Hitchcocks unearthed bones of species such as this ichthyosaur, a marine reptile that had been extinct for over 90 million years. Moving from partial fossil evidence to an understanding of how the bones fit together took creativity as well as scientific collaboration. Illustrations helped people to visualize animals no one had ever seen. Often based on scanty evidence, they were not always correct. This ichthyosaur resembles a crocodile with fins. They probably looked more like dolphins.



**Research cast of ichthyosaur skull**

Courtesy of Dinosaur Institute, Natural History Museum of Los Angeles County and Bureau of Land Management

Through celebrated paleontological discoveries and popular publications, the ichthyosaur became a symbol of Earth's great antiquity for nineteenth-century audiences. Exhibitions of fossils and reconstructed skeletons offered museumgoers an encounter with the sublime, a feeling of awe and terror when confronted with the size of the animals and the immensity of the planet's history.

This exceptional cast is from an ichthyosaur that lived during the Middle Triassic period, approximately 244 million years ago. The skull alone implies the creature's massiveness. It was about seventeen meters (fifty-five feet) long, larger than a sperm whale or about as long as a five-story building is tall.

## OBJECT IN CASE

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William Smith

British, 1769–1839

**A Delineation of the Strata of England and Wales, with  
Part of Scotland** (London, 1815)

The Huntington, 476026

Working as a surveyor in southwest England, Smith spent years observing coal mines and canal excavations. He noticed that rock layers were arranged in specific patterns, always in the same relative position. He then realized these strata could be identified and dated by the fossils each contained, with more recent layers nearer the surface. Smith surveyed the entire country and published this first geological map of Great Britain in 1815. His work has contributed to our understanding of the vast age of the Earth and knowledge about the extinction and evolution of species.



**Composite image from maps in William Smith's A  
Delineation of the Strata of England and Wales, with Part  
of Scotland (London, 1815)**

Reproduction

## OBJECT IN CASE

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Charles Lyell

British, 1797–1875

**Principles of Geology: Being an Attempt to Explain the Former Changes of the Earth's Surface, by Reference to Causes Now in Operation** (London, 1830)

The Huntington, 712223 vol. 1

Lyell's *Principles of Geology* is considered one of the most important books ever published on earth science. Although he was careful to avoid discussing religion, his argument that Earth was shaped over millennia raised eyebrows. The illustration opposite the title page shows the ruins of the ancient Temple of Serapis near Naples. Remnants of marine organisms on the columns indicated that the temple had once been partly underwater. Lyell argued this was “unequivocal evidence” of dramatically changing land and sea levels over time.

## OBJECT IN CASE

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James Hutton

British, 1726–1797

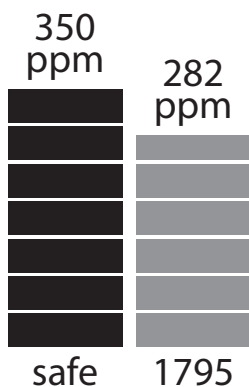
### **Theory of the Earth: With Proofs and Illustrations**

(Edinburgh, 1795)

(CO<sub>2</sub> ppm in 1795: 282.3)

The Huntington, 473932 vol. 1

Hutton's *Theory of the Earth* is considered a foundational text of modern geology. His key argument was that Earth's rocks were formed in cycles over vast spans of time. His questions about rock formations arose after he inherited the family farm and began to observe his land. This agricultural starting point is represented in this now famous engraving of horses and a cart atop multiple stratigraphic layers. In the final sentence of Hutton's book, he summarizes his findings: "the result, therefore, of our present enquiry is, that we find no vestige of [Earth's] beginning,—no prospect of an end."



## OBJECT IN CASE

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Alfred, Lord Tennyson

British, 1809–1892

**“In Memoriam A. H. H. OBIT MDCCCXXXIII”**

ca. 1850

Autograph manuscript

The Huntington, mssHM 1321

This is a partial draft of Tennyson’s long poem, published in 1850 after over fifteen years of composition. The poem is an elegy for Tennyson’s close friend Arthur Henry Hallam, who died in 1833 at age twenty-two. Over almost 3,000 lines, Tennyson meditates on the meaning of an individual life during a period in which emerging scientific concepts challenged ideas about the age of the Earth, the status of humans among other species, and the promise of a spiritual afterlife. The personification of Nature in the poem remarks on the fossil evidence of extinct dinosaurs: “From scarped cliff and quarried stone / She cries, ‘A thousand types are gone: / I care for nothing, all shall go.’ ”

**The Bridgewater Treatises on the Power, Wisdom, and Goodness of God, as Manifested in the Creation**

Charles Bell

British, 1774–1842

**The Hand: Its Mechanism and Vital Endowments as Evincing Design** (London, 1837)

The Huntington, 32524

William Buckland

British, 1784–1856

**Geology and Mineralogy: Considered with Reference to Natural Theology** (London, 1837)

The Huntington, 32526 vol. 1

Thomas Chalmers

British, 1780–1847

**The Adaptation of External Nature to the Moral and Intellectual Constitution of Man** (London, 1835)

The Huntington, 32529 vols. 1 and 2

John Kidd

British, 1775–1851

**On the Adaptation of External Nature to the Physical Condition of Man** (London, 1837)

The Huntington, 32522

## OBJECTS IN CASE

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William Kirby

British, 1759–1850

**On the History, Habits, and Instincts of Animals** (London, 1835)

The Huntington, 32527 vols. 1 and 2

William Prout

British, 1785–1850

**Chemistry, Meteorology, and the Function of Digestion: Considered with Reference to Natural Theology** (London, 1834)

The Huntington, 32528

Peter Mark Roget

British, 1779–1869

**Animal and Vegetable Physiology: Considered with Reference to Natural Theology** (London, 1834)

The Huntington, 32525 vols. 1 and 2

William Whewell

British, 1794–1866

**Astronomy and General Physics: Considered with Reference to Natural Theology** (London, 1839)

The Huntington, 32523

## OBJECT IN CASE

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William Buckland

British, 1784–1856

**Geology and Mineralogy Considered with Reference to Natural Theology** (London, 1837)

The Huntington, 32526 vol. 2

Known collectively as the Bridgewater Treatises, this eight-part series attempted to reconcile science and religion in the early nineteenth century. Its premise was that the scientific study of nature would affirm God's existence. Each volume covered a different science. William Buckland's volume on geology includes this detailed illustration of life-forms that have existed over Earth's long history, many of them extinct. The plants and animals are depicted above a stratified landscape where their fossils might be located. Buckland pointed to marine fossils found on mountaintops as evidence of the biblical flood.

## OBJECT ON WALL

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Unknown British artist

### **Portrait of Mary Anning and Her Dog, Tray**

Before 1842

Oil on canvas

Natural History Museum, London

Pioneering paleontologist Mary Anning (1799–1847) lived in Dorset on England’s Jurassic Coast, a region known for its rich fossil record. She is depicted here with her fossil-hunting equipment as she points to the ground below, possibly suggesting a good spot for a dig. Anning found many ichthyosaur fossils, as well as the first complete plesiosaur skeleton. Her discoveries helped establish many of the most significant fossil collections in the world, including that of London’s Natural History Museum, which still displays her specimens.



## **SELECTION OF FOSSILS:**

**Hispidocrinus scalaris (sea lily)**  
**Nodicoeloceras incrassatum (ammonite)**  
**Pleuroceras spinatum (ammonite)**  
**Xipheroceras ziphus (ammonite)**  
**Greenops grabau (trilobite)**  
**Hesslerides bufo (trilobite)**  
**Calymene celebra (trilobite) (2)**  
**Belemnopsis hastatus (belemnite) (5)**

Courtesy of Invertebrate Paleontology,  
Natural History Museum of Los Angeles County

A hobbyist Victorian collector would have recognized these fossil types. Marine species such as ammonites, trilobites, belemnites, and fossilized coral were among the most common specimens in nineteenth-century collections. Most of the fossils displayed here are from Dorset, where Mary Anning lived and worked, though they can be found around the world. Then and now, fossils offered collectors a tangible way to engage with Earth's deep past.

## OBJECT ON WALL

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George Scharf

German, 1788–1860

After Henry Thomas De la Beche

British, 1796–1855

**Duria Antiquior, a More Ancient Dorset**

1830

Hand-colored lithograph

Collection of William (Ned) Friedman

This chaotic and comedic scene reproduces the first illustration of prehistoric life based on the fossil record, a watercolor by English geologist and paleontologist Henry de la Beche. He sold these reproductions to raise funds for his friend and fellow paleontologist Mary Anning (whose portrait is on view nearby), when she was struggling financially. The image depicts many of the animals Anning regularly unearthed, including ichthyosaurs, plesiosaurs, and ammonites, as well as a few coprolites (fossilized droppings). Prints like this helped nineteenth-century audiences imagine what the Earth may have looked like long before the human era.

## OBJECT ON WALL

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William Dyce

British, 1806–1864

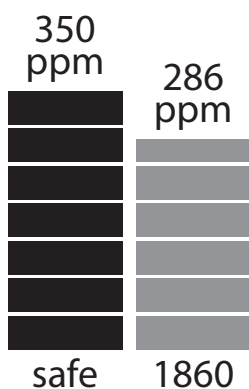
**Pegwell Bay, Kent—A Recollection of October 5th 1858**

1858–60? (CO<sub>2</sub> ppm in 1860: 286.2)

Oil on canvas

Tate, London, N01407

Dyce's painting engages with new understandings of humanity's relative place in the profound histories of the Earth and stars. Within the scene, there are references to geology, in the detailed description of the strata visible in the cliff; paleontology, in the family's hunt for fossils along the shore; and astronomy, in the depiction of Donati's Comet in the sky. Some have read the painting as a melancholy response to science's challenge to traditional Christian beliefs. Others suggest it may reference contemporary thinkers who saw the beauty of rocks and the vastness of space as evidence of God's existence.



**Response: Jan Zalasiewicz**

Emeritus Professor of Palaeobiology at the University of Leicester and a member of the Anthropocene Working Group

Pegwell Bay is Dyce's most celebrated painting, widely held to symbolize dawning realization of deep geological time in mid-Victorian times and of Darwin's unsettling evolutionary thinking. Dyce's painting, though, was near-complete when Darwin's *Origin of Species* was published, in 1859. I wonder, rather, whether Dyce had a copy of Gideon Mantell's *Thoughts on a Pebble* on his bookshelf? Published in 1849, this early popular geology book described fossils of the Chalk so lyrically that it encouraged many people to try fossil hunting themselves. Dyce might have been similarly inspired to beachcomb beneath those magnificent Chalk cliffs—and then to immortalize them.

## OBJECT IN CASE

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Edward Hitchcock

American, 1793–1864

**Elementary Geology** (Amherst, MA, 1840)

The Huntington, 712230

Although Edward Hitchcock was not a biblical literalist, his geological studies were religiously informed, and he outright rejected theories of evolution. Instead, he suggested that species were divinely introduced at various stages in Earth's history. This "tree of life" is the first branched paleontological chart. It shows plant and animal kingdoms against a geological timescale, crowned by Palms and Man respectively. After Darwin used the tree of life to conceptualize evolution, Hitchcock omitted it from later editions of his book. This image was drawn by Edward's wife, Orra White Hitchcock, whose classroom illustrations are on view in this gallery.

## OBJECT IN CASE

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William Smith

British, 1769–1839

**Strata Identified by Organized Fossils: Containing Prints on Colored Paper of the Most Characteristic Specimens in Each Stratum** (London, 1816–19)

The Huntington, 474723

Smith's studies on strata and fossilized remains brought awareness to the fact that layers of rock, and the fossils contained within, represented distinct periods in Earth's history. He noted that fossils found in the same rock layers belonged to species that coexisted. Here, the different colors of the paper indicate the type of strata—chalk, rock, clay, etc.—in which specific fossils might be found.

## OBJECT IN CASE

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Gideon Algernon Mantell

British, 1790–1852

**The Medals of Creation; or, First Lessons in Geology and in the Study of Organic Remains** (London, 1844)

The Huntington, 488169 vol. 1

Mantell helped make fossil collecting a popular pastime in the nineteenth century. His books were accessible for hobbyists. These illustrations show tools a new fossil collector might need, as well as specimen types one might readily find in Britain. The book also contributed to the commercialization of geology and paleontology by providing a list of London's fossil dealers.

## OBJECTS ON WALL

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Orra White Hitchcock  
American, 1796–1863

**Drawing of Strata across England**

**Drawing of Tabular View of the Stratified Rocks**

ca. 1828–40

Pen and ink on linen

Orra White Hitchcock Classroom Drawings, Amherst College  
Archives and Special Collections

Used as classroom aids for her husband Edward's lectures, Orra Hitchcock's drawings helped make emerging scientific concepts comprehensible for geology students at Amherst College. These images attest to the Hitchcocks' engagement with new scientific developments, such as William Smith's mapping of the geology of England and Wales. The long, thin illustration depicts the strata of England's south, viewed in cross section from the west to east coasts. The larger tabular view references recent work to define long stretches of time based on rock and fossil evidence. The columns present attempts to date strata by Lyell, De la Beche, and others.



## OBJECT ON WALL

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Henry Thomas De la Beche  
British, 1796–1855

**Ichthyosaurs Attending a Lecture on Fossilised Human  
Remains, or Awful Changes**  
1830

Hand-colored lithograph  
Wellcome Collection, London

De la Beche created this cartoon to lampoon geologist Charles Lyell and his theory of cyclical time. Lyell suggested that in Earth's distant future, humans might be extinct and ancient reptiles could return. At the time, the possibility of human extinction was a new and challenging concept for many. Here, De la Beche pokes fun at this idea and imagines what the distant future might look like if Lyell's theories proved correct: A Professor Ichthyosaur gives a lecture on human fossils to an audience of plesiosaurs and fellow ichthyosaurs.

## OBJECT ON WALL

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John Everett Millais

British, 1829–1896

### **The Waterfall**

1853

Oil on panel

Delaware Art Museum, Samuel and Mary R. Bancroft

Memorial, 1935

This painting was made when Millais accompanied John Ruskin and his wife, Effie, to Glenfinlas, Scotland, to paint the author's portrait (see illustration). As in the image of her husband, this depicts Effie against a background of rocks and cascades painted with a precision of detail that allows for geologic specificity. The pattern of lines and swirls in the rock structure makes it possible to identify it as gneiss, a type of metamorphic rock that Ruskin would mention for its beauty in *Modern Painters*.



John Everett Millais (British, 1829–1896), **John Ruskin**, 1853–54. Oil on canvas, 28.1 x 23.9 in. (71.3 x 60.8 cm). Accepted by HM Government in lieu of Inheritance Tax and allocated to the Ashmolean Museum, 2013, WA2013.67. The Ashmolean Museum. Image © Ashmolean Museum

## OBJECT ON WALL

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John Ruskin

British, 1819–1900

### **Study of a Piece of Rolled Gneiss**

1874–75

Lampblack, watercolor, and gouache over graphite on wove paper

The Ashmolean Museum, University of Oxford, Presented by John Ruskin to the Ruskin Drawing School (University of Oxford), 1875

**Modern Painters, volume 4: “Of Mountain Beauty”**  
**Fourth Edition** (London, 1848–60)  
The Huntington, 136782

For Ruskin, rocks were an expression of divine creation, revealing in their own structure the natural forces that shaped them. He believed art could similarly express divine attributes by striving for “truth to nature.” The fourth volume of his treatise *Modern Painters* features an illustration of a rock from his collection, no. 1 in the adjacent case, whose material structure gave it “the peculiar form of . . . the summit of a mountain.”

## **SELECTION OF ROCKS FROM JOHN RUSKIN'S COLLECTION:**

- 1. Gneiss**
- 2. Quartz with iridescent Boulangerite**
- 3. Fossil coral**
- 4. Malachite on Bornite with Chalcedony**
- 5. Agate/"Amethyst"**
- 6. Agate**

The Brantwood Trust

Ruskin made detailed studies of rocks, many of which were based on examples in his own collection. Close observation of these specimens helped shape his thinking about the nature and purpose of art.

## **EVIDENCE IN THE ICE: GLACIOLOGY**

The study of glaciers revealed drastic fluctuations in the planet's climate over time. Louis Agassiz (1807–1873), a Swiss American naturalist, suggested that glaciers had formed long ago during glacial periods, or ice ages. Later scientists found that these intervals of colder temperatures were also marked by lower levels of atmospheric carbon.

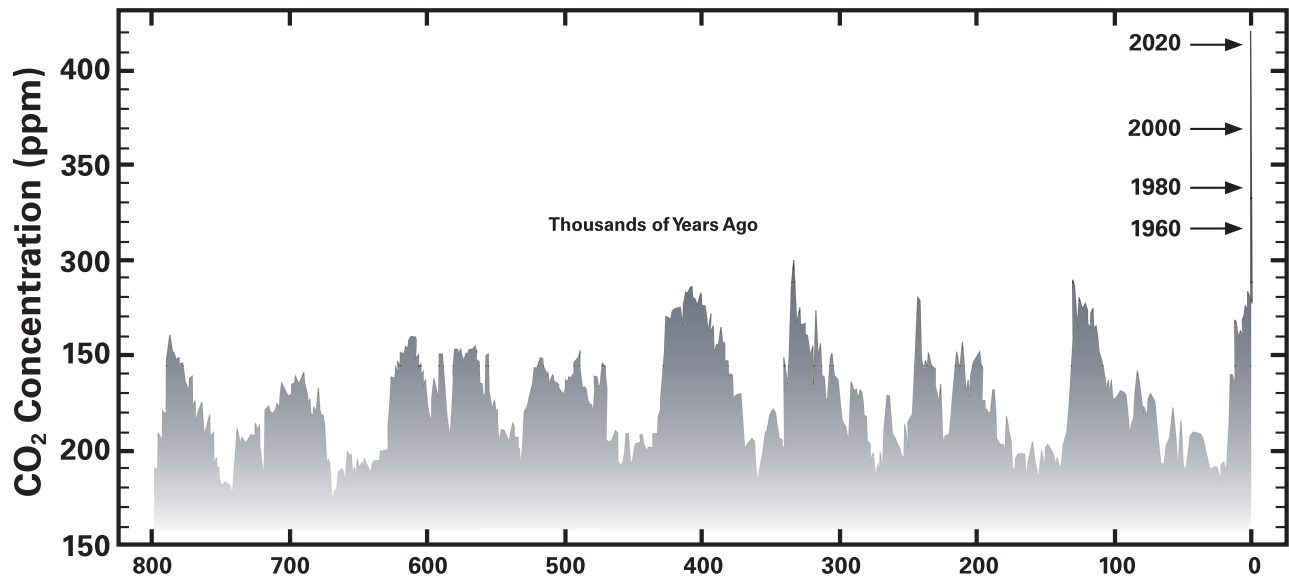
Physicist John Tyndall's (1820–1893) research on glacier formation and movement prompted him to study the sun's heating properties. New findings about Earth's icy past prompted questions about the planet's climatic future. Glaciers remain important sites for the measurement, and also evocation, of global warming.

The scientific study of ice inspired nineteenth-century artists and writers, none more so than John Ruskin. His writings on the geology and topography of mountainous regions encouraged a number of painters to travel to the Alps.

## EVIDENCE IN THE ICE: GLACIOLOGY (CONTINUED)

CO<sub>2</sub> data before 1958 going back 800,000 years

Last updated May 31, 2024

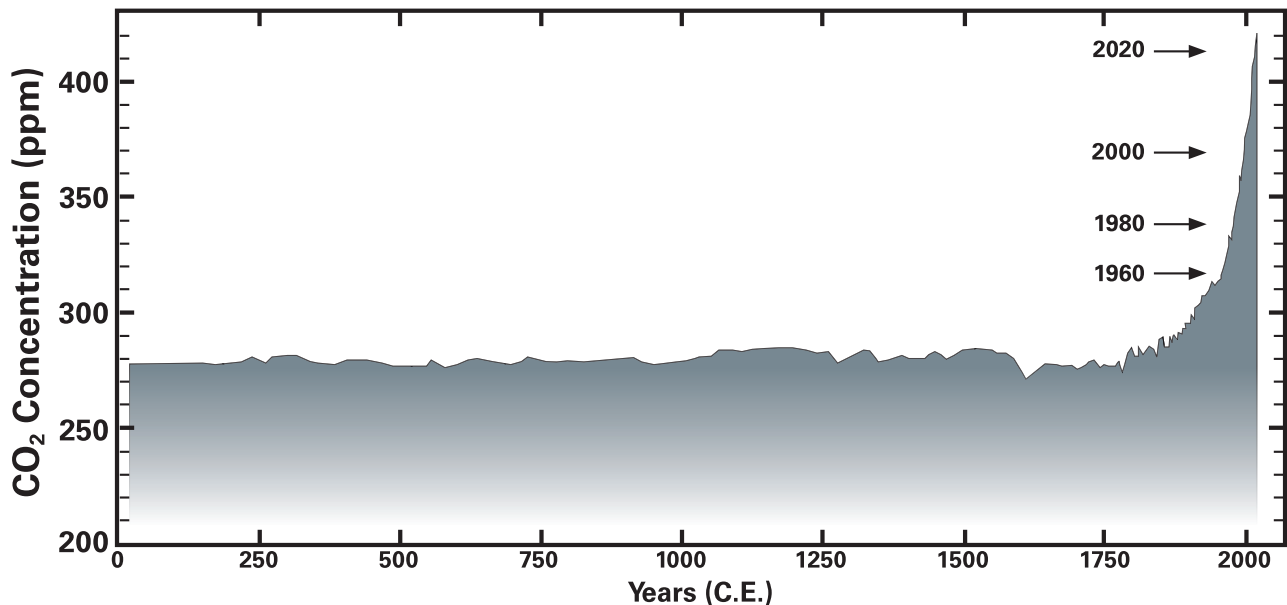


Lüthi, D., M. Le Floch, B. Bereiter, T. Blunier, J.-M. Barnola, U. Siegenthaler, D. Raynaud, J. Jouzel, H. Fischer, K. Kawamura, and T. F. Stocker. 2008. High-resolution carbon dioxide concentration record 650,000–800,000 years before present. *Nature*, Vol. 453, pp. 379–82, 15 May 2008.

## EVIDENCE IN THE ICE: GLACIOLOGY (CONTINUED)

CO<sub>2</sub> data before 1958 going back 2,000 years

Last updated May 17, 2024



Rubino, Mauro; Etheridge, David; Thornton, David; Allison, Colin; Francey, Roger; Langenfelds, Ray; Steele, Paul; Trudinger, Cathy; Spencer, Darren; Curran, Mark; Van Ommen, Tas; Smith, Andrew (2019): Law Dome Ice Core 2000-Year CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O and d<sup>13</sup>C-CO<sub>2</sub>. v1. CSIRO. Data Collection.

When looking at records gathered from ice core data of atmospheric carbon dioxide in these two graphs (one with 800,000 years of data, and another with 2,000 years), one can see the natural versus human-induced increases of CO<sub>2</sub> in the atmosphere. At the 800,000-year view, the regular troughs and peaks reflect natural glacial and interglacial periods. At the 2,000-year view, one can see the steady rise of carbon beginning around 1780, when the carbon parts per million (ppm) were around 280.8. Today, they are over 420 ppm. Due to the burning of fossil fuels, CO<sub>2</sub> levels are now higher than they have been in 800,000 years.



## OBJECT ON WALL

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John Brett

British, 1831–1902

**Glacier of Rosenlaui**

1856

Oil on canvas

Tate, London, purchased in 1946, N05643

Inspired by discoveries in alpine geology, Brett's painting of a Swiss glacier is so precisely rendered one can identify the loose stones littering its path as gneiss, a type of metamorphic rock. The painting effectively suggests the scale of the mountainous landscape with a stand of miniscule trees, which are actually tall conifers, at top left. The path of the glacier has left the earth scoured of growth, a visible sign of powerful natural forces at work.

## OBJECTS ON WALL

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John Ruskin

British, 1819–1900

Frederick Crawley

British, active mid-nineteenth century

**Chamonix. Aiguille Verte and Aiguille du Dru**

1854

Daguerreotype

The Ruskin, Lancaster University

John Ruskin

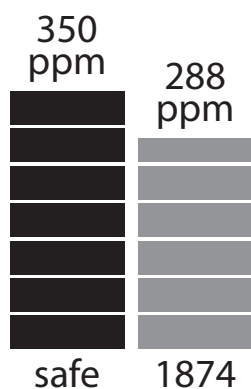
British, 1819–1900

**Mont Blanc from Saint-Martin-sur-Arve**

1874 (CO<sub>2</sub> ppm that year 288.4)

Watercolor and gouache over graphite on wove paper

The Ashmolean Museum, University of Oxford, Presented by John Ruskin to the Ruskin Drawing School (University of Oxford), 1875



## OBJECTS ON WALL

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John Ruskin

British, 1819–1900

**Mer de Glace, Chamonix**

1849

Graphite, watercolor, and gouache on paper

The Ruskin, Lancaster University

John Ruskin

British, 1819–1900

Frederick Crawley

British, active mid-nineteenth century

**Chamonix. Mer de Glace, Mont Blanc Massif**

1854

Daguerreotype

The Ruskin, Lancaster University

## **RUSKIN AND MOUNTAINS**

Ruskin's interest in geology was coupled with a love of mountain scenery. He made many visits to the Alps, employing a variety of techniques to record his observations of a landscape changing over time. Through drawings and photographs like these, he charted the glacial retreat that began in his own lifetime. In 1874, he noted how he was able to walk across a "dry bed" where forty years earlier there had been a glacier "two hundred feet deep." Since 1850, the Mer de Glace glacier captured in these images has retreated by more than two kilometers.

## OBJECT ON WALL

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Unknown British artist

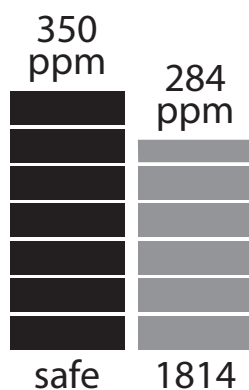
### **A View of the Frost Fair on the Thames, February 1814**

1814 (CO<sub>2</sub> ppm that year: 284)

Woodcut

The Huntington

This comedic scene illustrates a multiday fair held on the frozen river Thames in London. These “frost fairs” were regular occurrences during the Little Ice Age (roughly 1300–1850). During this period, Europe’s climate averaged about 1.1°F (.6°C) cooler than today. Frivolity on the ice was possible because these colder temperatures caused the water moving slowly past London’s medieval bridges to freeze. Within the crowd, one can see themed tents, men on horseback playing a game, and many unfortunate Londoners slipping on the ice. The last frost fair took place in 1814. Conditions have not been right since.



## **WEATHER WATCHES: METEOROLOGY**

Nineteenth-century meteorologists began quantifying weather patterns, establishing the modern study of climate. If “weather” referred to the temperature, wind, and cloud cover on a given day, “climate” encompassed patterns of weather in a particular place over time. Regular observations and precise recordkeeping set a baseline that allowed later climate scientists to note warming trends.

Weather also revealed how local disasters could have global consequences. The eruption of Mount Tambora in Indonesia in 1815 blew ash over half the planet, blocking the sun as far as England for months, and causing drought, floods, and food riots. The “year without a summer,” 1816, made people around the planet aware they were breathing the same air.

Artists had long used weather to convey the emotional tenor of a painting, play, or novel (storms denoted terror or disaster, for example). Alongside advances in the science of meteorology, landscape painters in particular began studying weather more systematically. They sought ways to convey not only the appearance of atmospheric phenomena such as clouds and rain, but also the bodily experience of such conditions.

## OBJECTS ON WALL

---

Luke Howard

British, 1772–1864

### **Cloud Study of Cumulus Blowing in High Wind**

1803

Watercolor on paper

### **Cloud Study of Nimbus Showing Anvil with Cumulus and Water Vapour Streaming Out**

ca. 1803–11

Blue, gray, and buff wash with white on paper

### **Cloud Study of Cirrus in Parallel Receding Lines**

1803–11

Blue wash with white on paper

### **Cloud Study of Nimbus**

1803–11

Graphite, with blue, yellow, and gray wash, touched with white on paper

Science Museum Group, loans on Behalf of the Royal Meteorological Society

## OBJECTS ON WALL

---

John Constable

British, 1776–1837

### **Study of Clouds over a Landscape**

ca. 1821–22

Oil on cream laminate cardboard, mounted on canvas

Clark Art Institute, Williamstown, MA, Gift of the Manton Art Foundation in memory of Sir Edwin and Lady Manton

### **Cloud Study**

ca. 1821–22

Oil on cream laid paper, mounted on canvas

Clark Art Institute, Williamstown, MA, Gift of the Manton Art Foundation in memory of Sir Edwin and Lady Manton

### **Cloud Study: Stormy Sunset**

1821–22

Oil on paper mounted on canvas

National Gallery of Art, Washington, DC, 1998.20.1



## SKYING

Constable's cloud studies reflect his attempt to align his art with a meteorological understanding of atmospheric phenomena described by scientists such as Luke Howard. Though not as purely descriptive as Howard's scientific renderings, Constable's studies reveal an understanding of the structure and movement of clouds.

"Skying," the artist's term for his practice of cloud watching, helped him develop a language of expression for his larger landscapes, where the representation of the sky conveys not only the scene's weather conditions but also the painting's mood.

## OBJECT IN CASE

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Luke Howard

British, 1772–1864

**The Climate of London** (London, 1833)

The Huntington, 476421 vol. 1

Howard collected over a decade of data from London, including barometric and thermometer readings, water levels, and wind direction. He was the first scientist to describe the city's weather systems, such as the urban "heat island" effect. Because buildings, roads, and other urban infrastructure absorb and re-emit the sun's heat, cities tend to be several degrees warmer than less developed areas with trees and bodies of water. He noted that air pollution intensified the feeling of heat.

## OBJECT IN CASE

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Luke Howard

British, 1772–1864

**Essay on the Modifications of Clouds** (London, 1865)

Mandeville Special Collections Library, University of California,  
San Diego

Howard's work established Latin terms for cloud types, which fostered the international collaboration necessary for the observation of something as globally distributed as clouds. Howard's names for the primary cloud types—cumulus, cirrus, and stratus—continue to be used to this day. Howard noted that clouds' most distinguishing feature was their "modification" or changeability, which made them especially difficult to pin down by name or capture in pencil or paint.

## OBJECT IN CASE

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Thomas Forster

British, 1789–1860

**Researches about Atmospheric Phænomena** (London, 1815)

The Huntington, 472795

Thomas Forster elaborated on the work of Luke Howard. His *Researches about Atmospheric Phænomena* was one of the first studies on meteorology to attempt to explain rather than just describe weather phenomena. The frontispiece to this book illustrates various cloud types and labels them with their recently established names. John Constable owned a copy of this book, which he referenced and annotated while working on his cloud studies.

## OBJECTS IN CASE

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International Meteorological Committee

**Atlas international des nuages (International Cloud Atlas)**

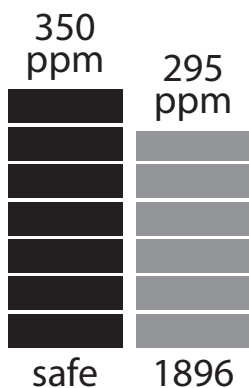
(Paris, 1896)

CO<sub>2</sub> ppm in 1896: 294.9

Color photographs in a printed book

University of California, San Diego

The editors of this volume hoped to promote international adoption of standardized cloud terminology. The text within is printed in French, English, and German. Color photography, a new and expensive technology, was used to render the important features of cloud types alongside other kinds of illustrations. The International Meteorological Organization, established in 1873 and today known as the World Meteorological Organization, was the first scientific institution to share global weather information. There have been seven editions of the atlas, the most recent in 2017.



## **UNDERSTANDING NATURE’S ECONOMY NATURAL HISTORY AND ECOLOGY**

Many artists and writers on both sides of the Atlantic studied and described plant specimens with a level of detail derived from botany. When extended to entire landscapes, this focused attention revealed the connections among plants, animals, and their environment. Called “the economy of Nature,” this interrelationship appeared in both the writings of natural historians and the canvases of landscape painters. Today we call the scientific field that studies these interactions “ecology.”

The Romantic poets and Pre-Raphaelite painters in England, and the Transcendentalist writers and the Hudson River School artists in the United States, sought not only to depict the specificity of nature, but also to understand its complex interactions as an aspect of the divine. From their appreciation followed a concern about attempts to cordon off and control nature, such as damming and channeling rivers. The painter Thomas Cole lamented in 1836, “The ravages of the axe are daily increasing—the most noble scenes are made desolate.”

## OBJECT ON WALL

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William Henry Millais

British, 1828–1899

**Hayes Common**

1852–53

Oil on canvas

Yale Center for British Art, Paul Mellon Collection

With its sharp attention to natural detail, this painting exemplifies how the close observation of nature can reveal the interactions that take place in an environment. For example, Millais has captured how ferns that grow in the shade of an oak tree are shorter than those growing outside of its shadow. Other details suggest that humans are also part of this ecosystem. Patchy grass in the foreground indicates a regularly traveled path. The uniform brown color of an enclosed field clearly differentiates it from its less cultivated surroundings.

## OBJECTS ON WALL

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Leah Sobsey

American, b. 1973

### **Selections from The Fall of the Leaf**

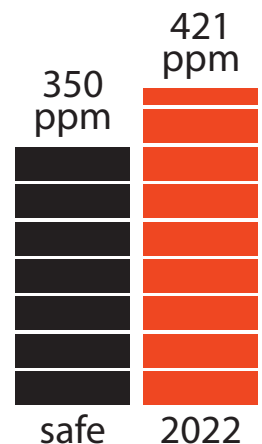
LEFT TO RIGHT

**Whorled Milkwort**

**Blue-Bead Lily**

**Woodland Sunflower**

**Wavy Leaf Aster**



2022 (CO2 ppm that year: 420.63)

Cyanotypes on glass backed with gold

Artist's Collection, originally commissioned by the Harvard Museum of Natural History for the exhibition In Search of Thoreau's Flowers

Sobsey created these cyanotype plant “portraits” from digital images of specimens collected by Henry David Thoreau.

Because of the reflective surface, viewers see themselves with the plants, many of which have gone extinct in Massachusetts since he gathered them in the 1850s.

The significance of Sobsey's use of cyanotype is twofold.

It was a photographic process pioneered in the nineteenth century, often used to image plants. The photosensitive blue pigment fades when exposed to light but regains saturation in darkness. This regenerative quality perhaps conveys optimism about the resiliency of the natural world.



## OBJECTS IN CASE

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Henry David Thoreau

American, 1817–1862

**Walden; or, Life in the Woods**

1848–54

Autograph manuscript

The Huntington, mssHM 924

For just over two years, beginning in July 1845, Thoreau lived in a cabin on Walden Pond near Concord, Massachusetts. It was an intentional retreat from the bustle of the city, and an attempt to reconnect with seasonal rhythms. Thoreau's meditations on this time were published in 1854. The book was not an immediate success. It has since become one of the classics of American literature, inspiring many generations of environmental writers, including John Muir and Rachel Carson. The Huntington's library holds Thoreau's manuscript drafts of *Walden*, which total almost 400 pages. The first page titled "Walden" does not appear until a later draft. The blue pages show his accounting from the "Economy" chapter, from the first draft.

## OBJECT IN CASE

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### **Walking stick**

ca. 1853

Wood (possibly birch)

Collection of the Concord Museum, Gift of Lee, Olive, and Earnest Russell; Th34

Over the last decade of his life, Thoreau collected data about Concord with the aim of creating a natural history of the region modeled on Gilbert White's work on Selborne. On daily walks and frequent boating trips, Thoreau would measure the depth of the Concord River and snow levels using this walking stick notched with inch marks.

## OBJECT IN CASE

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HENRY DAVID THOREAU

American, 1817–1862

### **Aeolian harp**

1850–60

Rosewood

Collection of the Concord Museum, Gift of Mrs. Leon Foss;  
Th68

Thoreau's love of the Aeolian harp parallels the pleasure he took in boats. Both are instruments that allowed him to engage with the flows of nature. An Aeolian harp is designed not to be plucked by fingers, but rather by the wind when set in a windowsill. In several letters Thoreau described to his friends the delight he took in the sounds of the Aeolian harp and offered instructions for making one. He published a poem, "Rumors from an Aeolian Harp," in the Transcendentalist journal *The Dial*.



To listen to music from a replica of Thoreau's Aeolian harp, scan the QR code.

## OBJECT IN CASE

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Henry David Thoreau  
American, 1817–1862

### **Plan of Concord River from East Sudbury to Billerica Mills, 22.15 Miles**

1859

Ink and graphite on paper mounted on cloth

Courtesy of William Munroe Special Collections, Concord Free  
Public Library Corporation

After his years living on Walden Pond, Thoreau worked as a surveyor. Using B. F. Perham's 1834 survey as a basis, he drew and annotated this map of the Concord River while a legal dispute over its use was underway. Farmers opposed the downstream textile factory dam at Billerica, which interfered with upstream agriculture along the riverbanks. The dam released water only when the mill was in operation, forcing the river to run on factory time rather than flood and recede seasonally. The dam and factory can be seen at the lower right of the map.

## OBJECTS ON WALL

---

Henry David Thoreau  
American, 1817–1862

### **The Flowering of Plants**

1851–54

Autograph manuscript

Henry W. and Albert A. Berg Collection of English and  
American Literature, The New York Public Library, Astor,  
Lenox, and Tilden Foundations

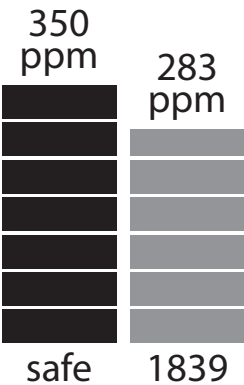
Thoreau would paste sheets of paper together to create a large surface for his Kalendar, or “notes on natural phenomena.” These pages record the flowering dates of plants over the years 1851–54 in separate columns compiled from data he collected on daily walks. As the first page notes, Thoreau took the Latin family and species names from Asa Gray’s *Manual of Botany of the Northern United States*. Recently, biologists have contrasted Thoreau’s data from the 1850s with current figures. Their studies show that many flowers are now blooming earlier because of rising temperatures.

OBJECT ON WALL

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Thomas Cole  
British, 1801–1848, active United States  
**Portage Falls on the Genesee**  
ca. 1839 (CO2 ppm that year: 283.4)  
Oil on canvas  
The Huntington, Gift of The Ahmanson Foundation, 2021.8

Cole’s monumental painting depicts the Genesee River Valley in upstate New York, evoking the vast depth of the gorge through the canvas’s upright format. The artist pinpoints the time of year with a palette exploding with the oranges and yellows that characterize autumn in the region. Though his image emphasizes the grandeur of nature, the landscape Cole depicts was under threat from industrialization. Construction for a new canal along the river was about to commence, as the workers’ camp depicted just above the falls indicates. The roiling gray clouds and blasted tree at lower right are perhaps metaphors for humanity’s destructive power.



## OBJECT IN CASE

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Gilbert White

British, 1720–1793

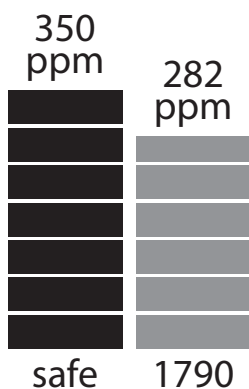
**The Natural History and Antiquities of Selborne, in the County of Southampton** (London, 1789)

(CO<sub>2</sub> ppm in 1790: 281.6)

Printed book with foldout engraving

The Huntington, 7098

In the early 1780s, White undertook a study of “natural productions and occurrences” in his immediate surroundings in southwest England. His approach to describing nature was novel at the time. An early ecosystemic thinker, White encouraged focused observation and tabulation of the natural world. The *Natural History of Selborne* described local landforms, rocks, plants, and animals, and tracked seasonal changes. His work had a profound influence on later writers of natural history, including two titans of American nature writing, Henry David Thoreau and John Muir.



## OBJECTS IN CASE

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John R. Wise

British, 1831–1890

**The New Forest: Its History and Its Scenery** (London, 1880)

The Huntington, 421939

Walter Crane

British, 1845–1915

**Old Oak in Boldrewood**

1862

Graphite and watercolor on paper

The Huntington, 71.61

Wise's book chronicles the social and natural history of what remains one of the largest tracts of unenclosed land in southern England. It features illustrations by his friend, the artist and designer Walter Crane. The author described the images as an attempt to represent the forest "as it looked," without omissions or embellishments. With its sharp focus on the trunk of an ancient oak, this drawing, reproduced on the book's title page, depicts one of the forest's biological relationships: that between oak tree and vine, possibly an English ivy.



## OBJECT IN CASE

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Mary Parker, Countess of Macclesfield  
British, ca. 1726–1812

### **Botanical sketchbook**

1756–67

Watercolor on parchment

The Huntington, mssHM 84100

This sketchbook contains dozens of painstakingly rendered plants and insects. In eighteenth-century Britain, botanical drawing was considered an appropriate pastime for upper-class women like Mary Parker. They were often taught by drawing masters, many of whom were also versed in the botanical sciences, and who emphasized accuracy in their pupils' images. This image depicts a gentian plant. The inclusion of insects (possibly male and female European mole crickets) gives the flower some environmental context and indicates its relative size. Through drawing natural specimens, practitioners gained an understanding of botany and an appreciation for nature.

## OBJECT IN CASE

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Frederick Hanham

British, 1806–1877

**Natural Illustrations of the British Grasses** (Bath, UK, 1846)

Printed book with pressed plant specimens

The Huntington, 470506

Naturalists and hobbyists collected and pressed plants and flowers as a pastime and as a means of study. The editor of this volume wrote that “dried specimens . . . must always be more interesting and valuable to the Botanist or lover of nature, than engravings.” For this edition, over 62,000 specimens were collected and painstakingly prepared to reflect the most common grasses found around Britain. For a specimen to be educational, it had to retain all of its parts, including the root system, as seen here.

## OBJECT IN CASE

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Walt Whitman

American, 1819–1892

**Leaves of Grass** (Brooklyn, NY, 1855)

The Huntington, 427000

Whitman published the first edition of *Leaves of Grass* himself on July 4, 1855. He made all decisions about its appearance, including the vegetal typeface used on the cover and the large format, one more commonly employed for account ledgers than for volumes of poetry. The work would go into five additional editions during Whitman's lifetime, each longer than the last. The poet found this long free-verse form could contain his expansive understanding of selfhood, nature, and nation. He wrote about his own experience as a gay man but also wanted to speak using an "I" that could encompass all Americans, in their variety and diversity. He wrote, "I am large, I contain multitudes."

## OBJECT IN CASE

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William Cullen Bryant

American, 1794–1878

**The Story of the Fountain** (New York, 1872)

Printed book with engravings

The Huntington, 113418

The Fountain is an illustrated poem that tells the story of a stream in a New England forest over hundreds of years. The water witnesses significant changes in the landscape around it over time. Pictured within the gold vignettes on the cover are some of the forest's inhabitants: a deer, an Indigenous man from an unnamed nation, a wolf, and finally a poet reclining on the bank. In the story, the nonhuman animals are portrayed as being the least intrusive. Over the years humans incrementally alter the land until it becomes an unrecognizable smoky cityscape.

## **PLANTATION ECONOMIES/ PLANTATION ECOLOGIES**

The plantation system created many of the challenges still affecting former colonies, including the United States. Farming for export rather than local consumption, landowners planted single-commodity crops like sugar, cotton, and tobacco. This practice replaced native vegetation, degrading the soil and reducing biodiversity. Planters maximized profit through the forced labor of thousands of enslaved Black and Indigenous people, whom they continued to exploit after abolition. Around the world, this form of agriculture has left legacies of entrenched inequality and damaged ecosystems. Many scientists and scholars locate the roots of our current climate crisis in colonialism's emphasis on resource extraction.

Colonial landscapes were sites of fascination and popular subjects for European and American artists and writers. Through descriptions of "exotic" flora and fauna, and pictures of majestic, unspoiled environments, their works fostered a romanticized view of these places at odds with reality.

The Huntington's library holds a wealth of archival documentation on Jamaica, suggesting this section's focus on that island, though the damage of colonialism extended globally.



**To learn more about the plants in these sections,  
scan this QR code.**

**An Account of Sugar and Rum Shipped from Hope Estate  
in Jamaica from the Year 1768–1776**

ca. 1776

Manuscript

The Huntington, Stowe Papers

By the 1760s, sugar was no longer considered a luxury for British consumers. Even the working poor regularly had sugar on their tables. This increased demand helped make Jamaica, with its many sugar-producing plantations, the wealthiest British colony by the mid-eighteenth century. Over the period this ledger was kept, there were around 775 sugar plantations on the island.

## OBJECT ON WALL

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Edward McGeachy

British, died ca. 1851

### **New and General Plan of the Hope Estate in the Parishes of Kingston and St. Andrew, Jamaica**

1826

The Huntington, Stowe Papers

The Hope estate was established by Major Richard Hope in the 1660s when the English army arrived in Jamaica. It grew into a successful producer of sugar, rum, and molasses through the forced labor of nearly 400 enslaved people. The number had risen to 574 by 1832, the year before slavery was abolished throughout the British colonies. This map shows the estate in 1826. It includes the aqueduct (labeled “gutter”) that diverted water from the river to the water-powered sugar works.



**OBJECT ON WALL**

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Frederic Edwin Church  
American, 1826–1900

**Vale of St. Thomas, Jamaica**

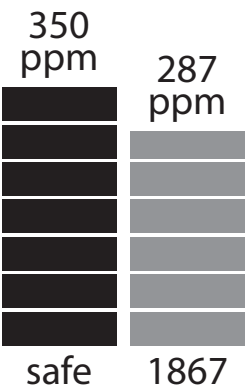
1867 (CO2 ppm that year: 287.1)

Oil on canvas

Wadsworth Athenaeum Museum of Art, Hartford, CT.

The Elizabeth Hart Jarvis Colt Collection

On the left of this sweeping vista across a lush valley, a dramatic rainstorm nearly obscures the fact that the hills below are dry and sparse. When Church visited Jamaica in 1865, St. Thomas Parish was experiencing a severe drought. Deforestation caused by plantation agriculture had exacerbated the problem. Though Church paints an untouched paradise, the valley was home to many formerly enslaved people who suffered the worst effects of the drought.



**Response: Suzanne Pierre**

Ecosystems ecologist and biogeochemist focused on plant–microbe interactions, founder and lead investigator of the nonprofit Critical Ecology Lab

When viewing Church’s painting, I experience a sense of unease. I am a Black woman, of Caribbean descent, and an ecologist concerned with the origins of our current planetary crisis. The people whose lives and labor were currency within this landscape are my people, my ancestors. Looking out across the “vale,” could Church see the exchange rate in timber, fertile soil, or gold for one enslaved African person? To the colonizing mind, is every new paradise also an accountant’s ledger? Here in the present, the Vale of St. Thomas offers a visceral reminder that the beauty of nature can stop us from looking closely, methodically, and recognizing it as a site of Black struggles for personhood.

## OBJECTS ON WALL

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Joseph Bartholomew Kidd  
British, 1808–1889

**West Indian Scenery: Illustrations of Jamaica in a Series of Views Comprising the Principal Towns, Public Buildings, Estates, and Most Picturesque Scenery of the Island** (London and Kingston, Jamaica, 1837–40)

**Plate 6: The Date Tree**

**Plate 16: Mountain Cottage Scene**

**Plate 19: City of Kingston, from the Commercial Rooms, Looking toward the South**

**Plate 23: Distant View of the Plains of Westmoreland**  
1838–40

Hand-colored lithographs

Yale Center for British Art, Paul Mellon Collection

Kidd's lithographs presented a picture of flourishing colonial interests in Jamaica just as full emancipation ended slavery in the British colonies. As newly free people sought political rights, colonists feared economic disaster and social unrest. Views of sites like Kingston's well-organized commercial center, picturesque vistas of productive landscapes, and charming scenes of daily life would have reassured his patrons. Kidd's vision was not one of economic or social mobility for Black Jamaicans. The figures wear red bandanas, indicating their working-class status. Today, Jamaicans have reclaimed these garments as symbols of pride.

## OBJECTS ON WALL

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Mary Clementina Barrett  
British, 1803–1831

**1. Cinnamon Hill Great House**

Undated, ca. 1830  
Graphite on board

**2. Retreat Sea House, St. Ann's, Jamaica**

Signed and dated, 1830  
Graphite on paper

**3. Slave Houses on the Barrett Plantation**

Undated, ca. 1830  
Graphite on board

The Huntington, Purchased with funds from the Art Collectors' Council, with additional support from the Caillouette Acquisition Endowment for British and Continental Art, the Sara Smith Memorial Endowment, and the Robert R. Wark Art Acquisition Endowment, 2022.9.1–.3

Barrett's drawings of her family's sugar estate record local vegetation along with details of everyday life. A carriage transports passengers sheltering from the sun under a parasol. Enslaved women balance baskets on their heads. Children stand in the yard of the slaves' homes. These incidents are rendered with the same level of detail with which she observes native flora. In viewing the lives of the enslaved with the dispassionate scrutiny she applies to palm trees, Barrett suggests her unquestioned acceptance of the system of enslavement that underpinned her family's wealth.

Mary Prince (1788–1833)

**The History of Mary Prince, a West Indian Slave. Related by Herself, 1831**

I feel great sorrow when I hear some people in this country say, that the slaves do not need better usage, and do not want to be free. They believe the foreign people, who deceive them, and say slaves are happy. I say, not so. How can slaves be happy when they have the halter round their neck and the whip upon their back? And are disgraced and thought no more of than beasts? . . . I have often wondered how English people can go out into the West Indies and act in such a beastly manner. But when they go to the West Indies they forget God and all feeling of shame, I think, since they can see and do such things.

## OBJECT IN CASE

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Patrick Browne

Irish, ca. 1720–1790

**The Civil and Natural History of Jamaica** (London, 1789)

The Huntington, 400842

Although sugar dominated Jamaican agriculture, other crops, including coffee, ginger, logwood (dye wood), mahogany, and pimento, were also cultivated and exported. This volume describes the coffee plant and how to grow it. While not as profitable as sugar, coffee was considered a valuable trade product, acclaimed as a “strengthenener of nerves” with stimulating properties that were “peculiarly adapted for studious and sedentary people.” The illustration is typical of botanical plates, as it shows all parts of the plant in careful detail.

## OBJECT IN CASE

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James Grainger

British, ca. 1721–1766

**The Sugar-Cane: A Poem** (London, 1764)

The Huntington, 371314

Grainger addresses his blank-verse poem about sugar cane to a British “Planter.” He offers advice about the crop’s cultivation, harvesting, and processing (including notes about fertilizer: “Enough of compost, Muse; of soils, enough”). He also comments extensively on the management of enslaved Africans on plantations, alongside a lament about slavery in general. Grainger spent many years working as a doctor in Jamaica.

## OBJECT IN CASE

---

Bryan Edwards

British, 1743–1800

**The History, Civil and Commercial, of the British Colonies in the West Indies** (London, 1794)

The Huntington, 432474 vol. 1

Edwards staunchly opposed abolition. In this book, he treats slavery as an economic necessity for agricultural production and describes plantations as “machines.” This table details a population survey conducted in 1787. It shows the majority of Jamaicans at the time were enslaved Blacks. Edwards also notes smaller numbers of free Black Jamaicans, many of whom still labored on plantations, and Maroons, who “enjoyed a limited degree of freedom by treaty.” The tabulations also make clear that the primary markets for Jamaican products were Britain and the United States. It records 242 vessels with goods outbound for Britain in 1787, and 133 for the American States.



## OBJECT IN CASE

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Unknown British maker

### **Sugar dish**

ca. 1825–30

Enameled and gilded soft-paste porcelain

Colonial Williamsburg Foundation, Museum Purchase, Mr. and Mrs. John C. Austin, Phyllis M. Carstens, Mrs. Joyce Longworth, Ann Winter Odette, John F. Orman, Jr., Ms. Joan M. Ploetz, Mr. and Mrs. Thomas G. Potterfield, Mr. and Mrs. Robert Prioleau, Joan N. Woodhouse, the Dwight P. and Ann-Elisa W. Black Fund, and the John R. and Carolyn J. Maness Family Foundation

This sugar dish reads on one side: “East India sugar not made by slaves. By six families using East India, instead of West India sugar, one slave less is required.” The text indicates its owners’ support of the British abolitionist movement. Those who opposed the slave trade encouraged consumers to boycott sugar made in the Caribbean colonies. The figure painted on the dish is a variation on a well-known motif featuring an enslaved man kneeling in chains and asking, “Am I not a Man and a Brother?” Here the figure is an enslaved woman.

## OBJECT IN CASE

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Jamaica Assembly

**The Proceedings of the Governor and Assembly of Jamaica, in Regard to the Maroon Negroes** (London, 1796)  
The Huntington, 7911

The Jamaican Maroons are descendants of self-liberated, formerly enslaved people who have lived in a part of the island's interior known as "Cockpit Country" since 1655. Their resistance and challenge to imperial rule forced the British to sign a treaty with them in 1739. When the British broke the treaty in 1795, a war broke out. The frontispiece to this volume shows Leonard Parkinson, a military leader of the Maroons. Rather than focus on his features, the artist emphasizes Parkinson's musculature and weaponry, asserting his threat to colonial control.

## OBJECTS ON WALL

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Jamilah Sabur

Jamaican, b. 1987

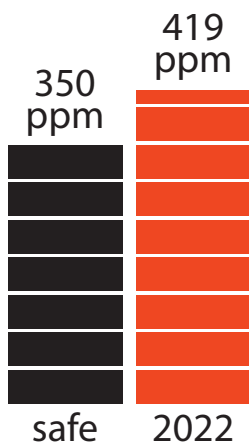
**After mining the soil is less capable of retaining water**

2022 (CO<sub>2</sub> ppm that year: 418.54)

Acrylic-casein on linen, C-Type print on aluminum, wood frame

Courtesy of the Artist and Copperfield, London

Jamaica has some of the largest deposits of bauxite in the world. The extraction of this mineral destroys habitats and pollutes the air and water. Sabur depicts herself in a damaged landscape in Cockpit Country, which the government recently opened for mining. The area was home to the self-emancipated Maroons, whose descendants now fight to protect their land and autonomy. The image is framed like a stereograph. The nineteenth-century photographic format suggests the persistence of the colonial view of Jamaica as a resource for exploitation. The accompanying text refers to a 1950s British-funded geological survey of the island's mineral stores.



## OBJECTS ON WALL

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Lewis Hine

American, 1874–1940

**In the Cotton Fields, September 1913**

**The Mill Superintendent Teaching One of the Young Spinners, December 1908**

**A Group of the Youngest Breaker Boys, January 1911**

Gelatin silver prints

Gift of the Russell Sage Foundation, Photography Collection, Miriam and Ira D. Wallach Division of Art, Prints and Photographs, The New York Public Library, Astor, Lenox, and Tilden Foundations

Child labor came under scrutiny in the United States as part of wider workplace reform efforts in the late nineteenth century. The National Child Labor Committee (NCLC) hired photographer Lewis Hine to document children at work. His images often emphasize their youth, sometimes contrasting their small size against the massive equipment they operated. Children from many ethnicities worked in the fields and factories. However, the NCLC foregrounded Hine's images of white children, a choice that assumed American audiences prioritized their protection.

## THE BURDEN OF LABOR

“Friend, all their devices for cheapening labour simply resulted in increasing the burden of labour. The appetite of the World-Market grew with what it fed on.”

—Old Hamon in *News from Nowhere* by William Morris, 1890

The economic and political systems that drove industrialization and colonialism reconfigured people’s work lives along with the environment. Capitalism spurred innovation and efficiency, but technological advances often unleashed harm on society’s most vulnerable. New commodity farming practices like sharecropping continued the exploitation of farm laborers long after the end of slavery. The same factories that caused pollution tied many workers to jobs that were unsafe or unhealthy, as well as poorly paid. Entire sectors of skilled labor were rendered obsolete as machines took over functions such as spinning and weaving.

Alongside their engagement with scientific developments, many artists and writers confronted social issues. In Britain, the Arts and Crafts movement, spearheaded by William Morris, sought to move away from the mass production of everyday items such as furniture and to reestablish the dignity of labor. His design firm, Morris & Company, revived traditional materials and techniques and employed skilled artisans to produce handcrafted decorative art. Other artists turned to new technologies, such as photography, to shine light on injurious labor practices.

## OBJECT ON WALL

---

William Morris

British, 1834–1896

### **Lodden**

ca. 1884 (designed in 1883)

Block-printed cotton

The Huntington, 2000.5.524

At his Merton Abbey workshop in southwest London, William Morris revived traditional textile production methods that he felt were being lost to mechanization. These skills included block printing and the use of vegetable dyes. His hand-printed textiles, such as “Lodden,” were used for upholstery and curtains. Like many of his patterns, it derives from a study of nature. Here, flowers and foliage twist together to create a sense of movement.

## OBJECT ON WALL

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Winslow Homer

American, 1836–1910

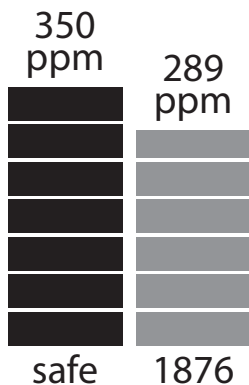
### **The Cotton Pickers**

1876 (CO2 ppm that year: 289)

Oil on canvas

Los Angeles County Museum of Art, Acquisition made possible through Museum Trustees: Robert O. Anderson, R. Stanton Avery, B. Gerald Cantor, Edward W. Carter, Justin Dart, Charles E. Ducommun, Camilla Chandler Frost, Julian Ganz, Jr., Dr. Armand Hammer, Harry Lenart, Dr. Franklin D. Murphy, Mrs. Joan Palevsky, Richard E. Sherwood, Maynard J. Toll, and Hal B. Wallis (M.77.68)

Homer's painting of post-Emancipation life in the American South suggests that formerly enslaved people continued to be exploited in the farming of commodity crops such as cotton after the Civil War. Amid vast fields, two young women carrying loads of newly picked cotton have paused. One looks down at the harvest that tied generations of her ancestors to slavery, while the other gazes steadily toward a future both hopeful and uncertain.



**Response: Lauren Cross**

Interdisciplinary artist and the Gail-Oxford Associate Curator of American Decorative Arts at The Huntington

Winslow Homer's *Cotton Pickers* has always resonated with me. Some of my African American ancestors had to pick cotton to survive in the American South after the end of slavery, even up until the 1930s. The two women depicted in the painting remind me of my great-grandmother and great-great-aunt on my father's side. Black women like the figures represented in this painting were forced into labor conditions that resembled their lives as enslaved people only a decade prior, reflecting the cruelties faced by Black Americans during the Reconstruction era. When looking at them, I imagine their desire to mentally, emotionally, and physically escape their reality. While Homer romanticizes the cotton fields, he allows the African American women to be visibly discontent, displaying their dissatisfaction and lingering hope for a new life.



## OBJECTS IN CASE

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Southern Silk Plaids

**Fabric sample and printed label**

ca. 1909

Cotton

The Huntington, Jay T. Last Collection

The label on this fabric sample illustrates a cotton farm as a romantic scene. Gentlemen gaze at a barefoot young woman in the golden hour of a sunny day. The advertisement minimizes the workers in the field, while foregrounding the woman's figure and a large pile of pristine cotton.

## OBJECT IN CASE

---

### **Cotton**

#### The Huntington, Townsend Papers

This is a piece of cotton grown in the Confederate South. According to a handwritten label wrapped around the tuft, it was seized from the steamship Emma, which functioned as a blockade runner during the Civil War. When the ship was captured by Union forces, the crew set the boat on fire to prevent the Union from confiscating the cotton on board. This piece likely survives because a Union soldier took it as a token. As the label notes, it comes from one of the last cotton crops grown by enslaved workers on U.S. soil.

## OBJECT IN CASE

---

Society for the Diffusion of Useful Knowledge

### **An Address to the Labourers on the Subject of Destroying Machinery**

1830

Pamphlet

The Huntington, 705855

In the early nineteenth century, textile workers in northern England revolted against the mechanization of their industry. They broke knitting machines and steam-powered looms they feared would replace and cheapen their labor. The clash with factory owners and law enforcement lasted more than a decade. The imaginary leader of the resistance was “Ned Lud,” a modern-day Robin Hood figure. The term “Luddite” is now used to describe someone who does not readily adopt new technologies.

## OBJECT IN CASE

---

H. H. Warner

British, active nineteenth century

### **Songs of the Spindle & Legends of the Loom**

(London, 1889)

The Huntington, 335345

The stories, songs, and illustrations in this volume celebrate the artisans and natural products of England's Lake District. Produced entirely by hand, the book names all the craftspeople involved in its making. The preface claims that the linen cover was bleached by "no deleterious chemicals, but by the pure mountain air and sunshine." Unlike the elegant publications from William Morris's Kelmscott Press, this book makes a point of being unrefined.

## OBJECT IN CASE

---

Morris and Company  
British, 1861–1940

### **Merton Abbey Dye Book**

1882–91

Manuscript volume with printed fabrics glued to paper  
The Huntington, 2000.5.3387

This book records the dye recipes used in the production of printed textiles at William Morris’s Merton Abbey workshop. Though the use of natural dyes and traditional printing techniques required more time and effort than industrial methods, Morris believed the quality was higher for the consumer and more rewarding for the maker. The page at right is for the “Lodden” pattern printed using the indigo-discharge method, which Morris had revived. The unprinted swatch of base fabric reveals the rich blue this process could achieve before areas were bleached to create the pattern.

(A sample of “Lodden” in a different colorway is on view nearby.)

## OBJECT IN CASE

---

William Morris

British, 1834–1896

### **The Earthly Paradise**

(London, 1896)

The Huntington, 108432 vol. 1

In *The Earthly Paradise*, Morris asks readers to imagine an earlier time in which humans lived and worked more harmoniously with nature. His text laments the ugliness of industrial London and “the spreading of the hideous town.” This edition, from his own Kelmscott Press, shows its hallmark medievalizing aesthetic, one derived from fifteenth-century books and manuscripts. The Kelmscott Press employed preindustrial manufacturing practices, such as setting type and making paper by hand.

## OBJECTS ON WALL

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Walter Crane

British, 1845–1915

### **The Craftsman's Dream**

Undated, ca. 1889

Pen and ink on wove paper

### **Alternate Design for The Capitalist**

Undated, ca. 1889

Pen and ink over graphite on wove paper

The Huntington, Gift of the Friends, 70.116C and E

Crane made these drawings to illustrate his poem “The Craftsman’s Dream.” The frontispiece shows an unemployed craftsman entering a museum, where he contemplates a sculpture of a sphynx. While exploring the galleries, he dreams of artists and laborers battling a monstrous Capitalist wearing armor made from machinery and the “stove pipe” hat of a financier. As these illustrations make clear, Crane’s poem places the beauty of art and dignity of workers in opposition to industrial capitalism.

## A NEW ERA OF EXTINCTION

Habitat destruction, large-scale hunting, the introduction of invasive species, and pollution in the nineteenth century nearly quadrupled the rate of extinction compared to the previous 100 years. Human activity since 1800 has accelerated species loss at an unprecedented rate. Many scientists contend that we are now witnessing a mass extinction event.

Some of the first conservation groups arose in response to the systematic hunting of animals for fashionable clothing and accessories. The most prominent of these groups were the Audubon Society and the Royal Society for the Protection of Birds.

Both the mass production of clothing and the speed of fashion cycles accelerated during the nineteenth century. The introduction of ready-to-wear greatly increased the industry's environmental impact. Today, fast fashion consumes more energy than aviation and shipping combined.



## OBJECT ON WALL

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F. F. Farwell, printer

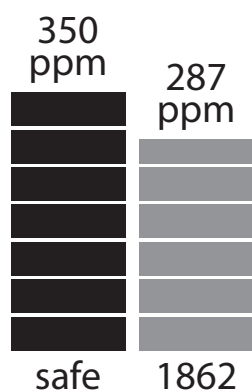
American, nineteenth century

### **Ladies' Fancy Furs**

ca. 1862 (CO2 ppm that year: 286.5)

Color-printed engraving

The Huntington, Jay T. Last Collection



## OBJECT ON WALL

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Francis Michelin, printer

American, nineteenth century

**Scott's European Fashions, for the Summer 1848. No. 146**

**Broadway, New York**

1848

Lithograph

The Huntington, Jay T. Last Collection

This print depicts men in light-colored top hats, possibly of beaver fur. Such “blonde” hats were designed to be worn in summer months. Wealthy gentlemen might have two or more beaver-pelt hats for seasonal rotation. In the winter, businesses and residences burned coal for warmth. Particulates from these fires dirtied the air and sullied light-colored clothing. Darker hats and coats became the preferred style for urban winters because they showed less grime.

## OBJECTS IN CASE

---

J. G. Cortell's, manufacturer  
American, nineteenth century

### **Top hat**

ca. 1850s

Silk plush

The Huntington, Jay T. Last Collection

Unknown maker

### **Top hat**

1825–1840

Beaver fur

FIDM Museum Purchase

Loan Courtesy of ASU FIDM Museum, 2008.5.55

The light-colored hat is a blonde beaver-fur hat, and the dark hat is likely covered in silk plush. They represent an important shift in both ecological and fashion history. American and European trappers hunted beavers in North America for hundreds of years. Their pelts were especially in demand for hats. While some fur merchants amassed extraordinary wealth, the animal nearly went extinct. Silk plush hats were introduced early in the nineteenth century and soon supplanted the fur hat in popularity. This change in material allowed beaver populations to begin their recovery.

## OBJECT IN CASE

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Unknown maker

### **Hat**

1900–1910

Feathers, partial taxidermy,  
silk, and metal

FIDM Museum Purchase: Funds  
donated by Tonian Hohberg

Loan Courtesy of ASU FIDM Museum, 2010.5.3

This women's hat includes the full body of a female ring-necked pheasant with supplemental tail feathers. Bird hats were extremely popular accessories in the late nineteenth and early twentieth centuries. Some hats were decorated with just wings or feathers, but many, like this one, used the entire bird. In 1905, The Audubon Society formed in response to the mass slaughter of birds for fashion. Its members encouraged women to reject feathered styles. Their campaign changed public sentiment.

## OBJECT IN CASE

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H. O'Neill and Co.

American, nineteenth century

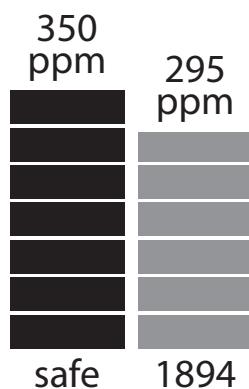
### **H. O'Neill and Co. 1894–5 Fashion Catalogue—Fall & Winter**

ca. 1894 (CO<sub>2</sub> ppm that year: 294.7)

Printed trade catalog

The Huntington, Jay T. Last Collection

This catalog shows a range of women's hats offered in the department store H. O'Neill and Co. The page illustrates a variety of styles that incorporate "natural" or "made" bird bodies and body parts. Brightly colored parrots and parakeets were rare and expensive (increasingly so because of overhunting). A more budget-friendly option would be to dye naturally less-colorful feathers to suit tastes and trends.



## OBJECT IN CASE

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John James Audubon  
American, 1785–1851

**The Birds of America: From Drawings Made in the United States and Their Territories** (New York, 1840–44)  
The Huntington, 105569 vol. 4

The Audubon Society is named for naturalist John James Audubon. This is a smaller edition of his volume of lavishly colored, life-size illustrations of birds of North America. The bird pictured here, the Carolina parrot or parakeet, went extinct in the wild in 1910. It was native to the United States and died out because of deforestation and hunting for the millinery (hat) trade. The last one, a thirty-three-year-old male named Incas, died in the Cincinnati Zoo in 1918, within a year of his mate, Lady Jane.

## TIMEKEEPING

By 1900 most people in England, and soon after most in the United States, lived and worked in cities. They existed within a complex infrastructure that was fuel-powered, gaslit, and soon after electrified. They made and bought mass-produced goods with materials assembled through networks of international trade. People were connected through boats and trains, the postal system, and telegraph—but often disconnected from each other and the natural world.

Before the Industrial Revolution, a primary tool for tracking time was the almanac—a handbook that noted holidays and festivals in addition to planting times. The modern world is one governed by the clock. Around 1800, most people encountered clocks on church towers and town halls. By the end of the century, those who needed to catch trains or “clock in” often wore timepieces on their bodies. The experience of everyday life shifted radically over the nineteenth century. In 1800, most people in England and the United States lived in the countryside. They often stayed within ten miles of the place they were born, getting to know not only their human neighbors, but also local plants and animals. The seasons of the year structured people’s daily experience of time.

The experience of everyday life shifted radically over the nineteenth century. In 1800, most people in England and the United States lived in the countryside. They often stayed within ten miles of the place they were born, getting to know not only their human neighbors, but also local plants and animals. The seasons of the year structured people's daily experience of time.



## OBJECTS IN CASE

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Robert Bailey Thomas

American, 1766–1846

**The Farmer's Almanack** (Boston, 1797)

The Huntington, 105997

John Clare

British, 1793–1864

**The Shepherd's Calendar: With Village Stories and Other Poems** (London, 1827)

The Huntington, 229903

**Assorted railroad ephemera**

The Huntington, Jay T. Last Collection

**Lake Shore & Mich. Southern Ry.**

Advertisement

1876

**Harlem Rail'd for New York—June Arrangements**

Timetable

1853

**New York & Philadelphia New Line—Bound Brook Route**

Route map

ca. 1880

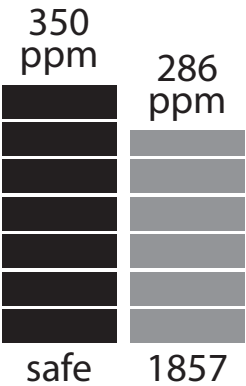
OBJECTS IN CASE

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Charles Frodsham and Company  
British, ca. 1834–present

**Pocket watch**

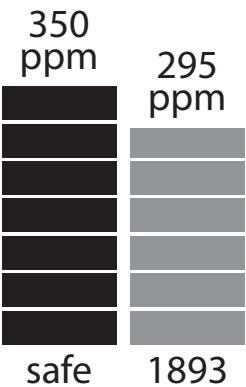
ca. 1857 (CO2 ppm that year: 285.7)  
Metal  
Ethan & Joanne Lipsig



Hampden Watch Company  
American, nineteenth century

**Pocket watch**

1893 (CO2 ppm that year: 294.6)  
Nickel and glass  
Autry National Center



## FICTIONS OF THE FUTURE

Some creative writers were apprehensive about the changes industrialization wrought on everyday life. They wrote fictions that imagined possible futures that might result from emerging technologies. Many reacted to the challenge to the status of humans among other species posed by Darwin's theories of evolution and natural selection.

Some of these speculative fictions were utopian, others dystopian. While some predicted that the infiltration of mechanization into all aspects of life would produce more misery than opportunity, others celebrated scientific solutions to all of society's ills. As technologies proliferated so did this type of narrative, developing into the genre we now call "science fiction."

Contemporary writers continue to explore many of these dynamics. Speculative works that address our planetary environmental emergency are known as "cli-fi"—that is, science fiction or "sci-fi" that discusses "climate." You can browse some of these works in the lounge space just outside the gallery.

## OBJECTS IN CASE

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Samuel Butler

British, 1835–1902

**Erewhon, or, Over the Range** (London, 1872)

The Huntington, 16272

Erewhon tells the story of an explorer who discovers an isolated society that has rejected all preindustrial technologies, including clocks.

Richard Jefferies

British, 1848–1887

**After London, or, Wild England** (London, 1885)

The Huntington, 358031

After London is set in a version of England that lapsed back to feudalism after a cataclysmic event wiped out most of the population.

William Morris

British, 1834–1896

**News from Nowhere: Or, An Epoch of Rest** (Boston, 1890)

The Huntington, 136677

News from Nowhere is Morris's vision of a future postindustrial England, where society lives in harmony with nature after the dissolution of capitalism.

## OBJECTS IN CASE

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H. G. Wells

British, 1866–1946

**The Time Machine** (London, 1895)

The Huntington, 130682

The Time Machine introduces a vehicle that travels not in space but in time. Its pilot encounters a future London where humans have abandoned civilization and evolved into two distinct species.

John Jacob Astor

American, 1864–1912

**A Journey in Other Worlds: A Romance of the Future** (New York, 1894)

The Huntington, 339828

Astor imagines future space travel and optimistically presents scientific solutions to planetary problems, including cold winters.

M. P. Shiel

British, 1865–1947

**The Purple Cloud** (London, 1901)

The Huntington, 430070

The Purple Cloud centers on the danger of poisonous air, as the narrator searches for signs of human life after a climate-driven apocalypse.

## OBJECT IN CASE

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W. H. Hudson

British (b. Argentina), 1841–1922

**A Crystal Age** (London, 1906)

The Huntington, 382522

The narrator and protagonist of *A Crystal Age* finds himself in a postapocalyptic utopia, where humans live in vegetarian societies modeled on beehives.



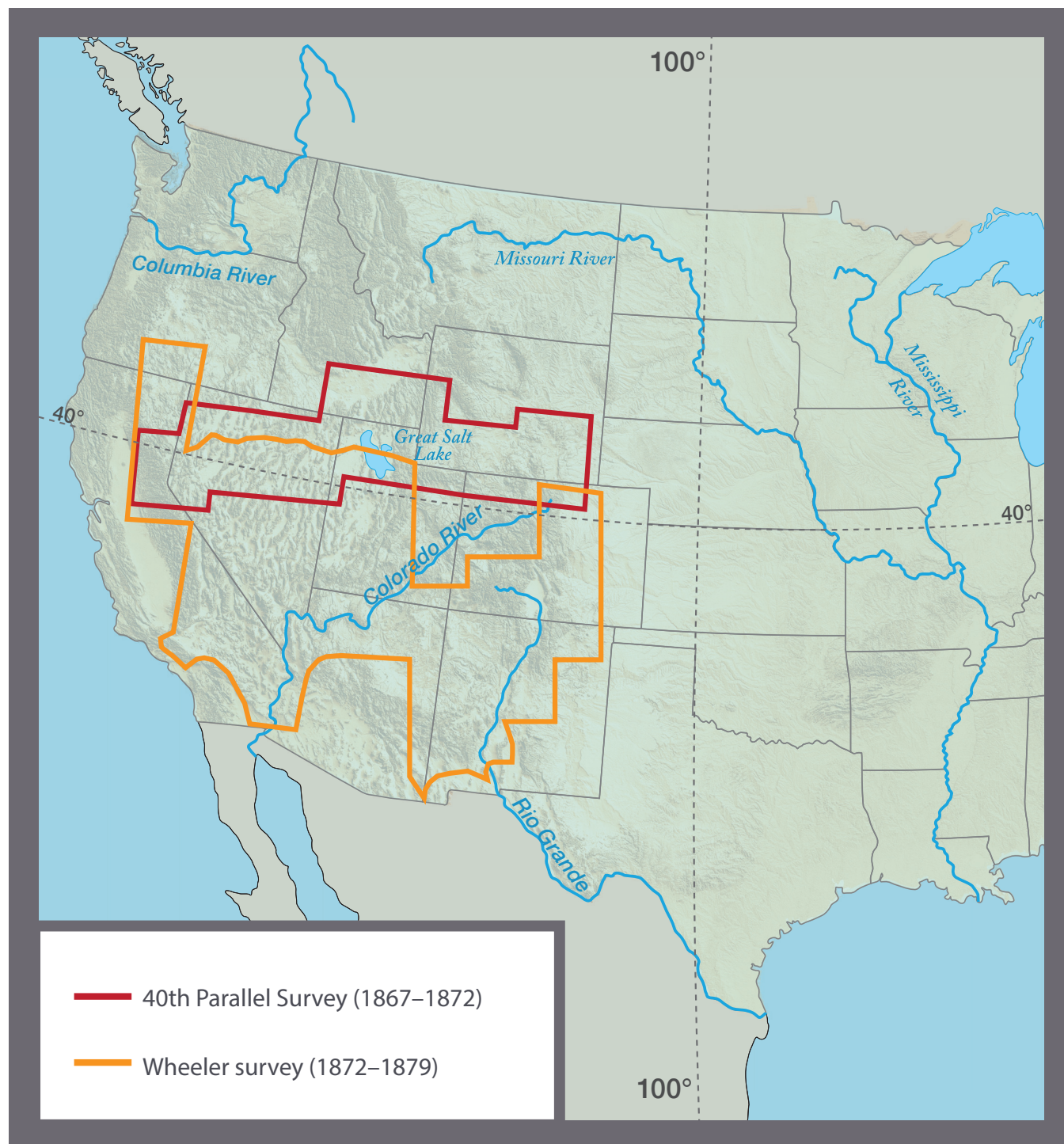
To access full text of the novels on display in this case, scan this QR code.

## WESTERN PROSPECTS

Spurred by political and economic interests and bolstered by the doctrine of Manifest Destiny, the United States expanded across the continent. By 1869 the railroad reached from the Atlantic to the Pacific. Through purchase and military conquest, the young nation annexed territory from Indigenous nations, European empires, and neighboring Mexico. Many artists valorized this expansion in visual and literary form.

The federal government sponsored a series of surveys of the newly annexed territories, with the goal of encouraging further Anglo-American settlement and financial investment. Two of the most prominent of these, the 40th Parallel Survey led by Clarence King, and George M. Wheeler's survey of the territory west of the 100th meridian, are illustrated here. These expeditions' reports noted areas rich in minerals; gathered and recorded geological, zoological, and botanical specimens; and suggested paths for roads and railroads.

## WESTERN PROSPECTS (CONTINUED)



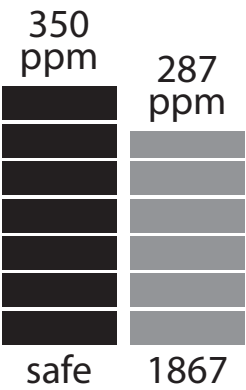


OBJECT ON WALL

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Andrew Melrose  
British, 1836–1901, active United States  
**Westward the Star of Empire Takes Its Way—Near Council Bluffs, Iowa**  
1867 (CO2 ppm that year: 287.1)  
Oil on canvas  
The Autry National Center

Melrose’s painting celebrates the arrival of the railroad to Council Bluffs, Iowa, in 1867. A locomotive makes its way through a dark wilderness. At left, a new homestead, set off against a rosy dawn, symbolizes the power of the railroad to transform the frontier. Though the engine’s light shines as a beacon of progress, it also illuminates the destruction of ecosystems that accompanied expansion and industrialization. Tree stumps litter the foreground, while railroad tracks bisect the habitat of a herd of deer.



## OBJECT ON WALL

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Timothy O'Sullivan

American, 1840–1882

**“Rocks Carved by Drifting Sand, Below Fortification Rock, AZ” in Photographs Showing Landscapes, Geological and Other Features: Of Portions of the Western Territory of the United States** (Washington, DC, 1871)

The Huntington, 278614, plate 12

After becoming famous for his photographs of the American Civil War, O'Sullivan accompanied a series of geological surveys sponsored by the federal government, traveling with a portable darkroom.

He took this photograph of a striking rock formation in Arizona as part of the Wheeler survey. Its report emphasized practical information, including areas of natural beauty that would attract tourists and settlers. The survey, conducted by the U.S. Army, coincided with brutal warfare against Native nations of the same region.

## THE 40TH PARALLEL SURVEY

The federal government sponsored the 40th Parallel Expedition (1867–72), a scientific study of the territory from northeastern California to eastern Wyoming. Led by geologist Clarence King, the survey team aimed to better understand the region's biology, paleontology, and especially geology along railroad routes.

Clarence King

American, 1842–1901

James D. Hague

American, 1836–1908

**Report of the Geological Exploration of the Fortieth Parallel, volume 3, Mining Industry** (Washington, DC, 1870)

The Huntington, 47860 vol. 3

Although the Mining volume was meant to be third in the series, the government published this report first, under pressure from financiers. The image of miners prepared to take an elevator deep underground reminds us that western expansion depended not only on the extraction of valuable minerals but also on significant labor, often performed by recent immigrants. The image of a mountain range in the Geology volume includes a solitary male figure whose size helps indicate scale. The figure appears to be taking in the prospect, his gaze suggesting mastery over the landscape.

## OBJECT IN CASE

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Clarence King

American, 1842–1901

Samuel Franklin Emmons

American, 1841–1911

Arnold Hague

American, 1840–1917

**Report of the Geological Exploration of the Fortieth Parallel, volume 2, Descriptive Geology** (Washington, DC, 1877)

The Huntington, 47860 vol. 2

The image of a mountain range in the Geology volume includes a solitary male figure whose size helps indicate scale. The figure appears to be taking in the prospect, his gaze suggesting mastery over the landscape.

## OBJECT IN CASE

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Sereno Watson

American, 1826–1892

**U.S. Geological Survey (40th Parallel) Topographical Sketches, Sep.–Nov. 1867**

1867

Field notebook

The Huntington, Clarence King Papers

Watson replaced William Whitman Bailey as botanist on the 40th Parallel Expedition. In this role, he was charged with recording and collecting new plants. He used this long notebook to record landscapes in a panoramic view, here the East Humboldt range in Nevada. After his work on the survey, he became the curator and later head of the Gray Herbarium at Harvard University.

## OBJECT IN CASE

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William Whitman Bailey

American, 1843–1914

**Botany of U.S. Geological Exploration of the 40th Parallel**

ca. 1867

Field notebook

The Huntington, Clarence King Papers

Bailey studied botany with the eminent scholar Asa Gray at Harvard, whose reference works guided Henry David Thoreau's study of local plants. This field notebook records plants encountered in Nevada. Bailey left the survey early because of ill-health and spent the remainder of his career teaching botany at Brown University.

## OBJECT ON WALL

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Will Wilson

American, Diné (Navajo), b. 1969

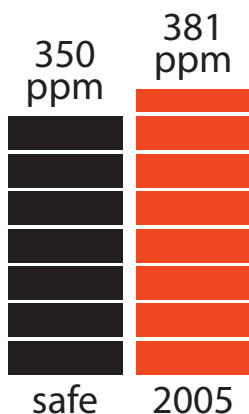
### **AIR 2 (Auto Immune Response)**

ca. 2005 (CO2 ppm that year: 380.57)

Exhibition print

Courtesy of the Artist

In this photograph, Wilson depicts himself gazing across the rock formations in Dinétah, the homeland of the Diné, or Navajo Nation. The artist appears three times, tripling the nineteenth-century trope of the lone male figure surveying nature. He wears protective gear, suggesting he survives in a poisonous landscape. In the 1860s, the U.S. government forced many Diné to walk to a prison camp in New Mexico, largely to make way for industrial development. Although most returned home in 1868, the Diné faced threats to their sovereignty as outsiders sought new uses for their land. In the twentieth century, uranium extraction and nuclear waste toxified the soil and water.



## **“WATER WARS”**

California’s agricultural development was made possible through engineering projects that drained wetlands and altered waterways with a system of canals, ditches, pumps, and dams. Today, the Central Valley produces more than half the country’s fruits, vegetables, and nuts.

Urban expansion required water, too. Begun in 1905, the Los Angeles Aqueduct diverted water from the Owens River, located over 230 miles north, to provide the growing city with a reliable water supply. The project emptied Owens Lake and devastated the valley’s ecosystem, disrupting traditional foodways and destroying future prospects for agriculture.

Indigenous people of the region struggled to have their land claims recognized. Lawmakers typically prioritized the needs of industry and urbanization. Disputes over California’s water resources have often led to conflicts—from lawsuits to the so-called Water Wars of the Owens Valley, the term given to clashes between developers and residents over the construction of the aqueduct.



## OBJECTS ON WALL

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Unknown maker

### **Owens Lake**

ca. 1910

Cyanotype mounted on board

Unknown maker

### **Owens Lake**

ca. 1920

Gelatin silver print on cardboard

The Huntington, Mary Hunter Austin Papers

These two views of Owens Lake—a cyanotype showing the lake full of water, and a photograph depicting a mostly dry bed—dramatize the damage caused by the Los Angeles Aqueduct. The Los Angeles Department of Water and Power opened the aqueduct in 1913, and by 1926 Owens Lake was almost entirely drained. The diversion of the water had devastating social and environmental consequences in the area. Today, the lake bed is the source of some of the worst dust pollution in the nation.

FILM

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Unknown maker

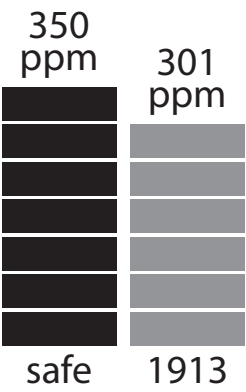
**Official Opening of Los Angeles Aqueduct**

1913 (CO2 ppm that year: 300.8)

Film

6 minutes, 48 seconds

The Huntington, Southern California Edison Collection  
This silent film captures the celebrations surrounding the opening of the Los Angeles Aqueduct. It includes the structure’s “christening,” the commemorative smashing of a champagne bottle at the intake gate. The project’s chief engineer, William Mulholland, can be seen shaking hands with his colleagues. The camera lingers on the snowy Sierra Nevada range, while a caption optimistically notes the “never ending supply” of water from this region.



## OBJECT IN CASE

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William Frick and Julius G. Oliver

### **Page from The Los Angeles Aqueduct**

1917

Photograph on album page

The Huntington

Frick and Oliver compiled a photographic album documenting a 1917 road trip along the path of the Los Angeles Aqueduct, from the city to its source in the Eastern Sierras and back. The album makes clear that Angelenos celebrated the project and the water it brought to the city. The final photograph in the album, displayed here, shows a woman who stayed at home—presumably a wife or daughter—soaking her lawn with a garden hose.



To view the whole album on the Huntington Digital Library, scan this QR code.

## OBJECT IN CASE

---

Mary Hunter Austin  
American, 1868–1934

### **Land of Little Rain**

(Boston and New York, 1904)  
The Huntington, 642

Austin's work takes its title from an Indigenous name for the region between the Sierra Nevada and the Mojave Desert, including the Owens Valley. Her book chronicles the plants, animals, and people found there—from coyotes and rabbits seeking water, to Indigenous craftspeople using natural resources, to settler mining communities enduring hardships. Each chapter describes how residents of the harsh environment survive there and is critical of those who refuse to live in harmony with nature. Austin was an advocate for Indigenous rights, though she tended to romanticize the area's Native people.

**Response: Alan Bacock**

Tribal member and former tribal council secretary of the Big Pine Paiute Tribe of the Owens Valley

Mary Hunter Austin provides observations in *Land of Little Rain*, revealing richness and diversity held within lands and places which some would consider desolate. “The high note of babble and laughter falls off to the steadier mellow tone of a stream that knows its purpose and reflects the sky.” This excerpt describes the movement of alpine waters rushing to lower depths. There, they will slow down to settle and refresh, purposeful in their journey through the hydrologic cycle, benefiting all in need of its life-giving power. Austin’s work inspires through its ability to provide a similar power, slowing us down to consider the mysteries and beauty of where we are.

## OBJECT IN CASE

---

Carleton Watkins

American, 1829–1916

### **Photographic Views of Kern County, California, “Late George Cling Peaches”**

ca. 1881–89

Albumen prints, bound in an album

The Huntington, 137500

Watkins created this album of monumental photographs for his clients, landowners in the San Joaquin Valley, to serve as evidence in a lawsuit concerning water rights. The images trace the “life cycle” of the region’s crops, from canals and irrigation ditches, to fruit growing on trees, to a display of ripe produce at an exhibition. One photograph features a variety of peaches developed with shipping in mind. The contrast between the shadowy depths of the box and the bright, fuzzy peach skins emphasizes the fruit’s round shape and suggests its lusciousness.

**Reproductions from Carleton Watkins's Photographic Views of Kern County, California**

ca. 1881–89

Reproductions

1. **“Ditching and Checking, near Poso, Kern County, Cal.”**
2. **“View up Kern River, Showing Head of Ditch, Kern County, Cal.”**
3. **“View on the Calloway, near Poso, Kern County, Cal.”**
4. **“Orange Cling Peach”**

## RECREATIONAL WILDERNESS

Faced with the transformation of the American West due to resource extraction and rapid settlement, naturalists like John Muir and Mary Austin pushed for land conservation. But for whom was the wilderness being conserved? Some believed that reserving areas of natural beauty for recreation and appreciation overrode Native and working-class claims to the land. Writers and visual artists often deployed their work in support of conservation efforts made in the name of the public good.

Yellowstone was established as the United States' first national park in 1872. The Yellowstone National Park Act proclaimed the area "reserved and withdrawn from settlement, occupancy, or sale . . . and set apart as a public park." This designation inspired Muir and others to seek the same protection for the mountains around California's Yosemite Valley.

By the end of the nineteenth century, both the United States and the United Kingdom had government-sanctioned conservation programs. With advocates including John Ruskin, England founded the National Trust in 1895 to preserve sites of outstanding natural beauty and historic and cultural value.



## OBJECTS IN CASE

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John Muir

American, 1838–1914

### **My First Summer in the Sierra**

ca. 1911

Hand-corrected page proofs

The Huntington, mssHM 78360

### **My First Summer in the Sierra** (Boston, 1911)

The Huntington, 20313

Muir was an early advocate for the preservation of wild landscapes in the American West. *My First Summer in the Sierra* describes his experience following a sheep herd up the foothills in the summer of 1869. The text expresses the euphoric delight he took in nature, and his devotion to California's commanding inland mountain range. In addition to this decorated early publication of the volume, The Huntington holds the publisher's page proofs for the first edition, with annotations by Muir in pencil.

Concerned over damage done to the Sierra Nevada's meadows by domestic livestock, such as sheep, and the logging of its giant sequoias, Muir petitioned Congress to create Yosemite National Park. He later founded the conservation advocacy group the Sierra Club, which continues to protect land from development. Muir's views on preservation dismissed Indigenous land claims, for which the organization has recently taken public accountability.

## OBJECTS ON WALL

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Binh Danh

American (b. Vietnam), b. 1977

**Yosemite Falls, Yosemite, CA, April 15, 2012**

2012 (CO2 ppm that year: 394.6 ppm)

**Tunnel View Parking Lot, Yosemite, CA, 2017**

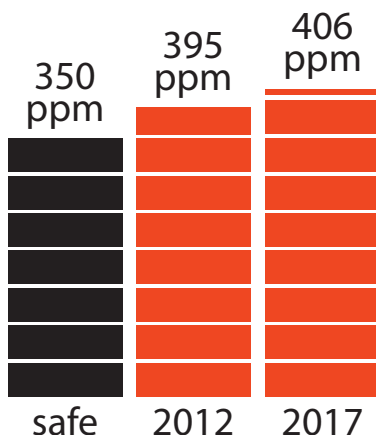
2017 (CO2 ppm that year: 405.5 ppm)

Daguerreotypes

The Huntington, photPF 26033 (1 and 2)

Carleton Watkins's iconic photographs of the Yosemite Valley have encouraged many imitators. In the hands of contemporary Vietnamese American artist Binh Danh, the frame is expanded to include the parking lot from which most of today's visitors encounter the site. Danh's scene includes people, a contrast to historic images of the site that were intentionally vacant to imply the landscapes were pristine and uninhabited.

Daguerreotypes produce just one image per plate. The plates are heavy and large, and take about ninety seconds to register. Any aspect in motion, such as Yosemite Falls, appears as a blur.



## OBJECT ON WALL

---

Carleton Watkins

American, 1829–1916

**“Yosemite Falls (front view)” from Yo-semite Valley /  
Photographic Views of the Falls and Valley of Yo-semite in  
Mariposa County, California**

1861

Mammoth plate photograph

The Huntington, purchased by the Friends of the Huntington  
Library, 379010

Alongside John Muir’s writing, Watkins’s iconic images of the Yosemite Valley helped rally public support for the conservation of the area. He frames the composition so that the granite rock face takes up most of the image, emphasizing its massiveness. The photograph asserts the sublimity of the glacier-carved valley, rendering it an icon of the American landscape.

## OBJECT ON WALL

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Thomas Moran

American (b. Great Britain), 1837–1926

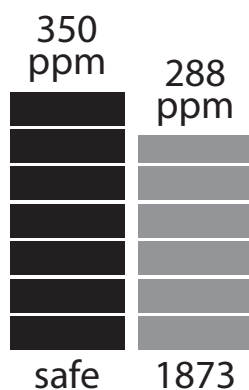
### **Hot Springs of Gardiner's River, Yellowstone**

1873 (CO<sub>2</sub> ppm that year: 288.1)

Watercolor and gouache over graphite on blue paper

National Gallery of Art, 2012.93.3

Moran joined the Hayden Geological Survey of 1871, which was sent to gather information about a region in the American West rumored to contain many natural wonders. This watercolor is based on sketches he made during the expedition. It depicts a landscape of astonishing beauty, where mineral deposits create pools of strange colors among cascades of steaming water. Moran's watercolors were the only color images of the area available at the time. His views of this extraordinary environment helped persuade Congress to declare Yellowstone America's first national park.



## **KING COAL AND BLACK GOLD**

The Industrial Revolution was made possible by coal and the coal-powered steam engine. Trains and steamships changed travel and commerce forever. Britain was the epicenter of this global transformation. In 1830, Britain mined eighty percent of the world's coal. Its control of this energy-rich resource bolstered not only its industries, but also its global prominence.

At the beginning of the twentieth century, petroleum became an increasingly important fuel source. In 1930, California was a hub of oil production. Its wells produced nearly a quarter of the world's oil, contributing to America's rising prominence on the world stage.

The extraction and use of coal and oil rapidly altered the landscape. Factory complexes with their plentiful smokestacks, and oil fields with their forests of derricks, became symbols of progress. However, writers like Upton Sinclair pointed out the darker side of extractive industries. In 1938, the engineer Guy Stewart Callendar (1898–1964) demonstrated that CO<sub>2</sub> emissions from burning fossil fuels had already started the process of global warming.



## KING COAL AND BLACK GOLD (CONTINUED)



In February 1912, coal miners in the United Kingdom went on strike, halting coal extraction for thirty-seven days. This cartoon from an April 1912 edition of *Punch* magazine illustrates the handsome young Prince Petroleo (the personification of oil) wooing the figure of Britannia (Britain) while old King Coal apologizes for being away for so long. Britannia assures King Coal that he is replaceable.

## OBJECTS ON WALL

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Endicott & Co.

American, active ca. 1828–91

**Paterson Iron Co., Patterson, N.J.**

Undated, mid- to late nineteenth century

Lithograph

The Huntington, Jay T. Last Collection

John P. Newell

American, 1832–1898

**Lazell, Perkins & Co., Bridgewater, Mass.**

ca. 1858–60

Color-printed lithograph with hand coloring

The Huntington, Jay T. Last Collection

Ferdinand Mayer

German, ca. 1817–ca. 1877, active United States

**Laflin & Rand Powder, Company—Passaic Powder Mills**

Undated, mid- to late nineteenth century

Lithograph

The Huntington, Jay T. Last Collection

J. H. Bufford's Sons

American, 1870–?

**Locomotive Tyres: Low Moor Iron, W. Bailey Lang & Co.**

Undated, late nineteenth century

Lithograph

The Huntington, Jay T. Last Collection

## OBJECTS ON WALL

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R. G. Hardie Jr.

American, nineteenth century

**Hurlbut Paper Company**

Undated, mid- to late nineteenth century

Lithograph

The Huntington, Jay T. Last Collection

Riley & Raker

American, nineteenth century

**City of Ironton, Ohio. Its Industries & Environs**

ca. 1877

Lithograph

The Huntington, Jay T. Last Collection



## SMOKESTACKS

Once serving as advertisements, posters depicting factory scenes like these were a common nineteenth-century marketing practice. Manufacturers of all kinds employed this motif to illustrate their productive potential. Smoke signaled progress. Most factories at this time were powered by coal, the dirtiest of all fossil fuels. The largest source of global temperature rise to date, coal emits significantly more CO<sub>2</sub> than oil or natural gas. It also creates more particulate matter—hence the dark smoke depicted in these images. Coal smoke is noxious, highly polluting, and linked to increased rates of respiratory illness.

## OBJECT IN CASE

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William Stanley Jevons

British, 1835–1882

**The Coal Question; an Inquiry Concerning the Progress of the Nation, and the Probable Exhaustion of Our Coal-Mines, 2nd edition** (London, 1866)

The Huntington, 722186

Jevons emphasized the nonrenewable nature of coal as a fuel source at a time when Britain's imperial power depended on its production. He warned that "the maintenance of such a position is physically impossible." He described what we now refer to as the Jevons paradox: increased fuel efficiency encourages people to use more rather than less. The fear of resource exhaustion was not new, but unlike wood, coal took millions of years to form.

## OBJECTS IN CASE

---

Upton Sinclair

American, 1878–1968

**King Coal** (New York, 1917)

The Huntington, 316653

**Oil!** (New York, 1927)

The Huntington, 386167

Like his best-known work, *The Jungle*, Sinclair's books about the coal and oil industries are "muckraking" novels. This form of journalism investigated and exposed corruption to inspire reform. *King Coal* is based on actual events at a Colorado coal mine. Sinclair sets his novel about a fictional oil tycoon in "Angel City," California. The story is loosely based on the life of Los Angeles oil magnate Edward Doheny. Both novels sympathize with the workers.

OBJECT IN CASE

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Charles C. Pierce  
American, 1861–1946

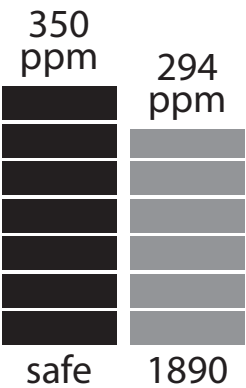
**Doheny Discovery Well Showing Mr. [Edward] Doheny with  
Raised Hand**

1890 (CO2 ppm that year: 294.2)

Photograph

The Huntington, C. C. Pierce Collection of Photographs,  
photCL Pierce 06584

Edward Doheny’s discovery of the first Los Angeles City oil field led to widespread extraction in the surrounding areas. He made Southern California one of the top oil-producing regions in the nation and was credited with having discovered more oil than anybody before. The photograph depicts his “discovery well,” located near Echo Park Lake.



## OBJECT IN CASE

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George W. Haley

American, 1879–1963

### **Men Standing next to Cars at Gas Station, 1924**

Modern archival print from  
a vintage negative

The Huntington, Ernest Marquez Collection

The bounty of oil in Southern California helped create a car-centered culture. Here, men can be seen filling their automobiles at what is likely one of the earliest gas stations in Los Angeles County. “Filling stations” proliferated along major roads and highways. In 1910, 200,000 automobiles were registered in the United States; in 1919, 6 million; in 1929, 23 million. Today there are over 280 million.

## OBJECT IN CASE

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Unknown maker

### **Oil Well Fire**

ca. 1920s

Gelatin silver print on postcard

The Huntington, Ernest Marquez Collection

## OBJECT IN CASE

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Eunice Foote

American, 1819–1888

**“On the Heat of the Sun’s Rays” in *The American Journal of Science and Arts*, 2nd series, vol. 22** (New Haven, CT, 1856)

The Huntington, 750060

In 1855, Foote demonstrated that carbonic acid gas (CO<sub>2</sub>, or carbon dioxide) trapped heat. This important discovery led to later understanding of the gas’s climate-altering effects. However, as a woman, she was not able to present her work publicly, and her research did not gain widespread recognition. Instead, physicist John Tyndall (1820–1893) was credited with this finding, even though his study was published after hers. Later scientists built on these studies to show that CO<sub>2</sub> emissions from industry were causing global warming and climate change.

OBJECT ON WALL

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Charles C. Pierce

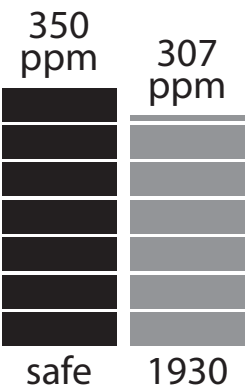
American, 1861–1946

**Venice–Del Rey Oil Field. 7-9-1930**

1930 (CO2 ppm that year: 307.2)

Gelatin silver print

The Huntington, Ernest Marquez Collection





## OBJECTS ON WALL

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Aerograph Co.

American, twentieth century

**Tobin #2, Signal Hill Oil Field**

1923

Modern archival print from vintage negative

The Huntington, Verner Collection of Panoramic Negatives

Charles C. Pierce

American, 1861–1946

**Oil Field, Torrance, April 17, 1923**

1923

Modern archival print from vintage negative

The Huntington, Verner Collection of Panoramic Negatives

Aerograph Co.

American, twentieth century

**Athens-Rosecrans Oil Field, Los Angeles, California, May, 1925**

1925

Gelatin silver print

The Huntington, Ernest Marquez Collection

## OIL WELLS

These photographs demonstrate the extent of oil drilling in Southern California in the early twentieth century. While most derricks have been dismantled, Los Angeles County remains the nation's largest urban oil field, with thousands of active wells pumping alongside a population of over ten million people. Existing pumps are sometimes camouflaged behind fences, disguised as other structures, or, more often, placed in lower-income neighborhoods. In 2022, groups seeking environmental justice for these frontline communities successfully lobbied to ban new wells and phase out drilling within the city limits.



Scan this code to visit an interactive map of retired and active oil wells around Southern California.

## LONDON “FOG”

The burning of coal for heat and cooking has created noticeable pollution in London since the thirteenth century. The atmosphere grew more and more unhealthy as the population increased and coal-powered factories moved into the city during the 1700s. By the nineteenth century, poor air quality had become one of its distinguishing features. The term “smog” was coined in the early twentieth century, a combination of “smoke” and “fog.”

Thick yellow fogs, called “pea-soupers” for their density and yellowish appearance, were the unnatural mixture of water vapor and smoke particulates from factories and homes. They lasted up to a week at a time, severely limiting visibility and increasing crime and deaths from respiratory illness. Artists responded to these bleak conditions. Writers Charles Dickens and Arthur Conan Doyle portrayed a city shrouded in a murky haze. Painters like James McNeill Whistler explored the effects of polluted air on the landscape’s appearance.

“Stand at the window here. Was ever such a dreary, dismal, unprofitable world? See how the yellow fog swirls down the street and drifts across the dun-coloured houses.”

—Sherlock Holmes in *The Sign of Four* (1890)  
by Sir Arthur Conan Doyle

OBJECT ON WALL

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C. R. W. Nevinson  
British, 1889–1946

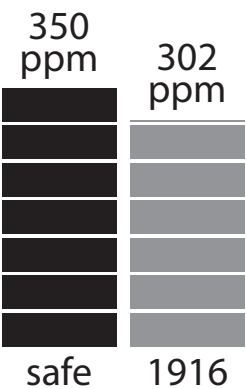
**From an Office Window**

1916 (CO2 ppm that year: 301.7)

Pastel on paper

The Huntington, Purchased in memory of Russel Kully with funds from the Art Collectors' Council, with additional support from the Douglas and Eunice Erb Goodan Endowment Fund, the Connie Perkins Endowment, the Estate of Kendrick Schlatter, and an anonymous donor, 2022.13

Nevinson's view across the rooftops of London shows a city crossed by telephone wires and blanketed under a thick haze. The image is composed of a series of angles, squares, and rectangles. The only round shapes in this pastel are the chimney pots that spit out plumes of smoke, casting the entire scene in tones of gray. Though the artist makes use of the city's pollution in this composition, he was aware of its harmful effects. He later helped found the Brighter London Society, a group that advocated for improving air quality.



## OBJECTS ON WALL

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Arthur Severn

British, 1842–1931

After John Ruskin

British, 1819–1900

### **Thunderclouds, Val d'Aosta**

ca. 1884 after 1858 original

Watercolor and gouache on paper

The Ruskin, Lancaster University

### **Cloud Study: Ice Clouds over Coniston**

ca. 1884 after 1880 original

Gouache on buff paper

The Ruskin, Lancaster University

Ruskin's drawings of the sky, made throughout his life, are at once expressive works of art and records of their maker's close study of natural phenomena. This practice of observation led him to notice changes to the sky over time from industrialization. He used his earlier drawings of storms and sunsets as historical records, comparing them against the sky's new, more frightening appearance. Both of these drawings were copied onto transparencies and projected as illustrations to Ruskin's 1884 lecture, "The Storm-Cloud of the Nineteenth Century" (a printed version of which is on view nearby).

## OBJECT IN CASE

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After James McNeill Whistler  
American, 1834–1903

**The Etched Work of Whistler** (New York, 1910)

The Huntington, 1333730 vol. 3

These collotypes (photomechanical reproductions) are from a catalog of every etching Whistler produced. This page shows two different states, or versions, of Battersea Morn (1877), a view of the Thames from the artist's home in Chelsea. Whistler favored dawn and dusk views, when the softer light combined with fog and smoke from home and factory fires to dissolve and obscure shapes. Here, the haze lends the church tower and factory smokestacks across the river an ethereal quality. Whistler reworked the plate between the printings reproduced here to amplify the murky atmosphere.

## OBJECT IN CASE

---

John Tenniel

British 1820–1914

**“Old King Coal and the Fog Demon” in Punch**

(London, 1880)

The Huntington, 180263

This illustration from the popular magazine Punch accompanies a poem “King Coal and the Fog Demon” on the previous page. Here fog (smog) is a “murderous ghoul” hovering over St. Paul’s Cathedral in central London, casting clouds of asthma, bronchitis, and pneumonia over the city. King Coal’s smoke-emitting dish is labeled “carbonic acid,” a gas more commonly known as carbon dioxide (CO<sub>2</sub>) today.

## OBJECT IN CASE

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B. H. Thwaite

British, active nineteenth century

### **The London Smoke Plague**

1891

The Huntington, 718306

The author of this pamphlet claims that the annual coal-induced “smoke plague” of London is as fatal as the black plague of the 1660s. He writes that the poor air quality killed four percent of the population over a two-week period in 1886, and that “no contagion has a more destructive influence on the well-being and stability of men’s lives.” The text laments this pollution’s impact on health and safety, citing increased instances of crime and drunkenness in “the fogs.”



## OBJECT IN CASE

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John Ruskin

British, 1819–1900

**The Storm-Cloud of the Nineteenth Century** (London, 1884)

The Huntington, 150014

In 1884, Ruskin gave a series of lectures at the London Institution about meteorological changes he had recently observed. Ruskin had been a skywatcher all his life. His own diaries and drawings provided evidence of altered weather patterns. Using ominous language, he linked what he called a “plague-wind” and “storm-cloud” to the industrial practice of pumping pollutants into the atmosphere. These lectures are considered among the earliest published commentaries on human-caused climate change.

## FILM

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Rebeca Méndez

Mexican American, b. 1962

### **Any-Instant-Whatever**

2020 (CO2 ppm that year: 416.83)

Two-channel video projection, color, sound, in 90-minute loop

Sound by Drew Schnurr

Mendez's work was recorded on a roof in Los Angeles in January, and depicts the sky from dawn to dusk. The meditative imagery and soundscape offer respite and proclaim the importance of clouds, rain, and clean air to Southern California. Angelenos have long grappled with the harmful effects of pollution from vehicle emissions. They also increasingly deal with the impacts of drought and fire risk, both made worse by human-caused climate change. Méndez's video emphasizes not only the timelessness of clouds, but also their mutability. Their constant presence and shifting appearance suggest their ability to absorb and reflect human activity.

