Label Copy

Transcending the boundaries of art and science, Rufus Porter (1792–1884) employed his mind's eye and spatial imagination to design pictorial and mechanical systems in various media and on different scales. He painted portraits and landscapes, authored practical manuals, invented mechanical devices, founded *Scientific American*, and designed an airship to fly Gold Rush prospectors from New York to California in three days. Porter believed these advancements would create a better world.

This exhibition presents his many endeavors in the context of the Enlightenment, other artist-inventors, itinerancy, and the emergence of modern transportation and communication networks in antebellum America. Like gentleman-scientist James Bowdoin II (1726–1790), the College's namesake, and Benjamin Franklin (1706–1790), Porter ranged across diverse fields in search of new and useful knowledge. A forward-thinking man in his own time, Porter would likely feel at home with today's artists, engineers, and innovators, especially those working across disciplines in our digital world.

American Enlightenment

JEAN-JACQUES CAFFIERI
French, 1725–1792

Benjamin Franklin, ca. 1785
painted plaster

Gift of William Vaughan
1835.1

Benjamin Franklin was a leading proponent of the Enlightenment in America. A founding father known for his experimentation—most famously with electricity—and publications, such as *Poor Richard's Almanack*, Franklin helped to establish in 1743 the American Philosophical Society in Philadelphia, a scholarly organization that promotes science and the humanities. Other Society notables included members of the Vaughan family of Hallowell, Maine, who donated this sculpture to Bowdoin College in 1835. Espousing reason and inquiry over superstition and faith, Enlightenment ideals also inspired Rufus Porter's quest to promote useful knowledge, a term denoting an understanding of the natural world, how things worked, and how mechanical operations might be improved.

THE REVEREND JOHN PRINCE (instrument maker)
American, 1751–1836

SIMEON SKILLIN, JR., attributed to (carver)
American, 1756–1806

Air Pump, 1782–1783
mahogany, eastern white pine, brass, glass

Transferred from the College to Museum Collection, bequest of Mrs. Sylvia E. Ross by exchange
2007.29

Used to demonstrate the properties of vacuum pneumatics, this air pump was presented to Bowdoin College in 1803 in time for its first class of students. John Prince of Salem, Massachusetts, one of America's finest instrument makers, advanced air pump design with this apparatus, which is housed in a

carved mahogany case resembling a temple of learning. Scientific achievement was one avenue by which Americans kept apace internationally. Wealthy amateur scientists commissioned costly instruments, such as this air pump, in order to conduct their own experiments and gain the favorable notice of learned British and European societies. As founding president of the American Academy of Arts and Sciences, established in Boston in 1780, James Bowdoin II included Prince's "Account of an Air-Pump on a New Construction" in the academy's first published papers, *Memoirs of the American Academy of Arts and Sciences* in 1785.

VALENTINE GREEN, after JOSEPH WRIGHT
British, 1739–1813

A Philosopher Shewing an Experiment on the Air Pump, 1769
mezzotint

Yale Center for British Art, Paul Mellon Collection

Scientific experiments—with their thrill of discovery—were often conducted in parlors. The British artist Joseph Wright captured their theatricality in a large painting entitled *An Experiment on a Bird in the Air Pump,* 1768 (National Gallery, London). Its popularity resulted in this mezzotint by Valentine Green, printed for a wider distribution. In a dramatically lit scene, two girls react to the bird's possible fate as air was removed from the glass globe. Other types of experiments were conducted, including how a lack of oxygen affected the preservation of food.

BARTHOLOMEW BURGES
American

A Short Account of the Solar System and of Comets in General: Together with a Particular Account of the Comet that will Appear in 1789
Boston, Massachusetts: B. Edes & Son, 1789

Courtesy of the George J. Mitchell Department of Special Collections & Archives, Bowdoin College Library

Bartholomew Burges's account of the solar system was the first to be published in America. Its moveable diagram, or volvelle, illustrated the path of the expected comet. This is the earliest known example of such an innovative publication in Boston. It is not known if Porter knew this work, but in 1821 he created his own volvelle—a *Revolving Almanack*—that pushed the limits of printing, engraving, and paper engineering (on view nearby).

ROBERT DOSSIE
British, died 1777

The Handmaid to the Arts, volume 1, 1796
London, Printed for A. Millar, W. Law, and R. Cater, and for Wilson, Spence, and Mawman, York

Courtesy of the George J. Mitchell Department of Special Collections & Archives, Bowdoin College Library

Rufus Porter was inspired by many different types of sources, including Robert Dossie's *The Handmaid to the Arts*, a seminal work of useful knowledge for artists first published in 1758. The revised 1796 volume, seen here, was available in America with a wide array of instructions, including descriptions of

raw pigments as well as devices used in drawing and making designs or copies. Porter specifically referenced *The Handmaid* in his own *Select Collection of Valuable and Curious Arts,* an arts and chemistry manual he wrote for a general American audience and first published in 1820.

Artists as Inventors

BENJAMIN WEST
American, 1738–1820

Robert Fulton, 1806
oil on canvas

Fenimore Art Museum, Cooperstown, New York, gift of Stephen C. Clark

Robert Fulton, like Rufus Porter, was an ambitious man with many talents. He started his career as an artist but is most famous today as an engineer and inventor who developed the first commercial steamboat. Fulton also wrote an important treatise on the improvement of canal transportation and built the world's first practical submarine. Benjamin West, the artist who created this portrait, was born in Pennsylvania, where he taught himself to paint and befriended Benjamin Franklin. In 1760 he traveled to Europe and eventually settled in London, where he became a famous painter. West obligingly instructed many American artists who visited London, among them three artist-inventors—Fulton, Samuel Morse, and Henry Sargent. Painted in London, this likeness romanticizes its subject, portraying Fulton as an intense, fiery genius. A torpedo, another of Fulton's inventions, explodes in the background.

ROBERT FULTON
American, 1765–1815

Vessel Sighting Mechanism from *Submarine Vessel, Submarine Bombs and Mode of Attack for the United States Government*, 1806
watercolor, graphite, ink

Prints and Photographs Division, Library of Congress, Washington, D. C.

Robert Fulton excelled as a draughtsman, producing remarkable sketches and diagrams of his various inventions. In 1800, at the behest of Napoleon, Fulton developed the *Nautilis*, an early submersible vessel, and by 1806, during the Napoleonic Wars, he was designing and promoting a system of submarine and torpedo warfare. One of several drawings collected with a manuscript promoting his submarine, this diagram depicts the conical lens to be inserted into a vessel's conning tower. The glass served two purposes; it let light into the interior and functioned as a primitive periscope. A superb example of spatial thinking, it illustrates how artist-inventors, such as Fulton and Rufus Porter, designed systems on multiple scales.

SAMUEL F. B. MORSE
American, 1791–1872

Self-Portrait, 1818
oil on panel

Courtesy of Ruthmere Museum, Elkhart, Indiana

Best known as the inventor of the telegraph, which made modern communication networks possible, Samuel F. B. Morse began his career as an artist. While Porter came from more modest origins and received only a brief formal education, Morse attended elite New England schools and graduated Phi Beta Kappa from Yale University. In 1811 he traveled to England to receive art instruction from Benjamin West, returning home three years later to paint formal portraits and grand historical subjects. In this self-portrait Morse's romantic spirit is evident. The lively brushwork, the windswept hair, and the spark of light in his eye bring Morse's intellectual powers to life.

SAMUEL F. B. MORSE
American, 1791–1872

Sketch of a Railway Telegraph, ca. 1838
watercolor

Manuscript Division, Library of Congress, Washington, D. C.

By 1837 Samuel F. B. Morse abandoned painting and devoted all of his time to the development of electromagnetic telegraphy. During a visit to Europe to secure patents, he developed an application of his telegraph for railway signaling. Employing gears, electromagnets, and bells, the device transmitted the locations and movements of trains, resulting in better timetables and increased safety. The ability to diagram such mechanical systems and processes in different scales on a single sheet of paper, evident as well in Fulton's *Submarine Sighting Mechanism*, is a distinguishing feature of the spatial imagination that Porter also put to novel use. Although Morse secured his fame in 1844, when he transmitted the first telegraphic message from the Supreme Court chamber in Washington, D. C., to a train station in Baltimore, American railroads did not effectively use telegraphy until the 1850s.

ROBERT FULTON
American, 1765–1815

Harriet Livingston Fulton (Mrs. Robert Fulton), 1810–15
watercolor on ivory

New-York Historical Society, gift of Samuel V. Hoffman

Miniature portraits first gained popularity in America in the 1760s. Beloved keepsakes, the smallest were typically housed in lockets, bracelets, or brooches with glass coverings—sometimes together with locks of hair—and miniatures on ivory were especially precious. Before focusing on inventions, both Fulton and Porter painted miniatures for a diverse clientele. Fulton, who learned to paint on ivory as a young man while working for a Philadelphia jeweler, created especially elegant miniatures featuring delicate but expressive brushwork. This watercolor-on-ivory portrait of his wife Harriet Livingston, the daughter of Robert R. Livingston, an investor in his steamboat enterprise, depicts her elegantly dressed in high neoclassical style. Fulton met her while traveling the Hudson River in his famed steamboat the *Clermont*.

SAMUEL F. B. MORSE
American, 1791–1872

Gideon Tomlinson, ca. 1809
Signed lower right "S. F. B. Morse pintx."
watercolor and graphite

Yale University Art Gallery, gift of the Associates in Fine Arts

When Samuel Morse was a student at Yale, he painted portraits of classmates and acquaintances directly from life. He charged one dollar for profiles on paper, such as this work, while charging five times as much for portraits on ivory. Proud of his accomplishment, he included his signature in the lower right. The sitter, Gideon Tomlinson, graduated from Yale in 1802 and pursued a long career in politics, serving Connecticut as a governor, U.S. Congressman, and U. S. Senator. In this small portrait, Morse employed a heavy line for the contours and shading to model the forms. Porter, by contrast, used finer outlines and a delicate touch in his earliest portraits.

Optical Devices in Art Making

P. AND J. DOLLOND
British, founded 1750

Camera Lucida, nineteenth century
brass

Yale Center for British Art, Paul Mellon Fund

Many nineteenth-century portrait artists used optical devices as drawing aids, notably the camera lucida and camera obscura. Used since the Renaissance, the camera obscura featured the most basic photographic technology—a hole or aperture projected a traceable image on a surface housed in a dark box. Mechanically minded artists, such as Porter, sought to improve the technology by adding lenses and mirrors, and around 1820 he constructed his own camera obscura for his portrait making. Porter also advocated the use of the newer, lightweight camera lucida, which was more portable and could be used in any lighting conditions. In his first *Curious Arts*, published in 1820–21, he instructed readers how to make an inexpensive version at home. P. and J. Dollond, creators of fine optical and scientific instruments in London, made this camera lucida.

GEORGE DOLLOND
British, 1774–1852

Description of the Camera Lucida, An Instrument for Drawing In True Perspective, and for Copying, Reducing, or Enlarging Other Drawings
London: G. Dollond, 1830

Beinecke Library, Yale University

A British optician, George Dollond invented a number of precision instruments used in astronomy and navigation. He made a name for himself manufacturing camera lucidas for P. and J. Dollond, his family's firm, and in 1820 was appointed the official optician to King George IV. In 1830 Dollond published this manual detailing the uses and proper operation of the drawing aid. Its frontispiece illustrates its optical mechanics with a person using the device (figs.1–3). As the caption on the page notes, the drawing for the frontispiece was made using a camera lucida. These precision instruments were expensive, which likely explains why Porter preferred his homemade camera obscura.

CHARLES BALTHAZAR JULIEN FEVRET DE SAINT-MÉMIN
French, 1770–1852

Silas Lee and Temperance Hedge Lee, ca. 1799
charcoal, black crayon, traces of graphite

Gift of Mrs. P. S. J. Talbot
1869.1–.2

Charles Balthazar Julien Fevret de Saint-Mémin emigrated from Paris after the outbreak of the French Revolution. Once in the United States, the aristocratic Saint-Mémin, who had previously practiced art as a gentlemanly pastime, turned his avocation into a profession. From 1793 until his return to France in 1814, he traveled through the country making profile portraits with the aid of a mechanical device called a physiognotrace. An adaptation of a simple pantograph, still used as a drafting tool or child's toy, it allowed artists to precisely trace a sitter's profile and easily make duplicates (see inset figure). Saint-Mémin completed his portraits on pink paper by filling in the features with crayon. Although from a different background than Rufus Porter and other commercial portrait painters, Saint-Mémin's approach exemplifies the practices of later itinerant artists in America.

A graduate of Harvard College, Silas Lee settled in Maine, serving in Congress from 1799 to 1801. While the Lees were in Philadelphia, Saint-Mémin drew their portraits. In his likeness of Temperance Lee, one of the few women he depicted, he captures an alert and handsome figure, ornamented by jewelry, headdress, and ruffled collar. The portraits survive in their original frames.

Gilles-Louis Chrétien's Physiognotrace, drawing, ca. 1788, by Edme Quenedey. Bibliothèque Nationale de France, Paris.

Porter's Early Endeavors

As Porter came of age in Maine, and then in metropolitan Boston where he moved in 1820, he simultaneously pursued painting, invention, and the dissemination of practical information. His foundational years in Portland, bustling with artists and entrepreneurs, exposed him to creativity and innovation, and inspired his diverse endeavors. An accomplished painter, Porter excelled on scales large and small, producing miniature watercolor portraits and large panoramic wall murals. He collaborated with engravers, printers, machinists, and many others to pursue his various enterprises.

"Specification for Mr. Wiseman's Patent for Sails for Windmills, with Horizontal Levers," *The Repertory of Arts and Manufactures: Consisting of Original Communications, Specifications of Patent Inventions, and Selections of Useful Practical Papers from the Transactions of the Philosophical Societies of All Nations, &c., &c,* volume 4, plate 2
London, England: Printed for the Proprietors, 1796
From the library of Samuel Vaughan Jr., Hallowell, Maine.

Courtesy of the George J. Mitchell Department of Special Collections & Archives, Bowdoin College Library

Books such as *The Repertory of Arts and Manufactures* published new ideas and patent designs and inspired many Americans, including Porter. In addition to his work in Portland as a practical painter, Porter pursued construction of an innovative horizontal windmill, in which the sails were supported on a frame that moved parallel to the ground. He may have had access to the descriptions of Wiseman's patent, seen here. Merchant Bradbury C. Attwood advertised shares of stock in Porter's enterprise. Following its completion on Green Street in 1818, Porter's windmill successfully ground "excellent meal" and was "manageable by a child of 12 years of age." However, when it was irreparably damaged in a windstorm, Porter could neither sell nor repair it. Nonetheless, when his daughter was born that July, he named her Mary Bradbury in honor of his collaborator. Following this failure, Porter sought greener pastures in Boston.

JOHN BREWSTER JR.
American, 1766–1854

Moses Quinby, 1808–1810
oil on canvas

Gift of Mrs. Candace E. Quinby Maynard
1950.15

In Portland Porter may have crossed paths with John Brewster Jr., the accomplished itinerant portraitist. Deaf from birth, Brewster was the son of a respected Connecticut doctor who encouraged him to learn to read and write. Exhibiting a talent for painting, Brewster was professionally trained, and his early portraits reflect the style of prominent Connecticut artists, such as Ralph Earl. Brewster lived for extended periods with his brother in Buxton, Maine and traveled to Portland, Saco, and Kennebunk, where he served a wide range of clients, including Moses Quinby, a graduate of Bowdoin's first class in 1806.

GARDNER GOOLD and JAMES AKIN
American, 1755–1815 and American, ca. 1773–1846

A Perpetual Almanack, Portland, Maine, January 1, 1805
engraving

Courtesy of the American Antiquarian Society, Worcester, Mass.

The Porters moved from eastern Massachusetts in the 1790s to Pleasant Mountain Gore (now Bridgton) in western Maine. Gardner Goold was one of their neighbors. In 1805 he published in Portland his *Perpetual Almanack*, a large engraving that presented vital daily information—the days of the week, sunrise, and sunset. An itinerant entrepreneur from Newburyport, Massachusetts, James Akin engraved the almanack. Perhaps inspired by his innovative neighbor, Porter later produced a similar device, his *Revolving Almanack* (on view nearby).

Attributed to RUFUS PORTER
American, 1792–1884

Benjamin Lane, ca. 1815–1817
watercolor and graphite

The Katcher Family Collection

Porter's earliest known miniature portraits depict Maine residents whom he knew personally. Benjamin Lane, a fellow member of the Portland Light Infantry Company, commissioned Porter to create his miniature, seen here, as well as those of his wife and a child. Porter's process is visible with pencil marks outlining the portrait's oval. He also checked the color saturation of his brush with test marks found on the paper's margins, hidden under the frame. His brushstrokes' tentative nature soon matured to quick and accomplished actions. Lane's original grain-painted frame is believed to be Porter's own production. Porter later provided instructions on such decoration in his instruction manual, the *Curious Arts*.

Attributed to RUFUS PORTER
American, 1792–1884

Thomas Long, ca. 1815–1817
watercolor and graphite

Gift of Julie Lindberg
2016.45

WILLIAM KING
America, working 1804–1809

President Joseph McKeen, 1757–1807, dated 1805
cut paper embossed "KING"

Courtesy of the George J. Mitchell Department of Special Collections & Archives, Bowdoin College Library

Artist John Brewster and silhouette cutter William King traveled through Portland, where Porter may have been inspired by their work. Brewster is known for his fine oil portraits, such as that of Moses Quinby on view nearby, but he also created miniatures. As his likeness of Portland jurist Prentiss Mellen reveals, Brewster sensitively depicted his sitters with clarity of vision and without artifice or bias. These attributes also became hallmarks of Porter's watercolor miniatures. A prolific silhouettist, William King created meaningful likenesses at little expense. His portrait of Joseph McKeen, president of Bowdoin College, is an especially fine example. Porter advertised that he cut "common profiles" for twenty cents, but examples of his work in this genre have never been identified.

Attributed to RUFUS PORTER
American, 1792–1884

Betsey Long, ca. 1815–1817
watercolor and graphite

Rufus Porter Museum, Bridgton, Maine

Porter may have first encountered the craft of watercolor likenesses in Portland, where a multitude of talented itinerant artists were working, and was likely inspired to paint watercolor portraits as a way to support his new family. Porter's perceptiveness was fine-tuned to his observations of the physical and mechanical world, producing portraits that were true to life. His portraits of Thomas Long (1798–1841) and his sister Betsey Long (1796–1867) are among Porter's earliest known Maine works. They may have been painted during the same sitting as Benjamin Lane, as the handling of the men's blue coats, with darker bands of blue trimming the collars, are nearly identical. The frame around Betsey's portrait is original, likely made and decorated by Porter; Thomas's is a reproduction based on Porter's instructions from *Curious Arts*.

Attributed to JOHN BREWSTER JR.
American, 1766–1854

Prentiss Mellen, 1800–1810
watercolor on ivory

Maine Historical Society, bequest of M. Persis Mellen Bailey

CHARLES CODMAN
American, 1800–1842

Entertainment of the Boston Rifle Rangers by the Portland Rifle Club in Portland Harbor, August 12, 1829, 1830
oil on panel

Brooklyn Museum, Dick S. Ramsay Fund 51.196

Portland's Observatory, an 82-foot tower built in 1807, was a marvel of engineering when Porter settled in town by 1811. Lemuel Moody used signal flags to alert merchants of their ships returning to port. Especially proud of his new telescope made by P. and J. Dollond of London, Moody welcomed visitors whose climb to the cupola was rewarded by views of Casco Bay and the White Mountains, seventy miles to the west. Porter was familiar with the scene depicted in Codman's painting, including Fort Burrows, in the lower right, where he served during the War of 1812, and the parade ground where the Portland Light Infantry mustered. The panoramic views from the Observatory left a lasting impression on him; his later painted interior murals included towers, ships, islands, and waterscapes.

RUFUS PORTER
American, 1792–1884

Letter to Charles Norris
Baldwin, Maine, February 16, 1815

New England Historic Genealogical Society, Stanton Avery Special Collections, Charles Norris Papers

Porter's enjoyment of music and experiences as a militia musician inspired his first known publishing effort. In this letter, Porter's earliest known correspondence written when he was twenty-three, he sought a publisher for his *Martial Musician's Companion*, a compendium of instruction for the fife and drum. It reveals characteristics and interests that endured throughout his life, including close attention to detail and specific ideas about design and production. However, as was true for most of his life, Porter was short on cash. Although he secured a copyright for his manuscript, extant copies have never been found and it is unlikely the book was ever printed.

Probably painted by CHARLES HUBBARD
American, 1801–1876

Side Drum, 1824
paint-decorated maple, calfskin

Museum of Fine Arts, Boston, William Francis Warden Fund

In 1811 Porter joined the Portland Light Infantry, an elite private militia company. He served as a musician, a talent he developed while a student at Fryeburg Academy. He would have been familiar with a side drum of this type, made in Boston and decorated with the seal of Massachusetts. Based on the company's record book at the Maine Historical Society, Porter participated in regular musters, marched

"up [Munjoy] hill," and attended target practice. During the War of 1812, Porter was his company's musician, playing both the drum and fife.

Itinerant Artists

In Portland Porter discovered exciting commercial opportunities for itinerant artists and expanded his entrepreneurial sights. Since the dawn of early-modern trade routes in Europe, peddlers had distributed novel objects to outlying areas. By the early 1800s traveling artists were passing through American towns, selling their services as portrait painters and interior muralists. Along with the clockmakers, musicians, and calligraphers who flooded eastern towns, itinerant artists drove the so-called "Village Enlightenment." Inspired by the talented artists who passed through Portland, Porter painted compelling miniatures of local clients. By 1820 he had moved to Massachusetts to pursue his career as a commercial artist. Yet the wayfaring spirit never left Porter. In the 1840s, after twenty years of work as an itinerant artist, he turned his curious mind to circulating scientific news and, later, to aerial navigation.

MICHELE-FELICE CORNÈ
Italian, 1752–1845, working in America from 1800

Sarah Prince, signed and dated 1803
gouache

Gift of George Osgood Cutter, Class of 1927
1968.69

Michele-Felice Cornè emigrated from Naples, Italy, to Salem, Massachusetts, in 1800. One way he supported himself was by painting portraits, renowned for their vibrant colors, a quality associated with European rather than American painters of this period. While in Salem he depicted Sarah Prince, a member of a local seafaring family. Cornè could not sustain a livelihood from portraiture alone, however; so he appealed to a broader clientele by painting decorative murals on the walls of rooms. The marine and landscape scenes Cornè painted in the Sullivan Dorr House (Providence, Rhode Island) are some of America's finest. Porter worked for a different class of clientele but followed a similar path, traveling to Providence and borrowing some of Corné's mural motifs for his own designs.

UNIDENTIFIED PHOTOGRAPHER
American, nineteenth century

Joshua Hovey, shoemaker and grocer of Dracut and Lowell, Massachusetts, ca. 1847
sixth-plate daguerreotype

Museum Purchase, Gridley W. Tarbell II Fund
2019.26

Occupational daguerreotypes, popular during the 1840s and 1850s, typically depict American tradespeople, such as cobblers, carpenters, and blacksmiths, with the tools of their trade or goods that they have made. This daguerreotype references itinerancy and peddling in different ways. The unidentified photographer may have traveled throughout New England with his camera, making and selling his photographs. The subject, Joshua Hovey, was himself a man on the move, a shoemaker, grocer, and merchant willing to bring his services to towns along the Merrimack River. In the 1820s and 1830s,

Porter operated along many of the same geographical networks as Hovey, selling miniature portraits and developing commercial plans for his various inventions.

CHARLES BIRD KING
American, 1765–1862

Portrait of an Unknown Artist, ca. 1835–1860
oil on panel

Gift of Ross Levett
1974.47

In this portrait King shows a humble artist contemplating his next work. It could be an idealized self-portrait or a portrait of Nathaniel Bird, his grandfather, an artist who taught King to paint. He holds a *porte-crayon*, an instrument for gripping chalk used to outline a composition on canvas.

CHARLES BIRD KING
American, 1765–1862

The Itinerant Artist, ca. 1830
oil on canvas

Fenimore Art Museum, Cooperstown, New York; museum purchase

Charles Bird King studied portraiture in New York and later with Benjamin West at the Royal Academy in London. On his return to the United States in 1812, he spent seven years traveling the East Coast in search of portrait commissions. In 1819 he opened a studio and gallery in Washington, D.C., where he painted many prominent political figures and over a hundred portraits of visiting Native American chiefs. In *The Itinerant Artist*, King draws on his experiences as a traveling artist. It depicts a portrait painter, possibly King himself, trying to paint a likeness of the proud lady of the house and getting presumptuous criticism from an old woman, probably the sitter's mother. Unlike established artists who worked alone in their studios, itinerant painters, such as Porter, coped with onlookers. In this family, though, only the women and children appear interested, while the father shoots a dour expression as he heads outdoors to hunt.

JOHN USHER PARSONS
American, 1806–1874

Self-Portrait, 1835
oil on canvas

Gift of Mrs. W. W. Tuttle and Miss Catherine Tuttle
1948.27

Born in Parsonsfield in western Maine, John Usher Parsons graduated from Bowdoin in 1828. A driven evangelist, Parsons became a missionary and pastor, traveling widely to preach. He was also an active publisher who compiled religious tracts. Parsons's obituary described him as "a man of intellectual power, of enterprising spirit, [and] of constant activity and eminent devotion." Between 1834 and 1838, when Parsons was recuperating from an illness, he produced about a dozen portraits. Although he was a self-taught artist content to paint in a flat, planar style, Parsons employs symbolic references associated with fine art. He depicts himself in a study surrounded by the books, some with Latin titles, that sustained

him. Moreover, by including a panoramic seaport in the background, Parsons both references some of the places where he preached and connects himself to the itinerant networks shaping the young nation at the time.

JABEZ WARD BARTON
American, 1802–1889

Middlesex Canal with Floating Towpath, Concord River Millpond, North Billerica, ca. 1822
watercolor

Given to the Billerica Historical Society, Billerica, Massachusetts, by the Rogers Family

In 1821 Porter settled with his family in Billerica on the Concord River, depicted here by Jabez Barton. Built between 1793 and 1803, the adjacent Middlesex Canal was hailed as "the greatest work of its kind that has been completed in the United States," and its engineering helped make the later Erie Canal possible. Its 27-mile-long waterway connected the Merrimack River at Lowell with Boston Harbor. The canal transformed the rural agrarian communities along its route into industrial towns and helped secure Boston's place as New England's commercial center. Visible in Barton's watercolor is the innovative towpath with its movable floating section that provided a shortcut across the millpond. Billerica remained Porter's official residence until he moved to New York City in 1840.

RUFUS PORTER
American, 1792–1884

Correct Likenesses / Taken with Elegance and Despatch by / Rufus Porter, ca. 1820
woodblock print

Courtesy of the American Antiquarian Society, Worcester, Mass.

Porter's interests in portrait-making may have been furthered by activities at the Columbian Museum, where several accomplished artists maintained a base of operations. Porter published this handbill for *Correct Likenesses* that combined an exacting woodcut image with advertising text to engage potential clients. Like other artists, Porter offered both cut silhouettes and watercolor likenesses. He is known to have charged twenty cents for a "cut double" profile or silhouette; two dollars for a watercolor side view; three dollars for a frontal view; and eight dollars for a miniature on ivory, his most expensive work. Examples of these types of portraits are on view nearby.

Attributed to RUFUS PORTER
American, 1792–1884

Mercy Davies, ca. 1818–1819
watercolor

Private Collection

Porter did not sign his portraits. However, 120 miniatures can be attributed to him. Documentation of Porter's known New England sitters combined with an analysis of his technique reveals not only his geographic and social range but also the evolution of his style. This portrait of Mercy Davies (1796–1837) provides an important example. A resident of Acton, Massachusetts, she was twenty-two years old when her portrait was made. Porter deftly articulated Mercy's steady, forward gaze, and his handling of

her braids, tortoiseshell comb, and her pleated collar is masterful. His color tests are visible in the upper right.

Attributed to RUFUS PORTER
American, 1792–1884

Volunteer Infantry or Light Infantry Company Member, ca. 1825
gouache and graphite

Collection of Tracy Goodnow

Portraits attributed to Porter following his departure from Maine include this miniature of a member of a volunteer light infantry company and likenesses commissioned by families on view in the Halford Gallery. By this time, Porter used a camera obscura, an optical device that created a perfect outline of the subject. He included instructions for making one at home in his first *Curious Arts* of 1820–1821. He also used taverns as a painting studio, typical of itinerant artists. With his newspaper notice for "Cheap Miniature Painting," Porter took a pragmatic approach, emphasizing his low rates, speed, and customer satisfaction.

RUFUS PORTER
American, 1792–1884

A Select Collection of Approved, Genuine, Secret, and Modern Receipts, for the Preparation and Execution of Various Valuable and Curious Arts, As Practiced by the Best Artists of the Present Age.
Concord, Mass., J.[oseph] T. Peters, [1820–1821]

Courtesy of the New Hampshire Historical Society

Porter synthesized his various interests in another instructional manual—this time one for the arts and sciences. In *A Select Collection of Approved, Genuine, Secret, and Modern Receipts*, he borrowed from the contents of other books, a common practice in early America before modern copyright laws. With countless instructional manuals available, it is difficult to determine all of Porter's sources, but he did refer his readers specifically to *Handmaid to the Arts*, published in London in 1758 and revised in 1796. In *Curious Arts*, Porter repeated the *Handmaid's* focus on practical knowledge of materials and their application. The narrow printers' borders around the instructions was an unusually fancy design.

RUFUS PORTER, designer; ABEL BOWEN, engraver; HENRY BOWEN, printer
American, 1792–1884; American, 1790–1850; and American, 1794–1874

Revolving Almanack, Billerica and Boston, Massachusetts, ca. 1821–1822
hand-colored engraving, letterpress, painted pine, metal tacks

Maine State Museum, Augusta, Maine

Porter combined his love of the mechanical and graphic arts in his *Revolving Almanack*. Collaborating with the Bowens, Porter took a perpetual almanack—like the one designed by his former neighbor Gardner Goold (on view nearby)—and animated it, pushing the boundaries of paper engineering. The insertion of an internal movable wheel or revolver allowed the picture chart to move. An ingenious early American volvelle, the *Revolving Almanack* sandwiched the specially printed and shaped wheel between

two sheets, the top one cut to reveal the calendar with a horse at work in four seasons. It was a success, seeing a print run of 10,000 copies and the release of at least three known editions.

RUFUS PORTER and HENRY BOWEN
American, 1790–1850; and American, 1794–1874

Family Register (for Jabez Amsbury and Nancy Miller), ca. 1820–1821
hand-colored engraving; original grain-painted frame attributed to Rufus Porter

Rufus Porter Museum, Bridgton, Maine

In Boston Rufus Porter continued to work simultaneously in publishing, painting, and inventing. Henry Bowen, Abel Bowen's brother, printed Porter's *Family Register*, a sheet with boxes to record the vital statistics of a marriage and the names of children as well as birth and death dates. Such prints became increasingly popular in federal America. Like his miniature portraits, Porter presented this early work in a hand-decorated frame.

RUFUS PORTER
American, 1792–1884

A Select Collection of Valuable and Curious Arts, and Interesting Experiments, Which are Well Explained and Warranted Genuine and May Be Performed Easily, Safely, and At Little Expense
Concord, N.H.: J. B. Moore, 1826, second edition

Maine State Museum, gift of Christopher P. Monkhouse

Porter must have been encouraged by the sales of his small *Select Collection* of 1820–21, for he soon found Jacob Bailey Moore in Concord, New Hampshire to print his revised and enlarged edition of 102 pages in 1825. The book saw five editions through 1826. Among the dozens of art instructions and chemistry experiments that Porter compiled, his description of landscape scenery was further promoted by picturesque woodblock prints as the frontispiece. These "Sketches of Landscapes" are attributed to Abel Bowen, the Boston engraver who worked with both Porter and Moore.

ABEL BOWEN
American, 1790–1850

The Columbian Museum, 1811
woodblock print

Courtesy of American Antiquarian Society, Worcester, Mass.

Once he had relocated to Boston, Porter's endeavors expanded with the help of new collaborators. One of the most influential was Abel Bowen, whose uncle Daniel Bowen founded The Columbian Museum in 1795. A magnet for the curious, the museum's collection resembled the one Porter knew at Fryeburg Academy, but its 110-foot long building contained "upwards of 20,000 curiosities," including wax figures of Benjamin Franklin and Napoleon Bonaparte, emperor of France. Immersed in Boston's print world, Abel Bowen produced the museum's advertising broadsides, such as this one, and assisted Porter with his new projects.

ABEL BOWEN

American, 1790–1850

The Naval Monument: Containing Official and Other Accounts of All the Battles Fought Between the Navies of the United States and Great Britain During the Late War
Boston, Massachusetts: Abel Bowen, 1816.

Courtesy of the George J. Mitchell Department of Special Collections & Archives, Bowdoin College Library

In 1816 Abel Bowen produced *The Naval Monument*, commemorating American achievements during the War of 1812. He created engravings, seen here, based on oil paintings by Michele Felice Cornè, the Italian-born ornamental artist who also decorated interiors of Massachusetts and Rhode Island houses. Bowen and his brother Henry Bowen soon helped Porter realize his *Family Register* and *Revolving Almanack*, on view nearby. Abel Bowen likely introduced Porter to Cornè during these collaborations. *The Naval Monument* would have appealed to Porter and other Portland residents. The 1813 engagement of the *U. S. S. Enterprise* and the *H. M. S. Boxer* off the coast of Maine resulted in a stirring American victory. Tragically, however, both young captains were mortally wounded and the damaged ships were brought into Portland harbor. Following an elaborate cort*è*ge, the captains were buried in Portland's Eastern Cemetery, below the Observatory. As a militia musician, Porter may well have participated in the solemn military procession.

~~JAN VAN DE VELDE II~~
~~Dutch, ca. 1593–1641~~

~~*Landscape with Pigs and Two Pedlars*, plate 4, 1616~~
~~etching~~

~~Gift of Charles Pendexter~~
~~2009.16.744~~

~~A Dutch engraver and painter, Jan van de Velde II depicted landscapes, animals, and still lifes. This charming etching of two peddlers strolling past a farmhouse is from his series of landscapes of Holland's Haarlem countryside. It exhibits an eye for incidental detail and appreciation for journeying along the region's scenic roads, qualities that were typical of Dutch artists. Itinerant peddling emerged in Europe when new trade routes opened during the fifteenth century and flourished during the sixteenth and seventeenth centuries. Whether poor peasants obliged by circumstance to strap baskets to their backs or professional merchants seeking new markets, peddlers brought novelty and occasionally luxury to rural customers. Two hundred years after this print was made, Porter traveled more modern circuits painting portraits and making professional connections.~~

The Polymath at Work

From Billerica, north of Boston on the Middlesex Canal, Porter continued painting and mechanical engineering, expanding his network of clients and collaborators. Examples of his miniature watercolors reveal his stylistic development and increasing mastery of his medium. His sophisticated panoramic wall murals decorated the homes of his middle-class patrons. His improved clockworks, among many other inventions, responded to the era's fast-paced modernization and appreciation for standardization and efficiency. He relocated to New York City in the 1840s to pursue new opportunities for mechanical invention. Once there, he seized the chance to disseminate useful knowledge as publisher and editor of three different scientific newspapers, most notably *Scientific American*, which he founded in 1845 and

which continues to thrive today. In these efforts, Porter helped democratize art and invention for Americans.

RUFUS PORTER and STEPHEN TWOMBLY PORTER
American, 1792–1884 and American, 1816–1850

Francis Howe House Mural (first-floor hall), cycle signed and dated 1838
digital reproduction of 69 x 123-1/2 inch distemper-on-plaster mural

Courtesy of Julie Lindberg

A brilliant muralist, Porter created expansive spatial designs on all four sides of a room, immersing residents in breathtaking panoramic landscapes. A nearly full-size reproduction of one of Porter's finest murals, this scene features a bay with ships, mountains, islands, fences, and trees, reminiscent of Portland's landscape. With masterful technique and perspectives, Porter offered these ornamental paintings to members of the middle class, believing that anyone could have access to the arts at modest cost. The scenery also expressed the cultural phenomenon known as American Fancy that was based in Enlightenment thought. The imaginative use of color, pattern, and motion of American Fancy designs engaged the mind and senses. Porter's murals inspired followers throughout New England, but none surpassed him.

UNIDENTIFIED MAKER
British

Paint Box, 1825–1875
mahogany, pine, pigments, ceramic, brass

Historic New England, Collections and Conservation Center

This watercolor paint box represents a type favored by professional and amateur artists because of its portability. As one might expect, Porter created his own version using a length of wood with depressions to hold his liquified colors. Like other watercolorists, Porter used many of the same pigments found here, including burnt umber, chrome green, lake blue, and raw sienna.

Attributed to RUFUS PORTER
American, 1792–1884

Greenleaf-Plummer Family Group, 1821
watercolor

Courtesy of Julie Lindberg

This family group dates to Porter's 1821 stay at Brown's Tavern in Haverhill, Massachusetts, a thriving manufacturing town 24 miles from Billerica. Porter's newspaper advertisement is reproduced nearby. Brown's was an important transportation hub and Hiram Plummer, depicted on the far right, managed its connecting stage lines. He is believed to have commissioned Porter with the five portraits for which Porter charged two dollars each. Plummer's wife, Eliza Greenleaf Plummer, is seen on the far left, with William Greenleaf, her father, at the center. The other two sitters are thought to be Eliza's younger

siblings, Samuel and Sophia Greenleaf. By this time, Porter effectively modulated light and shadow, evidenced by his handling of the white beads of Eliza's necklace.

Attributed to RUFUS PORTER
American, 1792–1884

Sarah Warland Porter, ca. 1819–1821
watercolor on ivory

Courtesy, Pamela and Brian Ehrlich

Attributed to RUFUS PORTER
American, 1792–1884

Abraham Edwards, ca. 1819–1821
watercolor on ivory (right) and watercolor on paper (left)

Courtesy, Pamela and Brian Ehrlich

After settling in Cambridge around 1819, Porter received one of his largest known commissions—seven portraits of the Warland-Porter-Edwards family, three of which are displayed here. While Porter's handbill reveals that he painted on ivory, only two extant examples are known, both on view. Thin slices of ivory, cut from tusk or whalebone, were expensive and time-consuming to prepare. However, its luminosity and creamy richness justified its cost–four times that of watercolor on paper. Sarah Warland Porter was the second wife of Israel Porter; together they ran the Anchor Tavern, hosting a variety of events and Harvard University students. Abraham Edwards, Israel Porter's grandson, graduated from Harvard in 1819, and his miniatures may have been a celebratory commission.

Attributed to RUFUS PORTER
American, 1792–1884

Jonathan Smith and his wife *Pamelia Moors*, 1825
watercolor, ink, and graphite, original églomisé glass and gilt frame

Courtesy of Julie Lindberg

The portrait of Jonathan Smith, a tailor, and his wife Pamelia Moors is the only known double portrait attributed to Porter. Because the couple married in 1825, family descendants long considered the work a wedding portrait. The well-modulated light gives the sitters a three-dimensional quality. Its original gilt frame further enhances the likenesses.

Attributed to RUFUS PORTER
American, 1792–1884

Unidentified Gentleman, ca. 1825
watercolor, ink, and graphite

Private Collection

Porter's use of the camera obscura not only ensured a correct likeness but it also reduced the time required to complete a portrait. He promoted ten-minute sittings. Porter understood the nature of his pigments, and his sophisticated use of them gave intensity and gravitas to his compositions. His sitters have a direct forward gaze and their pupils a distinctive oval shape. The hollow of their ears is drawn with a unique C-shape and a deep reddish line separates the lips, also seen in this portrait.

Attributed to RUFUS PORTER
American, 1792–1884

Hannah Trow Flagg, *Timothy Flagg*, *Martha Swan Flagg*, *John D. Flagg*, ca. 1830
watercolor and ink

Courtesy of Julie Lindberg

While living in Billerica, Porter depicted the Flagg family in nearby Andover: publisher Timothy Flagg; his wife Hannah Trow Flagg; and their children, Martha and John. In an era of high mortality rates, Porter's likenesses of children were especially endearing. His exacting style animates Martha's blue dress, delicate hair ribbon, and coral necklace. As a publisher, Flagg appreciated the advantages of high-quality paper. Hannah's sheet bears the impressed blind stamp "Superfine London Board," denoting paper made by James L. and John Turnbull in London, England. Its quality has contributed to the miniatures' fine condition almost two hundred years later.

Attributed to RUFUS PORTER
American, 1792–1884

Joseph S. Adams and Sarah Wetherbee Adams, 1833
watercolor

Collection of Ched and Sandy Cluthe

Porter's output of miniatures declined during the 1830s as he turned his attention to mechanical inventions and other pursuits. Of the 120 miniatures attributed to him, only eighteen date after 1830. These compelling likenesses of a Harvard, Massachusetts cabinetmaker and his wife were painted not long after their marriage in 1830. They are in fine condition and their quality reveals Porter's mastery of his medium. They also reveal his stylistic shift to frontal poses and modeling with stippling and cross-hatching.

Attributed to RUFUS PORTER
American, 1792–1884

Jane Noyes Gage and *Joseph Nichols Gage*, ca. 1838
watercolor and ink with printed type

Courtesy of Julie Lindberg

Joseph Nichols Gage, a trader from Merrimack, New Hampshire, and Jane Noyes, his second wife, are Porter's last known portraits of identified sitters and likely date to the time of their 1837 marriage. The printed names on the sheets are uncommon.

UNIDENTIFIED PHOTOGRAPHER
American, nineteenth century

Daguerreotypes of a woman and her three children holding a miniature portrait by Rufus Porter, ca. 1847
sixth-plate daguerreotypes, cased together

Private Collection

Porter's last known miniatures of identified sitters coincided with the advent of photography. Perhaps surprisingly, for all his artistic and technological know-how Porter exhibited no interest in pursuing this new medium. In the pendant portraits seen here, an unidentified mother and her three children hold a miniature of an unknown man (possibly the spouse and father) that is attributed to Rufus Porter.

RUFUS PORTER and STEPHEN TWOMBLY PORTER
American, 1792–1884 and American, 1816–1850

Francis Howe House Mural (second-floor hall), dated 1838
distemper paint on plaster

Courtesy of Julie Lindberg

Porter's best documented panoramic murals decorated Massachusetts houses. Although some still survive in their original interiors, this mural, along with the rest of its cycle, was removed before the Francis Howe house in West Dedham (now Westwood) was demolished in 1965. Featuring a large cupolaed building—probably an academy—it decorated the second-floor hall, extending the mountainous landscape of the two-story stair wall (seen in digital reproductions on the adjacent touchscreen). Porter's perspectives—fore-, middle- and backgrounds—were more finely developed than those of many of his followers. His arching elm trees and "wild shrubbery" were among the many details he later described in his *Scientific American* "Art of Painting" series in 1846 and 1847.

Photographs on iPad

RUFUS PORTER and STEPHEN TWOMBLY PORTER
American, 1792–1884 and American, 1816–1850

Francis Howe House Murals (front hall), signed and dated 1838
Digital reproductions of in situ photographs taken by Shaw Photo Service, Boston, Mass., in 1927.
Courtesy, Westwood Public Library, Westwood, Mass.

Of the many New England wall murals attributed to Rufus Porter, only three cycles bear his signature. Those from the Francis Howe house in West Dedham (now Westwood), Massachusetts, signed and dated 1838 on the staircase wall, are among his most significant. Removed before the 1965 demolition of the Howe house, they survive today in a private collection.

In 1927 scholar Louise Karr first identified Porter as the artist of these murals in her article in The Magazine Antiques. Photographs taken then, and digitized on this iPad, reveal their immersive quality and original configuration. The adjacent mural of an academy building on a hillside originally decorated the wall at the top of the stairs. The color reproduction at the entrance of this gallery depicts a large bay with islands from the first-floor hall.

Porter's iconography–bays, islands, mountains, towers, elms, and fences–can be found in other murals attributed to him, but his imagination was too great to duplicate them. He noted that "prominent objects and scenes may be oft repeated, though under different arrangements."

To learn more about these murals,
select thumbnail images on this iPad.

NATHANIEL CURRIER
American, 1813–1888

The Tomb and Shade of Napoleon, 1835–56
lithograph

Courtesy of Julie Lindberg

Long fascinated by the life of Napoleon, Porter included the French emperor's silhouette in a narrow scene flanking a doorway in the Howe House's first-floor hall. Nathaniel Currier, a Massachusetts native, began as an apprentice at Pendleton's print shop in Boston, the first successful lithographic business in the United States. In 1834 Currier moved to New York where he would soon join forces with James Ives to create popular art prints. Aware of current print production, Porter incorporated this imaginative imagery shortly after it was produced.

Porter used Currier's image in his Francis Howe house murals.
Courtesy of Julie Lindberg.

MOSES EATON JR.
American, 1796–1886

Work Box with Stencil Kit, 1825-1845
eastern white pine box, paper stencils, wooden stamps, and natural bristle brushes

Historic New England, Collections and Conservation Center

Moses Eaton was, like Porter, an itinerant decorative painter. Where Porter specialized in freehand landscape scenery, Eaton worked in stencils whose repeating elements created room-sized designs. Eaton's work box survives along with dozens of geometric designs cut from thick cardboard, some of which are displayed here. They range in size from several inches to over one foot. Porter also used stencils but limited their use to small elements whose placement depended on the exact perspective of the scene. The paint brushes seen here are of the type that Porter would have used.

WALTER COREY
American, 1809–1889

Side Chair, ca. 1840
painted and stenciled wood with caned seat

Gift of William D. Hamill's Family

2016.6

EUNICE THOMPSON WILSON
American, 1788–1878

Pastoral Landscape, ca. 1806
watercolor and silk on silk, églomisé and gilt frame

Gift of Mrs. Ann Henry Wilson Pendleton, 1898

In his *Curious Arts*, Porter offered technical advice on art materials and processes intended "to combine recreation with improvements in useful knowledge." The two objects on view here—an embroidered picture on silk and a side chair—illustrate some of his instructions. The *Pastoral Landscape* was created by Eunice Thompson Wilson of nearby Topsham, Maine as part of her formal schooling. Porter discussed how to decorate such a frame with its black and gilt reverse-painted mat proudly bearing her name. Grain-painting, represented by Walter Corey's side chair, was a popular way to imitate costly hardwoods, such as mahogany or rosewood, and Porter also described this technique.

RUFUS PORTER, designer and JOSEPH H. CENTER, maker
American, 1792–1884; American, 1799–1871

Percussion Cap Revolving Rifle, 1826
iron and wood

Wadsworth Atheneum Museum of Art, The Elizabeth Hart Jarvis Colt Collection

Porter served in the Portland Light Infantry, an independent militia company, before and during the War of 1812. John Hancock Hall, a lieutenant in the company, was a brilliant inventor who patented a breech-loading mechanism for rifles that enabled rapid reloading and increased accuracy. In 1826, likely inspired by Hall, Porter produced this percussion-cap revolving rifle with the aid of Joseph H. Center, a Portland-born machinist. The advantage of Porter's design was that, unlike previous firearms, simply cocking the hammer rotated the gun's cylinder. Ten years later Porter sold it, and all production rights to the design, to Samuel Colt, a Connecticut farmer-turned-inventor. Colt achieved wealth and fame with his revolver, while Porter turned his attention to a series of other mechanical improvements.

Attributed to RUFUS PORTER, clockwork mechanism
American, 1792–1884
UNIDENTIFIED CABINETMAKER

Tall Clock, ca. 1834
Dial inscribed "R. Porter / Billerica, Mass."
cherry, metal works, enameled dial

Private Collection

Porter played a part in the transformation of America from an agrarian to an industrial society. Railroad schedules and shifts for factory workers required the regulation of time, and Porter embraced the challenge of these new needs, experimenting with ways to perfect timekeeping. From 1833 to 1837, his son Rufus King Porter apprenticed to a clockmaker in Bristol, Connecticut, while Porter "devoted all my leisure time … until I had perfected a lot of clocks." Among the innovations he developed for this clock are unique brass plates and hardware for securing the wheels. Porter's fascination with clocks marks the

beginning of the period in his life when he turned his attention away from making art and towards mechanical improvements and inventions.

RUFUS PORTER
American, 1792–1884

Scale of Signals of Porter's Improved Telegraph from *Mechanics' Magazine, and Register of Inventions and Improvements*, October 1834

Courtesy of American Antiquarian Society, Worcester, Mass.

Considering Porter's fascination with machines and commitment to disseminating knowledge, it is no wonder that he turned his attention to telegraphic communication, specifically semaphore telegraphy. Prior to Morse's electric telegraph, semaphore lines employed visual displays, typically movable arms on tall masts, to transmit information across distances. In an 1834 letter to *Mechanics' Magazine*, Porter outlined an "improved telegraph," whereby even a young lad could manipulate articulated masts to express one hundred alphabetic letters and convey "any piece of information … from New-York to Boston in sixteen minutes." To attract a buyer, he hazarded a few guesses about how his signal system would make money: shipowners, newsmen, and lottery operators, he predicted, would benefit from the service.

RUFUS PORTER
American, 1792–1884

Useful Inventions from *New England Farmer, and Gardner's Journal,* August 1836

Courtesy of Minnesota Historical Society

As Porter turned from the visual arts to technological engineering, he likely knew the financial risk. Competition was fierce and the American patent system was notoriously unpredictable. Porter, therefore, frequently depended on public investors. This notice in *New England Farmer, and Gardner's Journal* typifies Porter's calls for investment. He proposed putting ten of his most useful "labor-saving machines," including an improved water wheel, into a $20,000 joint-stock company. He continued to sell shares in his different ventures, first and foremost to raise capital. Porter's regular establishment of joint-stock companies also demonstrates his impulse to connect individuals to emerging technological and economic networks.

RUFUS PORTER
American, 1792–1884

The Sensitive Fire-Alarm Patent Model, 1840
Inscribed "The / Sensitive Fire-Alarm / Invented by /Rufus Porter, /Billerica, Mass. 1840"
metal, reverse-painting on glass, painted wood

Hagley Museum and Library, Wilmington, Delaware,
E. Tunnicliff Fox Collection

Porter's *Sensitive Fire-Alarm*, a "new and useful machine for giving early notice of accidental fires," used a clock spring to activate a bell. This rare surviving patent model is signed and dated. Also noteworthy is the reverse painting on the alarm's glass door, which followed Porter's instructions from his *Curious Arts*. Moreover, the gabled house and fence echo imagery found in Porter's wall paintings, further evidence

that he was truly an interdisciplinary designer whose mind's eye ranged across scales large and small. Porter's drawing for patent number 1,915 is reproduced nearby.

RUFUS PORTER, designer and UNIDENTIFIED ENGRAVER
American, 1792–1884

Plumb and Level Indicator, New York, New York, ca. 1846
printed inscription: "PLUMB & LEVEL INDICATOR. MANUFACTURED BY R. PORTER NEW-YORK."
hand-colored engraving, metal pointer, wooden frame

Gift in memory of Robert Thayer
2018.24

Porter's *Plumb and Level Indicator* demonstrates his myriad talents. He designed the mechanical device to communicate useful information efficiently, adorned it with a representation of masons against a watery landscape, and advertised it in *Scientific American*, the journal he had founded one year earlier. "Every carpenter, mason, brick-layer, and mill-wright," the advertisement read, "will readily appreciate the utility of a more ready method of ascertaining the position of grounds, walls, and timbers." As useful as Porter's level may have been, it testifies more powerfully to his talent as a graphic designer. He fit decorative filigree, numbers, measurements, letters, and a visual representation of balance into the small frame.

Rufus Porter's New York Newspapers

Between 1841 and 1848 Porter owned and edited three newspapers. His bold graphics not only appealed to a wide audience but also embraced imagery grounded in the visual culture of the time. Porter designed the mastheads and collaborated with several different New York engravers to realize them. They are displayed here in chronological order from top to bottom. The first masthead for the *New York Mechanic* of 1841 features a classical building resembling the former United States Patent Office Building (now the Smithsonian's Donald W. Reynolds Center for American Art and Portraiture). Below, a roundel enclosing a bent arm, holding a hammer, symbolized industry and labor. Flanking scrolls incorporate a semaphore communication system (on left) and gears (on right). In 1842 he renamed the paper the *American Mechanic* in his aim to reach a national audience. He slightly revised, and reversed, the *New York Mechanic*'s principal elements for the new *American Mechanic* masthead.

The *Scientific American*'s masthead of 1845, his finest and most compelling, illustrates Porter's vision for the coupling of distant worlds. Mirror images of footbridges, waterways, and steamboats, centered on a temple of learning, connect foreground to background, the horizon to near space, and, by implication, rural provinces to his New York office. Porter included many favorite motifs, notably waterfalls and windmills.

With his *Scientific Mechanic* in 1847, Porter embraced "everybody except loafers and those who neglect to read and patronize newspapers." The masthead illustrates Porter's highest ideals about the mechanical arts, national progress, and the communication networks that propel them. A balustrade with interlocking gears drives an allegorical mechanical system comprising two discs—one promoting "National Honor / Personal Happiness / Health," and the other "Universal Prosperity / Facilities of Trade / Wealth." A semaphore signal sprouting from the gears, again, symbolizes the journal's broadcasting of knowledge.

Porter published a new mechanical invention on the front page of each issue. Two of them are reproduced here: "Horse Power Boat" (*American Mechanic*, September 24, 1842) at left, and his prescient "Steam-Carriage for Common Roads" (*Scientific American,* October 2, 1845), on the right.

RUFUS PORTER, designer; UNIDENTIFIED ENGRAVER
American, 1792–1884

Scientific American, January 1, 1846

Courtesy of the American Antiquarian Society, Worcester, Mass.

RUFUS PORTER, designer, CHARLES P. HUESTIS, engraver
American, 1792–1884; American, dates not recorded

New York Mechanic, May 8, 1841
Courtesy of the American Antiquarian Society, Worcester, Mass.

RUFUS PORTER, designer; BOOKHOUT & SIMONS, engraver
American, 1792–1884; American, working dates not recorded

American Mechanic, April 2, 1842

Courtesy of the American Antiquarian Society, Worcester, Mass.

RUFUS PORTER, designer; MAURICE CHARLES, engraver
American, 1792–1884; American, dates not recorded

Scientific Mechanic, December 25, 1847

Courtesy of the American Antiquarian Society, Worcester, Mass.

RUFUS PORTER, designer, CHARLES P. HUESTIS, engraver
American, 1792–1884; American, dates not recorded

New York Mechanic, May 8, 1841

Courtesy of the American Antiquarian Society, Worcester, Mass.

Porter supported Benjamin Franklin's belief that mechanical work and pragmatic thinking should be communal and that newspapers connected progressive Americans to one another. The *New York Mechanic*, his first periodical, covered "useful information and instruction in arts and trades." This issue featured a plan for "Richardson's Accelerated Steam Boat," an invention similar to some of Porter's own. It combined a hydrogen-filled balloon and steam engine to lift a boat off the water and propel it with less resistance.

RUFUS PORTER, designer
American, 1792–1884

Scientific American, December 25, 1845

Courtesy of Julie Lindberg

Scientific American, the oldest continuously published magazine in the United States, stands as one of Porter's greatest accomplishments. Porter believed above all that useful information served democratic principles, and so his first issue featured a statement addressed to the "American public." He pledged to "exercise a full share of independence, in the occasional exposure of ignorance and knavery, especially when we find them sheltered by arrogance and aristocracy." The pages, fittingly, roamed across a world of boundless inquiry, curiosity, humor, and wit. The notion of "Ship Transportation on Railroads" epitomizes Porter's obsession with hybrid technologies.

RUFUS PORTER, designer; [WARREN C.] BUTLER, engraver
American, 1792–1884; American, 1826–1878

"Broadway Elevated Railroad," *Scientific American,* January 1, 1846

Courtesy of the American Antiquarian Society, Worcester, Mass.

Porter's "Broadway Elevated Railroad" exhibits his aptitude for holistic thinking. Appearing on the cover of *Scientific American*, his proposal explained the benefits for the trains crossing the raised tracks as well the pedestrians and residents below, who would be spared having the "noisy and dangerous omnibuses" on the streets. The city's first elevated railroad, the Ninth Avenue El, commenced operation just 22 years later, in 1868.

MAURICE CHARLES, engraver
American, dates not recorded

"Inventors' Institute," *Scientific American*, March 6, 1847
Image Courtesy of the American Antiquarian Society, Worcester, Mass.

After Porter sold *Scientific American* in 1846 to Orson Desaix Munn and Alfred Ely Beach for $800 and before he started his next periodical, *Scientific Mechanic*, reports emerged about a proposal to establish an American Inventors' Institute. The organization's shareholders planned to "foster inventive genius" by providing funding and workshops to promising mechanics. Solomon Andrews, a successful inventor and later a pioneering aeronaut, spearheaded the idea. Porter was an important supporter of the enterprise and frequently reported on it in *Scientific Mechanic*. Maurice Charles's engraving represents buildings owned by the Perth Amboy Manufacturing Company in New Jersey, where Andrews proposed establishing the institute. The enterprise failed, however, due to legal and financial complications.

Aerial Navigation

At the height of his career in the 1850s, Porter was known for his "aerial steamer," which he also called a "travelling balloon" or "aeroport." The first gas balloon, aptly named the *Globe*, had launched from a park in Paris in 1783. Witnessing the ascent, Benjamin Franklin was mesmerized, seeing heavier-than-air flight as symbolic of freedom and opportunity. Porter had dreamed of flying as a boy in Maine—when he was taken with the "aerial locomotion [and] the motions of … barn swallows"—and, like Franklin, he came to see flight as a Utopian technology. By 1834 he was presenting the main principles of his "flying machine"—a cigar-shaped balloon with an underslung cabin powered by a steam engine. Porter then promoted his design in journals, a pamphlet titled *Aerial Navigation*, and by demonstrating small flying models to public audiences in New York and Washington, D. C. To raise enthusiasm and funds, Porter formed a stock company and in his published writings advanced an optimistic futurism that verged on idealistic hyperbole and was easily lampooned by satirists.

RUFUS PORTER
American, 1792–1884

Travelling Balloon, or Flying Machine from *Mechanics' Magazine, and Journal of the Mechanics' Institute*, November 8, 1834

Image courtesy of the American Antiquarian Society, Worcester, Mass.

Porter first proposed a "travelling balloon" in an 1834 letter to the editors of *Mechanics' Magazine*, published in New York. He included this illustration of the apparatus in his letter. Porter explained that the balloon would be 500 feet long and 50 feet in diameter and that a suspended cabin or "stage" would accommodate passengers. "Motion," he added, "is communicated to … spiral fans, from a steam engine of ten horse power, having a boiler of a light portable kind, and situated on the after part of the stage." Initially Porter believed an operable passenger aircraft was decades away. He wrote, "such is my plan for flying … I shall indulge the hope that some enterprising person will within another seventy years build and put in successful operation a manageable balloon."

RUFUS PORTER
American, 1792–1884

Aerial Navigation: The Practicability of Traveling Pleasantly and Safely from New-York to California in Three Days, Fully Demonstrated (back cover), 1849

On loan from the Collections of the Minnesota Historical Society, Manuscript Collection, William Markoe & Family Papers

Fifteen years after first proposing his "travelling balloon," Porter believed that aerial locomotion was imminent. He published *Aerial Navigation*, his magnum opus on the subject in 1849, with the objective of stimulating interest and raising money to build a flying steamer. His strategy was obvious but clever: he proposed using them to transport prospectors to California's gold fields. The back cover of the pamphlet featured a new illustration of an "aerial locomotive." It closely resembles his 1834 "travelling balloon" with the exception of the underslung cabin, which he modified to be more aerodynamic. To establish the feasibility of flying, Porter claimed only three principles need to be communicated: "first, that a vessel containing hydrogen gas is buoyant in atmospheric air; second, that a revoloidal spindle of any size may be propelled through the air at a rapid rate, without any considerable atmospheric resistance; and third, that a spiral fan-wheel or screw propeller will effect a propulsive power by action on atmospheric air."

WINSLOW HOMER
American, 1836–1910

Rocket Ship, 1849–1850
graphite

Museum of Fine Arts, Boston. Gift of Edwin A. Wyeth

As a young boy growing up in Massachusetts, Homer showed an aptitude for drawing. During the Gold Rush, after his father left home to seek his fortune in California, the teenager made this humorous sketch. Sitting astride a rocket, the pilot—with wheelbarrow, pick, and shovel tied onboard—steers over New England's roof tops and steeples as he heads toward the Rocky Mountains, aiming for a perilous landing amid miners hard at work. The pilot has lost his top hat from the speed.

ANDREW DONNELLY
American, working 1840s

Mr. Golightly, Bound to California, ca. 1849
lithograph

Prints and Photographs Division, Library of Congress, Washington, D. C.

Humorists had long lampooned the foibles of balloonists and aerial engineers, and by the 1840s satirical prints featuring the fictional character Charles Golightly were popular in England and the United States. Caricaturists typically depicted Mr. Golightly as a confidence man straddling a steam-powered rocket. In 1849, the same year Porter proposed to fly prospectors from New York to gold territory in three days, the print publisher Andrew Donnelly released a lithograph showing Golightly on a rocket "bound to California." Satirical text captures the era's hyperbole—Golightly flies "through the Firmament like a streak of greased lightning on a Telegraphic wire."

NATHANIEL CURRIER
American, 1813–1888

The Way They Go to California, 1849
lithograph

Prints and Photographs Division, Library of Congress, Washington, D. C.

Nathaniel Currier, who established the lithography company Currier & Ives, also satirized Mr. Golightly in 1849. His lithograph *The Way They Go to California* teased the delusional hysteria of Gold Rush fever. Pickaxe-carrying forty-niners scramble desperately to board a vessel bound for California. The unlucky who just miss the ship vow to swim "anyhow," and Mr. Golightly blasts off with a promise to arrive "in advance of the telegraph." Porter's aerial steamer appears in the upper left among these circus ships. It carries impatient miners, some already swinging their pickaxes. Currier rendered Porter's cigar-shaped gasbag as a speech balloon: "Each passenger must provide a boy to hold his hair on."

RUFUS PORTER
American, 1792–1884

Letter to William Markoe, [Washington, D. C.], August 5, 1851

Markoe Family Collection

Despite the ridicule Porter received from satirists, he persevered and continued to promote his enterprise. Of the approximately 700 investors in Porter's Aerial Navigation Company, William Markoe emerged as Porter's most dependable patron and closest confidante. A native of Philadelphia, Markoe had attended one of Porter's demonstration flights of a model aerial steamer in New York in 1849. That year Markoe was ordained as an Episcopal minister and moved to the Midwest. For the next several years Porter and Markoe corresponded about many different subjects, including aerial navigation, religion, and slavery. Almost a year after Congress passed the Fugitive Slave Act in 1850, Porter defiantly stated in this letter to Markoe that he would *not* use "the aeroport to capture runaway slaves and return them to Georgia."

RUFUS PORTER
American, 1792–1884

Aerial Navigation Stock Certificate, issued to William Markoe, 1852

On loan from the Collections of the Minnesota Historical Society, Manuscript Collection, William Markoe & Family Papers

In 1850 Porter moved his base of operations to Washington, D.C. and redoubled his efforts. He attempted to raise capital by publishing informational pamphlets, requesting a $5,000 appropriation from Congress and issuing open stock in his Aerial Navigation Company. This stock certificate belonged to William Markoe, his loyal patron. Porter had offered shares in earlier enterprises, including a wind-powered gristmill in 1818 and an improved rotary plow in 1842.

RUFUS PORTER
American, 1792–1884

Letter to William Markoe, [Washington, D. C.], August 23, 1853

On loan from the Collections of the Minnesota Historical Society, Manuscript Collection, William Markoe & Family Papers

Correspondence between the two men reveals Markoe's astonishing patience with Porter, who mismanaged money and misled investors about the aeroport's progress. On August 23, 1853, apparently addressing Markoe's concerns about the Aerial Navigation Company, Porter wrote: "Oh! William Markoe,—All my successive, combinations of misfortunes, disappointments and adversities, even with the addition of distressing sickness in my family, have not yet moistened my eyes as did your last letter. Now, I am firmly determined that I will never employ a dollar of this money from you, until I can command enough to give me *assurance* of being able to complete the work, without suspension: but will hold it to be returned to you, if the work fails of completion." Markoe later conceded that his investment was lost, ruefully telling a friend that he no longer trusted Porter. "Again and again he wrote me that everything was *almost* ready," Markoe explained, "but invariably it would follow that some 'adverse circumstance' had knocked the whole concern on the head until the next season."

RUFUS PORTER
American, 1792–1884

Liberal and Interesting Proposition, ca. 1857
printed broadside

On loan from the Collections of the Minnesota Historical Society, Manuscript Collection, William Markoe & Family Papers

After 1853 Porter drastically curtailed his published writings, proposals for mechanical improvements, and calls for investment. He did continue to correspond with William Markoe until 1857 and, in one letter from November of that year, Porter tried to sell Markoe on a "steam farmer." Enclosed with the letter was a prospectus, titled *Liberal and Interesting Proposition*, that Porter was circulating to advertise shares in the steam-powered tractor. Like so many other ventures he had undertaken, this one failed to catch on. Notably, Porter's November letter did not acknowledge exciting news that Markoe had shared with him earlier that fall—that on September 22, 1857, Markoe had made Minnesota's first aerial ascent, flying a craft of his own design forty-five miles in an hour and a half.

Coda

JOHN SARTAIN after CHRISTIAN SCHUSSELE
American, 1808–1897; American, 1824–1879

Men of Progress, American Inventors, 1863
engraving

Hagley Museum and Library, Wilmington, Delaware

In 1857 Jordan Mott, the inventor of a coal-burning stove, commissioned Christian Schussele to paint a group portrait of American scientists and inventors who "had altered the course of contemporary civilization." Schussele finished the monumental painting titled *Men of Progress* (National Portrait Gallery, Washington, D. C.) in 1862. It depicts nineteen inventors and industrialists—Samuel Colt and Samuel F. B. Morse among them—collected around a table with models of their inventions and beneath a portrait of Benjamin Franklin. John Sartain, a Philadelphia engraver and director of the Pennsylvania Academy of Fine Arts, produced a print of the painting that circulated widely, solidifying the reputations of the inventors. Rufus Porter was not counted as a man of progress. His principal limitation was that he could not manage the financial and human resources necessary for incorporation and large-scale production.

JOHN REUBEN CHAPIN
American, 1823–1894

Armory of the Colt's Patent Fire-Arms Manufacturing Company in Hartford, from across the Connecticut River, from "Repeating Fire-Arms: A Day at the Armory of Colt's Patent Fire-Arms Manufacturing Company," *United States Magazine*, March 1857
engraving

Image courtesy of the George J. Mitchell Department of Special Collections & Archives, Bowdoin College Library

Porter produced a percussion-cap revolving rifle in 1826 (on view nearby) but never patented the design. Ten years later he sold all its production rights to Samuel Colt for $100, and Colt's rifle became one of the most successful inventions of the century. This engraving of the Colt Armory in Hartford, Connecticut appeared in a flattering article about Colt and his manufacturing enterprise in *United States Magazine*. Colt built the manufactory in 1855, just two years before the article appeared. Just as Porter was fading from public view, many of his peers, such as Morse and Colt, were being lauded as American heroes.

CURRIER & IVES
American, active New York, New York, 1857–1907

The Progress of the Century / The Lightning Steam Press. The Electric Telegraph. The Locomotive. The Steamboat, 1876
lithograph

The Metropolitan Museum of Art, Bequest of Adele S. Colgate, 1962, 63.550.377

Rufus Porter lived to mark the nation's centennial in 1876. It was a heady time in America, filled with reflection, prognostication, and celebration. At the United States Centennial Exposition in Philadelphia, pundits, politicians, and the general public could take stock of a dizzying one hundred years. Currier and

Ives produced the lithograph *The Progress of the Century* for the Centennial Exposition. The print extols the virtues of technology, in particular the machines—the railroad, the steamboat, the telegraph, and the steam-powered printing press—that connect Americans across vast distances.

Porter is conspicuously absent from this tribute to nineteenth-century invention. Unlike his celebrated peers, he was unable to scale up his ideas and models to the factory and marketplace. Porter was never a bitter or ungrateful man, however, and he maintained his equanimity and vigor into old age. On May 18, 1876, just before the centennial and a few weeks after he turned eighty-four, he wrote to his son that he had "walked seven miles, besides working six hours in the shop." Porter's legacy lies in his connectedness. He was plugged into the most modern ideas of his era, and his spirit is hitched to our own. Today's engineers and artists–especially those working across disciplines–can find inspiration in Porter's vision. His imaginative and forward-looking innovations linked art and technology in a way that remains relevant even in the twenty-first century.