

# Turning the Page: Technology & Innovation in C19 Books

AN EXHIBITION CURATED BY ELIZABETH OTT







From *Gems from the Poets, Illustrated*. London: Charles Griffin & Company, 1860.

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## Preface

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Thomas Jefferson once wrote, “I cannot live without books.” Today, perhaps more than ever before, books and other forms of recorded texts are of great cultural consequence for us all. Their fate is widely discussed in the public press, by libraries and universities, and by companies of various kinds—from publishing firms to Apple Inc. Their future shape will depend, in great part, on the desires, initiatives, and imagination of the present generation.

Material texts have always played a central role in the life of the University. Anyone who has visited UVA’s Rotunda may recall that the principal room of Jefferson’s architectural masterpiece was once filled with books. Jefferson, an Enlightenment bookman, leveraged his understanding of architecture and books to build a “temple of knowledge” and a center of learning “based on the illimitable freedom of the human mind.” Today, the University is indeed renowned for its scholarship, one of its great strengths being its resources for the study of books as physical objects. It is home to *Studies in Bibliography* (one of the preeminent journals in its field), the Albert and Shirley Small Special Collections Library (which also counts among its rich holdings the world-famous collections of Clifton Waller Barrett [1901–1991] and Tracy W. McGregor [1869–1936]), and Rare Book School (RBS), which annually attracts expert bibliographers and book historians from throughout the world.

Rare Book School’s founding director, Terry Belanger, said on many an occasion, “We cannot deprive the future of the past.” When Belanger brought Rare Book School from Columbia University to UVA in 1992, he for many years supervised a student-run exhibition program in the Rotunda of the University. The “Why Books Matter” Exhibition Series has allowed Rare Book School, under the current leadership of RBS Director Michael F. Suarez, S.J., and its joint sponsor, The Jefferson Trust (an initiative of the UVA Alumni Association), to build upon this important work. Through the present exhibition series, we have put the past into the hands of the future—that is, into the hands of UVA students who seek to understand the past through the rich evidence that printed artifacts afford.



The present exhibition, “Turning the Page: Technology & Innovation in C19 Books,” curated by Elizabeth Ott during her graduate study at the University, celebrates RBS’s twentieth anniversary on Grounds. The exhibition draws on the rich teaching collections of Rare Book School. The objects selected and described by Ms Ott in this catalogue are the products of nineteenth-century technological innovations in illustration processes, printing, publishing, bookbinding, and papermaking. Ms Ott shows how these advances are reflected in the manufacture of a broad range of printed material from the period; you will read about biographies, children’s books, dictionaries, grammars, histories, keepsakes, manuals, memoirs, novels, pamphlets, periodicals, plays, primers, prints, religious tracts, souvenirs, state papers, and more. One might say that here there is, indeed, something for everyone. Enjoy!

BARBARA HERITAGE

*Assistant Director & Curator of Collections  
Rare Book School*

## Turning the Page: A Catalogue

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At the beginning of the nineteenth century, books were still manufactured using many of the same craft skills and techniques used since the introduction of moveable type in the fifteenth century. By the end of the 1800s, the book had changed from a largely handmade object to a mass-produced industrial product. *Turning the Page: Technology & Innovation in C19 Books* draws heavily on Rare Book School’s teaching collections to showcase the technological innovations that helped to transform book manufacture. Highlighted in each case are advances in papermaking, printing, binding, and illustration processes, all of which contributed to a century-long quest to make books more quickly, more cheaply, and in greater numbers than ever before.

One of the driving forces behind innovation in book manufacture was an expanded readership. Literacy rates climbed throughout the century, ensuring an ever-increasing audience of readers from all walks of life. As the middle class expanded, new readers had both the money and leisure to purchase books in every genre, from literary fiction and poetry to science, technology, and political economy. The demand for more books, more variety, and more novelty inspired printers to experiment with every aspect of book production, hoping to find ever more economical ways to manufacture books.

Nineteenth-century bookmakers approached the printing of books as a technological puzzle. Their solutions to that puzzle radically changed what kinds of information could be contained on a printed page, how many people that information could reach, and how quickly that information could spread. Because of their innovative approaches to book production, nineteenth-century bookmakers helped fuel a revolution in human communication.

The items in this exhibition are arranged according to subject headings derived from nineteenth-century circulating library catalogs. English and American circulating libraries were commercial enterprises that allowed subscribers to rent a wide variety of books from a range of genres—a system that reflects nineteenth-century sensibilities about genre and form.

These selections, grouped according to generic categories, are displayed alongside objects that reveal the technological innovations involved in their production. Juxtaposing genre and technology helps to illustrate how



different kinds of reading material, such as daily newspapers, schoolbooks, or scientific texts, drove technology and, conversely, how developments in technology fostered new modes of publishing and reading.

## ILLUSTRATING BOOKS

Illustrated books, magazines, newspapers, and journals enjoyed robust popularity throughout the nineteenth century. In order to keep pace with the demand for illustrated books, artists and printers recovered and refined illustration techniques, and they developed new methods for producing prints. Highlighted here are three processes characteristic of nineteenth-century illustration: wood engraving, steel engraving, and lithography. These new processes and improved techniques allowed illustrations to be produced much faster and in far greater numbers.

## TRAGEDIES, COMEDIES, FARCES

Whether on the London stage or in American drawing rooms, playacting was an integral component of the cultural landscape of nineteenth-century social life. The books and objects in this case showcase how printing technologies, especially illustration, allowed readers to experience drama in the intimate settings of their homes.

“Rehearsing for the Pantomime at Drury Lane Theatre.” *The Graphic Christmas Number*, 1885.

The scenes from the backstage of London’s Drury Lane Theatre catch the comical spirit of nineteenth-century pantomime (FIGURE 1). The tinted chromotypographs, a color relief printing process using metal plates, suit the colorful costumes and lively dance movements of the performers.

*Parlor Theatricals; or, Winter Evenings’ Entertainment*. New York: Dick & Fitzgerald, 1859.

*The Sociable: or, One Thousand and One Home Amusements*. New York: Dick & Fitzgerald, 1858.

Parlor theatricals were a popular Victorian entertainment. They offered a mix of charades, *tableaux vivants*, comedic sketches, and excerpts from contemporary stage productions. Both of these two books include illustrated diagrams for transforming the home parlor into an amateur stage.

Scott, Clement, ed. *The Theatre: A Monthly Review of the Drama, Music, and the Fine Arts*. Volume II. London: Charles Dickens & Evans, 1880.

This collected volume of the periodical *The Theatre* contains Woodburytype illustrations. Invented in the nineteenth century, Woodburytype is a photomechanical printing process; it uses a photographic negative to create a lead mold, that is, in turn, used to produce high-quality images made with colored gelatin. In this book each illustration profiles a famous actor, and is accompanied by a brief quotation and facsimile signature.

*The Select London Stage*. London: G. Balne, 1830.

This book of collected plays is a celebration of British theater from the Restoration period onward. Each play is preceded by a wood-engraved illustration of a dramatic scene while the intaglio frontispiece calls attention to some of the popular actors of the London stage.

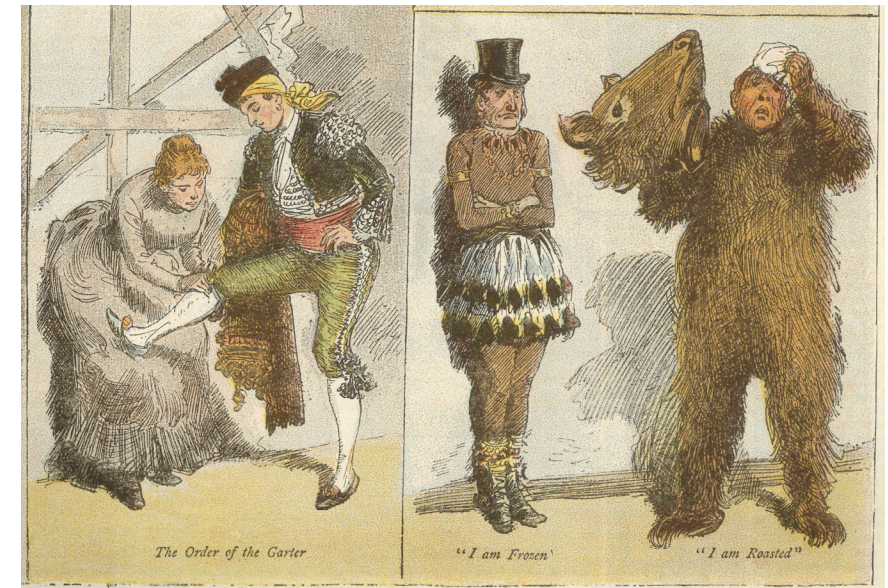


FIGURE 1. Detail from “Rehearsing for the Pantomime at Drury Lane Theatre.” *The Graphic Christmas Number*, 1885.





FIGURE 2. Four-section wood-engraved block for “Hey Diddle Diddle.” Illustration by Ralph Caldecott, block engraved by Edmund Evans, 1882.

## WOOD ENGRAVING AND STEEL ENGRAVING

In the 1790s, Thomas Bewick produced his two popular works, *A General History of Quadrupeds* and *A History of British Birds*. Both books featured wood-engraved relief prints, sparking a century-long revival of the technique. Carved into the harder, end-grain wood rather than the softer plank side, wood engraving allowed artists to create more intricate images from blocks that lasted longer.

Emerson, William A. *Hand-book of Wood Engraving*. Boston: Lee & Shepard, 1881.

This handbook shows how a section of boxwood may be cut into segments on the end-grain and bolted together to form a smooth surface for the artist to carve. Wood engravings can sometimes be identified by the appearance of fine white lines indicating a bolted block.

Four-section wood-engraved block for “Hey Diddle Diddle.” Illustration by Ralph Caldecott, block engraved by Edmund Evans, 1882.

This wood-engraved block presents a scene from the nursery rhyme “Hey Diddle Diddle” (FIGURE 2). The image is created by the raised surface of the block, while the negative space is carved away. In this block, the pieces of wood are beginning to separate at their joints.

Linton, W.J. *Wood-engraving: A Manual of Instruction*. London: George Bell & Sons, 1884.

Wood engraving gets its name from the tools used to carve away the hard surface of the block—the same tools used by an intaglio engraver to produce fine lines on a metal plate.

Despite the name, wood engraving is still a relief process, where a raised surface is inked and printed, rather than an intaglio process, where the ink lies in grooves on a metal plate, below its surface.

Steel-engraved vignette portrait of William Livingston, 1860.

In intaglio printing, fine lines are incised into a surface, usually a metal plate. The plate is inked, then the surface wiped clean. A special high-pressure press is used to print the ink that remains in the fine incisions, producing images with magnificent detail.

Traditionally, intaglio printing employed copper plates. The soft surface of copper plates made them ideal for the engraving process, but also limited the number of impressions that could be produced from a single plate, because the plate would wear. In the nineteenth century, innovative printers began to replace copper with steel, a harder surface capable of sustaining very fine lines as well as lasting longer under the high pressure of the press.

## POETRY AND MISCELLANIES

Lyric poetry in the nineteenth century fulfilled many functions, from didactic verses that instilled moral values, to occasional poems to ornament an idle hour. Invariably, though, poetry was meant to be shared with friends and family. The books in this category emphasize the social role of poetry in creating communities of readers.

Annuals and gift books, like these two “keepsakes,” were books of miscellaneous verse, short fiction, and essays coupled with engravings or other illustrations of popular scenes or persons. They were often given as gifts during Christmas or New Year’s.

Power, Marguerite, ed. *The Keepsake: 1856*. London: David Bogue, 1856.

The ornate gold-stamped design on the red cloth binding of this 1856 *Keepsake* is typical of annuals (FIGURE 3). The volume contains some exquisite engravings, mostly of beautiful women.

Rossetti, Dante Gabriel. *The Complete Works of Dante Gabriel Rossetti*. London: Ellis & Elvey, 1890.

The beautiful gold-on-green design seen on the cover of *The Collected Works of Dante Gabriel Rossetti* was designed by Rossetti himself, as were its endpapers. Rossetti was one of many writers who took an aesthetic interest in books, from a book’s paper and typography to its binding.

Lavater, J. C. *The Little Keepsake*. New York: S. Colman, 1843.

*The Little Keepsake* combines light verse with moral precepts for young children, including advice on humility, veracity, and gratitude. Like its heftier counterpart, it includes many engraved plates.

*Gems from the Poets, Illustrated*. London: Charles Griffin & Company, 1860.

This miscellany is partway between a gift book and a modern-day anthology. The striking illustrations are color wood engravings, including a full-color frontispiece depicting a scene from Byron's *Childe Harold's Pilgrimage*. (FRONTISPIECE)

Milton, John. *The Poetical Works of John Milton*. London: Routledge & Sons, 1853.

Hemans, Felicia. *The Poetical Works of Mrs. Hemans*. London: Frederick Warne & Co., ca 1850.

Illustrated poetry series books, like these, were very popular in the nineteenth century. Series books are editions issued by publishers, sometimes under a series title, that use a consistent and identifiable design template. The practice continues today. Here, works by contemporary poets, like Felicia Hemans, and canonical authors of English verse, like Milton, are both given enhancements such as decorative covers, illustrations, and biographical notes.

## LITHOGRAPHY

Lithography, first developed in the 1790s in Germany by Alois Senefelder, works on the basic principle that oil repels water. The lithographer uses a greasy pen or crayon to draw upon a lithographic stone. When the stone is printed, the oily printer's ink clings to the crayon drawing but is repelled by the blank areas of the dampened stone.

Lithography offers many advantages over both intaglio and relief printing. The image on the flat, planographic printing surface can be removed and replaced, thus extending the life of the stone—unlike relief blocks or intaglio plates, which can only be incised once. Artists also have more freedom of design, drawing designs as they would on paper instead of incising them into the hard surfaces of materials such as wood, copper, or steel.

Richmond, W. D. *The Grammar of Lithography*. London: E. Menken, 1888.

This manual shows a lithographic press. Lithographic presses could be operated much more quickly than intaglio presses. This made lithography particularly suited to the pro-

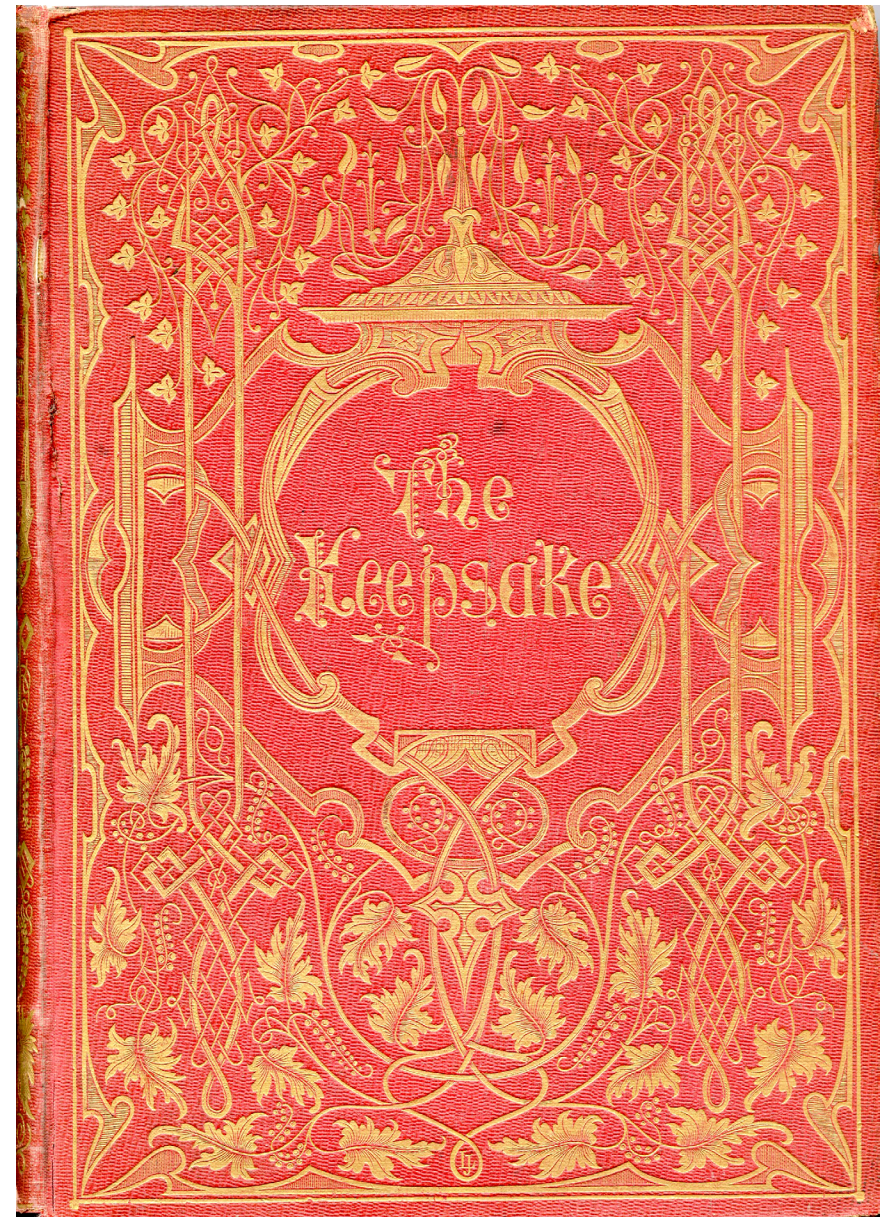


FIGURE 3. Power, Marguerite, ed. *The Keepsake: 1856*. London: David Bogue, 1856.



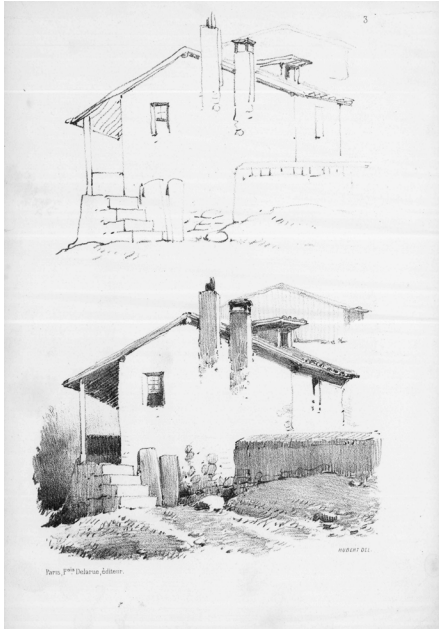


FIGURE 4 . Delarue, ed. Hubert, artist. Chalk-manner lithograph. Paris, 1845.

duction of ephemera. The freehand style made possible by lithography influenced the graphic design of nineteenth-century advertising, allowing for flourishing lines and cursive scripts.

Delarue, ed. Hubert, artist. Chalk-manner lithograph. Paris, 1845.

In the production of chalk-manner lithographs, the stone is roughened and a lithographic crayon is used, giving the finished image the look of a chalk drawing. This print shows two stages in the drawing process, and demonstrates the shading possible in lithography (FIGURE 4).

*Lorraine, Reni, Titian.* Boston: Houghton, Osgood & Co., 1880.

In transfer lithography, specially prepared transfer paper is drawn upon, and then the drawing is transferred by rubbing the paper against the surface of the stone. Intaglio plates could be printed on the transfer paper, allowing lithographic reproductions of engravings. Thus, engravings of famous art works could be reproduced through transfer lithography more quickly and more cheaply, while preserving the same detail and subtlety.

*Fores's Sporting Notes and Sketches.* London: Messrs. Fores, 1887.

In these two tinted lithographs, white highlights are achieved by printing the image twice: once with a fawn-colored background, and a second time with the black lines of the image,

allowing the white paper to show through as a highlight. The effect is similar to drawings with highlights added in gouache or white chalk (FIGURE 5).

Leiber, artist. Chromolithograph of St. Anne and the Virgin Mary. Limburgensis diocese, ca 1875.

Chromolithographs employ a separate stone for each color of the final print. This richly colored lithograph of St. Anne and a young Virgin Mary would have passed through the press several times to achieve the rosy skin tones and saturated draperies of the two figures.

## HISTORY AND BIOGRAPHY

In Jane Austen's early nineteenth-century novel, *Northanger Abbey*, the heroine Catherine Morland derides historical narrative, saying, "it is very tiresome: and yet I often think it odd that it should be so dull, for a great deal of it must be invention." Despite her misgivings, history and biography remained two of the most popular genres across the nineteenth century. Readers saw their era as a century of progress, and looked to the past to understand how far they had come and how much they had achieved.

*Old England's Worthies: Gallery of Portraits.* London: Henry G. Bohn, 1853.

This portrait book of England's "statesmen, lawyers, warriors, men of letters and science, and artists" contains two innovations: steel engravings and color wood engravings. The fine lines possible in steel engraving made it ideal for portraiture.

A'Beckett, Gilbert Abbott. *The Comic History of England.* Illustrated by John Leech. London: Bradbury, Agnew & Co., 1897.

Not all histories are venerations. This illustrated book-in-parts pokes fun at England's love of king and country, and especially at its less than chivalric past. Surrounding the cover illustration of a rather long-nosed knight bowing before his lady is a tongue-and-cheek inscription appropriating of the motto of the English Order of the Garter: *Honi Soit Qui Mal y Pense*, or, "Shamed be he who thinks evil of it."

Hanaford, Phebe A. *Daughters of America; or, Women of the Century.* Augusta, Maine: True & Co., 1882.

In addition to First Ladies like Martha Washington (whose bust appears on the cover), this book contains biographies of female artists, missionaries, physicians, travelers, agriculturalists, and more. Its dignified portraits, scattered throughout, lend gravitas to even its most obscure subjects.

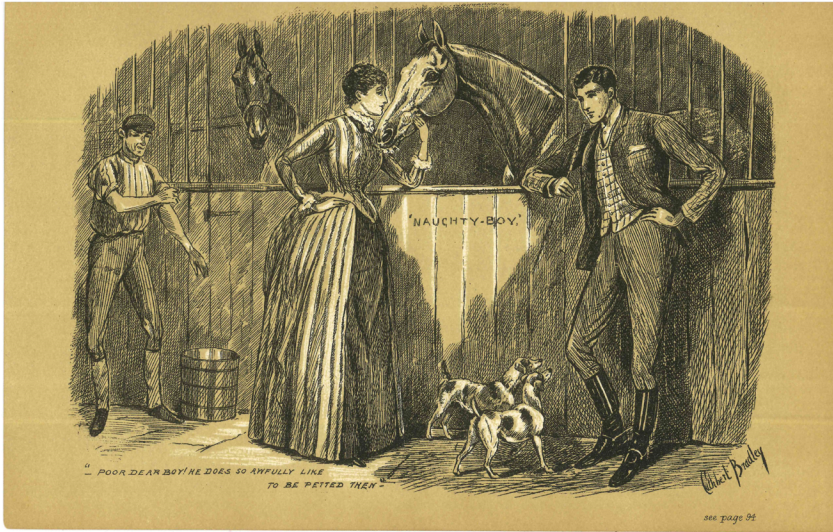


FIGURE 5. From *Fores's Sporting Notes and Sketches*. London: Messrs. Fores, 1887.

*Memoirs of Queen Caroline by Nightingale*. Volume 2. London: J. Robins & Co., Albion Press, 1821.

Despite her troubled marriage to George IV, Caroline of Brunswick was immensely popular with the British public. In the engraved frontispiece, Caroline is depicted visiting a free school, one of the reform causes she championed.

## VOYAGES, TRAVELS AND GEOGRAPHY

Travel changed radically during the nineteenth century as new technologies like railways and steamboats made long journeys faster and less dangerous. Printing and communication technologies evolved in tandem, making it possible for travelers to report their experiences abroad to friends at home. Books set in foreign locales were extremely popular, and even those who never left their parlors could still participate vicariously in the exploits of adventurous voyagers.

*Peter Parley's Book of Travels and Adventures, over Various Countries in Europe*. New York: Derby and Jackson, 1857.

*The Exploring Expedition to the Rocky Mountains, Oregon, and California*. Buffalo, New York: Geo. H. Derby & Co., 1849.

Williams, Charles. *Narratives and Adventures of Travellers in Africa*. New York: Dick & Fitzgerald, ca 1865.

Custer, General G. A. *My Life on the Plains*. New York: Sheldon & Co., 1876.

Hartwig, Dr. G. *The Polar and Tropical Worlds: A Description of Man and Nature in the Polar and Equatorial Regions of the Globe*. Springfield, Massachusetts: C. A. Nichols & Co., 1874.

The decorated covers and spines of these travel narratives show the American appetite for tales of adventure, from Oregon, to Europe, to the interior of Africa (FIGURE 6).

Mollhausen, H. B. *USPRR Ex. & Surveys, 35th Parallel*. New York: Sarony, Major & Knapp, 1850.

Chalk-manner lithography can be used to give an impressionistic effect, as with these lithographs of the American West, reminiscent of an artist's sketch.



FIGURE 6. *Peter Parley's Book of Travels and Adventures, over Various Countries in Europe; The Exploring Expedition to the Rocky Mountains, Oregon, and California; Narratives and Adventures of Travellers in Africa; My Life on the Plains; and The Polar and Tropical Worlds: A Description of Man and Nature in the Polar and Equatorial Regions of the Globe*.



Baedeker, K. *Paris and Environs*. Leipzig: Karl Baedeker, 1891.

Baedeker, K. *Les Bords Du Rhin*. Coblenz: Karl Baedeker, 1864.

The distinctive red covers of these travel guides identify them as “Baedekers.” With colored maps, money conversion tables, and guides to rail travel, these modern little travel guides remained popular throughout the nineteenth century and into the twentieth.

## CAPTURING THE PRINTED PAGE

Printing and publishing books had always involved a gamble. The cast type used to print books was one of the most expensive investments for printers. Leaving type standing (that is, composed and ready to print) was not always possible. But if the book proved popular and the type had already been distributed, the book would have to be reset completely, costing time and money. Over the course of the nineteenth century, printers sought new ways of reproducing set type, so that popular books could be reprinted without resetting. Two of the most popular methods of duplicating composed type were stereotyping and electrotyping. Both processes produced solid plates replicating a page of type.

## AGRICULTURE, DOMESTIC ECONOMY, BOTANY, GARDENING, NATURAL HISTORY

Though the nineteenth century is often characterized by the rise in industrialization and urban spaces, readers had an avid interest in the natural world. Natural history as a professional field developed extensively during the century, but there was also a concurrent amateur interest—especially for women, who were encouraged to study botany and gardening as appropriate feminine accomplishments. The books in this case capture the power of the printed page to engage average readers in the science of the natural world.

*Pinnock's Catechisms; Natural History; Ornithology; General Knowledge; Agriculture*. London: G. & W. B. Whittaker, 1822–25.

These slim, inexpensive, paper-covered guides provide a “pleasing and interesting account” of subjects like agriculture and natural history. Providing mostly practical advice rather than dense technical terminology, these books are aimed at a popular, not a specialist, audience.

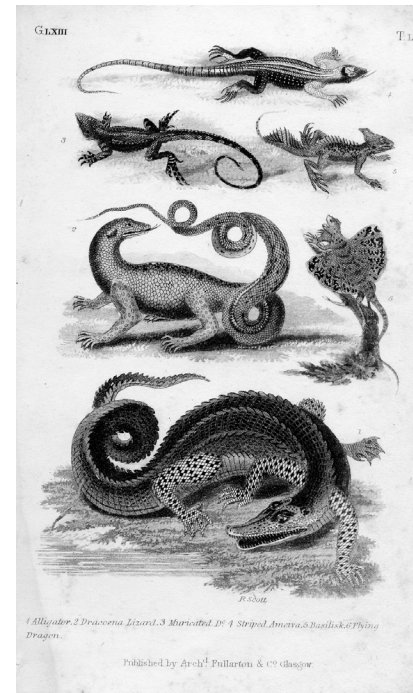


FIGURE 7. From *Natural History Aquatints*. London: Fullerton, ca 1835.

*Natural History Aquatints*. London: Fullerton, ca 1835.

This book of plates celebrates the beauty and variety of animal life. In this image, the soft depth of field made possible by aquatint etching contrasts with the sinuous and spiny alligators and lizards depicted (FIGURE 7).

Domestica, Acheta, M. E. S. *Episodes of Insect Life*. New York: J.S. Redfield, Clinton-Hall, 1851.

*Episodes of Insect Life* delivers careful observation about insect behavior through fanciful stories about their interior lives. Though fictional, the stories emphasize scientific nomenclature.

Wright, Lewis. *The Practical Pigeon Keeper*. London: Cassell & Company, Ltd., ca 1850.

This guide to breeding, housing, and cultivating pigeons for profit is surprisingly attractive given its utilitarian content. The illustrations and text are reproduced from stereotype plates.

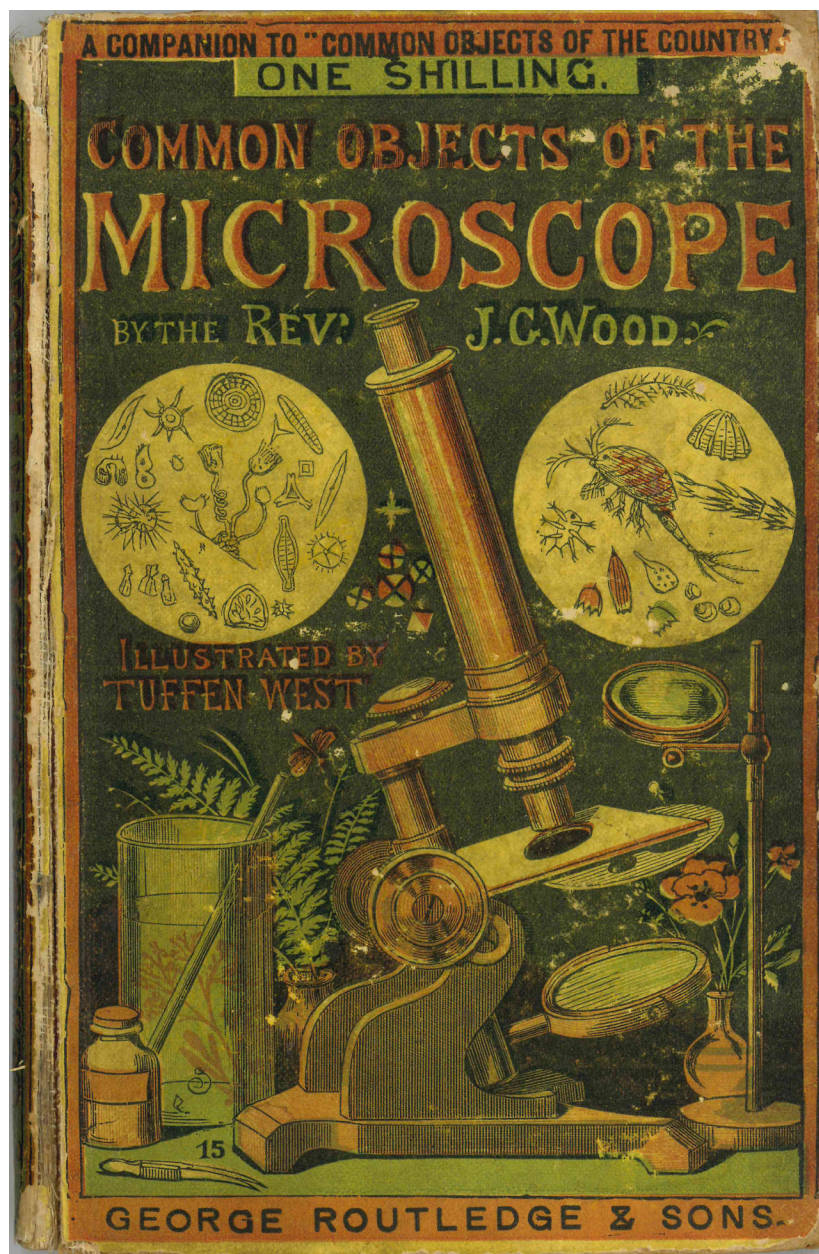


FIGURE 8. Wood, J.G. *Common Objects of the Microscope*. London: George Routledge & Sons, 1861.

## NATURAL SCIENCE AND MATHEMATICS

It seems fitting that one of the most celebrated authors of the nineteenth century, Lewis Carroll, was also a mathematician, and that modern science fiction got its start with nineteenth-century authors like Jules Verne and H.G. Wells. The practical application of science and mathematics had resulted in many technological advancements that had dramatically transformed the lives of nineteenth-century readers. These science and mathematics books reflect a confidence in the achievements of human knowledge and an eagerness to learn.

Euclid, adapted by Oliver Byrne. *The First Six Books of the Elements of Euclid; in which Coloured Diagrams and Symbols Are Used Instead of Letters for the Greater Ease of Learners*. London: William Pickering, 1847.

This edition of the first six books of *The Elements of Euclid* substitutes diagrams, colorful triangles, squares, and other symbols, for the letters traditionally used in geometric figures. The illustrations were probably accomplished by color wood engraving, but may have been reproduced using cast type.

Emerson, Frederick. *The North American Arithmetic*. Philadelphia: Hogan & Thompson, 1849.

Greenleaf, Benjamin. *New Practical Arithmetic*. Boston: Robert S. Davis & Co., 1869.

These two mathematical primers provide concise and economical education to the aspiring scholar. The printed, paper-covered boards offer diagrams and illustrations as examples of the books' interior contents.

Nichols, James R. *Fireside Science*. New York: Hurd & Houghton, 1872.

If you need to know the chemistry of a cigar, or the composition of human hair, this popular science book contains the key to life's mysteries.

Wood, J.G. *Common Objects of the Microscope*. London: George Routledge & Sons, 1861.

This slim volume contains little information in the way of text, but many illustrations. The book's inexpensive cost (displayed on the cover) is amply accounted for by the profusion of advertisements for other series books contained within it (FIGURE 8).



## STEREOTYPING AND ELECTROTYPING

For stereotype, a plaster cast is made from a set page of metal type. Hot type metal could be poured in the mold, creating a printable plate. Though invented in the eighteenth century, stereotyping reached its zenith during the nineteenth century.

*McGuffey's Pictorial Eclectic Primer*. Cincinnati: Wilson, Hinkle & Co., 1939.

The text of this primer dates from the mid-nineteenth century but was reprinted from stereotype plates in 1939.

Electrotyping is similar to stereotyping in that it uses a mold of standing type as a starting point for generating a replica plate. With the electrotype process, a soft mold of wax or gutta percha is made from the relief surface of the type metal, and is then coated in graphite and then submerged in a bath with a copper rod. When the bath is electrified, the copper is attracted to the graphite surface of the mold, creating a hardened surface of copper, which is then reinforced with type metal.

*A Manual of Magnetism*. Boston: Daniel Davis, Jr., 1848.

This book on magnetism and electricity includes a double frontispiece. Though they appear to be identical images, the left-facing page was printed from an engraved copper plate while the right was printed from an electrotype copy.



FIGURE 9. Electrotype block. *The A. C. Williams Co. Toys, House Furnishing Specialties, and Hardware*. Ravenna, Ohio, ca 1940.

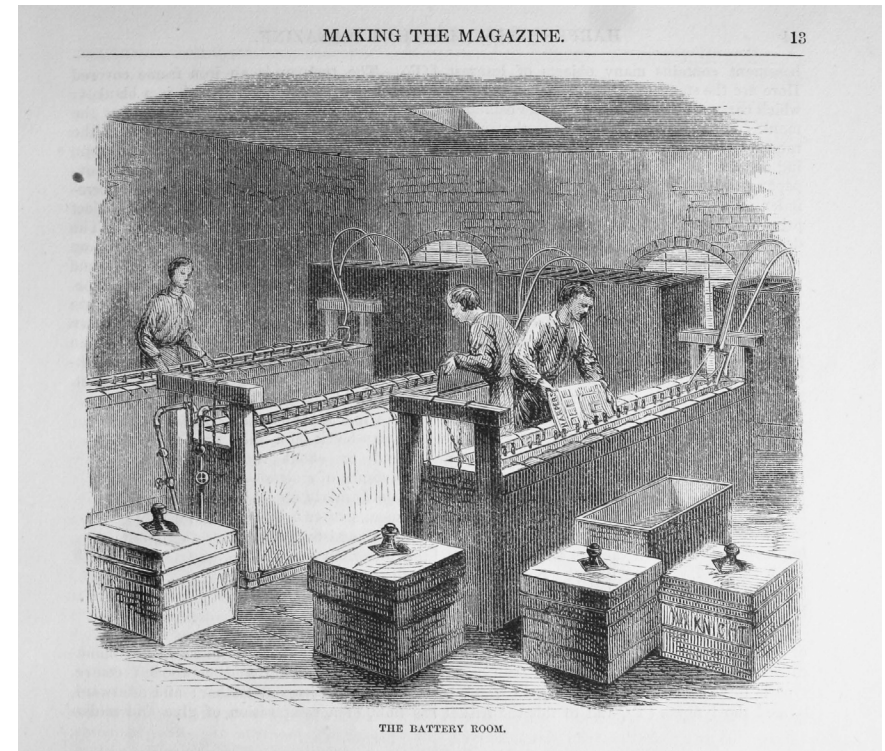


FIGURE 10. From *Harper's New Monthly Magazine*. No. 187, December, 1865: 14.

*Harper's New Monthly Magazine*. No. 187, December, 1865: 14.

This image shows workers pulling electrotype plates from their electrolyte bath (FIGURE 10). These plates, used for printing *Harper's Monthly Magazine*, would be "backed up" by type metal poured into the copper mold to create a sturdy plate suitable for printing.

*The A. C. Williams Co. Toys, House Furnishing Specialties, and Hardware*. Ravenna, Ohio, ca 1940.

This twentieth-century electrotype plate of a toy elephant was created from a wood-engraved block (FIGURE 9). The copper has been mounted on wood in order to make it the correct height for printing in a standard press. This block, which was used to print a toy catalog, shows the continued use of this nineteenth-century innovation in the twentieth century.

## MENTAL, SOCIAL, AND MEDICAL SCIENCE

Bodily health and mental health were seen as twin concerns for much of the nineteenth century. Many medical professionals believed that physical characteristics were linked to moral, emotional, and mental development. The books here explore the ways nineteenth-century readers tried to understand and cultivate both their bodies and their minds.

Reid, Thomas. *Essays on the Powers of the Human Mind*. London: J. Richardson & Company, 1822.

The essays in this three-volume work of moral philosophy by eighteenth-century Scottish philosopher Thomas Reid offer a blend of philosophy and empirical observation about man's use of the senses.

Wayland, Frances, D. D. *The Elements of Moral Science*. Boston: Gould, Kendall, & Lincoln, 1839.

This treatise on the science of ethics boasts that it has been “revised and stereotyped” at the Boston Type & Stereotype Foundry. Though the content is only vaguely scientific, the organization of chapters according to mental faculty lends it authority.

Hollock, Frederick, M. D. *The Male Generative Organs in Health and Disease, from Infancy to Old Age*. New York: T. W. Strong, 1849.

This little handbook is an example of cheap stereotype production—so much so that one of the illustrated plates is bound in upside down.

## CLOTHING THE BOOK

In the nineteenth century, publishers increasingly sought to package their books in covers that were attractive, uniform, and produced in a cost-efficient manner. The adoption of cloth as a covering material, its use in conjunction with case binding techniques, and the flourishing of methods for decorating book cloth all contributed to the advancement of book production. Often bright and colorful, and incorporating a wide variety of styles and designs, nineteenth-century books attracted a diverse range of readers by appealing directly to their clientele.

Advances in binding technologies opened the door for a profusion of decorative bindings for everything from children's books to railway novels. These distinctive paper and cloth covers, whether colored, stamped, gilded, or embossed, reflect the exuberant optimism of the time.

## BOOKS FOR THE YOUNG

Though stories and poems intended for children pre-date 1800, the nineteenth century is generally regarded as the origin point for modern children's literature. With the rise of the middle class came a parallel rise in childhood leisure, as bourgeois children were not required to work and could instead engage in schooling and play with others their own age. A mixture of instruction and entertainment, nineteenth-century children's literature prepared its readers for the respectable roles they would grow into as young men and women.

*Sunday: Reading for Young and Old*. New York: E. P. Dutton & Co., 1884–5.

The colorful cover of this annual for children is printed on paper, with a cloth spine. The scriptural content is enlivened by humorous tales and many illustrations, all designed to appeal to a young reader.

Whittier, John Greenleaf, ed. *Child Life: A Collection of Poems*. Boston: James R. Osgood & Co., 1876.

The demure children depicted on the cover of this book of poetry about childhood by authors famous and obscure reflect the sentimental conventionality of the verses within (FIGURE 11).

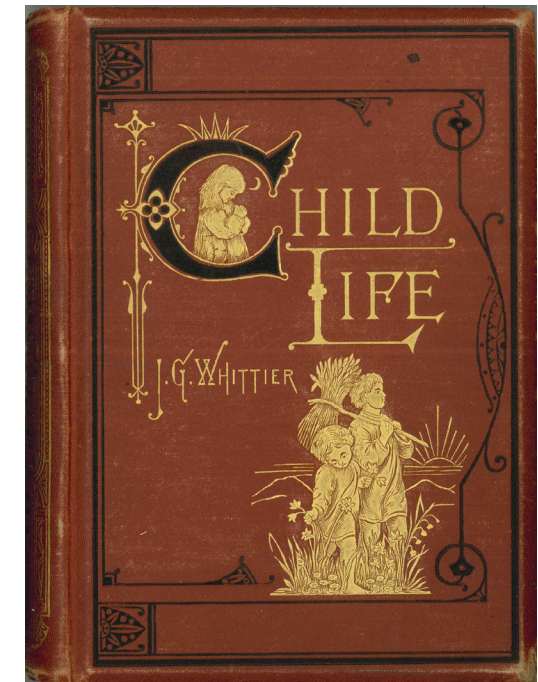


FIGURE 11. Whittier, John Greenleaf, ed. *Child Life: A Collection of Poems*. Boston: James R. Osgood & Co., 1876.



Strickland, Jane. *The Child's Home Story Book*. New York: James Miller, 1861.

This collection of moral tales for children features a gold-stamped design of holly on its cover, indicating it might have been intended as a Christmas gift.

*Where Are You Going to My Pretty Maid?* New York: McLaughlin Brothers, 1902.

*Little Red Riding Hood*. New York: Sam Gabriel Sons and Co., ca 1900.

These two picture books are printed on “untearable linen” cloth rather than paper pages. Both books are marketed for children’s hands as well as their eyes.

*Our Young Folks: An Illustrated Magazine for Boys and Girls*. November, no. 83. Boston: James R. Osgood & Co., 1871.

Serial publications, such as this illustrated magazine, were marketed to children and abounded in the nineteenth century. Included in this issue are letters (in the form of an advice column) from young readers.

Abbot, Jacob. *Harper's Story Books*. New York: Harper & Brothers, 1856.

Harper’s Story Books were available as a monthly magazine or as a bound volume at the end of the year. Most of the stories are attributed to Jacob Abbott, one of the nineteenth century’s most prolific children’s writers.

#### CASE BINDINGS AND THE ARMING PRESS

Prior to the nineteenth century, books were bound by lacing the text block to a front and a back board and then covering the whole with leather, cloth, paper, or some other material. Decoration and finishing could only be completed once the book had been bound.

By the early 1830s, binders had begun to make case bindings—a complete front and back cover united by a spine, into which the text block could be glued. Case bindings could be decorated prior to attachment, speeding up the process of binding.

*Harper's New Monthly Magazine*. No. 187, December, 1865: 26.

This picture depicts a binder stamping covers using an arming press (FIGURE 12). This lever-action press, invented in the 1830s, used heated brass dies to stamp designs onto case bindings. Dies could be used with gold for gold blocking, or alone for blind stamping. Dies like these were cut by skilled engravers, not cast.

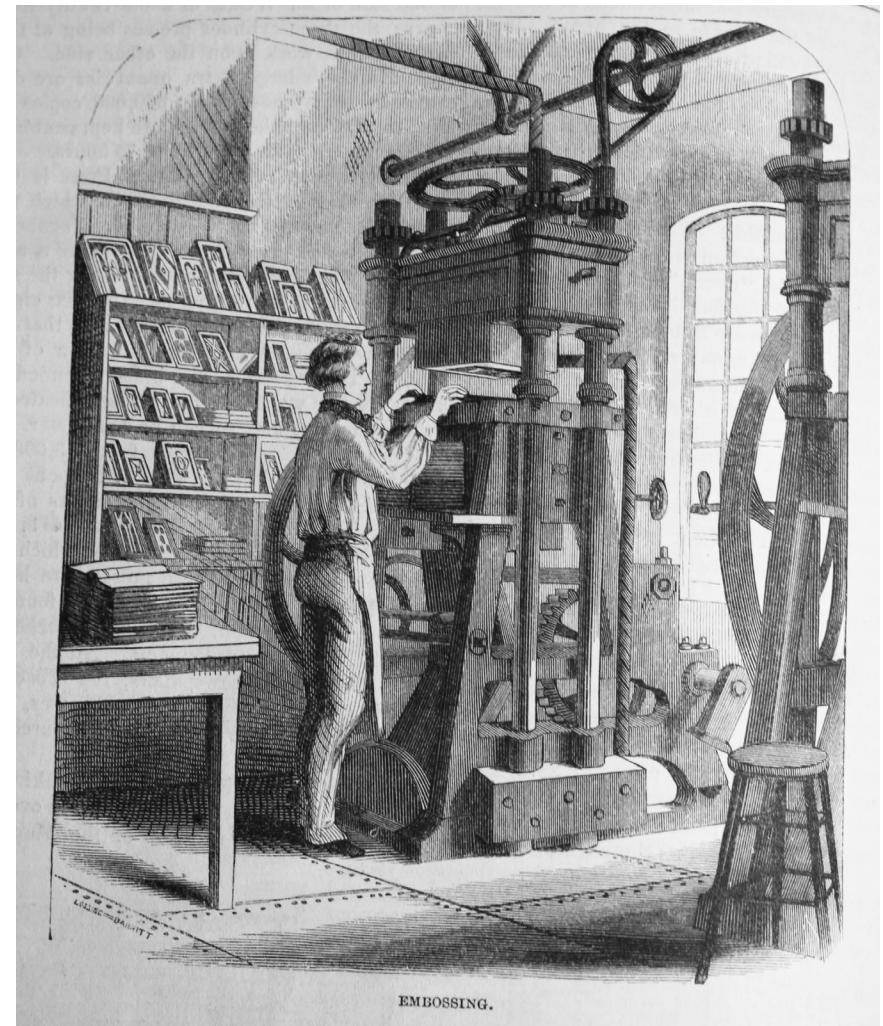


FIGURE 12. From *Harper's New Monthly Magazine*. No. 187, December, 1865: 26.

Child, Theodore. *Art and Criticism*. New York: Harper & Brothers, 1892.

This brass die shows the design used on Child’s book of art criticism. The leaf border decorating the book’s cover was stamped in a second color. Because the border does not appear on the die, it had to have been impressed separately.

## FOREIGN DEPARTMENT

In a century characterized by colonial expansion and the emergence of a global consumer economy, the sights, sounds, and aesthetics of foreign countries had a profound effect on the art and literature of England and America. The books in this category track cultural exchange, as British and American authors and bookmakers adopted foreign tastes, and exported Anglophone literature to audiences abroad.

Eliot, George. *Romola*. Leipzig: Bernard Tauchnitz, 1863.

This edition of George Eliot's *Romola* was published by the German publishing firm Bernard Tauchnitz for Anglophone readers traveling in Continental Europe. The photographic illustrations highlight the novel's Italian landscape, so that this historical novel also functions as a kind of tourist guide.

FitzGerald, Edward, trans. *Rubaiyat of Omar Khayyam: The Astronomer-Poet of Persia*. Boston: Houghton-Mifflin & Co., 1894.

*The Rubaiyat of Omar Khayyam*, a series of Persian poems translated by Edward FitzGerald between 1859 and 1899, achieved sweeping popularity in the nineteenth century. The fanciful exoticism of the translation is apparent in the asymmetrical, swirling cover designs on this edition.

Kipling, Rudyard. *The Second Jungle Book*. London: Macmillan & Co., 1895.

This binding's gold stamp of a cobra coiled around a snake is derived from an illustration to the poem "The Song of the Little Hunter" in this edition of Kipling's *Second Jungle Book*.

Shakespeare, William. *W. Shakespeare's Dramatische Werke*. Stuttgart: Deutsche Verlags-Anstalt, 1895.

This elaborately designed edition of Shakespeare's works has been translated into German. It features advertisements for great German authors including Schiller and Goethe.

Thackeray, W.M. *De Lotgevallen van Filips*. Dr. M.P. Lindo, trans. Rotterdam: Uitgevers-Maatschappij Elsevir, ca 1880.

Interlocking black, gold, and green foliage decorate this Dutch edition of William Makepeace Thackeray's works. The intricacy and abstract quality of the design is characteristic of nineteenth-century covers.

*Memoirs of Madame Du Barri*. London: Whittaker, Treacher, & Arnot, 1830.

These unassuming green cloth bindings contain the controversial life of Madame Du Barry, mistress to King Louis XV and figurehead of aristocratic excess during the French Revolution. Like many salacious imports, it has been translated from French.

## BOOK CLOTH

The practice of covering books with decorative cloth, adopted early in the nineteenth century, allowed publishers to produce attractive books at a relatively low cost. Available in a rainbow of colors—peacock blue, vivid purple, striking vermillion, lush hunter green—and a dizzying array of textures, nineteenth-century bookcloth reflects the century's exuberant taste for style and variety.

Henry, Rev. C.S. *A Compendium of Christian Antiquities*. Philadelphia: Joseph Whetham, 1837.

Early bookcloth was produced alongside decorative fabrics intended for fashion and home furnishing. The "ribbon-embossed" repeated floral pattern on this 1837 book was produced by feeding fabric through hot rollers prior to adhering it to the boards.

*A New Token for Children*. Philadelphia: Presbyterian Board of Publication, 1848.

Hemans, Felicia. *The Forest Sanctuary and Other Poems*. Edinburgh and London: Blackwood & Sons, 1854.

These two books feature cloth that has been embossed with a simple, uniform grain pattern, then stamped using a special press fitted with a heated die. The front and back covers of these books are blind-stamped, meaning that no gold has been used to highlight the stamped pattern. Gilt stamping can be seen on their spines, a style typical of mid-century books.

Howitt, Mary. *The Favorite Scholar and Other Tales*. New York: James Miller, 1862.

The central stamp on this book of children's stories is repeated on the back cover without gilding, a practice characteristic of books from the 1860s.

Smollett, Tobias. *The Adventures of Gil Blas of Santillane*. Philadelphia: J. B. Lippincott Co., ca 1880.

Barlow, John H. *History of King Hiram Lodge, No. 12*. Birmingham, Connecticut: Derby Printing Co., 1886.

In contrast to the mid-century taste for balance and proportion, these two 1880s books feature asymmetrical designs. The gold stamping on the cover of this book about Freemasonry is thematically related to its contents. In contrast, the sunflower motif on the cover of this novel is a stock design used for every book in the series.



## NOVELS, TALES, ROMANCES

No genre is more typical of the nineteenth century than the novel. Rising into prominence during the eighteenth century, the novel in English achieved unprecedented ubiquity and variety during the nineteenth century. As high literature and as cheap entertainment, novels catered to every taste—and every price point.

Bulwer-Lytton, Edward. *Paul Clifford*. London: Henry Colburn & Richard Bentley, 1830.

Considered the major format of the novel for most of the nineteenth century, triple-deckers dominated the literary market in part due to their mutually beneficial relationship with circulating libraries, who rented volumes out separately. Popular novelist Edward Bulwer-Lytton penned this three-volume novel, which begins with the now famous line “It was a dark and stormy night...”

De Foe, Daniel. *The Life and Adventures of Robinson Crusoe*. New York: Alexander V. Blake, 1844.

Swift, Jonathan. *Gulliver's Travels*. New York: Leavitt, Trow, & Co., 1847.

Though the decorative stamps on cloth-bound books often featured stock images or abstract designs, these two popular novels, written in the eighteenth century, merited cover designs depicting scenes from the books. On the cover of *Robinson Crusoe*, the novel's protagonist sits at dinner with his companion, Friday. On *Gulliver's Travels*, Gulliver is shown looming over the diminutive Lilliputians from the novel's first section.

Trollope, Anthony. *Orley Farm*. London: Chapman & Hall, 1874.

Reade, Charles. *A Woman-Hater*. London: Chatto & Windus, 1883.

The bright yellow covers and striking illustrations printed on the paper-covered boards of these two novels make them eye-catching enough to tempt passengers at railway stations. These “yellowbacks” were a cheap counterpart to pricier triple-decker novels, and they flourished especially during the second half of the century.

*Harper's New Monthly Magazine*. No. 375. New York: Harper & Brothers, August, 1881.

*The Atlantic Monthly*. No. 379. Boston: Houghton, Mifflin & Co., May 1889.

Serialization in quarterly, monthly, or weekly magazines was another popular way to publish novels. This 1881 issue of *Harper's* features installments of a novel by Constance Fenimore Woolson, while this 1889 issue of *The Atlantic Monthly* serializes one by Henry James, Woolson's close friend.

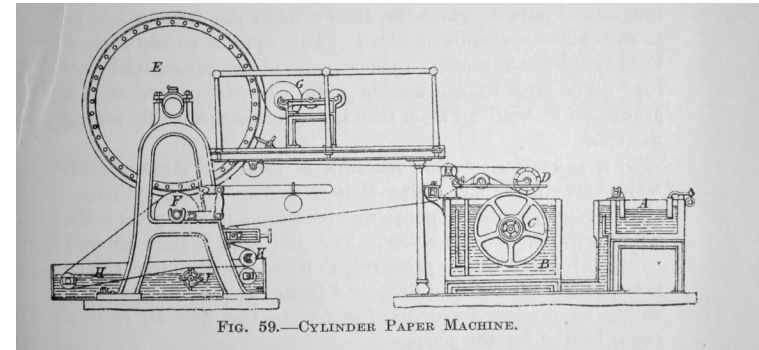


FIGURE 13. From Cross, C. F. and E. J. Bevan. *A Text-Book of Paper-Making*. London: E. & F. N. Spon, 1920.

## MAKING PAPER, PRINTING BOOKS

For much of the history of book production, paper had been the limiting factor in book manufacture. Paper was expensive to produce from linen and cotton rags, and had to be made one sheet at a time using a hand-held paper mold. Systematic attempts to improve both the method and materials of papermaking began in the late eighteenth century. By the beginning of the nineteenth century, papermakers were tackling these problems with two different innovations: papermaking machines and wood-pulp paper. Papermaking machines supplanted the paper mold as the primary technology for producing paper, allowing large, continuous rolls of paper to be produced in a process that was almost entirely automated. Paper could be made faster and at larger sizes than ever before. The use of wood, straw, and other materials in paper pulp significantly reduced the cost of making paper. Presses became larger and more automated as the century went on, and as advancements in steam power made possible presses capable of mass production.

## WOVE AND MACHINE-MADE PAPER

Sheet of handmade paper, 1733.

At the beginning of the nineteenth century, most paper was still made by hand, one sheet at a time, using a wooden paper mold fitted with a screen comprising chains crossed by fine wires. Paper pulp, made from water and either linen or cotton rags, settled into the wires and chains, creating the distinctive lines seen in this sheet from 1733. Watermarks, designs visible when the sheet is held up to a light source, could be created by affixing wire on the screen of the mold.

Sheet of machine-made wove paper, ca 1875.

Starting in the 1750s, the production of paper with a wove surface—that is, without visible chainlines—was achieved through the use of a fine mesh screen that fitted the paper mold. Wove paper has a smooth surface, visible when a light shines through the sheet.

Cross, C. F. and E. J. Bevan. *A Text-Book of Paper-Making*. London: E. & F. N. Spon, 1920.

Papermaking truly transformed with the invention in the late 1790s of paper machines capable of producing paper in long, continuous rolls through the use of a woven metal wire screen set on a rotating cylinder (FIGURE 13).

Sheet of wove paper, 1823.

Sheet of wove paper, 1869.

Another change in papermaking in the nineteenth century was the content of paper pulp. Increasingly, linen was mixed or replaced with grass, straw, and eventually wood pulp to decrease the cost of producing sheets.

These changes in material can help explain why a sheet of wove paper from 1823 might retain a bright, white, fresh look when compared with a sheet from 1869, which may have a more yellowed color. Changes in the pulp content in paper made paper cheaper and more plentiful, but also brittle over time.

## GRAMMARS, DICTIONARIES, RHETORIC

Learning how to speak, write, and act according to social rules was imperative in an era that valued propriety and civility so highly. As the middle class grew, the new bourgeois needed guidance and education. The books in this category provide the basics of civil discourse, in business and personal affairs.

Sears, Robert, ed. *A Treasury of Knowledge, and Cyclopaedia of History, Science, and Art*. New York: Robert Sears, 1853.

This highly eclectic encyclopedia is hardly comprehensive, though it presents a startling variety of subjects—including one article on “the boundlessness of the material universe.” Despite its large format and great length, this volume would not have been immoderately priced, owing, in part, to the availability of machine-made paper.

*Dick’s Commercial Letter Writer and Book of Business Forms*. New York: Dick Fitzgerald, 1886.

This guide to correct formatting for business letters contains many model letters for the aspiring clerk to emulate. It also contains approximately fifty pages advertising other books in the series, including guides to etiquette, gambling, freemasonry, and speechmaking.

Quackenbos, G. P. *First Book in English Grammar*. New York: D. Appleton & Co., 1869.

Weld, Allen H. *Parsing Book, Containing Rules of Syntax and Models for Analyzing and Transposing*. Boston: Sandborn, Carter, and Bazin, 1858.

Sturdy, compact, and cheaply produced, these two primers on grammar and syntax are made to suit the needs of schoolchildren. Both include selections of famous English verse and prose.

Godolphin, Mary. *Aesop’s Fables in Words of One Syllable*. London: Isaac Pitman & Sons, 1891.

This book, one of a set of guides to secretarial writing, is a translation of *Aesop’s Fables* into phonetic shorthand. Developed in the nineteenth century, Pitman’s shorthand symbols represent how words sound, rather than how they are spelled. By the time this book was produced in the 1890s, the great majority of paper was produced using papermaking machines.

Perry, William. *The Royal Standard English Dictionary*. Boston: Thomas & Andrews, 1812.

The focus of this dictionary is not so much on the definitions of words, but more on their correct—that is, British—pronunciation. Nevertheless, the definitions themselves reflect the speech of American provincial life more so than the “polite speakers in London” referenced on the title page.

## POLITICS, STATE PAPERS, POLITICAL ECONOMY

Both England and America increased their political power, domestically and abroad, during the nineteenth century. America began the century as a nascent country, but, by the end of the century, emerged as an established nation, poised to become a super-power in the twentieth century. The books featured here show how nineteenth-century printing helped to consolidate the political power of the United States, and also to establish its national identity.

*Acts Passed at the Second Session of the Twelfth Congress of the United States*, ca 1813.

*Washington’s Farewell Address to the People of the United States*. Worcester, Massachusetts: Isaac Sturtevant, 1813.

Industrious printing enterprises in early America produced books like these, which brought political discourse, new laws, and government documents to citizens of the still-young nation.



*Washington Album*, ca 1890.

The tinted lithographs in this album of historical sites in Washington, DC, imitate a photographic style. This album includes an illustration of the Bureau of Engraving and Printing.

*Presidents of the United States*, ca 1890.

In addition to reproducing portraits of each U.S. President, this album includes facsimile signatures and dates of birth, death, and inauguration.

*United States Treasury and National Bank Note Detector at Sight*. Washington, DC, and Boston: Laban Heath & Co., 1879.

In addition to reproducing bank notes to aid in the discovery of counterfeit bills, this short guide also contains detailed information about the engraving, printing, and production of U.S. bank notes—even down to the composition of the paper used.

## STEAM-POWERED PRINTING

Lynch, Thomas. *The Printer's Manual: A Practical Guide for Compositors and Pressmen*. New York: Garland Publishing, Inc., 1981.

This facsimile of an 1859 printer's manual features imposition schemes for printing in complicated formats, such as 32mo, or thirty-two pages on each side of a sheet. To achieve such an impressive imposition, two things were needed: large sheets of paper, and a press powerful enough to impress the whole forme firmly and evenly.

*Harper's New Monthly Magazine*. No. 187, December, 1865: 16.

Pictured here is the Adams Power Press (FIGURE 14), one of the most popular machine presses in nineteenth-century America. In an Adams press, the type is lifted to the platen, rather than being pressed upon from a platen positioned above it. A press operator feeds sheets into the press, but all else is automated, including the inking.

*Harper's New Monthly Magazine*. No. 187, December, 1865: 24.

The production of newspapers drove innovation in presses, especially cylinder presses like the massive Hoe Rotary Press (FIGURE 15). Cylinder presses exert much greater pressure with much less effort than a flat-bedded platen press, allowing for greater speed and larger printing surfaces.

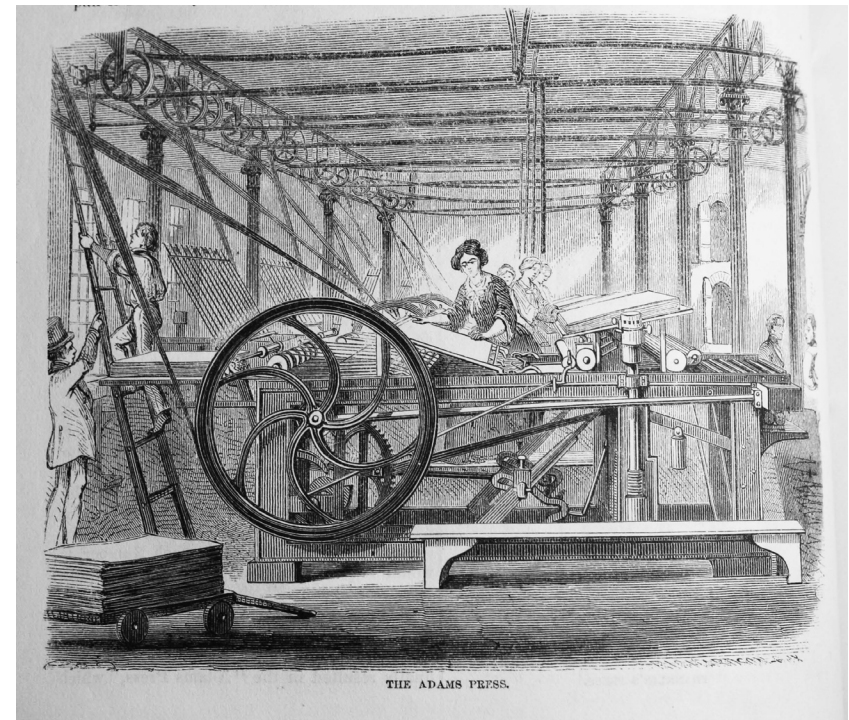


FIGURE 14. From *Harper's New Monthly Magazine*. No. 187, December, 1865: 16.

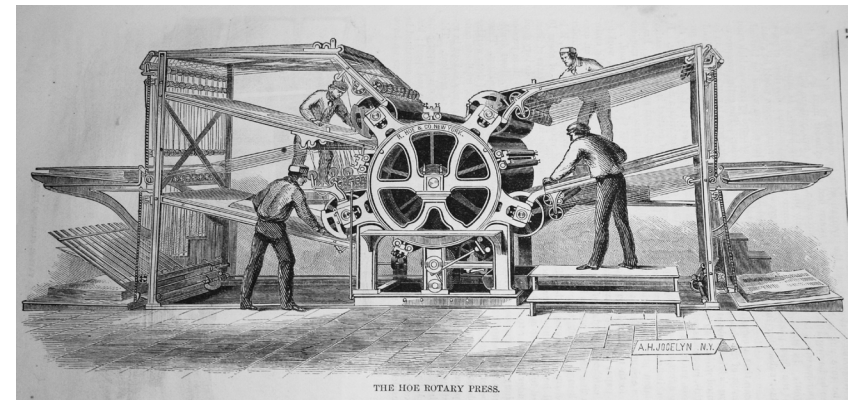


FIGURE 15. From *Harper's New Monthly Magazine*. No. 187, December, 1865: 24.

## THEOLOGY, TRACTS, RELIGION, CHURCH GOVERNMENT

Matthew Arnold's "Dover Beach" famously characterized the nineteenth century as the age of doubt, at a low ebb of religious faith. Nevertheless, readers devoured religious literature, including poetry and fiction, sermons and essays, and biographies of religious figures—all designed to reinforce Christian values. This case explores the relationship between printed books and personal faith.

Sigourney, L. H., ed. *The Religious Souvenir*. New York: Scofield & Voorhies, 1838.

Shepard, Isaac S. *The Christian Souvenir*. Boston: Henry B. Williams, 1843. The content of these two religiously themed gift annuals is similar to their secular counterparts, but peppered throughout are devotional poems, biblical stories, and spiritual sentiments. Both of these copies have inscriptions indicating they were originally gifts to women from a male cousin.

*Food for Believers*. London: W. H. Broom, 1870.

*The Child's Life of Our Saviour*. Philadelphia: Fisher & Brother, 1860.

*Juvenile Bible Histories*. Concord, New Hampshire: John F. Brown, 1841.

Wise, Rev. Daniel. *Lovest Thou Me: Or, the Believer's Companion*. Boston: Charles Waite, 1849.

These four books are all small enough to fit in a pocket, and are evocative of the personal relationship with God advocated by nineteenth-century evangelists. Through biblical history, the catechism, and sermons, these little books encourage introspection about Christian virtues.

Armstrong, William J. *The Distribution of the Bible without Note or Comment, Safe, Salutary, and Necessary: A Sermon*. Richmond: Thomas W. White, 1826.

*How to Be Saved*. Philadelphia: American Sunday-School Union, 1830.

Pamphlets and tracts like these were very common in the nineteenth century. They were cheap to produce in great quantities because of their simple design. Typically a single sheet or half-sheet constituted the entire pamphlet, folded and stab-sewn through the gutter.

*The History of Moses*. London: The Religious Tract Society, 1860.

*The History of Joseph and His Brothers*. London: Religious Tract Society, 1860.

These two slim volumes are dressed-up versions of the plainer tracts above. They feature colorful illustrations and printed paper covers. The large font used in the text indicates they may have been intended primarily for children.

## MAGAZINES, REVIEWS, PERIODICALS

Periodical culture began in the eighteenth century, but reached maximum saturation during the nineteenth century, when periodicals, issued daily, weekly, monthly, and quarterly, flooded the market. Periodicals, perhaps more than any other printed media, exploited new technologies, always offering readers curiosities and novelties.

*Punch*. London, No. 2575: November 15, 1890.

Started in 1841, *Punch* quickly became one of the most popular magazines in Britain owing to its humorous and topical content, including satirical cartoons, comical poems, and political caricatures.

*Littell's Living Age*. Nos. 1731 & 1732. Boston: Littell & Gay, 1877.

A periodical of periodicals, *Littell's Living Age* collects extracts recently published in contemporary magazines such as *Cornhill*, *Harper's Bazaar*, and *The Gentlemen's Magazine*.

*The Lady's Miscellany; or, Weekly Visitor*. No. 14, Saturday, July 25, 1812.

*The Mothers' Monthly Journal*. No. 6, June, 1838.

Periodicals for specialized readerships flourished during the nineteenth century. This weekly and this monthly journal are aimed at middle-class women and mothers.

*The Elzevir Library*. No. 2, January 5, 1883.

*The Elzevir Library*. No. 44, May 17, 1883.

*The Elzevir Library*. No. 79, August 1883.

*The Elzevir Library*. No. 132, March 27, 1884.

Each issue in this series of little magazines contains a complete work: short story, essay, or poem. Though it takes its name and its small size from the famous seventeenth-century Dutch publishing house Elzevir, it is an American production.



## **ADVANCING THE BOOK: A CODA**

In the twentieth century, technologies of book production continued to evolve, with advances in book production such as photo typesetting, xerography, and electronic texts. Twenty-first century books continue to push the boundaries of technology, and participate in the newest trends—from Twitter feeds that reprint the entire text of *Moby Dick*, to best-selling novels composed through text messages. But the relationship between books and technology is not a new development, as this exhibition shows. To understand the history of books and the transmission of texts, scholars must look to the technologies of book production, and to the men and women who invented, owned, and operated those technologies. Whether printed one sheet at a time on an iron press or sped through a dizzying array of spinning cylinders, every book bears the impress of its maker, and attests to the human desire to spread knowledge, language, art, science, and ideas.

## **ACKNOWLEDGMENTS**

Rare Book School is grateful to The Jefferson Trust (an initiative of the UVA Alumni Association) for its generous support of our program. We are likewise indebted to University Librarian Karin Wittenborg, to Director of Humanities and Social Sciences Services Anne Houston, and to their staff for hosting our exhibition in the Stettinius Gallery of Alderman Library, and for helping us promote it to the University and its visitors.

Elizabeth Ott wishes to extend her thanks to Barbara Heritage, Tess Goodman, Roger Williams, Michelle Vermillion, Maria Degtiarenko, Michael F. Suarez, S.J., and Amanda Nelsen for their assistance and support in planning and executing this exhibition.

ELIZABETH OTT is a PhD candidate in the English Department of the University of Virginia, where she is currently working on a dissertation focused on the role of the circulating library in nineteenth-century Britain. A vital and influential institution across the nineteenth century, the circulating library provides a unique window into the role of books in shaping relationships between authors and the reading public. Elizabeth's broader research interests include nineteenth-century poetry, the digital humanities, and the history of the book. From 2011 to 2013, Elizabeth worked as Program Assistant for Rare Book School.

