

AN ILLUSTRATED GUIDE TO BOOK TERMINOLOGY

Part One: Book Structure

In the age of the iPad, old books are valued more than ever. Your family heirlooms may include religious texts, photo albums, journals, or treasured editions of favorite authors. If one of these books becomes damaged through age, wear, or accident, you may ask a conservator to restore the book. But when you receive the conservator's condition report and treatment proposal—a document that describes the book's state of health and the recommended steps involved in repairing it—you may be baffled by some of the terminology. What's a pastedown? What does "guarding" mean? Part One of this article will guide you through the specialized terms used to describe book structure. Part Two will do the same for terms used in book conservation.

The first thing to recognize about a book is that it has two basic parts: the cover, or binding, and the text. These can be joined together in a number of ways. Before the Industrial Revolution, book construction always began with the text and finished with the binding. Like the early bookbinders, this illustrated guide will work from the inside out.

THE TEXT

The bound book, or **codex**, has at its heart either a text or the blank leaves on which a text can be written. Hand-written books are known as **manuscripts**; the term "manuscript" can also be used for any hand-written document. Collectively, the hand-written, printed, or blank leaves of a book are known as the **text block** or **book block**. As you flip through the text block, you are turning the leaves of the book. Each **leaf** has two sides; each side is a **page**. A book therefore has twice as many pages as it has leaves. The top of the book is known as its **head**; the bottom is known as its **tail**. The edge of the book opposite the spine, where the leaf edges are, is called the **fore-edge** (Fig. 1).

The earliest bound books in Europe were written on parchment or vellum, or treated animal skins. **Vellum** refers specifically to calfskin. **Parchment** is used more universally, to mean the skin of any animal (traditionally goat, sheep, or calfskin) that has been treated with alkaline chemicals, stretched, dried, and scraped. This process produces a smooth, cream-colored writing surface. Because parchment has not been tanned like leather, it is sensitive to water and will deform and shrink if exposed to moisture and heat.

Paper was introduced to Europe in the 12th century CE and gradually replaced parchment as a cheaper, lighter writing support. With the

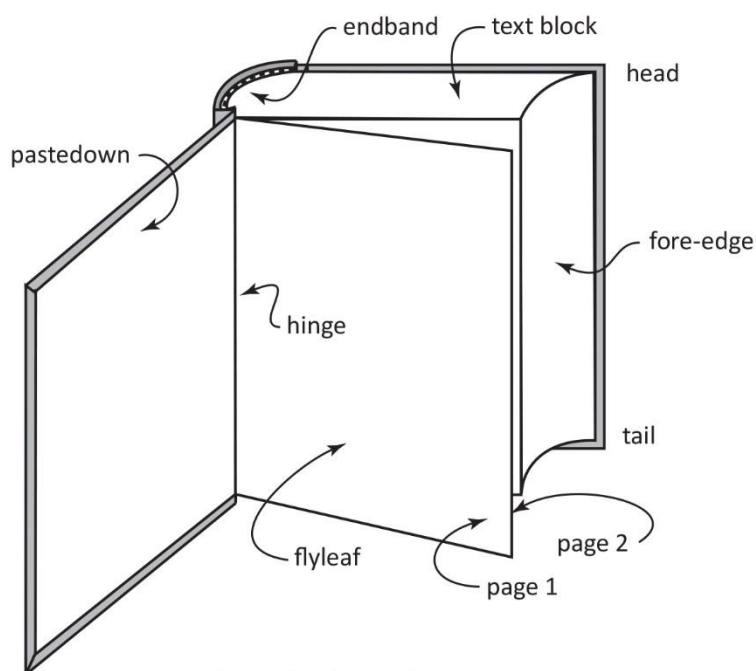


FIG. 1. The bound book or codex

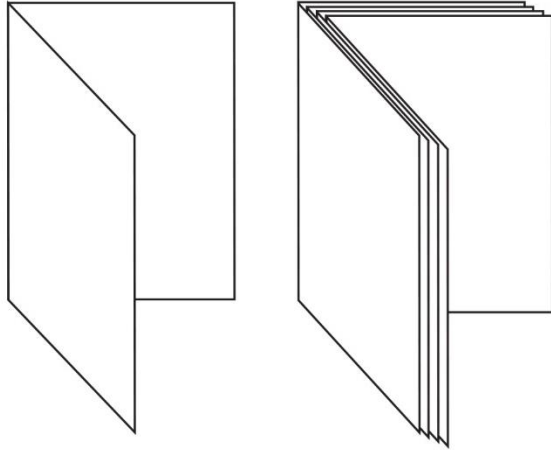


FIG. 2. Folio (at left: 2 leaves, 4 pages) and quire, gathering, section, or signature (at right: 8 leaves, 16 pages)

invention of the printing press around 1450, the widespread availability of paper led to a dramatic increase in book production. Until the 19th century, Western paper was almost exclusively made from linen rags derived from flax fibers. Cotton was introduced as a paper fiber in 1580, but was not common until the invention of the cotton gin. Both linen and cotton fibers are made of high-quality cellulose that produces strong, stable papers. Historically, papermakers often reinforced that innate strength by **sizing** the papers, or dipping them in vats of liquid gelatin, which gave them a hard, water-resistant writing surface. Unlike cotton or linen **rag papers**, the experimental papers of the Industrial Revolution—often made from wood pulp or other plant sources—quickly

became acidic, brown, weak, and brittle. While it is fairly simple for conservators to repair discolored or damaged historic rag papers, some 19th and early 20th century **wood-pulp papers** are so weak and brittle that they cannot be mended and can only be “repaired” through digital imaging or photocopying.

Prior to the Industrial Revolution, all text blocks were made from large sheets of either paper or parchment, folded down to the desired size and cut as necessary to form the leaves of the book. A single sheet, folded in half, is known as a **folio**. In manuscripts on parchment, folios were nested together in sections known as **quires**. In printed books, folded sheets were placed in sections known as **signatures** or **gatherings**. Conservators often use the term **section** to refer to any nested group of folios (Fig. 2).

During the period when books were printed and bound by hand, books were often sold “in sheets” -- as stacks of folded, printed paper -- rather than “in boards,” or already bound. Their purchasers then chose a binding method and hired a bookbinder to assemble the book. The binder organized the folded sheets into gatherings, put them in order, and added **endleaves** (also known as **endpapers** or **endsheets**) to the beginning and end of the text block. These were extra sheets of folded paper or parchment that helped protect the text block and attach it to the book cover. The leaf attached to the inside of the cover is known as a **pastedown**. The extra blank leaves before and after the text block are known as **flyleaves** (Fig. 1).

Pamphlets are books that contain only a single section; they are often small, inexpensive, and portable. Larger books are usually made up of several sections. These are placed in order and joined together along the folded side to form the spine of the book. In the sturdiest books, each section in turn is **sewn** through the **spine fold** with the sewing thread looped around **sewing supports** of alum-tawed skin, leather, parchment, linen cord, or woven tapes. The free ends of these sewing supports are known as **slips**, and they are used to attach the book cover boards. The unsupported linking stitches at the head and tail of the spine are known as **kettle stitches** (Fig. 3).

Medieval binders often added additional sewing supports at the head and tail of the spine, known as **headbands** or **endbands** (Fig. 1). Originally, these endbands were embellished with colored embroidery or braided leather strips that passed through both the book cover and the text block. This reinforced the cover attachment to the spine at its most vulnerable

points. Like the rest of the sewing supports, however, the endbands dwindled and became weaker over time. The Germans were the first to use embroidered ribbons that were adhered to the ends of the spine rather than sewn in place. Similar **stuck-on endbands** have become the standard in today's hard-covered trade bindings. These vestigial endbands are purely decorative and do nothing to strengthen the text block or the cover attachment.

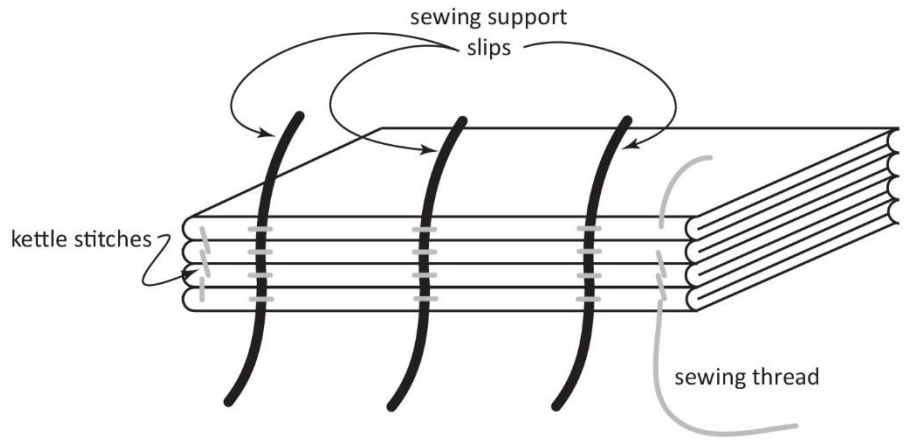


FIG. 3. Text block sewn all-along on three raised cords

Traditionally, three-dimensional sewing supports -- including the endband slips -- stood proud of the spine of the text block, and the sewing thread was looped around each one in turn (**all-along sewing**; see Fig. 3). Sewing on **raised cords** produces **raised bands** across the spine of the binding. To make sewing faster and to allow for books with smooth spines, 16th century binders began cutting notches or channels in the spine edge of the text block and sewing on **recessed cords**. The sewing thread could easily be passed behind the cord without looping around it. To speed sewing even more, some binders began skipping sewing supports as they sewed (**bypass sewing**), or sewing two sections at once (**2-up sewing**) (Fig. 4). These simplified sewing patterns, often called **abbreviated sewing** in conservation reports, were faster but produced weaker text blocks that were quicker to lose their leaves.

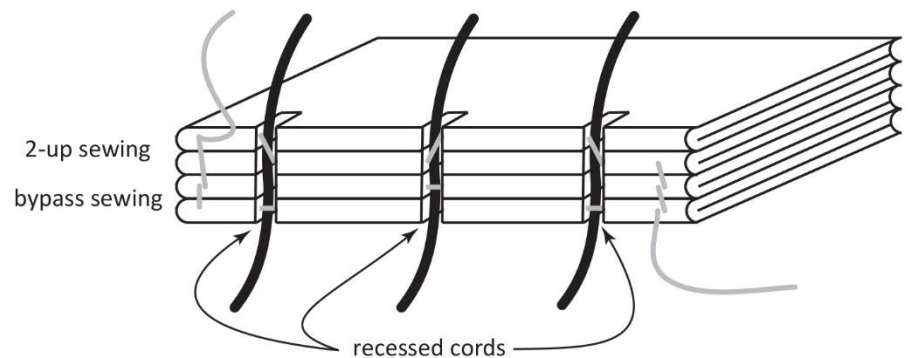


FIG. 4. Text block with abbreviated sewing on three recessed cords. The top two sections are sewn 2-up; the bottom two sections are sewn using bypass sewing.

Even cheaper, less durable methods of assembling sections into a text block include stabbing, stitching, and adhesive binding. In **stabbed bindings**, pieces of parchment, leather, or cord are passed through slits in the spine margin of the text block (Fig. 5). **Stitched bindings** are also sewn through the spine margin rather than through the fold (Fig. 6). In **adhesive bindings**, the folded edges of the sections are cut off, and glue rather than thread is used to



FIG. 5. Stabbed binding

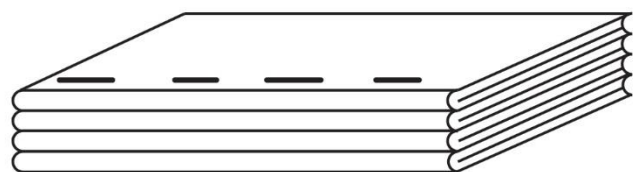


FIG. 6. Stitched binding

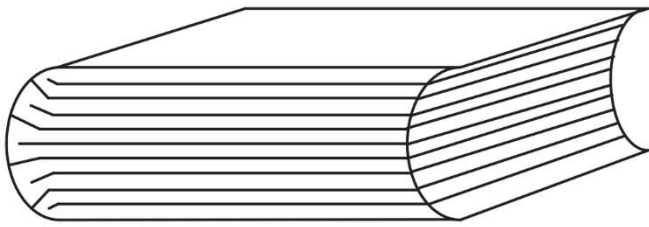


FIG. 7. Rounded text block

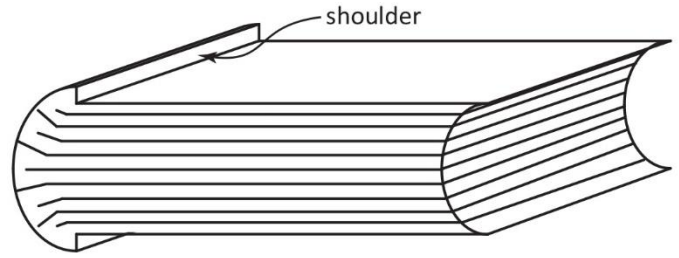


FIG. 8. Rounded and backed text block

hold the leaves together. Unless the paper is very flexible, stabbed or stitched bindings often cause the text block to break along the line where it has been stabbed or stitched, resulting in loose leaves. The glues used in adhesive bindings often become brittle and weak over time, which can also result in textual loss.

When a text block is sewn through the fold, its spine is usually coated with an adhesive and rubbed flat to attach the sections together. Conservators often call this process **consolidation**. Traditionally, binders used animal glue made from hides to consolidate the spine folds. Often, they then **rounded** the flat spine with a hammer to prevent it from becoming concave over time (Fig. 7). In a book that is **backed** as well as rounded, the binder produces a mushroom-cap shape at the spine of the book, creating niches in which the cover boards can rest. The projecting edges of the rounded spine are known as the **shoulders** (Fig. 8).

After rounding and backing, the spine of the text block is often coated with adhesive again and **lined** with paper, parchment, or cloth to strengthen it even further. **Spine linings** often extend the whole length of the text block, reaching from shoulder to shoulder. **Patch linings** or **panel linings** are only adhered between the sewing supports. **Extended linings** reach beyond the shoulders (Fig. 9). Multiple linings may be necessary to prevent the spine from breaking between sections when the book is opened.

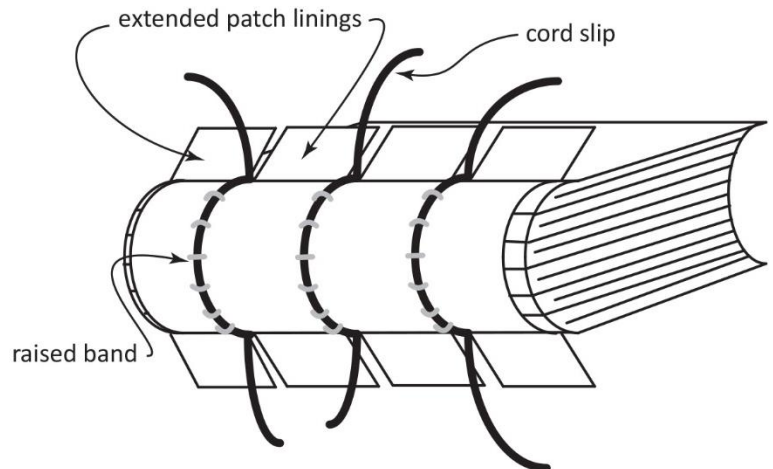


FIG. 9. Text block with lined spine

THE COVER

After the text block is assembled, the next step in binding a book is attaching the cover. In the Western tradition, this involved attaching the cover boards first. The first **book boards** were just that -- wooden boards -- attached to the text block by passing the slips of the sewing supports through tunnels or channels bored in the wood. This process was known as **lacing on** the boards. Later, **pasteboards** made of laminated paper sheets or **pulpboards** made of paper pulp replaced the heavy wooden boards, making books lighter and easier to ship. Such lightweight boards also produced less leverage, so it was possible to glue the slips of the sewing supports to them instead of lacing them through. Very thin wooden boards, 1–2 mm thick, were sometimes used instead of paper boards in places where paper was expensive or hard to come by. These thin wooden boards were known as **scaleboards** (also spelled scabbards or scaboards), and they were often used on inexpensive tracts and schoolbooks.

After the book's boards were attached, the book was usually covered with leather. A book covered entirely with leather (or any other single material) has a **full binding**. If only the spine and the fore-edge corners are covered with leather, it has a **half binding**. If only the

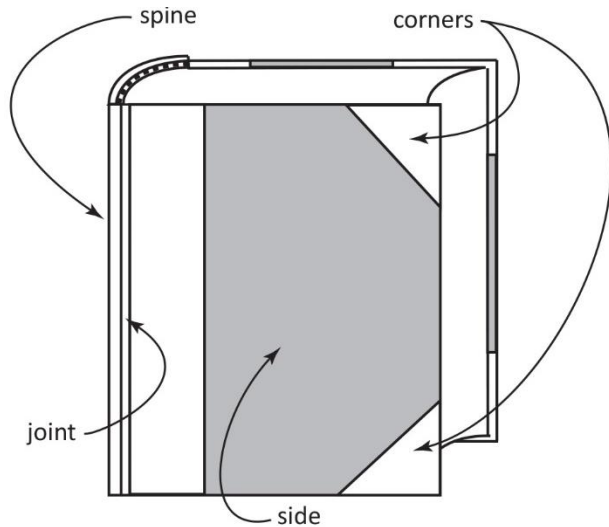


FIG. 10. Half binding

spine is covered, it has a **quarter binding**. Sometimes such a binding has the very tips of the corners reinforced with leather or parchment; this is known as a **quarter binding with tips**. If cloth or paper covers the exposed book boards in a half or quarter binding, the binding is said to have cloth or paper **sides**. Books can be bound partially or entirely in parchment, cloth, or paper rather than leather. The material covering the gap between the spine of the book and the book board is known as the **joint**. This is the area where a book flexes the most during use and is often one of the first places to show wear (Fig. 10).

When binding a book, the bookbinder first covers the spine and boards, pulling the leather taut and smooth. If the leather is adhered directly to the spine of the text block, as was common until the

17th century, the binding is known as a **tightback**. When the book is opened, the leather must flex to follow the curve of the spine of the text block. If a tube of paper or parchment is placed between the spine of the text block and the covering material, the binding is known as a **hollow back**. Hollow-back books were developed in the 1700s to prevent the spine leather from flexing when the book was opened, because heavily decorated leather cracked and deteriorated when flexed. While it allowed for more elaborate spine decoration, the hollow-back construction focused increased stress at the joint of the binding, often resulting in split leather and board detachment.

After the spine and boards have been covered, the leather at the head and tail of the spine is folded under and shaped to create a **headcap**, **tailcap**, or, generically, **endcap**. The leather extending over the board edges is wrapped to the inside of the board and pasted down. The folded-over leather sections are known as **turn-ins**. When the turn-ins are dry, pastedowns are usually pasted down on top of them. The material covering the gap between the board and the text block on the inside of the binding is known as the **hinge** (Fig. 1). It is usually made of paper, but luxury bindings can have leather hinges and separate, decorated leather or paper pastedowns known as **doublures**. The parts of each board that extend beyond the text block are known as **squares** (Fig. 11).

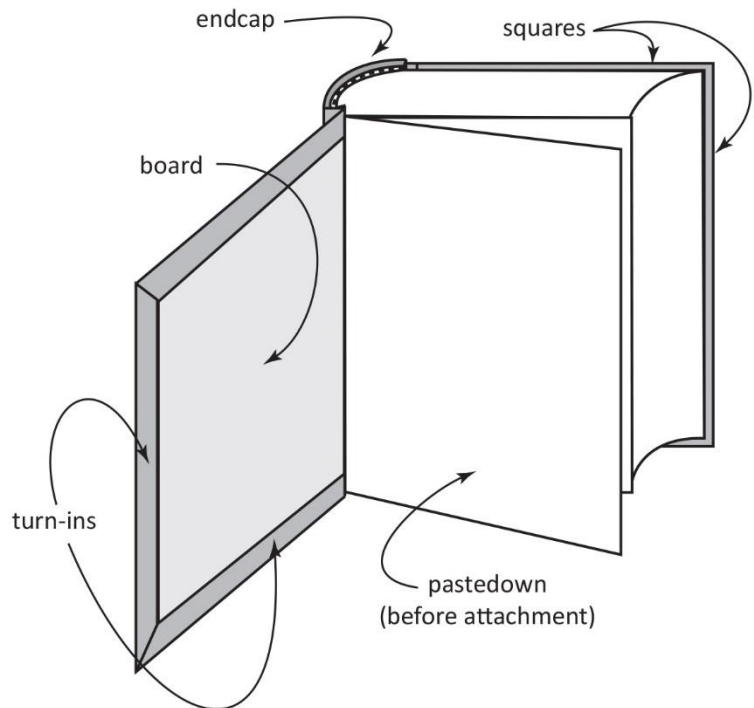


FIG. 11. Full binding showing turn-ins

All of the steps involved in binding the book to this point are traditionally known as **forwarding**. The process

of decorating a book is known as **finishing**. Leather bindings were often left plain, but expensive bindings could be decorated using blind tooling or gold tooling. In both cases, heated brass tools are used to press designs into the dampened leather. These tools might be **fillets** (for short lines), **rolls** like pizza cutters (for long lines and borders), or **stamps** (for distinct decorative elements). In **blind tooling**, the hot tool leaves a darkened impression. In **gold tooling**, the leather is first blind tooled. **Glair**, an egg-white adhesive, is then used to adhere thin gold leaf to the design, and the leather is tooled again through the gold to create shining gold impressions. Blind tooling was common in the medieval period; gold tooling was first seen on Western books in the 16th century. In the fanciest luxury bindings, even the leaf edges might be trimmed, polished smooth, and gilt with gold leaf. A book whose edges have also been stamped with hot tools is said to be **gauffered**.

Unlike the books with laced-on boards described above, which could be simple or elaborately decorated, **case bindings** have book covers that are assembled separately from the text block and then attached. Historically, such bindings were rarely decorated. Simple covers made of folded parchment or heavy paper were often attached to medieval books. In these **laced-case bindings**, the slips of the sewing supports passed through slits in the joints of the cover to secure the case to the text block. The covers were rarely adhered to the text block at all, which can make this an attractive design for conservation binders today.

Later, hard cases with paper boards and paper covers became common in Germany. They were assembled separately and attached to the text block by adhering the sewing slips and pastedowns to the insides of the boards. As in a hollow back, the spine of the binding is not attached to the text block. The production of this type of case binding was mechanized during the Industrial Revolution, when the invention of starch-filled **bookcloth** gave binders an economical, durable alternative to parchment, leather, and paper. Today's trade bindings are usually machine-made cases, sometimes decorated with gold-stamped designs.

No matter the original format or structure of your rare or valuable books -- whether that value is aesthetic, monetary, or purely sentimental -- they may need conservation treatment someday. We use the things we love, and use results in wear and tear. Fortunately, conservation treatment can reverse or repair many of the damaging effects of prolonged use, exposure to poor environmental conditions, and even accidents or disasters. While preventive measures such as good housing, environmental controls, pest monitoring, and housekeeping are vital to the long-term health and safety of a collection, conservation treatment is equally vital when special volumes are weak or damaged. Part Two of this article will describe the treatment steps and special terms commonly used in book conservation.

BIBLIOGRAPHY

- Cockerell, D. 1953. *Bookbinding and the Care of Books*. London: Sir Isaac Pitman and Sons.
- Diehl, E. 1980. *Bookbinding: Its Background and Technique*. New York: Dover Publications, Inc.
- Greenfield, J. 1998. *ABC of Bookbinding*. New Castle, DE: Oak Knoll Press.
- Greenfield, J. 1990. *Headbands: How to Work Them*. 2nd ed. New Castle, DE: Oak Knoll Press.
- Johnson, A. W. 1978. *Thames and Hudson Manual of Bookbinding*. London: Thames and Hudson.
- Middleton, B. C. 1996. *History of English Craft Bookbinding Technique*. 4th ed. New Castle, DE: Oak Knoll Press.

Written by Renée Wolcott, former Book Conservator at the Conservation Center for Art & Historic Artifacts.