

Book Binding from a 1496–1599 Example

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The Primary Source:

The OSU library has a very small collection of rare books. Their copy of *Epistole Sancti Hieronymi* is available for viewing, and has received no recent “repairs”. In March of 1999 I was able to study and photograph the binding of this book.

On the *Epistole Sancti Hieronymi*, half of the spine is visible, and the inside endpapers have been ripped out long ago. While making the volume less valuable monetarily, these features make it possible to study the binding methods used without tearing the book apart.

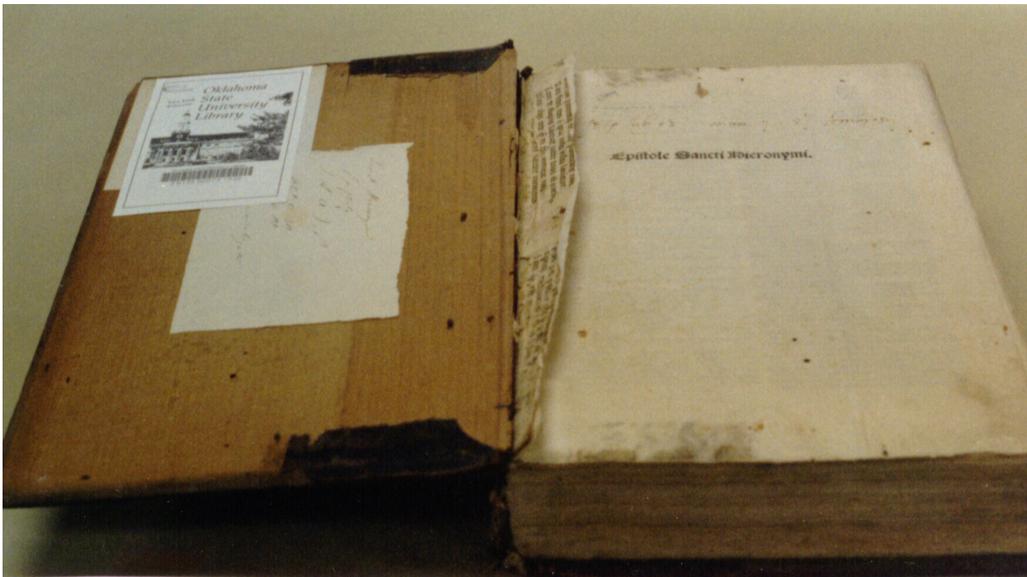
The *Epistole* was printed by press onto paper. It was produced from 1496 to 1599. The copy at OSU has not been dated any more closely than that. (However, the copy has an errata which may help me identify it more closely. The last page of the book should read 390, however a typesetting error occurred and it reads, 930.)

Paper was introduced to England in the mid-1300s and by the 1400s there were many paper mills. The *Epistole* is an example of the more affordable books made available through this invention. Because books were no longer as rare, the bindings evolved to be simpler than previously done.



Back views of the Epistole Sancti Hieronymi (1496-1599)

Notice the tooling on the half binding, and the remains of the straps and brass pieces which once allowed the book to be strapped shut. (A holdover from parchment books which had to be strapped shut to remain flat. This is less necessary with a paper book.)



Inside front cover of the Epistole: (above) Notice that the reinforcement strip on the first pages are recycled parchment pages, (with hand calligraphy on them.) The edges of the wooden cover are beveled to the width of the pages.

The Binding:

The Epistole is a traditional raised band medieval book. There are three straps of leather across the spine that are attached to the wooden cover boards with glue and nails. There are very light weight linen strips between each of the straps. These strips appear to have been glued down using a grainy paste. Both the straps and the linen strips are attached to the outside of the covers. (They are not “laced” through the cover as was customary in most earlier medieval bindings.)

The earliest example of a raised band book is around 1250 (MS P.2.xiii, Hereford Cathedral.) Raised band refers to the way the bands bulge out and around the spine onto the boards of the book. Earlier books have the bands or cords fitting into tunnels that are carefully bored into the boards. Around the mid-1200s the tunnel was replaced with an outside groove terminating in a hole through which the bands would be pulled through and pegged down on the inside cover of the board.

The Epistole is one step easier than that. The bands lay in grooves on the outside and are simply nailed on. I believe this is an example of the degrading of more time consuming methods for easier less expensive bindings. (A process, which alas, did not stop there. Look at a modern book for an example of the final degradation.) Because of this simplification, it makes a good reconstruction project. Paper is much easier to come by than parchment, and the binding style is fairly simple.



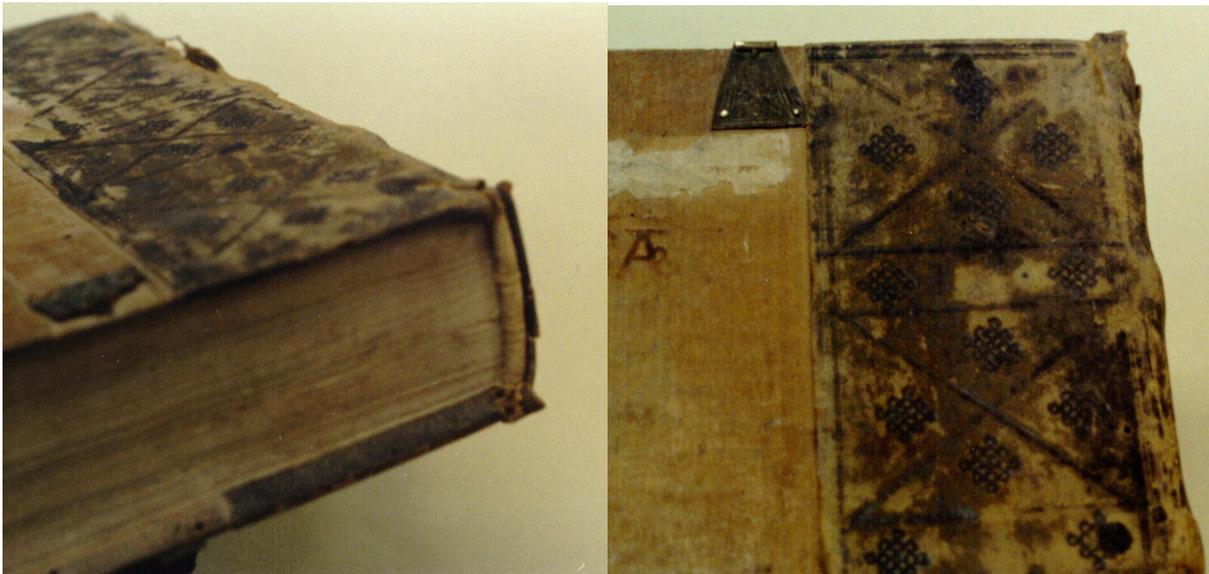
Inside back cover of the Epistole: (above) Notice the three straps and linen of the spine.

The leather straps are whittawed (the hide is soaked in alum and salts until it produces a white leather.) They are split for a short distance in the center to allow the stitching to easily pass through them. The linen was a light shirt-weight linen. The thread used throughout was an undyed, very loosely 2- plied linen thread.



Damaged end of the Epistole's spine: The straps have the appearance of being two straps because the threads make a figure eight as they go through the signatures of the paper. (The leather is slit in that spot to allow the thread to pass through.) The loose threads at the left were originally attached to the head cap cord.

The head and foot caps are made of a cord of brown leather, linen thread was used to create a wrap around the leather cord. This is a standard feature of fine book binding (and is faked in the modern world by pasting a piece of woven cloth into the spine at the edges.) The head cap stabilizes the top and bottom of the spine. Each is sewn on separately from the stitching on the signatures. The ends of the head and foot cords fit into grooves carved in the wooden boards. The tooling pattern of Xs hide any unevenness. The tooling also uses the straps on the spine as a motif for decoration.



Foot cap of the Epistole's spine: (above) The foot cap on the undamaged end of the spine shows the wrapped threads covering the leather cord completely. Notice how the X-pattern hides the foot cap cord.

The boards of the book were never covered, but were left bare. (The original straps and brasses are still attached to the boards, with nothing underneath them.) The half binding is a smooth, thin brown leather. The boards are beveled on the inside to match the width of the pages.



Parchment pages from some older unwanted hand written/illuminated book were commonly used as endpapers in medieval books. This Epistole has such pages, but they are further humiliated by being used as reinforcement strips on the first and last set of pages.



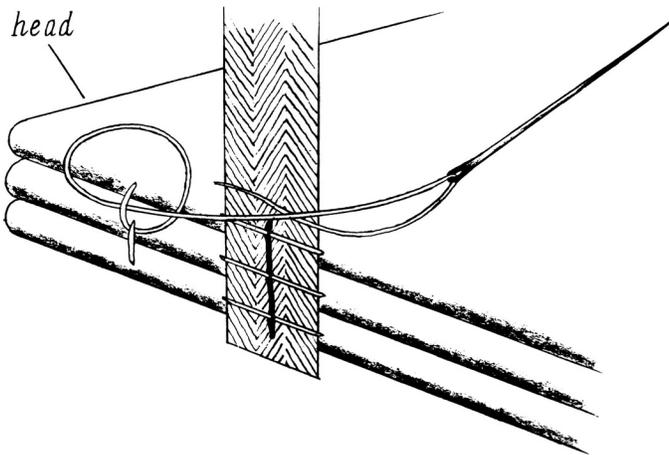
Parchment Used as Reinforcement: An 1.5" wide strip of parchment was folded around the endpaper, and sewn in place as an extra signature. The Endpaper was then either left as is or glued to the inside cover of the board to cover up the edges of the cover's leather. (There is some very small evidence of glue on the inside of the boards. The end papers are entirely missing, so it is impossible to say whether they were originally pasted down or not.

Reccomended Materials:

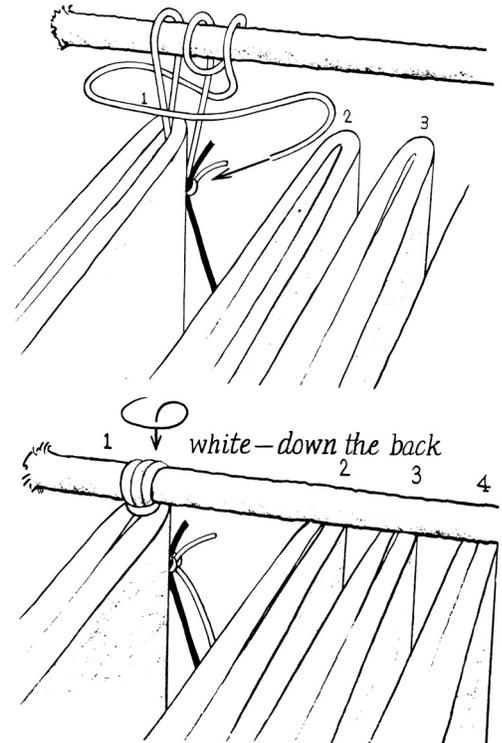
- **2 oak boards cut to size**
The Epistole boards would have been made by splitting a log into long wedges, then the wedge would have been trimmed to the correct thickness. By splitting the wood instead of arbitrarily cutting it, you prevent the board from warping with age. The Epistole's wooden boards are still perfectly straight and flat, (And the book has obviously had some bad treatment over the years.)
- **100% cotton, acid free paper**
The Epistole's paper is slightly thicker and softer. It obviously has a high rag content.
- **Parchment Reinforcement Strips-** (I used scraps of drum head parchment from Tandy Leather.)
The parchment has to be sanded and worked to be more flexible. They will still be quite stiff. However, the parchment in the Epistole is the same.
- **Bands made of any flexible, sturdy leather.** (chrome tanned is very flexible and long lived.)
The Epistole uses whittawed leather. It resembles vegetable tanned leather but is white and much sturdier. I do not know of a source for whittawed leather.
- **End Cap cord of leather lace**
The Epistole has a brown 1/8" thick rolled leather cord.
- **White shirt-weight linen cloth for reinforcement strips on spine**
The Epistole uses very similar weight and weave of linen.
- **Glues-** Barge's Contact Cement for attaching leather, Aileen's Tacky glue for cloth, and Rubber Cement for the paper. The Epistole was probably constructed with flour paste and horn or hide glue. (These are difficult to work with.)
- **Cover (half binding) out of thin vegetable tanned leather.**
The Epistole has bare boards with a half binding in thin brown leather. However, many medieval books were completely covered in a single sheet of leather.
- **2ply Beeswaxed thread of any kind.**
The Epistole's thread is a thin linen 2-ply.

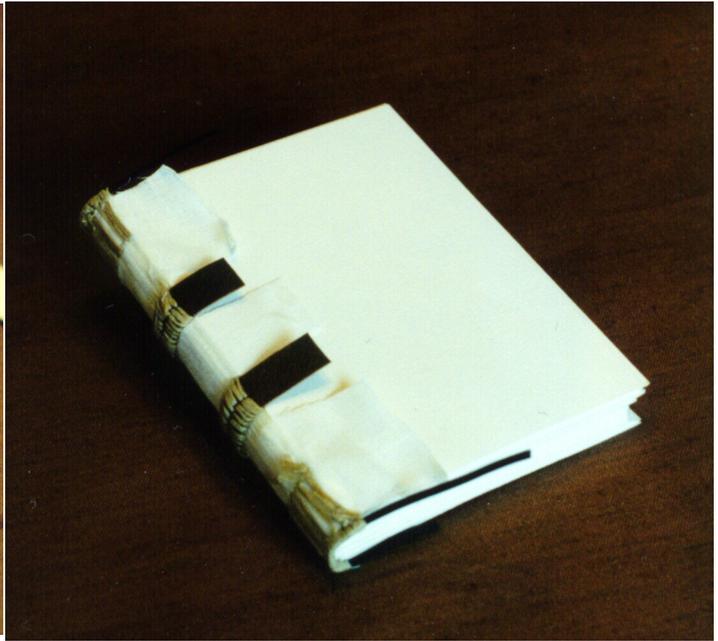
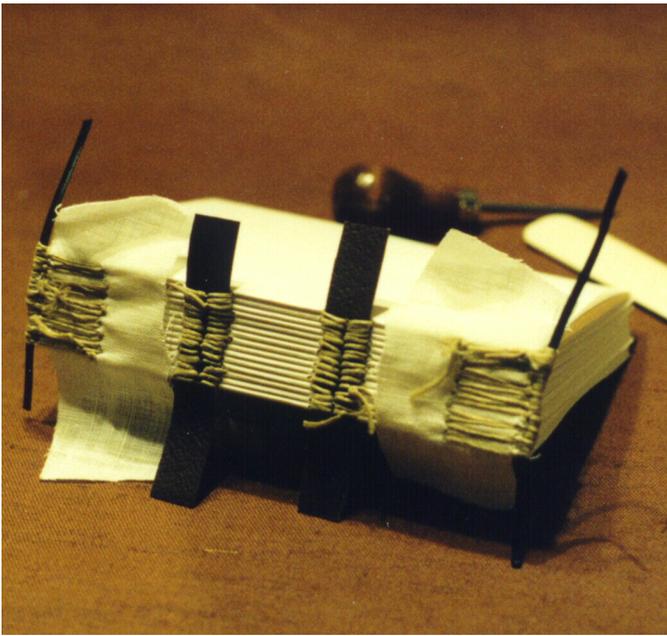
Instructions for Sewing the Pages:

- 1) Fold paper in groups of 4 sheets. (The folded group is called a signature. The Epistole has 3-4 sheets in each signature.) If parchment reinforcement strips are to be used, they should be glued to the outside fold of two separate sheets of paper. Those sheets then become the first and last signature.
- 2) Mark where to punch the holes with a pencil. One hole for each band and one hole 1/2" from either end of the paper.
- 3) Make holes with awl or sharp needle.
- 4) Sew signatures together.
 - Tie a tiny loop in one end of the thread.
 - Push needle carrying thread through a hole at the end of the first signature.
 - Bring the needle out of the center of the signature through the next hole. The needle should pass between the split in the leather band.
 - Wrap the thread under the band and push the needle back through the slit in the band and back down the same hole.
 - Repeat for each band, until you reach the end hole of the signature.
 - Place another signature next to the one you have been sewing. Make sure the holes line up.
 - Push needle down the first hole of the second signature.
 - Sew the second signature to the bands the same as you did for the first.
 - When you reach the other end of the second signature, take a "kettle" stitch to the first one. (This means pass the thread through the loop of the thread at the end of the previous signature, before sewing the next signature on.) This will secure all the signatures together at both ends.
 - When all signatures are sewn onto bands, tie a knot in the thread close to the spine and cut excess thread off.



- 5) Paste linen strips onto the back of the spine at each end.
(Covering the end holes.)
- 6) Sew headbands in, stitching through the linen bands at the end.
- 7) Put book in press. (Or under a heavy stack of book.)

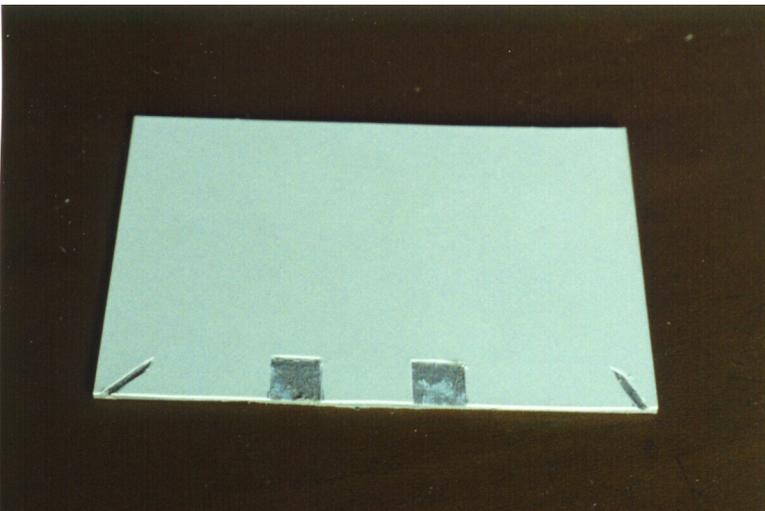




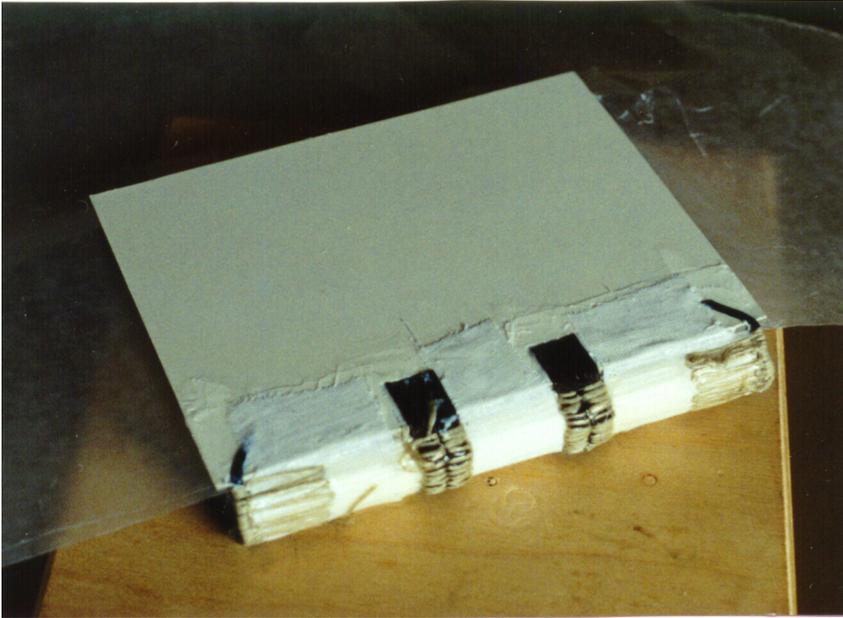
Stitched Book: This partially finished book has been stitched onto the two black leather bands and also onto the headbands at the top and bottom of the book. Notice that the stitching for the headbands are sewn through the reinforcement strips of linen.

Boards

- 1) If covering in cloth, cover the boards before doing anything else.
- 2) Carve grooves for bands & headcaps into the board. (Example here is artboard.)



- 3) Place wax paper between covers and signatures, to protect the paper.
- 4) Glue bands and head cap cords into the grooves with white glue.
- 5) Glue the linen strips onto the boards with white glue.
- 6) Let dry. (Stick under weight if it needs it.)



Gluing on Spine

- 1) Trim spine leather (or whole cover if using a one piece cover) to the correct size.
- 2) Put Barge's Contact Cement on both surfaces, let dry completely, before putting the two surfaces together. (That's the way contact cement works... Really... Let it completely dry.. 30 minutes or so.)
- 3) Cut slits at the top and bottom of the spine to allow the edges of the leather to fold over into the inside cover.
- 4) Trim leather over the endcaps and fold it under.

Glue in Endpapers

- 1) Put rubber cement in a thin coat all over the first page and inside cover, and all over the back of the endpaper.
- 2) Let the rubber cement completely dry.
- 3) Close the book. This will glue the inside cover to the first page, which will then act as an endpaper.

The Epistole has an extra one page signature at the front and the back, with a parchment reinforcement strip wrapped around the fold. This endpaper was sewn in like a normal signature. In other medieval books, that first page of that endpaper would then be pasted onto the inside cover. (Essentially, you would then have a parchment reinforced, sewn, glued endpaper.--Sensible since this is where the book wears out first.) This may have been done to the Epistole, but almost all evidence of the paste is gone, and the paper endpaper were ripped out long ago. However the parchment reinforcement strips are still holding up and functioning to protect the main signatures.

Final Pressing

Place the book under a heavy weight and leave it there overnight.

When opening for the first time, hold in your hands with spine on the table. Let boards drop to table, then a few pages at a time, till entirely open. (You may have to gently encourage the book to open. This gentle "breaking in" will make the spine flexible without breaking it in one spot.

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Special Thanks

To HL Diarmaid O'Duinn for most of the sources above, for the parchment scraps, and for help with the construction techniques.

The drawings on page 7 were modified from drawings in Watson's **Hand Bookbinding**.