

Virginia Arts of the Book Center

2125 Ivy Road, Suite 5 — Charlottesville, Virginia 22903
"Beneath the Art Box" in the Ivy Road Shopping Center
www.virginiabookarts.org

Coptic Book: Two-needle Sewing

Workshop

May 12, 2012

A "Coptic book" is an exposed-spine book developed by the Copts in the 4th century in Ethiopia. The signatures are sewn onto hard covers; and the sewing creates a chain stitch across the spine. Originally, leather binding would have covered the spine stitching; today the spine is usually left exposed.

Note: These instructions focus on the sewing, although the whole process is described. .

Materials needed

Folded signatures—minimum 6-8 Waxed linen sewing thread Curved needles
Book boards/Cover boards, covered, with pastedowns added

Tools

Awl or drill (e.g., Dremel)
Sharpened pencil
Good eraser
Ruler

Small scissors
When making signatures and covers: also
need bone folder, cover paper, pastedowns,
glue, brush, weights

Making a Coptic book with two-needle sewing

1. Make signatures. Make signatures (quires) of 3-4 folios each (depending on the thickness of the paper).

- Make a minimum of 6-8 for a first book; more signatures work well and show off the stitching better but also require more sewing.
- Stack folded signatures into a text block; mark them lightly in pencil on an outside corner. This will keep to keep them oriented properly.

2. Make and cover boards. Cut cover boards; cover them; add pastedowns. Mark the head of each cover (so you can tell top from bottom).

Note: To determine the size of cover boards, add 1/8-1/4" to the height and 1/8" to the width of the signature. The spine is flush with the signatures, whereas the covers are slightly bigger than the signatures on the other three sides.

3. Punch sewing holes

For two-needle sewing, the sewing holes (sewing stations) are an even number, in pairs. Commonly three or four pair are used, that is, six or eight holes. The workshop will use three pair (six holes).

Holes on cover boards. ½" in from the spine edge, mark six sewing stations on the boards. Normally, the top and bottom holes are ¼-1" from the ends of the cover. The other four holes are spaced out between those two. They may be evenly spaced or spread to create obvious pairs. Punch the holes with an awl or drill then. To be sure that the holes are big enough, thread a needle and push through the hole; if it won't go through easily (needs little more than a light tug), enlarge the holes.

Holes in the signatures (quires). Create a jig to use in marking and/or punching the holes in the signatures. Carefully transfer the positions of the holes in the covers to the jig. Using a cradle (or a telephone book), place the open signature into the cradle, position the jig, and punch the holes. *Note:* Because you are punching from inside to outside of the signature, it is useful to check how the hole looks on the outside of the signature. If it doesn't show up well, punch it more from the outside to make the holes easy to see. (You'll be sewing into the holes from the outside, so it's important to be able to see the holes easily.)

4. Assemble the unsewn book

Put the signatures in order. Number them lightly on an outer corner (top or bottom) in pencil. Position the stacked signatures between the cover boards, being sure that the head of each cover is oriented properly.

Place the assembled book in front of you face up, with the spine facing away from you (the head of the book on your right).

5. Prepare needles and threads

Choose the thread and collect six needles. Measure off three long pieces of thread – if you won't want to calculate the amount needed, just cut somewhere between more-than-one-arm's length and two-arms'- length.

If you prefer to calculate the thread, the formula is

Distance between stations X # of signatures and covers X 2 + 2 feet extra

Thread a needle onto each end of a piece of sewing thread; repeat with the other two pieces. You will now have three long threads, each with a needle on both ends.

6. Sew the book

Position the cover and 1st signature for sewing. Bring toward you the front cover and the first signature, flipping them so they lie with the cover facing down. The book is sewn from front to back so that the final tie-offs are in the back of the book. Be sure to keep the head of the book and the head of the signature aligned.

Setting a consistent pattern of sewing. When sewing, perform each step on all holes in succession, then do the next step on all holes, etc. Work from the right end to the left end, or vice versa—either is fine. The goal is a consistent pattern/movement for each step. *Note:* right-handed people tend to start at the left end, while left-handed people tend to start at the left, because in each case it is easy to move your arm outward when pulling long threads.

Set up the sewing, using the 1st signature. Position the cover face down, spine toward you; put the signature on top, aligned properly.

- Taking the 1st signature, sew from the inside of the end station to the outside of the signature; then sew the other end of the thread into the next-nearest hole; adjust the threads so that they are even.
- Repeat for the other two pair of stations/needles.
- At the end of this step, all threads are hanging from the outside of the six stations.

Adding the front cover. Pick up the signature and the cover together.

- Starting from the end hole, sew from the inside to the outside of the end hole of the cover; then sew again from the inside to the outside of the same cover hole. You have now wrapped two stitches around the cover hole.
- Repeat with all the other holes. At the end of this step, all threads should be coming out the inside of the cover.
- Beginning with the end hole/station, sew back into the 1st signature.
- At the end of this step, all threads are hanging from the inside of the 1st signature.

Sew a cross-over. For each pair, sew a cross-over:

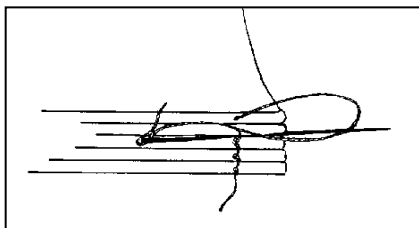
- Sew each needle out the *other* hole of the pair.
- When completed, each pair will show the double/crossover stitch inside the signature, and the needles will again be hanging from the outside of the 1st signature.
- Repeat for the other two pair of stations.

Tighten all stitches. Carefully but firmly tighten all the stitches so that the first signature is firmly tied to the front cover. When tightening the threads, pull them up rather than side to side—the thread will tend to tear the holes, and pulling upward will usually do less damage. Use the same pressure/tightness on all holes.

Add the 2nd signature. Flip down the 2nd signature, align it, and begin sewing it to the 1st signature:

- Sew into the 2nd signature and do cross-overs.
- At the end of this step, all threads are hanging down from the outside of the 2nd signature.

Add kettle stitches (Coptic stitch; chain stitch). Beginning at the end hole/station, make a kettle stitch at each station. See illustration below.



Kettle stitch illustration from *CoOL*, an online resource operated by the Foundation of the American Institute for Conservation: <http://palimpsest.stanford.edu/don/dt/dt1945.html>.

- Count down two “spaces” (“valleys”) between signatures/cover. The first valley is below the signature the thread is coming out of; the second is the next signature down.

- Slide the needle into the space (valley) and behind the thread already sewn. Pull the needle out and tug the thread upward slightly to tighten
- Flip and bring forward the 3rd signature; sew into the hole/station of the 3rd signature; do a cross-over and sew out of the other hole.
- Repeat with all other holes/stations.
- Tighten all the threads and stitches.
- At the end of this step, all the threads have a kettle stitch, have crossed over inside the signature, and are now hanging down from the 3rd signature.

Repeat with each remaining signature. Repeat this process with all other signatures: do a kettle stitch, sew into the next signature, cross over, and sew out of the signature.

Attach the back cover and tie off. After the final signature is sewn, attach the back cover.

- Flip the cover and bring it forward. Sew into the cover hole from the inside to the outside; sew through the cover hole a second time.
- Sew back into the hole in the final signature; all the threads are now inside the final signature.
- Tighten the stitches; remove the needles; tie off each pair of threads with a square knot; trim the threads to ¼ - ½“.

Optional approaches

Add partial “covers” to each signature. Use narrow strips to cover the spine edge of each signature. These can be all the same color and/or pattern or can be mixed. Sew as usual, treating the spine covers as folios in the signature.

Book covers. When covering the boards, leave the flap for the spine unglued and do not add pastedowns at this stage. Instead of punching holes into the book board, punch them in this flap. Sew as usual but treat the cover just as you would another signature. At the end, tie off inside this flap on the back cover. Then glue down the flaps and dry under weights (stand book on spine, protect text block with waxed paper, add weights to each open cover). When dry, add a pastedown or use the first and last pages of the text block for the pastedown; the latter will help hold the book together and will lessen “wobble.”

Adding accordion/concertina cover to spine. Adding an accordion to the spine strengthens the book and reduces “wobble.” Cut an accordion strip with a height to match the signatures and with enough folds (valleys) to hold all the signatures. The ends of the accordion should be long enough to create a half-page size; may also be cut long enough to be pastedowns. The paper needs to be very pliable, easy to fold and handle. When sewing, slot each signature into a valley and sew as usual through the accordion then into the signature.



Handout prepared by Addeane Caellegh (asc8f@virginia.edu) for the Bookmaking Group of the Virginia Arts of the Book Center, Charlottesville, Virginia, May 2012.

The VABC is a community of print, paper, and book artists from throughout central Virginia. The bookmaking group welcomes everyone interested in bookbinding and making books. Contact the group coordinator at asc8f@virginia.edu / 434-982-6571.