Pennsylvania German Liturgical Bindings A preliminary exploration



Library Company of Philadelphia (AM 1742 Aus Germantown)

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General Vocabulary:

Anabaptist: From Wikipedia accessed 8/30/2016 Anabaptism ... is a Christian movement which traces its origins to the Radical Reformation in Europe. Some consider this movement to be an offshoot of European Protestantism, while others see it as distinct. [The Amish, Hutterites, and Mennonites are direct descendants of the movement. Anabaptists were heavily persecuted during the 16th century and into the 17th century because of their views on the nature of baptism and other issues, by both Magisterial Protestants and Roman Catholics. Anabaptists were persecuted largely because of their interpretation of scripture that put them at odds with official state church interpretations and government. Most Anabaptists adhered to a literal interpretation of the Sermon on the Mount, which precluded taking oaths, participating in military actions, and participating in civil government. Continuing persecution in Europe was largely responsible for the mass emigrations to North America by Amish, Hutterites, and Mennonites. "Pennsylvania Dutch are a cultural group formed by early German-speaking immigrants to Pennsylvania and their descendants. This early wave of settlers, which would eventually coalesce to form the Pennsylvania Dutch, began in the late 17th century and concluded in the late 18th century. The majority of these immigrants originated in what is today southwestern Germany, i.e. Rhineland-Palatinate and Baden-Württemberg; other prominent groups were Alsatians, Swiss, and French Protestants. Historically they have spoken the dialect of German known as Pennsylvania German or Pennsylvania Dutch. In this context, the word "Dutch" does not refer to the Dutch people or their descendants. The first major emigration of Germans to America resulted in the founding of the Borough of Germantown in northwest Philadelphia County, Pennsylvania on October 6, 1683. ... The Pennsylvania Dutch maintained numerous religious affiliations, with the greatest number being Lutheran or Reformed, but many Anabaptists as well.

Edge Coloring: This refers to a pigment or dye used to color the edges of the textblock. This was typically done with the boards attached in the Pennsylvania German Books we observed. The color could be solid or sprinkled on. The colors we saw were blue and red. Red edge coloring is still typical on religious books today.

Frayed out cord board attachment: This refers to the process of mechanically softening and separating the parts of the sewing support cords left longer than the width of the textblock spine into their individual fibers, and then adhering these frayed out areas overhanging the spine of the text to the inner-face, outer-face or both faces of the board to attach the boards to the textblock. The majority of the Pennsylvania German books bound in America and found in the Library Company in Philadelphia had wooden boards attached to the textblock with frayed out cords on the inner face of the board, as did the Anabaptist books at the Eastern Mennonite School in Virginia. Jane Greenfield notes this type of board attachment in her ABC of Bookbinding in the 17th-century structure section. Julia Miller notes a board attachment using frayed cords adhered to both the outer and inner face of wooden boards on a what she calls a "late Eighteenth-Century Gothic" binding on a title printed in Stuttgart 1778. This is well described in her Books Will Speak Plain p. 71-76.

Gothic Binding: J. A. Szirmai in his Archeology of Medieval Bookbindings has an entire chapter on the features of a Gothic binding, pp. 173-284, though he does not apply the word Gothic to bindings after about 1600, since he confines his research to the medieval period. Szirmai specifically defines the dominate feature of medieval Gothic bindings as " ...the slips of the sewing supports enter the board over a beveled edge of the outer face." (p. 173-174). Other Gothic features Szirmai notes in his chapter include a heavily rounded textblock spine, the advent of the plough to trim the book edges of both parchment and paper textblocks, and wooden boards made deliberately larger than the textblock to produce squares. He also notes that fastenings to hold the book closed were very typical. Metal furnishing were seen more on heavy liturgical books in the Gothic period in his assessment, and it is important to note that these could easily be added much later to books.

Late Eighteenth Century Gothic Binding: This is a set of structural features described by Julia Miller in her Books Will Speak Plain: A Handbook for Identifying and Describing Historical Bindings 2010 pp. 71-76. The late Gothic style Miller discusses describes a number of changes in a binding style that still has heavily beveled wooden boards, stout sewing supports and clasps associated with earlier Gothic books but was produced in

the late 18th century. These later features include what could be called "short-cuts" like an abbreviated sewing pattern. sewing two cords as one to also speed up the sewing, not lacing the boards on with the cords, but instead fraying the cords out and adhering them to the inner and outer face of the board, adhering a prewoven or pre-sewn endband the spine instead of anchoring the endband in the middle of the sections with thread as was often done on earlier books.

Pre-woven endband: This term was used in Nichlolas Pickwoad's handouts given in the Rare Book School class "European Bookbinding 1500-1800" taught in 1993 at the University of Virginia. He used this term to describe a German 18th century endband woven off the book and adhered directly to the spine folds. According to his drawing, 16th and 17th century German/Dutch books often had endbands of textile rolled around a core of cord, with a front-bead or other pattern of decorative stitching worked on the book after the adhered textile had dried. Both types of endbands are seen on the Pennsylvania German bindings. Julia Miller calls this type of endband "loose-weave cloth stuck-on" on page 389 of her book. Her glossary on page 472 notes the description of "cloth with a looped selvedge edge" as a type of textile endband. Winterthur Textile conservator Joy Gardiner, in conversations about the endband noted that the endbands on the Pennsylvania German books I showed her did not look like typical 18th century textile products she had seen, but seemed to have been made on a tape loom. Jeff Peachey <u>http://jeffpeachey.com/</u> noted that if you weave these with a twist of colored thread on each side and the weft thread in between as a "fringe", you could cut the fringe in half and get two endbands out of one length of weaving, which does look like what was done in some of these books.

Spine strap: (note: there is probably a German word for this feature, but we have not found it yet. This term is made up for convenience at this point) Spine straps are separate pieces of leather or hinged metal attached mechanically across the spine of some Pennsylvania German bindings. They are located at the head and tail, and sometimes a third strap is attached across the middle of the book. The leather style spine strap can be a single thick piece of leather, or more typically they are folded around a core of thick paper or sometimes tawed skin. Each end of the spine strap is attached to the board of the book, sometimes with visible nails, but the strap is not adhered to the spine of the book. The leather straps can have metal, often brass, attached to it in various ways. The leather can be similar or different in color than the covering leather of the book. The metal style spine strap has a variety of hinged metal arrangements, judging from photographic evidence, which is all we have seen of them.

Tape Weaving: From the Marariley.net website <http://www.marariley.net/tapelooms/tapelooms.htm>. "Tape looms of various sorts were used from ancient times through the early 19th century to make straps, tapes (a period term for what we'd call ribbon) and other narrow woven goods. Most traditional tape looms weave a warp-faced tape and use a rigid heddle to change the warp shed. Woven tape was used for items such as garters, apron strings, belts, ties for pillow bolsters, straps for powder horns or hunting pouches, carpet binding, trim for women's pockets, ties for seed or grain bags, loops for hanging up towels ~ the list goes on and on.

Transverse Spine Linings: This term was used by Nicolas Pickwoad in his 1993 Rare Book School teaching materials, (see above). It describes a spine lining that is wider than the spine of the textblock, cut in strips to fit between the sewing supports in the spine and adhered to the spine folds to control the movement of the textblock when it is opened for reading. The sides of the transverse linings which overhang the spine of the textblock are typically adhered to the inside face of the boards. In the Pennsylvania German bindings, these are typically strips of coarsely woven textile, and are seen all books of all sizes, but especially in larger volumes.

Underpastedown Stubs: In Pennsylvania German bindings, the first leaf of the double folio endpaper was often torn or cut to about 3-5 cm wide and used as part of the board attachment. The profile of this can be seen under the pastedown. In this situation the stub from the endpaper would go under the turn-ins, since it was part of the board attachment. To complete the head and tail turn-ins of the covering material, the stub would be slit at the joint, or the covering material would be slit up to the edge of the board to avoid slitting the stub. The profile of the under pastedown stub in these books seems to typically a straight cut rectangle, with occasional 3 cuts when the binder decided to miter the edges of the stub slightly.

Vocabulary for Metalwork

An **alloy** is a metal made by combining two or more metallic elements. Metals are alloyed to change their working properties and to influence other qualities such as corrosion resistance, appearance, or cost.

Brass is mainly an alloy of copper and zinc, with other metals (like lead, nickel, aluminum or tin) occurring in trace amounts at times. The proportion of zinc ranges from 5-50% and with it the look and nature of the brass alloy changes. Gilding metal (95:5), Muntz metal (60:40 with a trace of iron), Naval brass (60:39:1 tin), Red brass (85:5: 5 tin, 5 lead) and Yellow brass (67:33) are examples of brass alloys. Alloys with less zinc are softer and warmer in tone than the harder, whiter alloys with a greater percentage of zinc. Brass alloys with 35% zinc or less are suitable to cold forming whereas alloys with a greater percentage of zinc should be worked hot. Brass is more corrosion resistant, has a higher tensile strength, and casts better than copper but it is less malleable.

Book furniture/furnishings are the terms that have been used by E. Durrfeld and J. A. Szirmai, respectively, to describe metal attachments to book covers - metal pieces (mostly brass and to a lesser extent, iron/steel, silver or gold) that are attached to the boards after covering. Examples include bosses, edge guards/pieces; corner and center pieces, and clasps and their component parts: hasps, strap anchors, and catch plates or pins. The term fastenings is used as another category of attachments that could include metal clasps as well as non-metal closures like twisted skin and bone closures. Furniture was often attached for utilitarian purposes: clasps were used to keep the covers closed; chains were employed for security in Gothic chained libraries; and bosses, corner, edge and center pieces were meant to protect leather covers from wear. Furniture was typical of Romanesque and Gothic wooden board bindings and gradually fell out of common use as book production increased and was streamlined, and as paste and binders boards were increasingly employed. Most furniture also had decorative elements of some sort: cut outs, raised or sunken areas, and/or filed or engraved embellishments. The type, character, and placement of the metal furniture were often emblematic of the country of origin. In the 18th and 19th centuries, furniture was predominantly found on religious texts and its presence appeared to be associated with spiritual import.

For the furniture that we observed as being largely specific to the Anabaptist bindings, we will use the terms (studded) spine straps (for the leather strap that extends between the covers) as well as name and date plates.

Punches are tools, typically with one blunt end and a narrower shaped end, that are struck with a hammer in order to mark, decorate or pierce holes in metal. Most punches are steel but some are made from wood. They can be used when working metal either cold or hot, depending on the metal and intended effect. We will use center punches to make a divot in the brass sheet for drilling, and we will use a variety of sizes of domed decorative punches to sink depressions into the work.

Nail sets are tools, similar in shape to punches, which are used to sink a nail head, flush with or below the surface of the underlying material.

Planishing hammers are polished hammers with one domed face and one flat face. They are typically used to true up raised or shaped forms. Rawhide hammers have a head made from coiled up rawhide and sometimes they have weighted core. They are used to bend metal without forging it or marking the surface.

Overall Features for these Books

The Anabaptist bindings in America we have seen are just a few out of larger collections, and there is more work to be done in studying their unique aspects.

Time — European printings recorded from 1709 to 1830s, American printings from the 1740s to the 1840s. Metalwork is dated and in some cases was added quite a bit after the date of printing. Dated metalwork ranges from 1709 - 1880, a nearly 200 year span.

Geography – this style has been observed on bindings on European printings from Switzerland and Central and Western Germany: Strassburg, Basel, Frankfurt, Zurich, Pirmasens, predominantly, and in in North America in Germantown, Lancaster, Ephrata, Philadelphia. Presently, in North America, these items are currently found in larger numbers in institutions with Pennsylvania Dutch and Mennonite/Amish heritage collections: in Indiana, Ontario, Ohio, Pennsylvania and Virginia.

Binding and Strap Features:

- Sewn on stout cords used to attach the boards. Often open to sewing in the endpapers, with an under pastedown stub. The textblock spine is sometimes very rounded. Backing is minimal.
- The textblock edges are usually ploughed
- The spine is often lined with strips of course linen, especially on larger books
- The boards are wooden, often quarter sawn and fairly thick (1/4 inch or more often)
- The inner faces of the boards have a narrow (2-4 mm) bevel at the spine edge and wider bevels (7mm more or less) at the head, tail and fore edge.
- The outer face of the boards often has a pronounced bevel along the spine edge to create a smooth transition from the spine of the book to the outer face of the board. Typically the fore edge has shaping as well.
- All the examples had clasps, and it was common for a space to be removed from the board fore edge where the straps would be attached. The boards often did not seem to have material taken out in a shallow recess to allow the metal fastening attachments to sit flush on the covering.
- The boards are rarely laced on. Typical board attachment was done by fraying out the bulky cord sewing supports and adhering them to the inner face of the boards.
- Endbands were not usually sewn into the textblock but were often pre-woven using white thread surrounding a twist of several blue threads. Other types included linen folded around a core and used as a base to support a blue and while thread front-bead endband pattern.
- Often the white loops showing above the spine were empty, but a few stray blue threads showed there had once been a twisted "core" of thread inside the empty loops.
- Endbands, especially in the earlier examples, crossed the joint and were adhered to the outer face of the board. This required the covering material to be slit at the joint when completing the head and tail turn-ins.
- The edges of the textblock were stained or sprinkled, usually after the boards were attached. Red is the most common color, but blue was seen as well.
- The book was covered in edge pared dark or medium brown calf or sheepskin, slitting the stub in the joint as needed, or cutting the leather as needed. No other paring was observed.
- Turn-ins were not regular, and left untrimmed.
- Corners were lapped.
- The simple caps covered most of the endband, and had no observable shaping or flattening. They were lower than the height of the boards, sometimes significantly lower depending on the height of the squares.
- Some bindings had spine straps, or evidence of former spine straps. The leather spine straps were usually the same color as the covering leather, but replacement straps could be a different color. Metal spine straps can be seen in pictures.
- The straps usually folded around a thick paper core.

Pennsylvania German Bookbinding Bibliography

Bookbinding In America 1680-1910, With an Essay by Wilman Spawn, Bryn Mawr College Library, Bryn Mawr Pennsylvania, 1983. Some black and white images of early Pennsylvania German bindings, a few with bosses and spine straps.

Bookbinding in America: Three Essays, Ed. Hellmut Lehmann-Haupt, Bowker, New York and London, 1967. The Hannah French essay mentions, on page 26, that the German Radical Protestant bindings done at the Ephrata Cloister were "...almost medieval in character."

Dreis, Hazel, "Lancaster, Pennsylvania, Bookbindings: An Historical Study", *Bibliographical Society of America Papers* 42 (1948) pp. 119-128. Focus in the bindings from the unique religious community at the Ephrata PA Cloister and the surrounding area of the county. She recognizes the studded spine straps as a Swiss bookbinding feature, and assumes whoever originally taught bookbinding at Ephrata, passed on Swiss custom. She notes that a 1938 article by Lawrence Worth describes these book with spine straps in the *Colonial Printer* (Southworth Press, Portland Maine, second edition p. 211) and he thought spine straps were for pulling the books off the shelves! She also notes a "peculiar tape" was used instead of endbands, and she describes how none of the books have laced on boards.

Foot, Mirjam M, *Bookbinders at Work, Their Roles and Methods*, British Library and Oak Knoll Press, London and New Castle DE, 2006. Foot makes extensive use of German bookbinding manuals in her book. This is gives insight into some practices common in the Pennsylvania German binding.

Haverstick, Tony, "Pennsylvania German Bookbinding and Anabaptist Bookbinders 1700-1840", *Pennsylvania Mennonite Heritage*, July 2000, pp. 8-14. Article from a practicing bookbinder, with observations on German features in the bookbindings he has handled.

Luthy, David, "Metal Initial and Date Plates on Amish and Mennonite Books Known to Exist in North America", *Pennsylvania Mennonite Heritage*, July 2012, pp. 2-14. Hard to find, but excellent census of Amish and Mennonite books with unique metal work initial and date plates nailed to the cover. Many of the books are printed in Europe, and were likely bound in Europe. This is an update of an earlier article: Luthy, David, "Metal Initial and Date Plates on Amish and Mennonite Books," *Pennsylvania Mennonite Heritage*, January 1984. pp. 2-8. Luthy also wrote a "The first Century of German Bibles printed in North America," *Pennsylvania Mennonite Heritage*, October 1990, 32-38. He has also published *Pathway*: A History of the Printing of the Martyrs' Mirror, Aylmer: Pathway, 2013.

Milevski, R.J, Villeruss V., "Reading the Bible, Preserving the Precious Text,: Latvian Peasant Metal Clad Bindings", *Library History*, Vol. 24, no. 2, 2008 pp. 128-142. Like most uses of the word "peasant" in conjunction with the work binding, the reader should be on alert.

Miller, *Books Will Speak Plain*, The Legacy Press, Ann Arbor, MI, 2010. Page 67 has an image of what she calls "American Gothic". Her section on 18th century Gothic is useful, and the photographs are a valuable resource.

Swank, Scott T, Arts of the Pennsylvania Germans, Norton, New York, 1983. Small section on binders in the German Colonial world. An image of the Winterthur copy of Martyrer Spiegel, though the spine strap is not shown.

Szirmai, J.A., *The Archaeology of Medieval Binding*, Ashgate, Aldershot England, 1999. Extraordinary resource, and one of the best sources of drawings on metal clasps and furnishings.

Zsuzsanna, Toth, A *Tot Kotesek*, Nicholas Pickwoad notes the book seems to be self-published in Hungary with images of metalwork on books, including spine straps, though I have only seen scans of a few pages.

Possible Suppliers:

Wooden Boards: Colophon Book Arts Supply <http://colophonbookarts.com/> supplies handy ¼" white oak board pairs in various sizes. Jim Croft often sells wooden boards as well, when he attends the Guild of Book Workers Standards of Excellence seminars.

Weaving supplies for endbands made on a tape loom: There are lots of great weaving sites with information about tape weaving. I found a useful little book to purchase from East Knoll <<u>http://www.eastknollpottery.com/tape-looms.html</u>, and also purchased a paddle loom from the site. There is at least one site devoted to historic tape looms in Pennsylvania <<u>http://www.marariley.net/tapelooms/tapelooms.htm</u>.

Linen for spine linings: Airplane hinging linen from Testfabrics is a useful weight.

Edge coloring material: Vermillion from Kremer pigments is the most authentic. Mix the powder with water and a little paste. This is, however, a toxic substance (mercury). You can get a similar effect with liquid acrylics. http://www.kremerpigments.com/

Wheat Starch Paste adhesive: You can make your own out of cake flour and water cooked 4:1.Some folks swear by ready to mix instant pre-cooked paste for covering in leather.

Heavy paper for the spine strap cores: Heavy Cave Paper (handmade paper) works well! <http://cavepaper.com/>, or heavy Paper Case Paper from University of Iowa. (No longer made)

Suppliers for Metalwork:

Brass Sheet: 26 and 22ga dead soft brass sheet. 26 ga is easier to punch and fold over the edges of the boards. The 22 ga. is better for making clasps. Get them from Rio Grande in 6x12" sheets. Jewelry tools, dapping blocks, center punches, and special hammers can also be purchased from Rio Grande www.riogrande.com.

.Brass tacks: The look and function of brass tacks made for shoe making is nice. The tacks are about 7/16" long and the heads are flat and approximately 1/8" round. Obtained from DB Gurney Company. www.dbgurney.com SKU 005-016

Brass studs for spine straps: Can be obtained from www.etsy.com/shop/DIYstudsrivets#. 8mm Gold round dome purse feet and 8mm Brass Round dome purse feet have worked for models in the past.

Punches can be modified form metal nail sets or center punches by filing or sanding the tip with emery paper.

Drop Forged metal snips don't appear to be made like they used to. You can pick up a nice older pair from EBay for about \$15. Look at the condition of the jaws before purchasing.



using a banding stick to smooth leather on the . spine (teplon folder will also work)

From Arthur Johnson Bookbinding 1978



one method of Rounding - brom Hewitt - Bates Book binding for Schools 1946

tying - up - boards



From Douglas Cockrell, Bookbinding and the Care of Books

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How to Make Clasps Typical of American Anabaptist Bindings



Materials and Tools 16-20 ga brass sheet jeweler's saw/metal snips/metal shear metal files small jeweler's pliers vise riveting hammer/cross pein/ball pein hammer flat faced hammer with polished face anvil of some kind steel binding wire for rivets pins (you can also use brass escutcheon nails or commercially available rivets like these)

Straps

Make two leather covered straps, oversized in length and with a finished width that will set into to the indentations filed in your boards. Use a parchment core for the strap. When dry, cut one end of each strap to a shallow point.

Hasps

(1) Cut rectangular pieces of metal for the hasps that measure approximately 13mm wide and between 3 and 5 cm long, depending on the thickness of your book.

(2) Using a cross pein, or the edge of a flat faced hammer, draw out the corners and bottom edge while holding the hasp on the face of the anvil. Draw the metal out in these directions. The metal will stretch and thin and should look like this. Using a polished, flat face hammer, smooth out your hammer marks.





(3) With snips or files, cut out this shape at the end you just forged. File the shank of the hasp to get the proportions you want. Then file at an angle on the sides to add a decorative accent.

(4) Center punch and drill three holes in the hasp in the locations shown. The holes should be exactly the same size as the rivet shank. Mark the width of the tongue with your dividers and cut out. Use a needle nosed pliers to make the curve in the tongue to catch on the catch plate.





(5) Rough cut a thin sheet of steel/iron for the inside of the hasp that covers all of the drilled holes with room to spare but doesn't extend beyond the edges of your hasp. Predrill the bottom two holes on this piece, using the holes in the hasp as a guide.

(6) Make the rivets or use commercially available rivets. To make them, cut off oversized pieces of binding wire about 1-2" long. Clamp each one in a vise, leaving no more than 1-2mm overhanging. Using a riveting hammer and many light, rotating blows, hammer on the top of the wire to form a head, using the hammer to pull the material in all directions.



(7) Mark and drill two holes in your strap as well. Fit the two rivets to the lower two holes and pull them through the inside piece, the strap, and the hasp. Pull tight and mark 1-2mm from the top surface of your hasp. It is important that this package is tight and the rivet is seated well on the inside of the strap. Cut the rivet so that no more than the diameter of the rivet shank extends (about 2mm), and then file to a neat round circle. Place the hasp on an anvil and hammer the two rivets, taking care not to hammer on your hasp, as possible.

(8) Bend the top of the triangle down over the cut end of the strap and drill the third hole through the two pieces of brass. Rivet this one as you did the others.

Catch plates

(1) Cut two strips of brass oversized in length. Using a machinist's square, scribe a perpendicular line near the middle of each piece. Use this line as a guide to place piece in jaw of a vise and fold over to 90 degrees, using your hands or a rubber or rawhide mallet.

(2) Place a nail or a piece of binding wire in the fold and fold the brass the rest of the way over. Place the piece on the edge of an anvil, with the nail side hanging over and up against the edge; hammer flat on the face of the catch plate to get a tube with a well-

(3) Remove the nail. Divide the rolled edge into thirds and using a jeweler's saw, cut out the middle, just beyond the hinge. File smooth.

defined crisp edge.

(4) Make the pins to fit your catch plate. The pins are made in a similar way to the rivets. Work harden the pin material if it is very soft by hammering lightly while rolling the pin on an anvil. Cut the pin to length (width of catch plate) + 3mm and place in vise. Dome each side of the pin so that the heads will be just outside the catch plate tube.

(5) Open the catch plate and insert your pin to check the fit. Center punch and drill the catch plate and attach to the boards. If you like, you can lift the leather covering and insert the catch plate under the leather, but many examples were also just placed on top of the leather.







Attach Straps

(1) Hook the hasps onto the catch plates and, with a weight or while putting pressure on your back cover, pull the strap firmly onto the board and mark the length of the strap. Drive an awl through the strap and board to mark the fastening point.

(2) Cut the straps to length. Cut a slit in the leather at the edge of the board and lift the leather covering to accommodate the strap (you may need to wet it after cutting in order to lift it. Drill and attach the strap with a large round nail. You can also do a simple strap anchor plate, a rectangular piece of brass with two holes drilled in it for fasteners. Your straps should have enough tension to stay clasped but not too much that you can't undo them!



GBW STANDARDS 2016

Anabaptist Bindings - Metalwork Features

Metal furniture on Anabaptist bindings was generally abundant, compared with contemporary items and considering the size of the bindings. Most pieces were brass but some bindings had pieces made from thin, iron sheet that appeared to be tinned.



Of those bindings with metalwork they often had corner pieces, centerpieces, clasps, and spine straps. Corner pieces ranged from simple large domed tacks as bosses, to decorated edge, corner or centerpieces with raised bosses or large tacks that served as both a boss and as a means of attachment. Corner and edge pieces were turned over the edge of the board in most cases. Metalwork was fastened to the boards with small brass tacks with either flat or domed heads that often came through the inside of the board and pastedowns.

Corner-, edge-, and centerpieces were often cut from sheet, adorned in some cases with fine, linear punch work, and bosses were raised. Some pieces had scalloped or decorative edges that appeared to have been cut with curved chisels.



Many of these items have date and initial plates, which was not at all common generally but occurred on a good number of both European and American Anabaptist items. Name and date plates often took the form of centerpieces with an initial plate on one cover (often on the front board, but not always) and a date plate on the other. It appears that the initial plates indicated ownership. David Luthy conjectures that the date plates record dates of varying significance including the owner's baptism, his/her birth date, or the year of rebinding. Dates and initial plates were also found as edge guards on the fore edge as well as punched on the inside surface of a hasp.



Clasps were often simple with either hook or pin catches that fastened on the front board, consistent with the German tradition.

Seemingly unique to Anabaptist bindings, many examples have leather spine straps that are attached to the covers and bridge the spine but are not adhered. Some were plain leather straps but many were adorned with brass studs or domes fashioned out of sheet and either wrapped around the leather strap or inserted through it and folded over on the inside of the strap. There are even a few examples with chain-like all-metal straps. Some items had two straps, anchored under corner pieces at the head and tail on both boards, while others had three, with the central strap inserted under the lifted leather covering and fixed with a brad or tack and brass washer.



Metalworking techniques

In the workshop, we will focus on making the types of simple metal pieces, observed frequently, that didn't require specialized tools or equipment to make and could have been fashioned by the binder. These pieces were worked cold, cut out from sheet, decorated with punches, and attached to the boards with brass or in some cases iron tacks or nails that came through the pastedowns after covering and finishing.

Working with Brass

Be mindful that polished brass can be easily scratched.

Work Hardening, Annealing and Pickling

Brass gets increasingly brittle and rigid as you work it cold in a process called 'work hardening'. If you overwork the metal (stretch it too thin, bend it too many times in one place, e.g.) fissures or cracks will form in the metal. Work-hardened metal needs to be annealed periodically. For copper and brass, this is done by heating the metal up with a torch to a dull red heat and then quenching it in water. This process reverses the effect of work hardening making the metal softer, more ductile, and less brittle. We will be working with 26-24 ga dead soft brass sheet, and we will likely not be work hardening the sheet enough to require re-annealing.

Cutting / Forming sheet

These pieces are hand cut from sheet using metal snips or chisels. When cut with a good pair of snips with polished jaws and no nicks, the edges of the metal should require little or no cleanup with files or emory paper. A sheet metal shear could also be used to make many of the pieces.

Punching/sinking

Working from the back, we will strike steel punches in different sizes to decorate the sheet. You can use any relatively light hammer with a flat face. The sheet will need support from underneath during punching or else you will poke a hole in it. Various materials can be used including wood (end grain), leather, lead, and pitch. We will use lead in the workshop. Lead and wood provide good support for the small punch work and can work well for the bosses if you don't mind having a softer, shallower impression. Experiment with different supports and decide on the look that you prefer.

Drilling

With very fine carbide drill bits, drill pilot holes into the metal are the same size, or slightly larger than than the shank of the brass tacks. When drilling into metal, mark your spot with a countersink before drilling or else the bit will skate around on the surface, marking the work. Hold the piece firmly with your hand or clamp it down while drilling as there is a risk of it spinning around dangerously. Drill at a slower speed than you would when drilling into wood. You will use the holes in your metalwork to drill pilot holes in the wooden boards as well, but these can be very slightly smaller than your tacks to ensure a tight fit. To get the best alignment, drill and fasten your piece to your binding with one fastener before drilling holes in the board for the other places of attachment.

Hammering

Strike the nails directly at first and then use a nail set to drive them in completely. Make sure your work is well supported on an anvil of some kind for the final blows, as this will flatten and turn the fine points of the brass tacks into the board. After fixing the corner and edge pieces to the board, use your fingers or a rawhide mallet to start turning the brass over the edge of the board. Finish off the turn-ins with a polished, flat faced hammer like a planishing hammer while supporting your binding on a sturdy work surface.

Metalwork Bibliography:

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Images:

From Library Company of Philadelphia. All books printed and therefore presumed bound in America. All have spine straps and other metal work.



AM 1785 Aus 67419.0 front and back overall



Board and textblock shaping and integration, AM 1743 Bible Borrede / AM 1742 Aus Germantown



Endband sewn on linen AM 1742 Aus Germantown / Empty loops on pre-woven endband AM 1785 Aus



Leather cut to go over textile endband AM 1743 Bible Borrede / cap shaping AM 1948 Bra Ephreta



Leather Spine Straps and metal brads of different types. Clockwise from top left: AM 1742 Aus Germantown / AM 1748 Bra Ephreta / back of strap for AM 1748 Bra Ephreta / AM 1785 Aus 67419.0



Punchwork on center plate AM 1743 Bible Borrede / Nails through pastedown AM 1748 Bra Ephreta



Frayed cords attaching boards AM 1742 Aus Germantown / Strap formation AM 1748 Bra Ephreta



Linen transverse linings AM 1742 Aus Germantown / Stiff opening for smaller books AM 1742 Ausbu Germantown



Handwoven endband, using a rigid heddle. Blue thread on both sides (observed by Jeff Peachey) would be more efficient, producing two endbands for cut of the weave. Typical lapped corner *AM 1748 Bra Ephreta*



Brads and bosses typically caved in AM 1743 Bible Borrede / Clasps still functioning AM 1743 Bible Borrede