

## Boards and Their Attachment

[Cover to Cover: Exposing the Bookbinder's Ancient Craft](#)



Whether wood, paste-board or other, the boards provided the ultimate protection for any book, bound or cased. Attachment of the right boards in the correct manner was crucial if the book was to retain its strength over time.



*Elementa chemiae. Herman Boerhaave. 1732.*

*Here the lifting leather cover is exposing the attachment of the boards using cord.*

Board thickness having been determined during the backing process, the next step was to cut the board to size. Measurements for 'in-board' books and 'out-board' work were taken differently. In traditional in-board binding, the boards were laced onto the cords upon which the book had been sewn. The book was then cut in the boards. In out-board work, the book was cut first and the boards attached to the book later. For in-board work, the boards were cut square to size, such that a portion of the board projected beyond the edges on all three sides. The overhang was at the binder's discretion, though it was advisable to keep the boards a little larger than necessary. Once laced in they could easily be trimmed down. If they were too small, another set of boards had to be prepared. For out-board work, the boards projected one-eighth of an inch beyond the head and tail of the book, and one eighth of an inch beyond the first (and longest) section. These measurements were marked in pencil on the boards, which were then cut to size with a cutting machine or guillotine. These were available from the 1840s but prior to this, binders had to cut the boards using a plough. Despite, or perhaps because of its being a centuries-old method, ploughing produced excellent edge results. Used in conjunction with a lying press, the plough required a good amount of pressure and speed. The binder lowered the boards, knocked up at the joint edge and usually between two protective wooden cutting boards, into the press. They were then pushed down until they projected about one eighth of an inch from the top of the press which was subsequently tightened. The binder then attached the plough to the lying press and, holding its handle and the end of its screw, ran it forwards and backwards, its knife cutting through the board. The boards were then knocked up together on their straight edges and lowered into the plough so that their other edges could be cut according to the pencilled measurements.

Full leather bindings were often given lined boards. Covering both sides of the boards with paper not only prevented the colour of the boards from showing through the endpapers, it also provided a surface that would take the paste evenly in covering and in pasting down the endpapers. A thin, quality paper was pasted over the board in a continuous lining which passed over the inside edge of the board twice. Two pieces of paper on the inside, and only one on the outside, nicely offset any outward warping caused by the leather cover. Once lined, the boards were put in the press, then pulled out to dry evenly on both sides.

Where the book had been sewn on cords, these would next be frayed. Partially unravelled prior to gluing the back of the book; now they had to be completely opened up using an awl, a small wooden-handled tool with a strong needle, such that all of the fibres separated. A light scraping against the edge of a knife further ensured any small fibres were removed and softened the remaining ones in the process. This made it easier to fit them into the grooves which would eventually be created along the joint edge of the boards.

The frayed cords, known as 'slips', were next turned away from the book and the boards placed on the front and back in the position they would eventually assume. Pencil marks were made on the boards to indicate the exact position of each slip. Holes were then made in the boards in line with those marks but from one quarter to three quarters of an inch in from the joint edge. The binder determined this distance based on the size of the book and whether it was to be cut 'in-boards' or not. The holes were created using the awl, which was hammered through the board from the outside. The board was then flipped and a second set of holes created, approximately a quarter of an inch from the first holes and at 45 degrees to them towards the tail.

Grooves, in the shape of a 'V', were next cut into the outside surface of the boards, from the joint edge, to the first set of holes. Although designed to accommodate the cords, the grooves were not to be too wide and never deeper than half the thickness of the board. The cut was made on one side with the knife at an angle, then on the other side, also at an angle, allowing the surplus board to fall out. Care was required when cutting grooves. If these were too deep, the strength of the board would be compromised, too shallow and the slips would lie unsightly above the board's surface. If they were too wide that excess gap would also become obvious once the book was covered.

The slips, having been frayed, were infused with paste again, the binder rolling their ends to a point, such that there were no straggling fibres. They were then pushed through the outside holes of the board whilst it was held vertically in the joint. They were then pulled through firmly and passed to the outside of the board again through the second set of holes. When satisfied that the board was attached with the correct amount of tension, the binder cut off the surplus cord just above the holes. The binder then carefully hammered the holes and the slips flat to minimise any lumps. When both boards had been attached the book was placed between pressing boards and put under pressure in a standing press.

## Boards for Cased-In Cloth Bindings

A cased book, unlike a bound book, had its covering made up separately. It did not have its boards attached prior to covering. They could, however, be cut to size at this stage. The boards should fit comfortably close to the joint, with each edge projecting from about one sixteenth to one quarter of an inch from the book. The thickness of the board should also be carefully considered; a light board will be inadequate for a heavy book and a thick, heavy board could put strain on the cloth covering, particularly if it is thin.

## Board Types

### Wood



*Freywillig-auffgesprungener Granat-Apffel. Eleonora Maria Rosalia Troppau. 1708*  
*Wooden boards with brass clasps. Note the small holes; a likely result of woodworm activity.*

Until the middle of the 15th century, wood was the primary material used in Europe for boards. Birch, beech, pine and poplar were used, though oak was the most common to French and English books. Boards of this era were often given metal clasps, which, combined with the weight of the wood, made them ideal for books on vellum. In a damp climate such as England, where moisture would quickly cockle the pages, the heavy boards and their hardware acted like a permanent press, keeping the leaves from springing up, whilst also protecting them from dust and to a certain extent insects too. Until the 13th century most of these boards were square at their edges but by the 15th and 16th centuries boards were increasingly being bevelled, and not just along their outer edges but along the inside back edge. This went a long way towards eliminating the clumsy effect of thick, wooden boards, and probably evolved out of board attachment methods of the time, most medieval books having been sewn on heavy cords or thongs which then had to be laced through the outside of the board and fastened on the inside by means of a wedge. The use of wooden boards began to decline early in the 16th century when books began to appear in more convenient sizes and pasteboard offered a viable substitute.

### Pasteboard



Towards the end of the 15th century pasteboard began to replace wood as the preferred board for books. By the 16th century it was in common use in England. It was thought that the earliest pasteboards were made by binders who pasted several sheets of paper together. Though most of the paper was blank, white and unsized, some of it was likely wastepaper from the early printing establishments, thus providing a clue as to the origin of the binding. By the mid-1500s a variation of the early pasteboard appeared in the form of waterleaves. This involved pressing leaves of paper together whilst they were wet. This formed a tight bond between the layers which was more difficult to delaminate than traditional pasteboard. It can be found in books up to the late 1800s but its popularity was superseded by pulpboard long before.

### Pulpboard

Pulpboard, made from old paper ground in a mill to a slush or 'pulp', was thought to originate in the 1600s. Though usually made from book-edge shavings, it is not uncommon to see visible traces of vellum shavings, fabric scraps, printed text, even wood chips and straw. Pasteboards have worn remarkably well, though today's



conservators do find themselves busy reconstructing board corners that deteriorate once the covering material has lifted away.

### Rope-Fibre Millboards

A product of the late 1600s, rope-fibre millboards are thought to be the result of a proposed imposition of a heavy duty on paper and pasteboards made or imported into England. Made in a mill and composed of cables and ropes discarded by the shipping industry, millboard replaced paste- and pulpboard for fine bindings. The early hand-made millboards tend to be dark brown in colour; sometimes they have a distinct tar smell, a residue from the ropes, which makes them particularly unattractive to insects. Later varieties from the mid-1800s are mostly machine-made and can be obtained in many grades, the best quality being 'black' and the cheapest, 'grey' board. Handmade rope-fibre millboard was particularly strong and durable and though difficult to cut, many binders of fine work lament the fact that it is no longer readily available.



### Strawboard

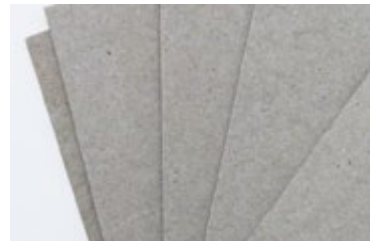


No longer used in binding, strawboard was manufactured from straw from the 1860s, and until the 1880s found its way onto many a publishers' cloth binding. As the name implies, strawboard is yellow in colour and although it is, arguably, stronger than pulpboard, it had a tendency to crack easily.



### Current Binders' Board

Today most binders use a quality, acid-free board with a pH level above 7.0. It is usually made of pressed, recycled papers and it is of high density, its single-ply construction ensuring great warp resistance and excellent dimensional stability. Fortunately for binders, it's now available in a variety of thicknesses which reduces the need to glue two pieces of board together to achieve the perfect width and weight.



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