

J E N   L I N D S A Y

*A   L i m p   V e l l u m   B i n d i n g   S e w n   o n   A l u m - t a w e d  
T h o n g s*

## **Introduction**

The fact that little is generally known, or published, about the provenance, history and technique of limp<sup>1</sup> vellum binding, and that the subject has thus remained very much on the periphery of popular conceptions of serious bookbinding, may be a legacy of ancient attitudes to the nature, uses and intrinsic value of books made with parchment and vellum<sup>2</sup>.

The use of papyrus, particularly in roll form, was regarded as a mark of great civilization and culture in the Graeco-Roman world; it was the material that cultivated, literate and discriminating people used, and this preference prevailed even as the new codex form of book began to appear about AD 100, for the majority of early codices are of papyrus<sup>3</sup>. Parchment and vellum were regarded very much as secondary, unsophisticated materials and were used only for ephemera, rough drafts, jottings, records, notes of business transactions and writing generally not intended for formal publication, that is, distinctly non-literary works.

Whilst the superiority of vellum as a writing material was soon established, it was never generally used to *cover* books: early codices were invariably covered with tanned leather, often decorated with blind tooling or scoring and blind stamping, with vellum occasionally used as part of the decoration. This was usually strips laced in and out of slits cut in the leather, or as a ground or underlay, sometimes gilded, visible through excised areas of the covering leather. It may be that vellum, having become associated in the public mind with rough, insubstantial and ephemeral writing, was never seriously considered an appropriate or suitable material for binding important or significant texts, and that this was reinforced by the physical difficulties that vellum presented, given the nature and structure of early codices. It is also possible that the process for the manufacture of vellum was not at this stage sufficiently developed, compared to that for papyrus, for vellum to be easily or widely available. The primary use of vellum in the western world thus became that of 'the finest writing material

ever devised by man'<sup>4</sup>, until it was eventually superseded by the use of paper, which reached Europe about one thousand years after its invention in China in AD 105.

It seems reasonable to assume that vellum would probably still have been used, however, in its secondary role throughout as workaday notebooks and account books: it did have the advantage that writing could be washed or scraped off and the material used again; thus the vellum notebook may well have been an everyday tool, fulfilling the functions of its modern counterpart, the Filofax. These notebooks initially would have been rather simple structures, perhaps just a single section gathering, with an equally simple wrapper-like cover secured by tacket-like stitches. Paper would eventually have replaced vellum as the text carrier, but a wrapper-like vellum cover may well have been retained to contain and protect the text: this would have made a light, portable notebook perfectly suited to its purpose and to its intrinsic value. It seems reasonable to assume that these continued in use in various styles, in various places and at various times, their existence unremarkable and taken for granted, whilst more formal books were subject to the vagaries of fashion and innovation (whether genuine or for its own sake) and thus became the focus for 'The History of Bookbinding' (or, to be more accurate, 'The History of *the Decoration of Bookbindings*').

The advent of the printed book in fifteenth century Europe presented bookbinders with the problem of how to cope with the increased amount of work generated by the new printing presses. Gutenberg's innovations<sup>5</sup> made possible the mass production of any given text, and this could be achieved with greater speed, economy and veracity to the original text than had previously been possible by copying by hand. Bookbinders somehow had to expand and accelerate their own production to meet the output of the printers. A certain amount of division of labour was part of the response to this, but more significant was the simplification of certain aspects of bookbinding

technique and book structure, and the increased use of informal structures such as limp paper bindings and, of course, limp vellum bindings. Indeed, what better way to use leaves from discarded vellum manuscripts, for 'waste' vellum is often found used as cover, flyleaves or spine lining.

The term limp vellum binding, whilst being a convenient generic term, encompasses, one soon discovers, a number of styles and structures (the diversity of which it is impossible to discuss here) with cross fertilization involving several cultures. I cannot help but feel, however, that these bindings are intrinsically, somehow spiritually, more akin to the Near and Middle East than they are to Middle Europe. Some of the finest extant limp vellum bindings are to be found in Italy and in Spain: both countries where Islamic influence has been an integral part of their culture<sup>6</sup>. The whole character of the structure and material of limp vellum bindings is reminiscent of the lightly-wrapped nature of some early Coptic codices and their Islamic descendants.

This article concentrates on one structure based on a type prevalent in Italy, dating from the fourteenth century and possibly in use before that. It was much used for archival records and for civil administration generally; for parish records, and for records of sales and purchases (of beasts for example), as artists' and students' sketchbooks and notebooks and, of course, eventually for printed books: in short, for all the needs and uses of a civilized culture.

It is impossible to convey in words the essence of vellum as a material or the sensation of handling a well made limp vellum binding. It is a type of binding that reveals and tests, perhaps more than most, the innate sensibility of the binder and his inherent understanding, respect and affinity for natural materials. It is a type of binding that also requires complete mastery of those materials, which can be achieved by good workmanship.

Some materials promise far more than others but only the workman can bring out what they promise... workmanship is the exercise of care plus judgement plus dexterity. These can be taught, but never simply by words. Example and practice are essential as well.

*The Nature and Art of Workmanship:*  
David Pye

## Sequence of operations

The book, consisting of a paper text-block, will be sewn on five thongs of alum-tawed<sup>7</sup> goatskin: three of these are the *primary* thongs upon which the text is first sewn, and the other two are the *secondary* thongs

which form the cores around which the endbands are sewn. All five thongs are eventually laced through the vellum cover to secure the text-block in the cover. On large books, you may wish to consider using double (or split single) primary thongs with branched lacing into the cover.

1 Select the vellum<sup>8</sup> for the cover: for very general guidance, skin of about 0.2 mm thickness is appropriate for small books, 0.3-0.4 mm for medium sized books and from 0.45 mm upwards for large books.

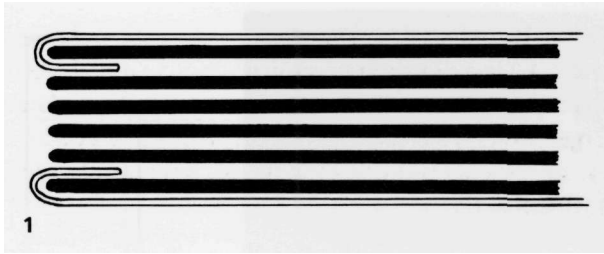
2 Select and cut a piece of alum-tawed goatskin of such size as is sufficient to provide the required number of thongs of the requisite length and width. The thickness, or substance, of the alum-tawed skin you use is important: for very general guidance, it should be about 1.5-2.0 mm thick. It should have substance that you can actually feel when you pinch it together on itself. The method of attachment of text to cover means that the thongs are gripped in, and by, holes punched in the vellum; the thongs must have sufficient body for this firm grip to work effectively.

The three primary thongs should be of such length that they will wrap around the spine of the book and come about half way across the width of the book on both sides.

The width of the three primary thongs should be approximately 4-6 mm, depending on the thickness and character of the skin and on the size, weight and area of the text. You should be able to pinch the thong together, flesh side to flesh side, and get a firm, substantial, rounded thong which will solidly support the sewing stitches that encircle it. If there is too little substance in the skin, the thong will not only look thin and weak but will not adequately support the sewing. These thongs are eventually laced in and out of the cover and are thus visible on the outside of the book: their general appearance, their weight and their width are integral to the aesthetic unity of the book.

The two secondary, or endband, thongs are of the same length as the other three but are, generally speaking, narrower. These should be cut about 5 mm wide, and certainly no narrower than 3 mm; but again this varies, depending on the substance of the thongs, and on the size, weight and area of the text-block.

Cut the thongs from the selected piece of alum-tawed skin: the easiest way to do this is to secure the piece with horizontal strips of double-sided adhesive tape to a cutting mat, flesh side down. Measure, mark and cut out each thong *individually*; remove any traces of adhesive tape from the thongs and from the cutting mat.



3 Prepare the endpapers<sup>9</sup>: each endpaper is a single folio with a guard of approximately 8 mm (depending on the thickness of the section and the width of the text spine margin) folded along the spine edge. Make them slightly oversize, particularly on the width (don't forget to allow for the guard) and trim them to size after the text-block has been sewn (point 9). The endpapers are hooked around the first and last sections (guard innermost) and held lightly in place for sewing with one or two touches of PVA on the back of the section [1]; or better, by a single loop stitch at head and at tail of the section which passes through the section at the kettle stitch point, goes over the top of the section and is tied off. These stitches can be removed after the text has been completely sewn. Indeed, all the sections can be secured thus prior to formal sewing if you so wish, and this informal securing of each section is much to be recommended when dealing with large sections and with vellum manuscripts.

4 Mark up for sewing; there is no need here to saw

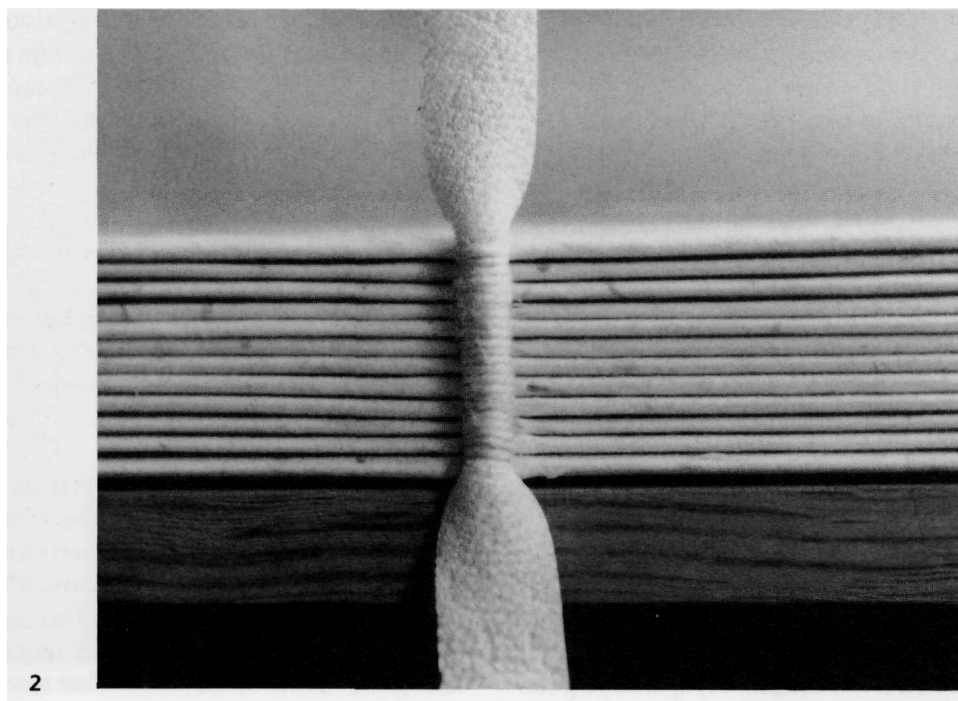
in for kettle stitches. (It is a practice I do not encourage in any case).

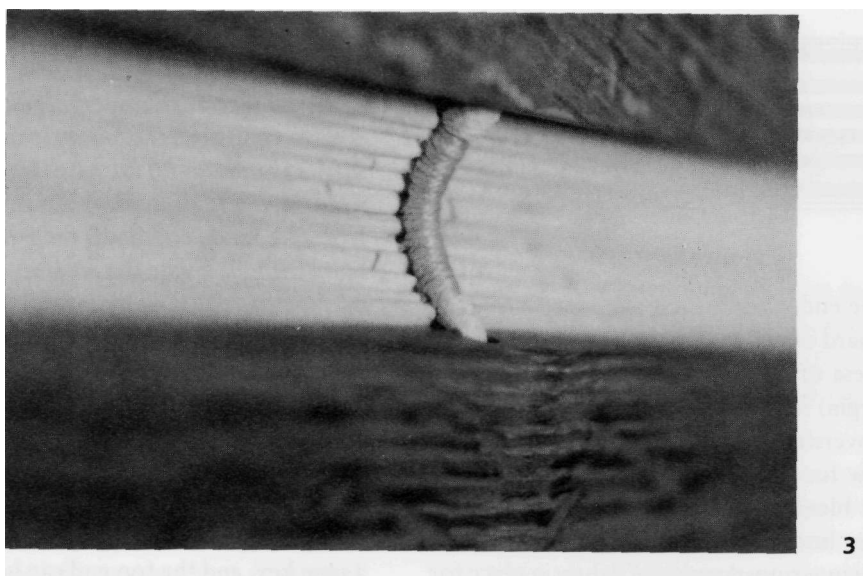
In order that the middle primary thong is at the optical centre of the book, it is important that the marking up should be pitched slightly towards the head of the text: mark the head kettle stitch 10 mm from the head, and mark the tail kettle stitch 15 mm from the tail; divide the area between the kettle stitch marks into four equal parts and that will give the three points at which to mark the sewing stations for the three primary thongs. These are indicated by a single line drawn across the backs of the sections at each sewing station point.

5 Set up a sewing frame with the three primary thongs in position: the bottom end can be secured on a tape key, and the top end can be tied to the cross bar with a thick thread passed through a small hole punched in the end of the thong. Ensure that:

- (a) The flesh side of the thongs is against the sections.
- (b) The thongs are not inordinately stretched.
- (c) An equal amount of thong is left at either side of the text-block.

6 Sew as for single raised cords (flexible sewing): as the thread encircles it each thong should be pinched together, flesh side to flesh side, to form a round shape. This requires particularly careful attention for the first two or three sections, until the sewing tension





is established. The text-block will be rounded, so you should sew with thread of such thickness as will result in the appropriate amount of swell. A wrapped, or packed, stitch is strongly recommended<sup>10</sup> [2, 3]

7 Remove the sewn text from the sewing frame; ensure the spine is flat; place the text-block between two supporting pieces of millboard and put it in a finishing press, spine uppermost. Paste the spine: *do not* paste over the thongs. No moisture should be put on the thongs at any stage. Ensure the paste is well rubbed in, penetrating between the sections. Leave to dry.

8 Whilst the spine is drying, prepare some strips of acid-free paper: these should be about 10 mm wide and 100 mm longer than the length of the text-block. The number of strips required is two fewer than the number of sections of text.

9 When the spine is sufficiently dry, trim the endpapers to the size of the text-block. Round the book; replace it between the millboards and return it to the finishing press.

10 Using paste, line the spine *between* the thongs (including the head and tail panels) with thick Japanese tissue (or a thin hand-made paper): stipple the lining down with a short-bristled brush (a soft stencil brush for example) so that it adheres well to the contours of the backs of the sections<sup>11</sup>.

This tissue lining goes across the spine from shoulder to shoulder; for larger books a lining of unbleached calico, or linen, may be necessary and for very large, heavy books an alum-tawed leather lining may be considered also. The primary spine lining can

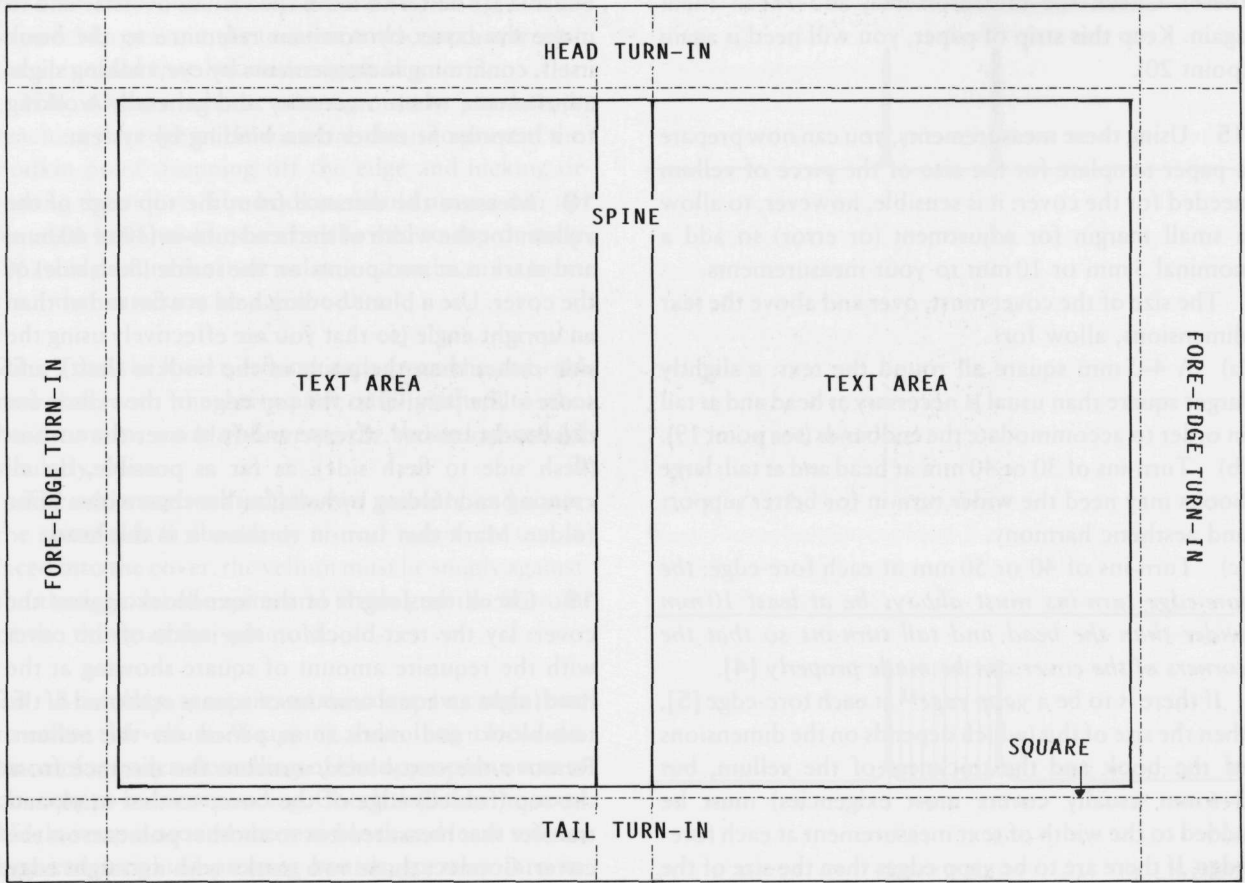
also be applied so that it overlaps on to, and reinforces, the endpapers<sup>12</sup>.

11 When sufficiently dry, remove the text-block from the finishing press and, to prepare for endbanding, mark the centre of all *but* the first and last sections by inserting one of the strips of paper you prepared earlier (see point 8). The ends of each slip should protrude at head and tail of the text: do not push the slips right into the spine margin of each section for they will obscure your view and hinder access when endbanding. The purpose of these slips is to indicate clearly the centre of each section, and thus each point at which you have to tie down when sewing the endbands. As you sew the first endband, each time you tie down in the centre of a section tear off the corresponding protrusion of paper slip: you can then monitor the progress of the endband and ensure accurate tying down. When you sew the second endband, remove the remaining paper slip each time you tie down.

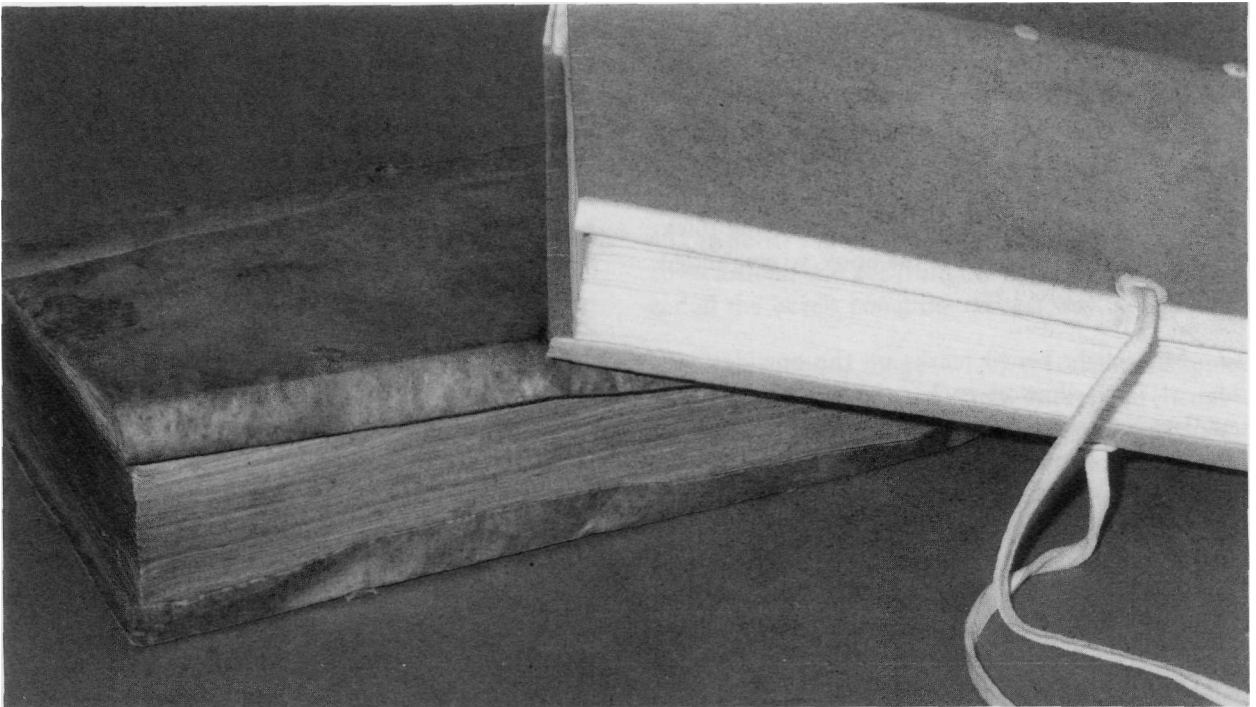
12 Proceed with endbanding: see Appendix 1.

13 On completion of the endbands, you may wish to apply a further lining to the head and tail portions of the spine to protect and reinforce the endband stitching.

14 Measure the text-block: length, width and depth. To measure the width and depth, take a long strip of paper and wrap it around the text, going over the spine *over two of the thongs*, from fore-edge to fore-edge. Mark the strip to show the position of each fore-edge and the two shoulders of the text (sight along the centres of the first and last sections to mark



4



these). Check the measurements; and check them again. Keep this strip of paper, you will need it again (point 20).

15 Using these measurements, you can now prepare a paper template for the size of the piece of vellum needed for the cover: it is sensible, however, to allow a small margin for adjustment (or error) so add a nominal 5 mm or 10 mm to your measurements.

The size of the cover must, over and above the text dimensions, allow for:

- (a) A 4-5 mm square all round the text: a slightly larger square than usual is necessary at head and at tail in order to accommodate the endbands (see point 19).
- (b) Turn-ins of 30 or 40 mm at head and at tail: large books may need the wider turn-in for better support and aesthetic harmony.
- (c) Turn-ins of 40 or 50 mm at each fore-edge: *the fore-edge turn-ins must always be at least 10 mm wider than the head and tail turn-ins so that the corners of the cover can be made properly* [4].

If there is to be a *yapp edge*<sup>13</sup> at each fore-edge [5], then the size of this (which depends on the dimensions of the book and the thickness of the vellum, but 3-6 mm usually covers most exigencies) must be added to the width of text measurement at each fore-edge. If there are to be *yapp edges* then the size of the fore-edge squares should be reduced to 1-2 mm: just sufficient for the *yapp edge* to clear the edge of the text. If you intend to have fore-edge ties then you should have *yapp edges*.

16 Cut away the middle of the template, that is the area of the text plus the squares around it, thus leaving a frame of only the turn-ins. Use this frame to choose the area of vellum you wish to use: move it around the skin of vellum until you see the cover you want, for that, of course is exactly what you are seeing through the window of the frame. Try to position any thick areas of the skin at the tail of the book, to give added support.

17 Make light pencil marks on the outside (hair side) of the vellum at each outside corner of the template and remove the template. Put a piece of board on the bench surface to protect it and, using a very sharp, strong knife (*never attempt to cut vellum with a scalpel*) and a straight edge, cut along the line made by connecting the two top marks on the vellum. This is the top edge of your piece of vellum: mark it lightly in pencil to remind you which is the head as you proceed with making the cover.

Do *not* at this stage completely cut out the cover size as marked from the template: that is a safe guide,

but it is far better to leave the vellum oversize and to make the cover by constant reference to the book itself, confirming measurements by eye, making slight adjustments where necessary and generally working to a bespoke fit rather than binding by system.

18 Measure the distance from the top edge of the vellum for the width of the head turn-in (30 or 40 mm) and mark it at two points on the inside (flesh side) of the cover. Use a blunt bodkin held at a flat rather than an upright angle (so that you are effectively using the side rather than the point of the bodkin shaft), and score a line parallel to the top edge of the vellum for the head turn-in<sup>14</sup>. Crease and fold over the turn-in (flesh side to flesh side): as far as possible, do all creasing and folding by hand, rather than with a bone folder. Mark that turn-in to show it is the head.

19 Check the length of the text-block against the cover: lay the text-block on the inside of the cover with the requisite amount of square showing at the head; sight an equal amount of square at the tail of the text-block and mark it in pencil on the vellum. Remove the text-block, measure the distance from the top (folded) edge of the cover to that mark and transfer that measurement to another point across the cover. Connect those two marks with a straight edge and score the tail turn-in. Trim off the excess vellum so that the tail turn-in is the same width as the head turn-in (30 or 40 mm). Check the cover against the text-block.

*Check particularly* that you have allowed sufficiently large squares at head and tail of the cover: the endband thongs lace through the cover, and as the endbands sit on the edge of the text-block the thongs therefore lace through that area of the cover which constitutes the square; you must leave larger squares at head and tail than you would normally. Do not, however, leave so much that they look gross: 5 mm maximum should do.

20 Take up your template again and lay it in position on the inside of the cover, aligned with the original pencil marks you made at the corners. Mark the centre point of the spine width in pencil on the head turn-in of the cover; now using the original strip of paper with which you measured the text-block, mark the spine width in pencil at the appropriate distance (i.e. half the spine width) either side of that centre guide mark. Take great pains to ensure that this is absolutely accurate: the fit of the cover over the spine is crucial to the success of the whole venture.

21 Using a large set square pitched exactly to the

head of the cover, score and crease the right-hand spinefold; open out the turn-ins and score that area of the spinefold that lies underneath them.

N.B. Always halt the scoring motion just before reaching the edge of the material: this is to prevent the bodkin point dropping off the edge and nicking or tearing the vellum. The bodkin should always run *up* an edge, but should never be allowed to slip or drop *off* an edge: turn the material around and score it from the other direction to achieve this.

22 Turn the cover around and, from the tail end now but with the set square still pitched to the head turn-in, score and crease the second spinefold similarly.

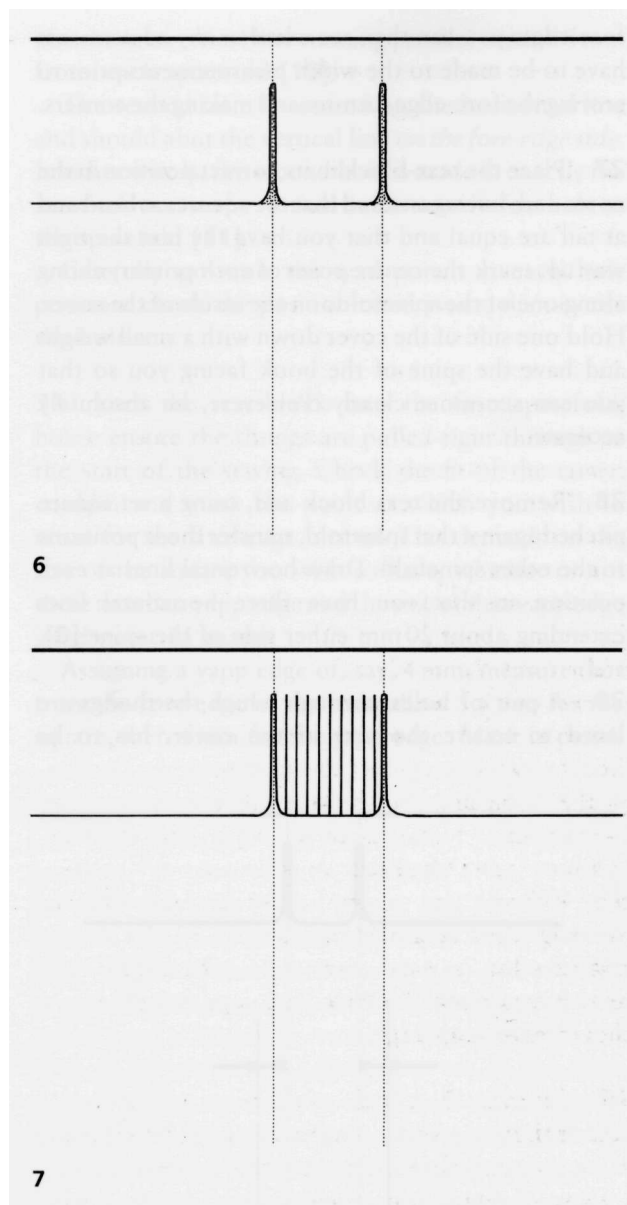
The accuracy with which you measure and score the spinefolds is absolutely critical: when the text is laced into the cover, the vellum must lie snugly against the thongs over the spine and firmly grip the bottom of the thong at the spinefold.

23 Round the spine area of the cover: be careful not to crease the vellum. Wrapping and rolling it around a piece of wooden dowelling of the appropriate size is one way to induce rounding. Check the fit on the text-block, wrap it around the text-block and leave it thus, between weighted pressing boards, to relax into its new shape (overnight if possible).

24 A portion of the turn-in at head and tail of the spine area now has to be removed. This is to prevent bunching of the vellum and to allow proper articulation of the joints at those points where there is a double layer of vellum impeding them. Open out the turn-ins to do this, or insert a piece of board under the turn-in, otherwise you will also cut through the outer cover [6].

It is very important that the peaks of the cut out areas (the shaded areas) are rounded: this can be done by making a 1 mm hole with a wad punch<sup>15</sup> (also called a hollow punch) at the start. This is to prevent any tendency to tear: *all cuts in vellum should terminate in a small excised hole*.

It is even more important to leave sufficient distance between the peaks of the cut out areas and the folded edge of the cover. If you do not leave sufficient space, then not only will the cut out area be seen above the level of the text-block but, more serious, the area of vellum left will be too small to support itself and tolerate the flexing required along the spinefold: it will tear. As a general rule, the distance from the peak of the cut out area to the folded edge of the cover should be equivalent to three times the size of the square around the book.



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The cuts should be bevelled to present a softer edge and to enhance flexing: cut by holding your knife at a 45° angle to the vellum. You will have to turn the cover around and cut from the opposite direction to get all the bevels going the correct way, i.e. under.

25 The rounded tongue which remains in the spine area should be scored at 1-2 mm intervals to encourage flexibility and rounding of the cover there; again, open out the turn-in or put a piece of board under it before scoring. Do not run these score marks right up to the folded edge of the cover, for they will then be seen beyond the level of the text block and this is unsightly; take them to the same level as the peaks of the cut out areas. [7].

26 At this point it is wise to partly lace the text into the cover to check the fit and the lie of the text at the

fore-edge; you can then see whether any adjustments have to be made to the width measurements prior to scoring the fore-edge turn-ins and making the corners.

27 Place the text-block in its correct position in the cover and, having ensured that the squares at head and at tail are equal and that you have the text the right way up, mark the centre point of each primary thong along one of the spinefolds on the inside of the cover. Hold one side of the cover down with a small weight and have the spine of the book facing you so that you can see more clearly. Persevere, be absolutely accurate.

28 Remove the text-block and, using a set square pitched against that spinefold, transfer those positions to the other spinefold. Draw horizontal lines at each position so that you have three horizontal lines extending about 20 mm either side of the spine [8].

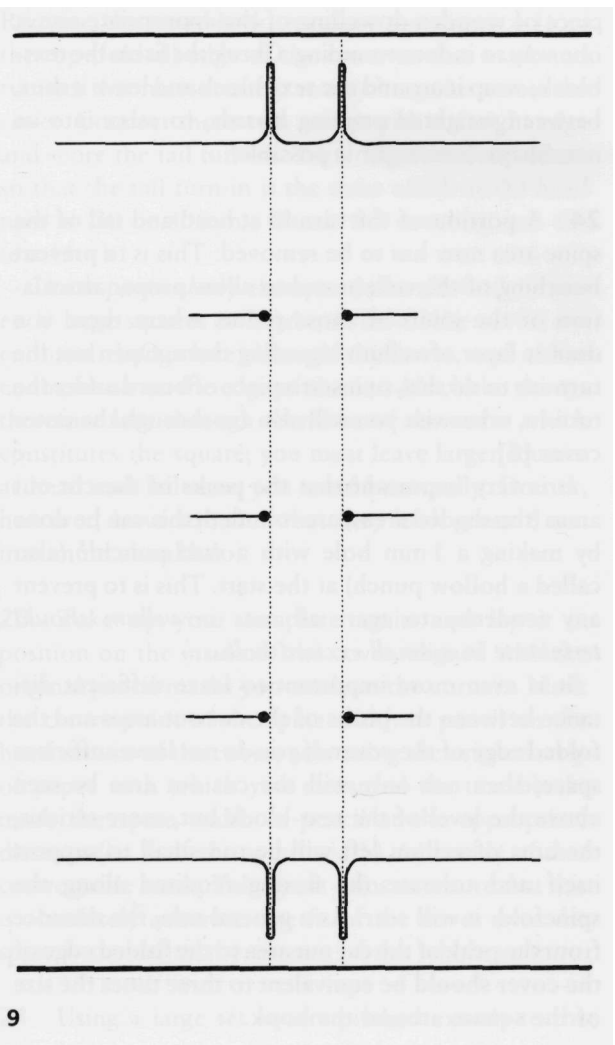
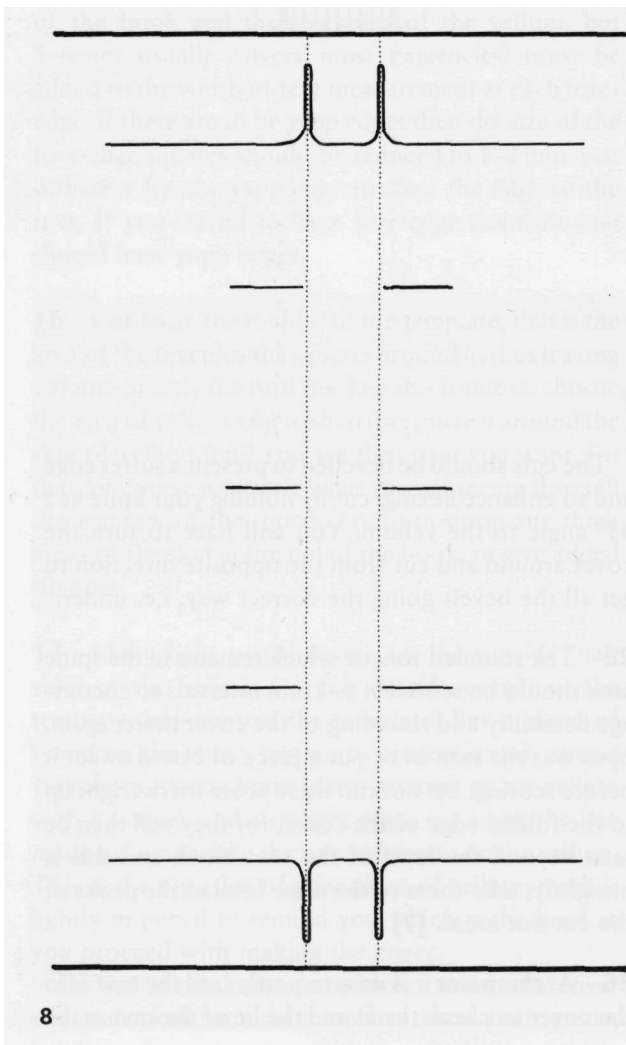
29 A pair of holes, through which the thongs are laced to secure the text in the cover, has to be

punched on each of these lines on the fore-edge side of the spinefolds, viz. three pairs of holes on the front of the cover, and three pairs of holes on the rear of the cover.

You must first, however, establish the size of the hole that is necessary to grip the thongs. The best way to do this is to make trial holes with wad punches of various sizes on an offcut of the same vellum and to ease and feed one or other of the thongs through them until the correct fit is found. The thong should be gripped firmly, but not unkindly: it should *not* slip freely, but should ease through the vellum, being gripped without undue strain on the vellum around the hole.

30 The holes are made from the *inside* of the cover, and are *centred on the horizontal line*. Do the measuring and marking for all the holes first, and then excise them with the appropriate size of wad punch.

The first (exit) hole exactly abuts, and touches, the spinefold on the fore-edge side. No further marking up is actually required for these holes [9].





The second (entry) hole is made at a distance from the first that is not so great as to afford the thong too large an area to ruck up on itself, but is sufficient to avoid inordinate strain being put on the vellum between and around the holes. This obviously depends on the substance and thickness of the thong, on the size, weight and area of the book and on the substance of the vellum: each is dependent on, and modified by, the other — the eternal dilemma, and delight, of bookbinding.

In general, a distance of 7-10 mm between the holes should suit. It is vital, however, that these holes are made in exactly the same position relative to the point at which that distance is measured and marked on the horizontal line. The hole itself could be 2-3 mm wide, so positioning the wad punch on the wrong side of your mark could result in a hole 2-3 mm away from where you actually want it.

Measure 8 mm (say) from the spinefold and mark that distance on each horizontal line: connect these marks with a vertical line. Thus on the inside of the cover, in addition to the three horizontal lines, you

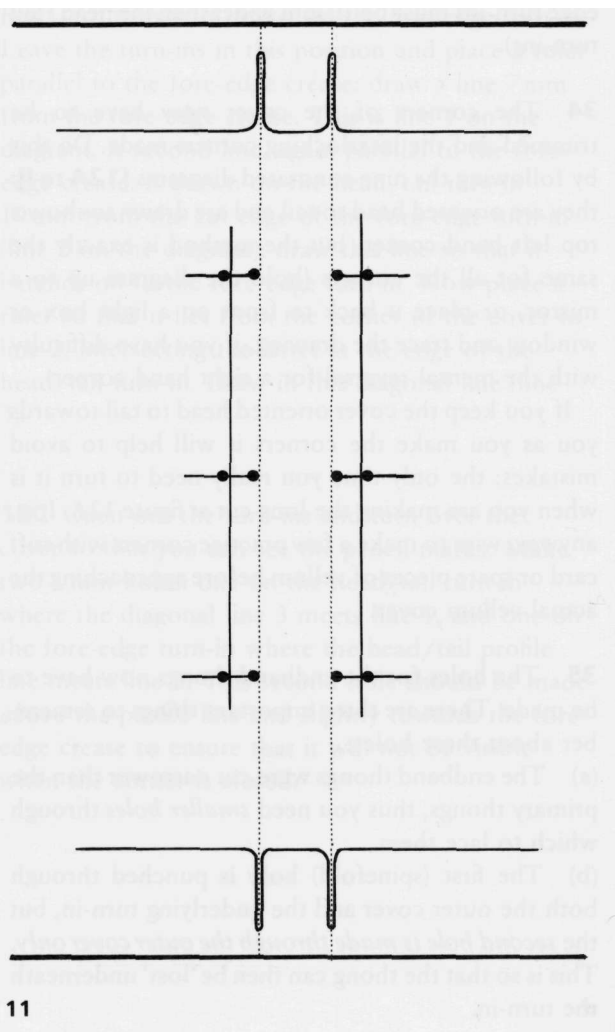
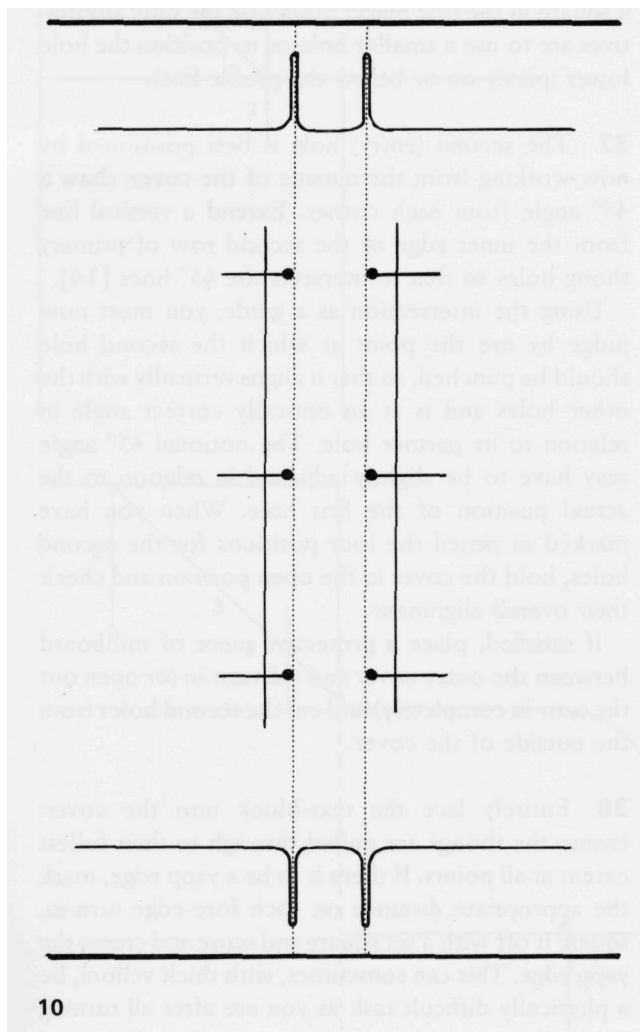
now have a vertical line running parallel to, and 8 mm from, each spinefold [10].

The second hole is centred on the horizontal line and should abut the vertical line *on the fore-edge side*. In other words, the second hole is made in exactly the same relation to the vertical line as was the first hole to the spinefold [11].

Carefully position the wad punch at each hole position: check the position once, twice, then excise the hole.

31 Lace the text-block into the first (spinefold) holes: ensure the thongs are pulled right through to the start of the sewing. Check the fit of the cover, confirm and mark the point at which you wish to score for the fore-edge turn-in. This depends on the size of the square you wish to have, whether or not there is to be a yapp edge and the size of that yapp edge (read point 15 again).

Assuming a yapp edge of, say, 4 mm, measure thus from the fore-edge of the text: allow 1.5 mm for the square, then 4 mm for the yapp edge. Mark in pencil



on the vellum a point 5.5 mm from the fore-edge of the text-block. Do this at front and back of the book.

If there is to be no yapp edge, simply mark the distance for the size of square you want at each fore-edge.

32 The positions for lacing the secondary (endband) thongs can also be marked at this stage: at head and at tail, with the book in the closed position, pull the endband thong aside and draw in the profile of the edge of the text, as near the endband as possible, on the inside (turn-in) of the cover. Do this at both sides and both ends of the book. Extend these lines to meet the spinefold once the text-block is removed from the cover.

33 Remove the text-block from the cover and, using a large set square pitched exactly to the head of the cover, score and crease the fore-edge turn-ins on the measurement you marked at point 31. Now trim off the excess vellum at each fore-edge so that you leave a turn-in of 40 or 50 mm (this depends on the width of your head/tail turn-ins: remember, the fore-edge turn-ins must be 10 mm wider than the head/tail turn-ins).

34 The corners of the cover now have to be trimmed and the interlocking corners made. Do this by following the nine annotated diagrams [12A to I]: they are oriented head to tail and are drawn to show a top left hand corner, but the method is exactly the same for all the corners (hold the diagram up to a mirror, or place it back to front on a light box or window and trace the drawing, if you have difficulty with the mental reversal for a right hand corner).

If you keep the cover oriented head to tail towards you as you make the corners it will help to avoid mistakes: the only time you really need to turn it is when you are making the long cut at figure 12A. It is, anyway, wise to make a few practice corners with stiff card or spare pieces of vellum before approaching the actual vellum cover.

35 The holes for the endband thongs now have to be made. There are three important things to remember about these holes:

(a) The endband thongs were cut narrower than the primary thongs, thus you need *smaller holes* through which to lace them.

(b) The first (spinefold) hole is punched through both the outer cover and the underlying turn-in, but the *second hole is made through the outer cover only*. This is so that the thong can then be 'lost' underneath the turn-in.

(c) The notional distance between these two holes is the same as for the holes for the primary thongs and, indeed, they align vertically with the other pairs of holes *but*: the *second hole is made at a 45° angle* to the first hole [13].

36 The first (spinefold) hole exactly abuts, and touches, the spinefold and is made *above and abutting* the text profile line drawn earlier (see point 32). In other words, the first hole is made in the corner of the right angle formed where the profile line meets the spinefold. This hole is made from the inside of the cover: position the wad punch and give it a firm, but not violent, blow with a hammer in order to cut cleanly through both layers of vellum.

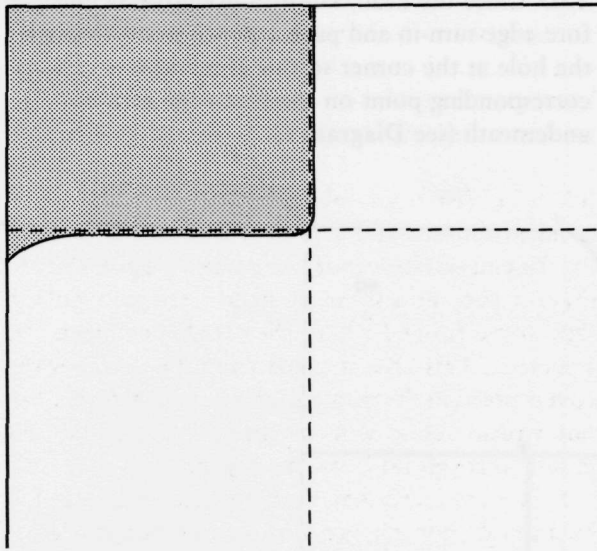
It is very important that sufficient space is left between the top edge of the hole and the top edge of the cover: if the hole is too near the edge then the narrow area of vellum that is left could easily snap or tear once you subject it to the strain of lacing a thong through it. Even if it survives the actual lacing process it will probably break later. This potential weakness can only really be avoided by leaving sufficiently large a square in the first place; otherwise the only alternatives are to use a smaller hole or to position the hole lower (partly on or below the profile line).

37 The second (entry) hole is best positioned by now working from the outside of the cover: draw a 45° angle from each corner. Extend a vertical line from the inner edge of the second row of primary thong holes so that it intersects the 45° lines [14].

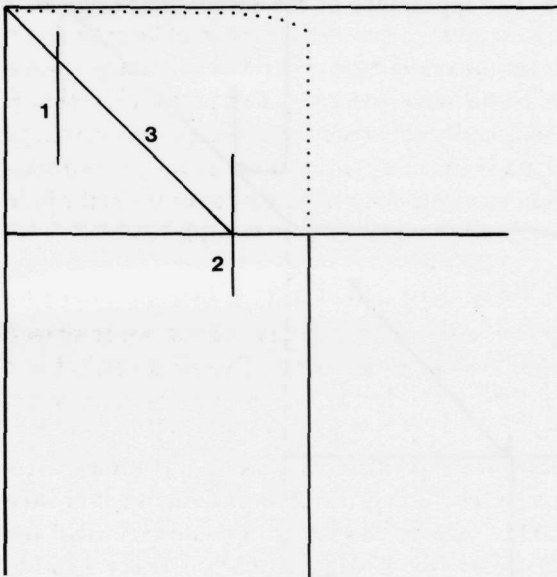
Using the intersection as a guide, you must now judge by eye the point at which the second hole should be punched, so that it aligns vertically with the other holes and is at an optically correct angle in relation to its partner hole. The notional 45° angle may have to be slightly adjusted in relation to the actual position of the first hole. When you have marked in pencil the four positions for the second holes, hold the cover in the open position and check their overall alignment.

If satisfied, place a protective piece of millboard between the outer cover and the turn-in (or open out the turn-in completely) and cut the second holes from the outside of the cover.

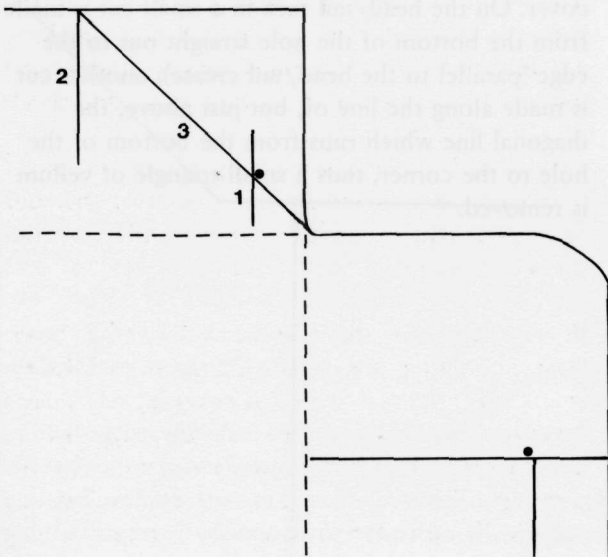
38 Entirely lace the text-block into the cover: ensure the thongs are pulled through to their fullest extent at all points. If there is to be a yapp edge, mark the appropriate distance on each fore-edge turn-in, square it off with a set square and score and crease the yapp edge. This can sometimes, with thick vellum, be a physically difficult task as you are after all turning



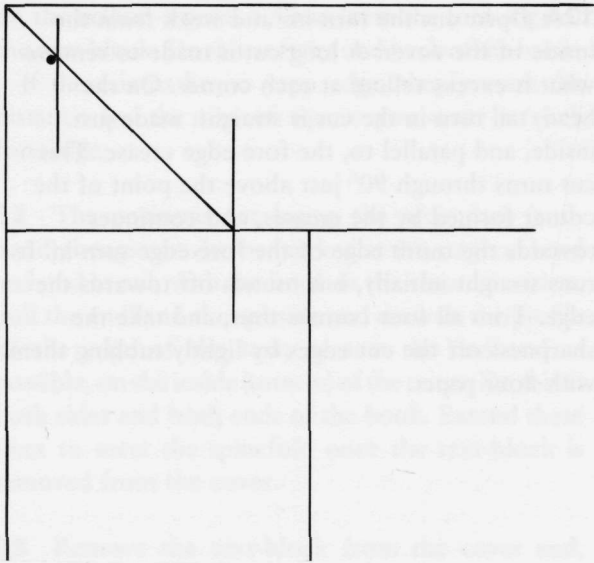
12A Open out the turn-ins and work from the inside of the cover. A long cut is made to remove what is excess vellum at each corner. On the head/tail turn-in the cut is straight: made just inside, and parallel to, the fore-edge crease. This cut turns through 90° just above the point of the corner formed by the creases, and continues towards the outer edge of the fore-edge turn-in. It runs straight initially, but rounds off towards the edge. Trim all four corners thus, and take the sharpness off the cut edges by lightly rubbing them with flour paper.



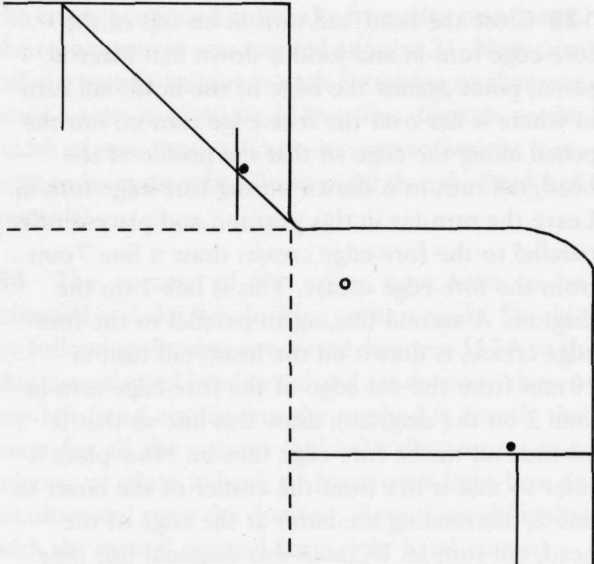
12B Close the head/tail turn-in on top of the fore-edge turn-in and hold it down flat. Place a pencil point against the edge of the head/tail turn-in where it lies over the fore-edge turn-in: run the pencil along the edge so that the profile of the head/tail turn-in is drawn on the fore-edge turn-in. Leave the turn-ins in this position and place a ruler parallel to the fore-edge crease: draw a line 7 mm from the fore-edge crease. This is line 1 on the diagram. A second line, again parallel to the fore-edge crease, is drawn on the head/tail turn-in 10 mm from the cut edge of the fore-edge turn-in (line 2 on the diagram): draw this line so that it extends on to the fore-edge turn-in. Now place a ruler so that it lies from the corner of the cover to line 2, intersecting the latter at the edge of the head/tail turn-in. Draw in this diagonal line (line 3).



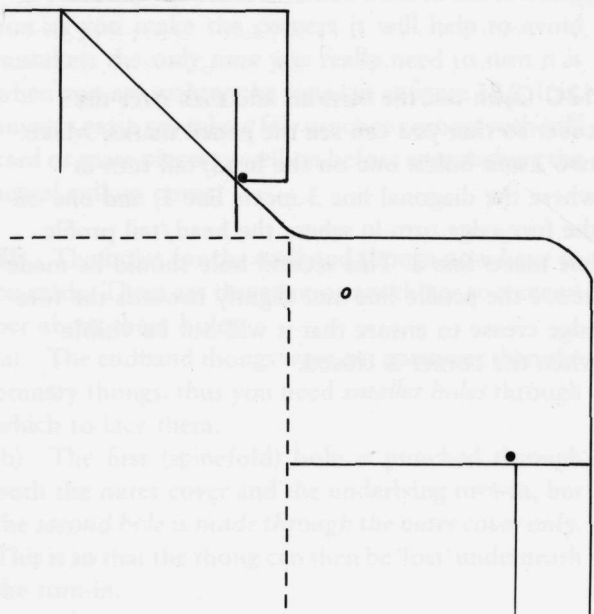
12C Open out the turn-ins and turn over the cover so that you can see the pencil marks. Make two 1 mm holes: one on the head/tail turn-in where the diagonal line 3 meets line 1, and one on the fore-edge turn-in where the head/tail profile line meets line 2. This second hole should be made *above* the profile line and slightly towards the fore-edge crease to ensure that it will not be visible when the corner is closed.



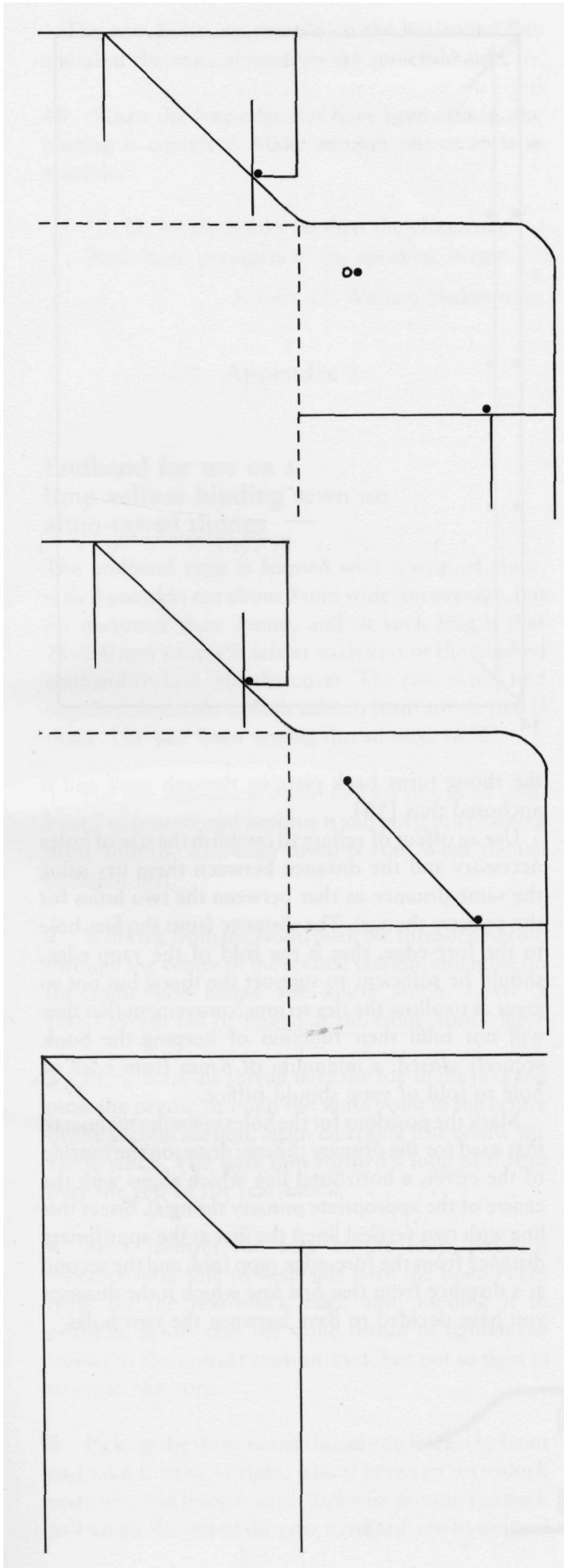
12D Close the head/tail turn-in on top of the fore-edge turn-in and push a pencil point through the hole at the corner so that it marks a corresponding point on the fore-edge turn-in underneath (see Diagram E).



12E The appearance of the corner after stage D.



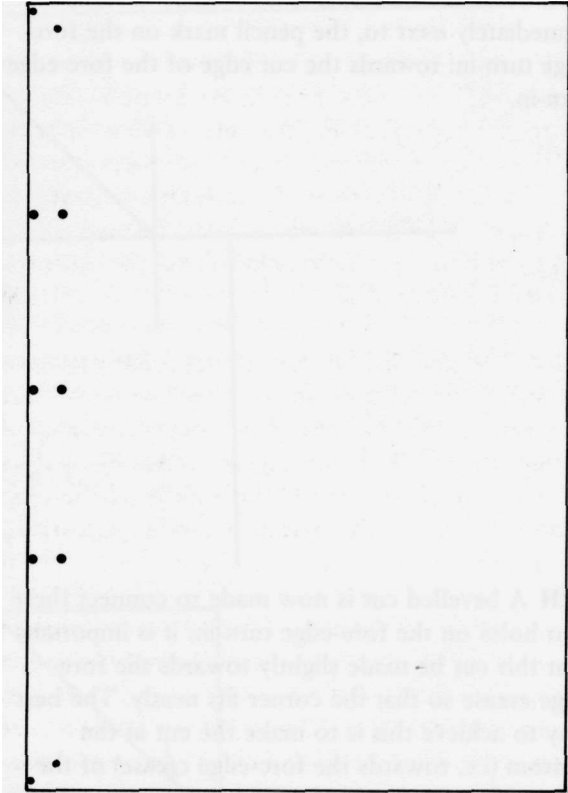
12F Open out the turn-ins again and turn over the cover. On the head/tail turn-in a small cut is made from the bottom of the hole straight out to the edge (parallel to the head/tail crease); another cut is made along the line of, but just above, the diagonal line which runs from the bottom of the hole to the corner, thus a small triangle of vellum is removed.



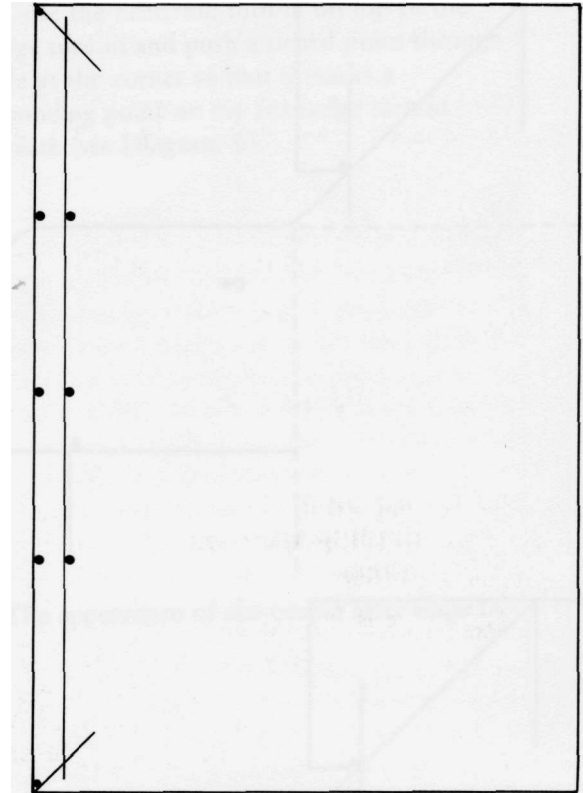
12G A third 1 mm hole is now made *not* on, but immediately *next* to, the pencil mark on the fore-edge turn-in: towards the cut edge of the fore-edge turn-in.

12H A bevelled cut is now made to connect these two holes on the fore-edge turn-in: it is important that this cut be made slightly towards the fore-edge crease so that the corner fits neatly. The best way to achieve this is to make the cut at the bottom (i.e. towards the fore-edge crease) of the holes. The cut should also be bevelled towards the fore-edge crease.

12I The corner is now complete: erase all pencil marks. The tab on the head/tail turn-in slips into the slit on the fore-edge turn-in and the corner thus remains closed without the need for any adhesive.



13



14

over quite a narrow lip in two (at the corners, three) layers of material. It can sometimes help to put one side of the cover at a time in a laying press, with the rest of the book properly supported, with the line of the yapp edge aligned with the top of the cheeks of the press and then to gently tap the yapp edge over and down with a small, round-head wooden mallet. The yapp edge should be turned over to a full 90° angle.

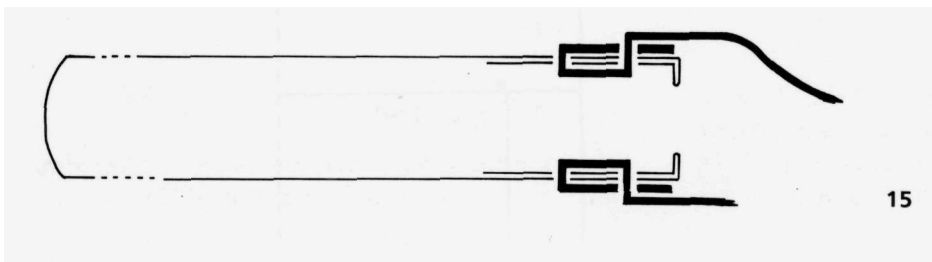
39 It now only remains to affix the fore-edge ties: these should be of narrow thongs of alum-tawed goatskin, and whether you opt for one or two pairs depends on the weight and area of the book. If one pair only is to be employed then it should be horizontally aligned with the centre primary thong; where two pairs are to be used these should be aligned with the top and the bottom primary thongs.

There are many different methods for attaching fore-edge ties<sup>16</sup>, but that which seems to be most simple and effective is the two-hole method where

the thong turns back piercing through itself and is anchored thus [15].

Use an offcut of vellum to establish the size of holes necessary and the distance between them (try using the same distance as that between the two holes for the primary thongs). The distance from the first hole to the fore-edge, that is the fold of the yapp edge, should be sufficient to support the thong but not so great as to allow the ties so much movement that they will not fulfil their function of keeping the book securely closed: a minimum of 6 mm from edge of hole to fold of yapp should suffice.

Mark the positions for the holes in similar manner to that used for the primary thongs: draw, on the outside of the cover, a horizontal line which aligns with the centre of the appropriate primary thong(s). Bisect this line with two vertical lines: the first at the appropriate distance from the fore-edge yapp fold, and the second at a distance from that first line which is the distance you have decided to have between the two holes.



15

The two holes are centred on the horizontal line and abut the vertical lines on the spinefold side.

40 When the fore-edge ties have been affixed, the binding is complete. Make another one as soon as possible.

'... O, let my books be then the eloquence  
And dumb presagers of my speaking breast...'

*Sonnet 23: William Shakespeare*

## Appendix 1

### Endband for use on a limp vellum binding sewn on alum-tawed thongs

The endband core is formed with a strip of alum-tawed goatskin cut about 5 mm wide (on average, but no narrower than 3 mm), and of such length that 75-100 mm excess is left at each end of the finished endband to lace into the cover. The core is pinched together (flesh side to flesh side) to form an inverted U shape. Use one linen sewing thread (say, 16/2).

1 Put the text-block between two pieces of mill-board to protect and support it and put it in a finishing press with the fore-edge towards you. Work the tail endband first.

2 Working from the front, push the threaded needle through the centre of the second section, emerging on the spine just below the kettle stitch. Leave a 100-125 mm tail of thread at the front (fore-edge).

3 Bring the spine thread over the top of the text and push the needle through the same point in the centre of the second section, again emerging just below the kettle stitch. You have thus formed a loop of thread over the top of the text-block.

4 Place (centre) the core in the loop, pinch it together flesh side to flesh side with the open edges lying on the text-block edge and, holding it in position, gently pull the spine thread to tighten the thread to the correct tension: taut, but not so tight as to crush the core.

5 Pick up the short tail of thread you left at the front and take it to your right, pass it between text-block and core, and bring it anti-clockwise around the back and under the left of the core to return it to its original

position at the front, i.e. you have encircled the loop of thread containing the core.

Pull the thread taut to secure the core and main thread in place. The tail of the thread must then lie along, and tucked inside, the pinched core, where it will be wrapped with the subsequent encircling of the core by the main thread; the remaining tail will be used to tie off the finished endband. You can lightly Sellotape it to the core to hold it in position until the endband is established.

6 Pick up the main thread (which is hanging from the spine), bring it forward over the top of the core and wrap it over and around the core (and the tail of thread lying underneath it) as many times as is necessary until you reach the centre of the next section. In other words, you are encircling the core by turning the thread towards you.

7 On reaching the centre of the next section, make a *full anti-clockwise turn* in the thread to form a loop and pass the free end of the core through that loop. It is important that you make a *full* turn to make the loop: wrap the thread anti-clockwise round your finger *then* twist your finger full circle anticlockwise.

Push the needle through the centre of that section, emerging on the spine just below the kettle stitch. You should thus have formed a back bead to hold the endband secure: if you have no back bead then you have not formed the above described loop properly, or you have forgotten to slip the loop over the core.

8 Bring the thread from the spine over the core and wrap it over and around the core the required number of turns to reach the centre of the *next* section, where you form the anti-clockwise loop, pass the core through it and tie down again — and so on.

9 When you reach the penultimate section, loop the core and push the needle through the middle of the section as you have been doing to tie down, but this time finish off by knotting the spine thread to the tail of thread lying underneath the core. Cut off the excess thread after knotting, the endband is complete.

This endband is described in Barbara Giuffrida's article, 'Book conservation workshop manual: part three — endbands' in *The New Bookbinder 2* (1982) pp. 37-39.

### Acknowledgements

I should never have been in a position to write this article had it not been for the extended article on

'Limp and semi-limp vellum binding' written by Barbara Giuffrida which was published in *DB Reviews* nos. 4, 5 and 8 in Autumn 1974, Spring 1975 and Autumn 1976 respectively. There is very little published work on how to make limp vellum bindings, and for those binders, such as myself, who somehow or other stumbled upon the existence of these structures, who were excited by them and were desperate to know more, Barbara Giuffrida's article was manna from heaven. It was the start of it all for me, and I am still learning. The diagrams of the corner construction, for example, quite clearly derive from her article, but as with everything else, have been amended and clarified in the light of my own practice, observation and experience.

## Notes

1 In this context, the word limp denotes a type of binding where the text block is supported only by the covering material, and not by any kind of board.

2 Parchment and vellum are similar in that they are both prepared in the same manner (i.e. soaked in lime and scraped and dried whilst fixed in a stretched condition) but they are literally very different creatures at start and at finish. Parchment is sheepskin and, moreover, it is a *split* of the sheepskin. Vellum is essentially calfskin (although goat vellum is also made), and it is the *full thickness* of the skin. Parchment not only looks different, rather *flat*, but is generally not as strong as vellum. The word parchment is all too often used as a generic term to describe skins prepared in the manner mentioned above, but serious bookbinders ought to define their terms accurately.

3 A broad outline of the early development of the book can be found in my article 'The development of the codex in the western world' in *The New Bookbinder* 8 (1988).

4 Roberts, C.H. & Skeat, T.C. *The Birth of the Codex*. Oxford University Press 1985, p. 8.

5 Johann Gutenberg (c. 1400-1468) did not invent printing, he perfected the art of printing by introducing replica casting, the use of the screw press and the preparation of an ink that would adhere to metal type.

6 This cross fertilization of cultures is also evident in the introduction of gold tooling, and edge gilding, to Europe about 1450. Gold tooling was an Islamic innovation which entered Europe through Venice (which was the centre of the Italian book trade during the Renaissance) via her strong trading connections with the east. Gold tooling also came to Italy via Naples about 1475, and the more linear quality of southern Italian bindings suggests a North African influence, possibly through Moorish leather-workers from the Spanish kingdom of Aragon: Naples was conquered and ruled by Aragon from 1442 to 1495.

7 *Alum tawing* (or alum tanning) is a method of preparing or dressing skins to produce a pliant white leather. Apart from being one of the oldest known types of leather (some examples date from the Bronze Age), it has also proven to be immensely

strong and resilient, far outlasting any other type of leather. Indeed, its only peer in terms of longevity is vellum.

8 It is impossible to describe in an article such as this the qualities you are seeking in a piece of vellum: they have to be experienced and observed. Weight, texture, substance, feel, patina, surface, sensuality, sensibility, colour, marking, character, appropriateness, flexibility — all this, and more.

9 This is not the sole, definitive, type of endpaper for use with limp vellum bindings: I use this type a lot because it is simple, direct and effective and is sewn through with the section. A vellum flyleaf can be hooked round the first and last sections in similar fashion if you prefer. I do not usually paste down the endpaper to the cover as I do not like the stiffness this imparts to the cover; it leaves the turn-ins and the thongs visible on the inside of the cover, but I do not find that offensive.

10 A wrapped (or packed) raised cord or thong is probably the strongest form of sewing available to the bookbinder. Reason: the fact that the thread exits and re-enters the section through the same hole, that it travels around (rather than over) the support, thus transmitting tension directly to the support and not to the back of the section.

A wrapped cord or thong is achieved by encircling the support with as many turns of thread as are equivalent to the thickness of the section; what you are effectively doing is filling the gap between the section you are sewing and the section immediately below it. The support flexes more evenly, in a gentle curve, when it is gripped by thread along its entirety than when it is only gripped at intervals, as with conventional raised cord sewing. In the latter case, the tendency is for the support to bend at a sharp angle at any of the gaps between the single threads.

11 I am not convinced of the necessity for spine linings, nor indeed for glueing up the spine on books that have been well sewn with a sound sewing structure such as that advocated in this article, but not so convinced that I have altogether ceased to do it! I think it *is* necessary for large, heavy books though, for they are more subject to torsional forces.

12 See Barbara Giuffrida's article, 'Limp and semi-limp vellum binding', in *DB Reviews* 4 and 5, Autumn 1974 and Spring 1975 respectively, and the diagrams in Christopher Clarkson's essay *Limp Vellum Binding*, Red Gull Press, 1982.

13 Yapp edges, according to *The Glossary of the Book* (Donald Glaister, 1960) are named after a bookseller, William Yapp, who owned a bible warehouse (from 1854 to 1875) and who designed the now familiar semi-limp leather covers with overlapping edges which are found on many small bibles.

14 A bodkin can prove rather harsh on thin or light vellum: use a fine bone folder.

15 Wad (or hollow) punches are not easily obtained these days; they are essentially leather workers tools, but sometimes serious or old-fashioned hardware or tool stores do have them. Do not be persuaded that a nail punch (or nail 'set') is the same thing: it isn't. It is solid steel whereas a wad punch has a hole running through the middle of it. The essence of a wad punch is that it *cuts* and *excises* material: said excised material passes into a hollow channel drilled through the centre of the punch, and eventually drops out at the open end of that channel.

Wad punches come in a variety of sizes, sometimes in sets of interchangeable heads that screw, or are pushed, into a handle;



this, latter, is the type available in this country from Maun Industries Ltd, Moor Lane, Mansfield, Nottinghamshire NG18 5SE (Telephone: 0623 24525). You should order a number of different sizes of heads (punches) and at least two handles (if not one for each punch) so that you don't have to keep changing the heads in one handle, for they tend to get fairly well jammed in the handle once significant pressure has been exerted on them. I suggest the following punch sizes, each is followed by the stock number you should quote when ordering:

Size 00 (1.00 mm) 2240-040  
 Size 01 (2.00 mm) 2230-078  
 Size 02 (2.4 mm) 2230-093  
 Size 03 (2.8 mm) 2230-109

The handles are actually called 'wad punch adaptors', and the stock number is 2330-00.

16 See Giuffrida and Clarkson *op. cit.*

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### Resume

Il existe assez peu de publications qui traitent de reliures en velin. Dans cet article, une courte introduction rappelle brievement l'histoire du velin en reliure. L'auteur donne ensuite des instructions pour coudre un livre sur cinq lanieres de chevre tannée a Palun, qui sont passées dans les plats en velin pour fixer les cahiers a la couverture.

Le déroulement des operations est explique de facon claire et concise, en quarante etapes, avec des croquis si necessaire. Un appendice donne des indications comment faire des tranches-files. L'article constitue donc un apport utile aux techniques de la reliure.