A BROAD DESCRIPTION OF PARTICULAR TECHNIQUES WHICH I USE IN LIMP VELLUM BINDING

The Basic Structure and Approach.

The finest limp-vellum bindings achieve a balance between firm sewing and a flexible and durable cover and have the appearance of a tied bundle, pliant and light in weight.

In evolving the techniques for the structure I am experiencing many of the problems which seemed to have bothered the earlier craftsmen and several innovations have been tried to find a more satisfactory way around them. The aim is not to make facsimile copies but to create a new and improved type which gives adequate scope to the conscientious book restorer.

The chief points in the technique so far developed are as follows:

1. concertina of thin paper running down the spine to protect section folds from adhesives

2. careful choice of leather for thonging, related to the expected flexibility of the bound leaves

3. firm sewing around double or single thongs, often with various types of 'linked' or 'packed' sewing and sometimes sewn with supported tail and head 'end-of-spine-bands'

4. the end-band tie-downs firmly hold the head and tail of liner

5. careful consideration is needed in the choice of the weight of a vellum skin in proportion to the book's flexibility

6. the covering process is a completely dry one, consisting of scoring, folding, cutting and interlocking

7. given the uncertainty of the tear resistance of modern skins, every slot made is terminated with a punched hole

8. thongs are laced through the cover and back through cover and liner to create a 'bound' rather than a 'cased' book

9. punched holes, through which the thongs pass, are made smaller than the width of the thong. When a thong is passed through and flattened it is firmly held by the hole - no other material so far tried out achieves this

10. a soft 'yapp' edge gives rigidity to the fore-edge of the book and also 'leads the way' into a book stack

11. fore-edge ties help to hold the book as a bundle but some librarians object to their awkwardness and several alternatives are being tried.

When one is designing a style of binding for use in conservation one must build into it techniques which are infinitely variable and flexible within themselves, for each book is an individual problem. Please consider the following descriptions as simply one man's guidelines to a way of thinking about such problems. I cannot over-emphasize the havoc caused by thoughtless application of traditional methods and repetative 'extra' binding techniques in such a field as conservation. It should be standard discipline to study and collect information about the binding, personal history, construction and condition of any book under review for treatment and relate these to other or similar books extant in the world. In doing this one cannot but reflect on just how much has been destroyed in the past 100 years and that there are other ways of conserving a book (which in many cases must be understood and accepted by binders, librarians and scholars); rebinding and recovering is a very last resort, for it means simply that one has accepted and is ready to destroy part of that book and its history. If it does really need destroying and encasing in materials more often than not of lesser quality than previously used, and if this can be justified by people of many bibliographical disciplines, then another more dramatic chapter of the book's history begins, which I hope will be carried out gently and sympathetically. that makes the point well

"What style binding would you do on such and such a period book?" This is a question frequently asked and one to which it is difficult to give a short precise answer.

I feel such a question is phrased by a non-booklover, one who cannot feel past the craftsmanship through to the indescribable spontaneous creativity of a particular age; surely such indescribable qualities are the ones really worth preserving for a future age and are by their very nature unrepeatable whatever one's skill or study. Facsimile making is the exact and harmful opposite of conservation. After the 1966 Florence flood many 16th and 17th century books were left without covers and so in this sense they were rather a unique problem, which one very much hopes will not reoccur. The styles and techniques which I developed are therefore often not based on a previous binding and many of them should never be considered if a binding is extant.

The majority of photographs used in this section on techniques are either of blank dummy books of standard size or 16th and 17th century books which I bound for the B.N.C.F. in limp vellum styles, all of which had lost their covers. The one point strictly adhered to was the use of the original sewing holes where discoverable, even when the layout of such may be considered unusual today.

TEXT-BLOCK CONSIDERATIONS

Before treatment and 'pulling' one hopes to have studied a book for evidence of its previous binding and of its history and condition; notes and photographs of such are recorded on a card which is kept with the text-block and remains with binding throughout its repair and rebinding.

If there is evidence of an unusual style of sewing, it must be considered carefully whether 'pulling' is desirable; good photographs and detailed notes must be taken. If 'pulling' has to take place on such a volume, dissect most carefully, noting each stitch, its direction and relationship to the whole.

Collate before 'pulling' and note any unusual make up of section by use of diagram (see Appendix IX p.).

The repair of a page is as with other styles of binding. The very best techniques in back stripping are required for this style of binding, because a joint is not formed nor boards attached, which would allow a little lee-way in loosing a small amount of unwanted swelling.

PRESERVATION of paper qualities and type impression! Through the contemporary endeavors of such men as E. J. Larbarr, J. Mason and Dard Hunter there is a growing knowledge and appreciation of the character and qualities of paper at the various periods in its history - perhaps this is in reaction to the modern mass produced product of poor substance and machine surface plus print and photosetting techniques which are so very different from earlier text-block material qualities, such qualities must be preserved, for they are indeed a tactile adventure. The mending department may cause one many anxious moments in this respect, with techniques so open to abuse; damping and pressing, heat-setting, tipping irons, sizes which impregnate whole textblocks and change their character completely.

Of course mending is not the subject here under discussion, but however good the mending has been, unsympathetic 'handling' and 'forwarding' by a binder can ruin it in a few moments. When handling a textblock I will very rarely use a nipping press for fear that it may harm type impression and paper surface qualities; the former is rather difficult to lose, when the sheet is perfectly dry, but the latter are somewhat easier to disturb.

PREPARATION FOR SEWING

Resewing should be a sensitive compromise between original structure and/or all subsequent structures and the requirements of the rebinding and covering methods chosen. So I'll discuss for a moment previous work done which reflects directly on choice of spine support, placing and sewing method to be used. Before 'pulling', the volume is studied and photographs taken of any interesting features of spine and boards for evidence of previous sewing. On a thin strip of card mark off page height, placing of present sewing and any marks on board and spine which indicate previous sewings; such work is continued during the 'pulling' operation. Afterwards, when it is possible to more carefully study the spine folds of sections, one tries to determine the original sewing holes and technique used which could have been of many different types not necessarily sewn on bands, a fact which complicates things immensely for our knowledge of the exciting structural period before c. 1520 is almost nil. But let us take for example a 16th century printed volume supported on bands in the general method used in Western cultural areas since the late medieval period. (H. Kyriss, the binding scholar has in his collection a printed book bound in a Ketton stitch technique). Mark more prominently the original sewing holes on the card. These I would always use unless:

a) there is a later recovering which must be replaced

b) inadequate support for weight and proportion of volume (but in such a case I often prefer to keep to original holes and supply other support such as 'end of spine bands', supported kettles, etc.)

Prior to c. 1550 sewing supports were usually very functionally spaced out on spine, and this does not begin to become quite ludicrous until later when constructional common sense suffered to fashion in one field/area and almost "conveyor-belt" economics in another.

END LEAF DESIGN

Let us first look at end leaves.

I feel in a successful limp vellum structure, each element or part serves several purposes, with maximum efficiency in each; simplicity of structure and ease of action are the goals to strive after. End leaves are a notable element in this respect and in my latest designs they serve some of the traditional functions but also they have new ones to perform. Let us first ask and try to answer the following:

a) What are the basic problems and purposes of endpaper design?

b) The functions they must fulfill?

c) How do these functions differ from other types of binding structures?

The modern 'publishers' casing structurally relies to a large extent on the quality of paper used for endpapers, for they do in fact hold in place the tapes and/or mull to which the sections are sewn. With modern materials this is a poor technique, but some attempt to justify 'casing' is made by drawing a parallel with the fact that a 'casing-like' technique is part of the Islamic world's traditional binding structure. However, this is an absurd comparison, for it does not take into account such important differences as, that modern coated stock is far heavier than polished Islamic hand-made paper, or that stiff covers if at all used in the earlier period are light weight paste-board, covered usually in fine quality leathers, compared with modern equivalents of weighty mill board and weak covering cloths.

Another interesting comparison may be observed, that between late Medieval bookbinding and its modern counterpart, 'extra-binding', basically a reverse 'happening' occurs, the medieval is observed to contain a light weight text-block (this owing to quality of fiber used in the paper) supported and protected by sound materials and a strong functional/practical structure, whereas the modern equivalent has, more often than not, a weighty text-block, supported by poor quality materials and a somewhat weaker structure formed by techniques full of affectations. In stiffboard binding there should be no structural reliance on the (any part of the) endpapers particularly as modern hand-mades are so suspect - paper should be of a quality which will continue to fold back and forth at one point indefinitely; the design should allow no burst strain across joint at all and the fly leaves should be of such substance as to afford good protection to the text-block but tactily still blend well.

Sewing and openability we will discuss a little later, but a good growth and flow to a book starts and finishes with the end leaves and their connection with the cover must be in

sympathy with this general action. The large lectern type book should open wide ("throw-out") and stay at any page right to the very end and close firmly and squarely with that delightful air expelling bloomph. But the limp vellum binding is often at its most satisfactory when used for smaller volumes; it is not for the Lectern but is most comfortable in the hands, with the structure opening easily and covers yielding and adapting to the touch. I feel that the flow through a limp vellum book starts with the covers and not with the fly-leaves; when closing the air expels slowly through and around the covers. To supply adequate protection the covers must always be under a certain inward tension, across their width but not at the joint. Traditionally such a direction to the covers is obtained by a paste-down type endpaper shrinking on drying and so adding an inward tension, which happily also adds a little rigidity to a limp cover. In these ways endpapers are important to the success of limp vellum structure and so must be thought out most carefully. Let us recap:

1) We must retain a close connection with the text-block and one which will be dispersed amongst several gatherings and thus will not create too much tension around the end gatherings.

2) An inner pull to the cover is also needed but one which will not stiffen across the joint.

3) Endpaper could add to rigidity of cover.

4) Because the hydroscopic quality of vellum is greater than paper, any endpaper design must allow the cover to expand and contract freely.

Many medieval endpapers consist of folios or separate sheets - hooked under the first and last gatherings and sewn to the spine supports through these gatherings. (Figure 17a)

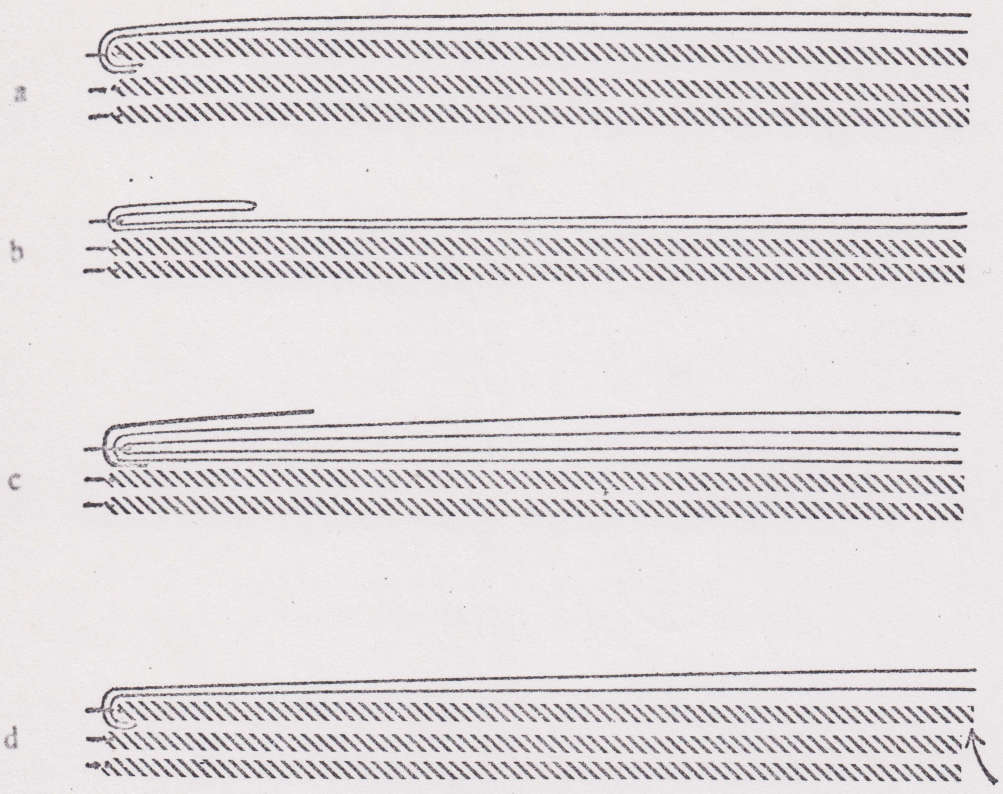
Other types are the reverse hook (Figure 17b) and folios or quartos sewn through separate to the text-block, often reinforced by vellum or parchment MS., strips. (Figure 17c)

When I first began to experiment (on dummies) for the B.N.C.F. limp vellum rebindings I used the hook under gathering type (a); I liked its simplicity and strong direct method of connection but found two main disadvantages:

1) When used on books which did not originally have this type of endpaper then the end gatherings would of course be pushed forward at the fore-edge by an amount corresponding to the thickness of the hook fold (Figure 17d) a happening which should never be allowed in conservation work.

2) On flexing the covers of a finished book one found a suggestion of a burst strain across joint; this would be more obvious on styles of binding where vellum covers were

FIGURE 17

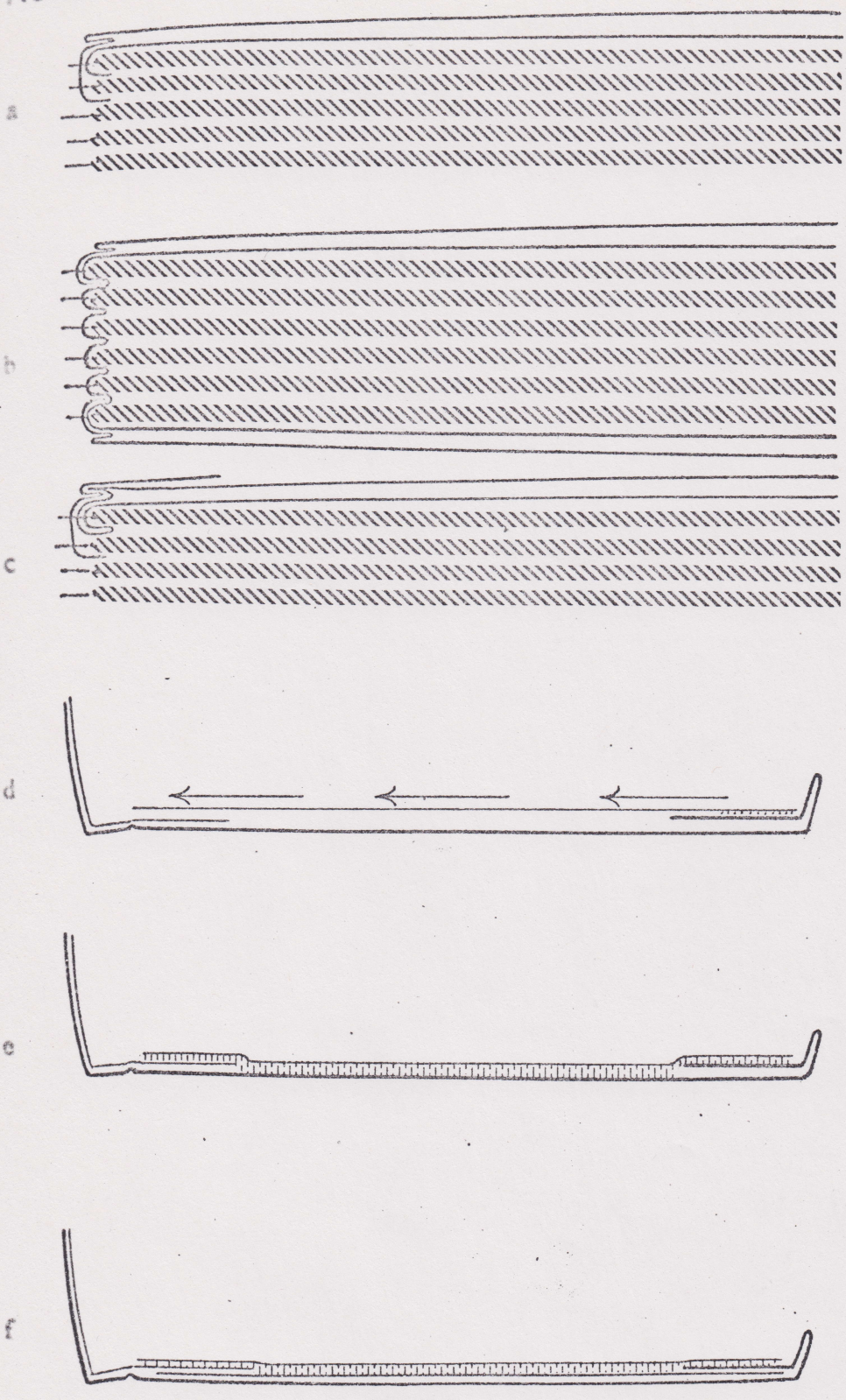


not in close proximity to the spine of the book, but stand off to the width of bands used (Figure 17e-f).

In 1967 to get over this problem I designed a version which used the simplicity of the hook connection but added a zig-zag gusset to the paste-down side (Figure g-h). I consider this still experimental, but because of the lack of alternatives the B.N.C.F. have been using this as a standard endpaper for their limp vellum bindings since 1968. It certainly takes away the tendency to strain across joint (compare Figure 17f with Figure 17h) allowing cover to ride away from text-block at the spine fold (this characteristic hinging of cover will be discussed later under 'covering') which is characteristic of these modern limp-vellum structures and one of the points I wished to stress when I used the word experimental above. But the endpapers are not used here structurally to attach covers as in a vellum 'cased' book method and so I do not expect this to prove (over a long period of use) a weakness in the design. In fact it should be noted that these structures are so light in weight that a period of use determined as adequate experiment would have to be considerably longer than that thought adequate for modern stiff-board bindings. The main disadvantages of the type of endpaper which hooks under the end gatherings is that when the book is fanned open these gatherings slightly divorce themselves from the main flow of pages. I have tried to disperse this tendency by zig-zagging or hooking under two or more gatherings often with quite satisfactory results (Figure 18a,b). To tip stub of hook between end and second gathering would be a dangerous and short term solution, for the pages tipped in such a way would tend to hinge from stub and gradually break-down. Because modern handmade papers are so suspect in the substance needed for sewing strength and foldability, I would wish, in many cases to introduce a linen joint to this type of endpaper. But of course the linen must also form a zig-zag and this increases the bulk of gusset which is often undesirable in small books. (Figure 18c) See also Appendix I-III.

The one great advantage of paper paste-downs have is that if correctly executed, on drying they will produce a reliable inward pull of the cover (Figure 18d), Reliable, that is, as long as workshop R.H. is similar to that of library bookstacks and reading room and as long as one may find an adhesive and simple technique for bonding paper to the grain side of vellum (particularly as I encourage a high percentage of natural oils to be left in vellum skin). This is a problem which has concerned me since 1967; the difficulty lies in the fact that one needs an adhesive with a large water content otherwise one will not expand the paper fibers and so obtain the reliable pull required. At the present the technique is to mark

FIGURE 18



area of paste-down on inside of cover and with a sharp knife scrape up "velvet" to form a key for adhesive on grain side of turn-ins (this is necessary even if one covered book with the flesh-side out, unless manufacturer velveted).

The air-like flexible quality of a limp vellum cover is lost if one allows endpaper to adhere also to the inside of cover (Figure 18e). I have experimented with adhering a paste-down just around its edges, but one will sacrifice the advantage of an inward pull on drying if a technique, of first humidifying paste-down is not used. But even so on flexing this type of cover one often detects an unpleasant diagonal tautness occurring due, I suppose, to uneven tension. (I have counteracted this by a broad adhesive area on turn-ins, but have a feeling that in time diagonal tendency may appear, so have never used this technique on original books). As reliability depends to a large extent on simplicity of technique I would recommend pasting out full sheet but insert under turn-ins a barrier (to paste) of paper (Figure 18f). This cover in effect becomes a semi-limp form of binding (see semi-limp techniques). At present (1971) if I use a pasted endpaper at all it is in fact only on semi-limp bindings, and that, only on rare occasions (see Appendix I for technique).

SUMMARY OF ADVANTAGES AND DISADVANTAGES IN USING PASTE-DOWN TYPE ENDPAPERS

Advantages:

a. If correctly executed, on drying it will produce a reliable inward pull of the cover.

b. Slightly less expensive material (except that now I have started experiments with 'paper' non-adhesive ends). See Appendix III.

Disadvantages:

a. Too much tension exerted across joints; answer found in zig-zag gusset experimental in this connection.

b. Necessity of paper paste barrier inside cover turn-ins.

c. Difficulty of paper adhering to grain-side of vellum turn-ins.

d. Endpapers will not be so easily removed at a later date if recovering is needed (see Non-adhesive binding).

OBSERVATIONS UPON NON-ADHESIVE ENDLEAF DESIGN (An example which illustrates the evolution of an idea)

An example such as this shortened list of advantages and disadvantages to an idea, indicates, I hope that a particular progression of techniques and materials in one binding will work well and yet on another binding will hinder or even act against one another. Of course one can greatly expand on the above comments particularly if it was acceptable to use modern machinery, man-made materials and ingenious end leaf construction (chancing whether these detract from the book). But I feel that in recovering, the solution lies in simple structure subordinating itself visually and in strength (when in direct contact with textblock, as for example endleaf construction) to the book it is designed to protect; reliability over a long period depends to a large extent on simplicity of construction, ease of movement, and materials which are in harmony with one another and with the textblock chemically, physically and visually. In this particular case we make our task more difficult still by wishing the construction to be adaptable to the many individual problems incurred in book rebinding, plus the wish that such constructions may be readily understood by future repairers and recoverers so they may cause no undue damage to the textblock.

While engaged on handling and sorting many thousands of books for B.N.C.F. which had been flooded, I noticed that several limp vellum bindings of the early sixteenth century appeared never to have had their endpapers pasted down; in fact I doubt, with some, whether pasting down had ever been an intention, and after 400 years, plus at least one damaging flood they were still in a good condition. (See Plate 24). These observations prompted me to experiment with designing an endpaper of a non-paste-down type, the feasability of which I thought would be less difficult in a limp structure than a stiff board one. Of course it has been done before in the 20th century particularly on thin light weight private press books, but with varying success and with textblocks of one or two gatherings only; success of course is according to the standards one wishes to accept. Here I wished to retain the shape, rigidities and protective qualities in a cover, in fact to do as well as that produced in my pasted end paper technique. If successful a non-pasted end-leaf would have the great advantage of supplying one with the opportunity of designing a 'reversible' (in conservation terms) covering technique - meaning a cover which later generations may easily and without damage remove from textblock and recover with fresh material (see non-adhesive covering).

Since 1967 I have carried out many experiments using blank paper dummies, but a lack of sensible acceleration testing facilities for aging and fault finding, (probably impossible to design in any case) has limited the following discussion to some of the less extraordinary ideas which possibly are more easily acceptable to libraries and collectors and from my point of view sympathetic to original structures. Here follows short descriptions of important points to note during my experiments in designing non-paste-down end leaves.

Since the summer of 1967:

1. Two vellum leaves hook folded around end gatherings - the inner one was to be a fly-leaf and outer was to be incorporated into the cover (Figure 19a), I proceeded to cover with head and tail turn-ins (kept these rather narrower than usual as I intended to cut into outer leaves). Folded spine, scored joint laced on cover after which I cut into outer vellum leaves at joint (head and tail) to depth of turn-ins which allowed me to lock these leaves under turn-ins (Figure 19b). To add more freedom of hinging at joint I actually removed a 'V' shaped piece at either end (now I feel it may have been an advantage to cut as (Figure 19c) in theory this would add guidance to hinging joint. A direct method but rather crude.

Then I turned in fore-edge and formed a corner which was in fact locking under head and tail turn-ins leaving end-leaf trapped, but free. (Figure 19d) (See Covering fore-edge corners). In this experiment I did not add fore-edge tackets as I wished to observe action on handling. These experiments showed up several interesting points which I later explored.

Advantages:

a. Simple endpaper/leaf construction.

b. Easing of tension across joint, because endleaf was free to slip back and forth while opening and closing the cover.

Disadvantages:

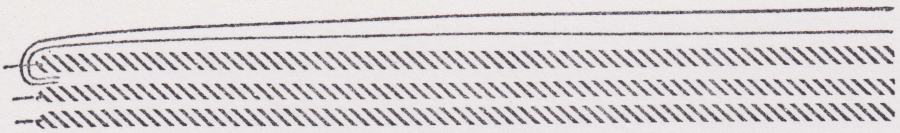
a. The lack of an inner pull or tension to retain shape of cover.

b. The cutting (weakening?) of endleaf, around joint, to allow turn-ins to enclose around it.

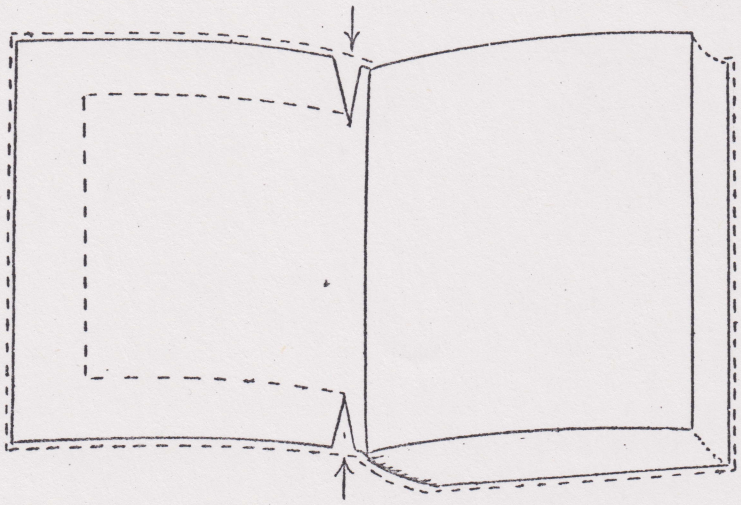
c. Too much tension exerted around and between first and last sections and rest of textblock caused by vellum hooks, (even when these were thinned).

FIGURE 19

a



b



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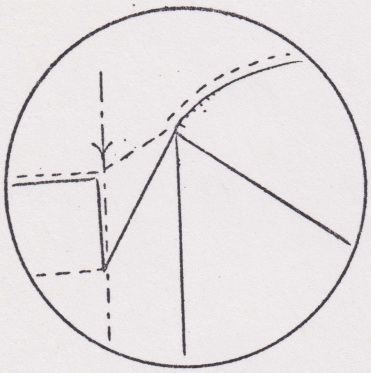

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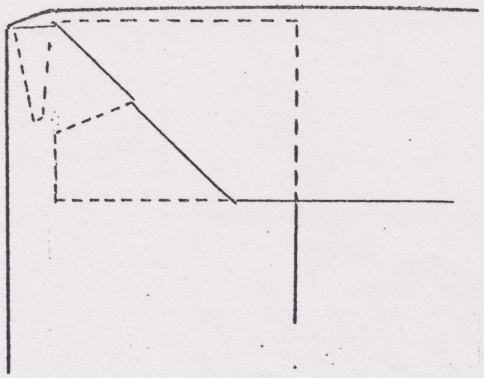
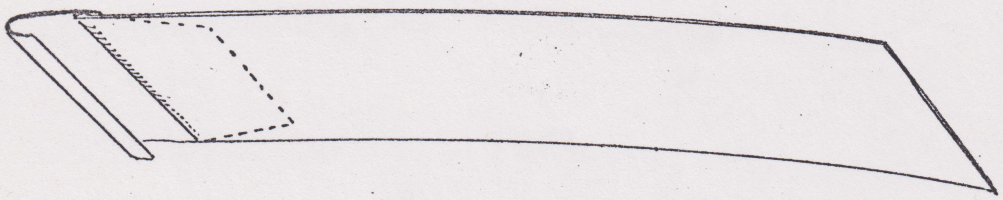


e



Possible remedies to disadvantages:

a) 1. Use of natural or produced curl in skin for endleaf to retain shape of cover. This would have to be proved to be permanently influencing the cover.

2. Holding shape of cover by use of lacing at one side and tackets at the other. This would ruin the advantage 'b' as endleaf construction incorporating zig-zag gusset or possibly by strip of more flexible material.

b) 1. Cutting out turn-in at head and tail of joint instead of cutting end-leaf.

2. Having no turn-ins, but as in Islamic limp structures, having edging of other material covering raw edges of cover and end-leaf with the stitches holding all together.

3. Different type of end-leaf construction which allowed turning in at head and tail without cutting, for example:- a "lang" stitch where end-leaves might also form spine liner and go right around text-block.

c) 1. Use of more flexible material; at this point leather is an obvious one.

2. Endleaf construction incorporating more than one section to distributeinfluence.

3. Separate folio end leaves.

All three suggestions would ruin advantage 'a'.

Returning to the particular problems of a non-paste-down end paper, the developments and functions of which will overlap and influence one another, to such an extent that I feel one can only progress by acquiring a first hand working knowledge by testing around one idea or innovation at a time; which means carrying out many very similar experiments on standard dummy books and other sizes; each having been fully covered and finished in synthetic materials as well as natural skins. Because, as I pointed out before, in this type of binding the endleaf material and construction may serve many functions, some of which I have probably not yet isolated.

I decided to concentrate on obtaining a simple connection with text-block, which meant a more sympathetic and flexible material than paper often produces in a narrow hook. This coincided with a wish for a more flexible joint and replaceable endleaf suggesting a more tenacious material than modern hand-made paper produces. But I still wished there to be a certain rigidity and inward tension to cover between

joint and fore-edge. I started to experiment with tawed skin at joint (tannins may migrate causing vellum cover to stain or even become brittle in this case right on joint-fold) with a vellum or parchment end-leaf inside rest of cover. Many ideas have been tried; at the time each appeared a solution but for the past year now I have concentrated on using the following endleaf construction. (See Figure 19e) Where the flexible tawed-goat joint extends under a parchment or vellum end-leaf in order to strengthen and make tenacious the final lacing through of the thongs, a zig-zag concertina was found not to be required, possibly because of flex and stretch in tawed material and closeness of end sheet with cover at joint but there possibly are other reasons. (For the technique of construction see Appendix II).

If there is proved to be a natural desire for vellum or parchment to curl towards one side or the other then this should be recognized and used in the end-leaf to aid the cover in retaining its shape. Certainly a reader, on opening a book, does not wish to have a parchment fly leaf curling up towards him. Discussing this problem Dr. R. Reed suggested that it was a matter of tension throughout the thickness of a skin; at its natural thickness it will stay reasonably flat, but if a certain amount is scraped off either the grain or the flesh sides then the balancing tensions are altered and the material will curl away from the side so treated. I know of no experiments carried out to try out such a theory and have not been able to devise anything like a satisfactory test. Perhaps one cannot generalize to any worthwhile extent on the working characteristics of a natural material, particularly when the method and conditions of manufacture are so unreliable. On completely unscraped vellum I have noticed a tendency for the skin to curl towards the flesh side, but this may simply be contraction of the excess of fat/flesh on drying. Forced curling around a roll is not permanent at all. Parchment may prove to be a material which will have a more tenacious curl to it than vellum; indeed I have used a skin which has stayed 'clock-spring-like' even after being held flat for several months. I wondered how such a curl was produced, and whether such could prove tenacious enough to influence and possibly aid the shape of a cover over many years.

Among the 40 odd sixteenth and seventeenth century limp and semi-limp vellum bindings which I bound for the B.N.C.F. in 1971 were two or three particularly slender volumes of such a light-weight and informal character that I felt sewn vellum ends with lacings through them showing inside covers was rather pretentious and fussy. I therefore experimented on dummies with non-adhesive ends made from handmade paper, still wishing to keep bands lacing through liners, I found that the most direct technique was to place two sheets into the cover, lacing only through the outer one. If such sheets are kept close to the

inside of cover, then with some narrow books one may obtain 'free' cover flexing at joint without a zig-zag. (For the construction of this end paper see Appendix III).

Apart from the endleaf which becomes integral with the cover I often use parchment fly-leaves also, the purpose of which is to add more protection to the text-block from the lumps caused by constructional features in the covers such as whittawed lacing and tacketting anchorages. (I have explained elsewhere why spine-bands and fore-edge ties should not be over thinned). The translucency of many modern parchments is often an objection to their use as fly leaves on early books; but opacity may be obtained by 'velvetting' the surface, a solution which I feel is reasonably sympathetic to early book papers. The difficulty of obtaining thin, strong and durable parchment is of course similar to that of vellum.

Advantages

1. Good protection for text-block.

2. The nature of parchment is alkaline but never take this for granted in modern material.

3. A single folio fly leaf can often supply enough strength down its spine fold to take the strain of a hooked under end-leaf with the cover laced on, whereas with paper a gathering containing several folios I feel would be needed or a strip of parchment down inside of spine fold.

Disadvantages

1. The difficulty of obtaining quality skins of similar weight to the text-block (its almost as difficult obtaining quality long fiber hand made paper for similar purpose).

2. The extra bulk of hooks under the end gatherings of text-block, a solution to this can be found in #3 above.

3. Unreliability of modern parchment in varying atmospheres.

An alternative material to parchment for fly-leaves is handmade paper and I do not have any objection to its use in this respect. (Even to the use of several blank fly leaves between cover and text-block for the purpose of protection). That is, if it is a new binding. My policy is one of always retaining every scrap of the original fly-leaves, whether they have provenance marks upon them or not, this is because as the study of early papers is becoming more detailed and sophisticated it becomes more important to retain previous binders fly-leaves in place, within the volume concerned. I often incorporate such flies in separate end folios which aid protection and have a natural sympathy with text-blocks, carefully explaining by binders notes, the alterations in construction of such end-leaves and fly leaves.