

The Conservation of a Thirteenth Century Armenian Manuscript
presented by J. Franklin Mowery

This conservation project entailed the treatment of one of the most damaged, distorted, vellum manuscripts that I have ever encountered.



(illus. 1, The water damaged folds on the spine)

This beautiful illuminated manuscript from a private collection had been exposed to water and was not caught before extensive damage had occurred. It arrived in a badly deteriorated brown sheepskin binding of a later date, probably 16th or 17th century. The binding had a green velvet 1/4 spine covering with six braided silver chains which draped across the spine and were rivited to the front and back wooden boards. The front cover was in reasonably good condition but the back cover was blackened and distorted, and the wooden board was broken and partially missing. The book was sewn on four double recessed cords, with a heavy four-ply "S" twist thread. The recesses were cut into a "V" shape. The

textblock was 529 pages comprising the four gospels. It was written on an exquisite quality vellum which had been burnished on both sides to a soft finish. At the beginning of each gospel is a full-page illumination, with gilt highlights and gold ink. The text is written in carbon black with a gum based binder which is very sensitive to moisture. The illuminations themselves were generally in good condition with only a few areas with friable pigment. One of the few exceptions is a small calvary scene on page 235 which had a fabric cover sewn through the vellum to hold it in place. The illumination beneath the fabric was very friable with loose and lifting pigment. From the the gospel of "St John" to the end of the book the vellum had suffered damage ranging from minor to extremely severe. The vellum leaves towards the end was so damaged from having been left wet for so long that the collagen had time to dissolve and fuse with the neighboring pages. The last several sections were single pages severely discolored not with just the ink that bled but perhaps color or tanins from the covering leather contributed to the staining and to the losses. The whole textblock was cockled.

The book was photographed and a detailed collation was made as it was disassembled, indicating how the sections were put together, I also kept notes on which illuminations needed consolidation.

The vellum leaves were dry-cleaned to remove surface dirt prior to the flattening process. The illuminations which had the most severe flaking paint were given an infusion of parchment size under the lifting flakes. I then began the task of separating the

leaves and flattening them.

I do not think the traditional methods for treating vellum would have been feasible on such severely distorted skins. Traditional repairs entail humidification by placing vellum leaves in humidity chambers or in what is called a damp-pack (moistened blotters with the vellum interleaved). When the vellum has relaxed it is either pressed or (clipped vellum) clipped around the edges and pinned to a board and allowed to dry. During the drying process the skin shrinks and pulls out the cockles or creases, this resembles the way vellum is made during the manufacturing process. But these procedures would simply not have worked on this manuscript. Pressing would have caused the moistened vellum to become transparent, particularly so because severely damaged and previously wet vellum is more vulnerable to becoming transparent when pressure is used. It would have also been very difficult to unfold all the curled edges and get a weight on them before they curled up again. Clipping and pinning the vellum would also not have worked due to the severity of the damage to the vellum. During the drying process tears would have only gotten larger, and trying to bridge all the tears to prevent them from opening up prior to flattening would have been impossible.

For years I have been humidifying vellum documents under several layers of Gore-tex blankets which have water directly in the felt of the top and bottom Gore-tex layer or I use a quilted blotter saturated with water. I would place several sections under the Gore-tex at a time, and after several hours the outer most

leaves would be relaxed sufficiently to allow me to carry them over to the vacuum suction table, where I could lay out, two folio sheets or four single leaves at a time. With the vacuum pressure



on low I would begin to unfold the curled edges and draw out the creases and cockles, as the unfolding progressed, I would increase the suction. When one leaf was layed out and smooth it would be covered with the light weight Gore-tex the type laminated to the unwoven polyester fabric.

(Illus. 2, Flattening vellum on the vacuum suction table)

The density of this material restricts the air flow sufficiently to be pulled down firmly across the vellum to holding down the edges, yet its porosity allows air to pass and thus the vellum can dry slowly. The Gore-tex is also a perfect filter, preventing dirt and dust particles from being pulled into the artifact. Once all leaves had been straightend it would be completly covered with the Gore-Tex and allowed to dry for approximatly 20-30 minutes. It only takes a few minutes of drying on the suction table until the vellum no longer feels limp. Creases and folded edges will retain their straighten out shape, but there is still a lot of moisture in the skins and it must be left on the suction table for the full 20-30 minutes to prevent them from curling too quickly when they

are removed and placed between dry clean blotters and weighted. Under the dry blotters they were allowed to equilibrate for several weeks. The humidification process had to be watched carefully, the vellum needed to relax sufficiently to allow it to be flattened but not too long otherwise the inks and pigments would begin to soften. On the other hand on leaves where the pigment was flaking I would intentionally let it humidify longer, this would allow the gums to soften and upon drying on the suction table the gum and pigment would be reformed and would set down again firmly to the vellum. The illuminations that received parchment size to set flaking pigment softened and upon drying set down even more firmly. There was a problem though, there was always some color highlights on the side that was face down on the table, it would offset to the hollytex on the suction table if I was not careful so as a precaution I would direct warm air from a hair dryer onto those areas for just a moment, long enough to sufficiently set the binder, but not long enough to start drying out the skin. Pages that were fused together were able to be coaxed apart after prolonged humidification. . Some of the areas of vellum that had been stuck together were so altered that they no longer held together as a piece of vellum, they would virtually dissolve in your hands when being handled. The most distorted leaves needed several repeated treatments of humidification and flattening. They tended to set up and become inflexible before all the folds and creases could be laid out smoothly. A nice feature was that when it was later rehumidified the areas that had been flattened tended not to lose the memory of the flattened shape which made it easier

to lay it out on the suction table a second time and focus on the still wrinkled areas. I allowed the flattened textblock to remain under weights for several months prior to mending. Partially because of the awesome amount of work and partially because I was experimenting with repairing vellum in a different way.

Traditional repairs are made with new vellum which has been cut, pared and sanded to fit a loss then adhered with gelatine or parchment size. Tears often would be closed with gold-beaters-skin, a very thin transparent membrane made from the intestines of animals. This method of repairing of using like material to repair like objects is often fine and can be done very skillfully. But vellum today is not like that of six hundred years ago and repairs adhered with gelatine or parchment size often are not as flexible as the very fine old manuscript vellum. Gelatine repairs can be particularly brittle. And as with paper mends the success of a repair often relies upon a perfect match of thickness and flexibility of the repair materials to the original. This is nearly impossible to achieve with materials available to us today. I heard from a visiting German conservator about a method being currently used in Europe which entails repairing vellum with Japanese paper adhered with PVA. 20 years ago I learned a method of adhering a vellum infill with a mixture of parchment size and PVA, and I have seen numerous examples of vellum repairs made with Japanese paper adhered with paste (all of which are generally cockled and distorted). But Japanese paper and PVA was an interesting idea, we have all seen how Japanese paper goes

translucent when used with PVA, and it actually sort of feels like vellum when impregnated with it. So I did some experimentation and really liked the look and feel of the repairs I made using the PVA and Japanese paper. I did a test of humidifying several vellum documents which had been repaired with the Japanese paper and PVA. I was pleased with the compatability of the repairs to the original vellum even when dried without constraints. I also liked the reversability of PVA on vellum, it seems to release easier than even the traditional adhesives because PVA builds a film on the surface which creates the adhesion between both the vellum and the paper, this film can be softened with moisture or alcohol and it will peel right off. Where as adhesives like gelatine or parchment size are more prone to penetrate into the vellum surface especially one with a soft nappy surface and thus tend to be more difficult to completly remove. So I was convinced that this seemed to be the best way to approach this project. I still couldn't see my way through my other work to spend the time to finish this job (I had quoted that it would be done in six months, already nearly a year had gone by). So I asked two former interns of mine, Nancy Southworth, and Marney Cobbs, both exceptionally skilled book conservators working in private practice if they wanted to help finish the book. For several years they have been collaborating on treating some of the most precious books and manuscripts from some of the Harvard University Libraries. They had never tackled a project of quite this magnatude (for that matter neither had I) but they were intrigued and accepted the challenge. We jointly discussed the plan of action and the approach to take prior to them

traipsing off with the book to the peace and quite of their studio in the back woods of New Hampshire. They would first create a laminate of several layers of Japanese paper some times with a final laminate of gold-beaters-skin which was found to matched the finish of the original skin perfectly. The pages to be repaired were layed out on a light table marked out with a grid to allow for positioning, then the laminate would be scored and torn allowing for a millimeter or two overlap. In combination with unlaminated paper the losses were filled and tears closed.



(Illus. 3, Repaired leaves with Japanese paper and PVA)

After studying all the literature and examining original armienian bindings at the Walters Art Gallery and at Harvard a binding was produced in traditional Armienian style which followed the historical prototypes. Vellum flyleaves were added at the front and back, and the textblock was resewn using the original sewing stations and a reinforced kettlestitch. With the only exception that a Japanese paper concertina guard was incorporated to close the gaps between the sections which traditionally would have been

done with an adhesive and fabric lining. The concertina will also allow a conservator in the future to disassemble the volume more easily without damage. The endbands were sewn in blue and red in the traditional style which projects beyond the edges of the boards. And the book was finally covered in brown dyed alum tawed calfskin. Unlike conventional bindings where turn-ins are put down before a board pastedown the leather turn-ins on this binding were put down on top of the dyed blue linen pastedown (a characteristic of armenian bindings). The original covers were placed in a chemise and slip case as was the finished binding.



(Illus. 4, The finished volume opened to the beginning of a Gospel)

The finished volume worked beautifully, opening well, and the repairs draped with the original vellum as one unit. One small exclusion was the piece of fabric that originally covered over the small calvary scene. It was not replaced but housed separately, as it was the only illumination in as severe of condition and the only attribution of that damage could be linked to the fabric.