THE CONSERVATION AND DIGITIZATION OF JAIN MANUSCRIPTS AT THE VICTORIA AND ALBERT MUSEUM

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The Victoria and Albert Museum has a collection of *Śvetāmbara* Jain manuscript pages from western India, including numerous examples dating from the mid 15th to early 16th centuries, which form a core part of the V&A's collection of early paintings from the Indian sub-continent.

Many of the manuscript pages in the V&A collection are richly illustrated, having been acquired as works of art. Among these is a nearly complete *Uttarādhyayanasūtra* manuscript of the mid 15th century. ***(Figure 1)*** This relatively early example contains very fine illustrations. The *Uttarādhyayanasūtra* instructs Jain monks how to behave and expounds certain Jain ideas, but also contains many parables and explanatory stories. The *Kalpasūtra*, of which the V&A has one almost complete copy and several pages from dispersed manuscripts, all dating from the 15th and 16th centuries, is the most commonly illustrated text. ***(Figure 2)*** It gives a history of the 24 Jain saviours and later teachers as well as rules for monks in the rainy season, when the text is recited and worshipped at the Paryushan festival. Both texts form part of the canon of the *Śvetāmbara* sect. Members of the laity commissioned copies of manuscripts, which were given to temple libraries and thus preserved. The donors gained religious merit from this activity. By the late 15th century expensive colours such as gold and ultramarine blue had become prevalent.

The Jain religion dates back at least 2 500 years and is fundamentally concerned with liberation of the soul from an endless cycle of birth, life, death and rebirth by the elimination of karma. All living beings are believed to have souls and partly in order to avoid accumulating harmful karma it is considered very important to avoid causing them injury or hardship. Non-violence to all beings is therefore the central and most recognised principle of Jainism and accordingly Jains are strictly vegetarian.

Fig 1. Folio from an Uttarādhyayanasūtra manuscript: King ŚreNika and the ascetic, showing the inlay method Opaque watercolour on paper, Cambay, Gujarat, about 1460, © Victoria and Albert Museum, London

Fig 2. Folio from a *Kalpasūtra* manuscript: Neminātha's birth (left) and his renunciation to become a monk on seeing the frightened animals about to be sacrificed for his wedding feast (right), Opaque watercolour on paper Gujarat, India, early 16th century, © Victoria and Albert Museum, London

Digitisation and Conservation

The decision to conserve and digitise these manuscripts in 2010 was prompted by the proposal to redisplay a selection of Jain works of art in conjunction with the JAINpedia website (http://beta.jainpedia.org/) project digitising Jain manuscripts in UK collections. The aim of this initiative was to make these delicate artefacts accessible for the public via the JAINpedia and V&A websites and to conserve and mount the pages in order to allow them to be safely handled by scholars and researchers and displayed in the Nehru Gallery of Indian art, where they are periodically changed. The conservation work was made possible by generous contributions from the Institute of Jainology and the V&A Jain Art Fund.

The earliest Jain illuminated manuscripts were written and painted on prepared palm-leaves, bound with cords, and the folios were encased in decorated wooden covers.
Ahmedabad and Patan in Gujarat were major centres of Jain manuscript production. From the 12th century, the support changed progressively after the introduction of paper into western India from Iran, but the format of the palm-leaf manuscripts continued to be reflected to some extent in the long, rather narrow shape of the pages of paper manuscripts. The manuscripts are read by turning the pages about the horizontal axis, unlike Islamic and European books. Although the practice of piercing palm leaves for the binding cords was abandoned with paper pages, which would easily have torn, decorative marks continued to be painted on the pages in the positions where holes would have been.

The fragility of the folios is largely a result of the extensive use of green verdigris (copper acetate) as a pigment. The copper degradation is evident on most of the illustrated folios, but is also observed on many of the text only pages. ***(Figure 3)*** In both cases, acid hydrolysis and accelerated oxidation caused by the presence of copper acetate has resulted in both discolouration of the green pigment to a dull brown, and extensive discolouration, embrittlement and even disintegration of the paper substrate in areas where the pigment was applied.

A suitable conservation treatment for retarding such corrosion must address both the hydrolytic and oxidative processes at the same time. Studies have demonstrated that a combination of the complexing agent calcium phytate and an aqueous solution of calcium hydrogencarbonate are most effective in retarding corrosion (Potthast *et al,* 2008.). However, while this method may be considered appropriate for the treatment of iron and copper corrosion on Western manuscripts, such an interventive treatment is rarely, if ever, possible for richly painted Indian manuscripts on laminated papers.

The similarity of the Verdigris damage to that caused by some iron gall inks lead the authors to consider the use of gelatine (isinglas) as an adhesive. However as Jainism specifically prohibits the use of animal products, it was necessary to find a synthetic alternative which would act as an adhesive. Japanese Tengujo tissue and thin Minogami papers were coated with a 2 % solution of methyl cellulose adhesive brushed on a Mylar, the Japanese paper applied on it and brushed through a Hollitex with a Nadebake. Atfer drying, this coated tissue was then reactivated with a minimal amount of moisture and then applied to the copper damaged areas, minimising the amount of moisture introduced to the paper during repair. Wherever possible the tissue was cut larger than the area of damage and applied to the verso, therefore only adhered to areas of relatively strong paper. Some old repairs were partly obscuring the text. The main criterium to decide to remove them or not was dictated by the need to restore the legibility of the text. Conventional Japanese paper and wheat starch paste were used to reinforce the most extensive insect damage and losses. The folios were then inlaid into a toned, hand-made paper of a similar thickness and colour to the paper of the manuscript to allow a safe and easy handling.

The approach to both conservation and mounting of the manuscripts were decided after discussions with the curator of the Asian collection at the V&A, with a careful consideration of the importance of these early texts to followers of Jainism and a shared awareness of the risks posed to the original material by handling.

Historically, the display of the Indian pictorial collection at the V&A has been centred around individual paintings rather than entire manuscripts, and so it seemed logical to inlay the folios in an appropriate paper, and mount them in standard sized window mounts. In order to save much-needed storage space and also for aesthetic reasons, it was decided to mount three folios in each mount, which has the additional benefit of helping the viewer to see that the folios belong to larger manuscripts. With this method, a manuscript can be viewed in its original sequence, while at the same time being protected from unnecessary handling that could lead to further damage and loss to the already deteriorated folios. The mounted manuscripts are then stored in Solander boxes in the Indian Study Room at the V&A and can now be used for both periodic display in the Nehru gallery of Indian art at the Museum, and for close study by scholars ***(Figure 4)***.

Fig 3. Folio from an *Uttarādhyayanasūtra* manuscript: the story of king ISukāra, detail showing verdigris damage, Opaque watercolour on paper, Cambay, Gujarat, about 1460, © Victoria and Albert Museum, London

Fig 4. Folios from an *Uttarādhyayanasūtra* manuscript showing the mounting and storage methods used, Opaque watercolour on paper, Cambay, Gujarat, about 1460, © Victoria and Albert Museum, London

References

Potthast, A., Henniges, U., and Banik, G. Iron gall ink-induced corrosion of cellulose: aging, degradation and stabilization. Part 1: model paper studies, Cellulose, Vol.15, No. 6, Dec. 2008, pp. 849-859

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