

World-wide Spread of Conservation Using Japanese Paper

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【Abstract】

Japanese paper is now widely used as conservation material for archives around the world and is thereby contributing to extending the life of original paper-based records. This presentation aims to review how Japanese paper acquired this popularity as conservation material. As is well known in the art, Japanese historical paintings, documents, and mounting are inseparable. Many of Japanese paintings and documents are done on silk or paper which is too delicate for long term preservation and/or handling for display. This necessitated re-mounting about every 100 years. Accordingly, repeated re-mounting brought the development of conservation technique and selection of suitable paper materials for mounting such as Kozo, Gampi, and Mitsumata.

It was the flood in Florence in 1966 when Japanese paper was first spotlighted as material for archival conservation. European paper conservators who engaged in the rescue activity recognized its potential as good material for treating the water-damaged objects. Since the Florence flood, both Japanese and European conservators have contributed to spread the Japanese conservation techniques. In the international arena, International Center for the Study of the Preservation and Restoration of Cultural Property (ICCROM) has organized many training sessions on Japanese conservation techniques since 1977. Numerous reference articles on conservation methods using Japanese paper were published in Europe and the US. Japanese paper suppliers have also played an important role for the spreading of Japanese paper to the world. Nowadays Japanese paper makers have developed new types of paper with traditional fibers and keep exploring new conservation techniques for documents.

As a result of various collaboration by conservators and institutions both in Japan and abroad, Japanese paper has successfully established its reputation as excellent material for conservation.

【Biography】

Mr. Katsuhiko MASUDA was born in Tokyo on 9th July 1942. Soon after his graduation with BA in Agriculture in 1965 at the Tokyo University of Education, he worked at the Endo Tokusuiken studio, Conservation of Japanese historical paintings and documents. From 1973 to 2000, he worked as a researcher and conservator at the Department of Restoration Technique, Tokyo National Research Institute of Cultural Properties. From 2000, the Showa Women's University, as a professor in charge of study on conservation of paper, paintings and documents. Has conducted 7 Japanese Paper Conservation courses with collaboration of ICCROM since 1992. His main interests are techniques in conservation and history of paper making and traditional mountings. The studies on ancient paper making in Japan "Technical Study on Paper Making in the Nara Period (7-8th CENTURY)" have clarified the characteristic of ancient paper which could not be reproduced by traditional technique of present day. The results of his study provides appropriate paper for restoration treatment of ancient paper document. "Micro dots adhering and transfer application of paste for paper conservation" provides semi-dry pasting for hinging and minor repairing.

Worldwide Spread of Conservation Using Japanese Paper

Japanese paper is now widely used as a material in conservation methods for archives around the world and is thereby contributing to extending the life of original paper-based records. This presentation aims to review how, as a result of global interaction among conservation professionals, Japanese paper acquired this popularity as a conservation material.

1. Introduction

Flimsy materials, primarily silk or paper, are used as base materials and supports for Japanese paintings or documents. For this reason, Japanese paintings and documents are vulnerable to damage and require restoration whenever they are damaged. It is this regular work of restoration that makes it possible for paintings and documents to be preserved for posterity. In other words, there is a physical need that demands repeat restoration. I would therefore argue that such frequent restoration encourages the evolution of restoration techniques and, as a consequence, becomes a catalyst for new restoration techniques that stand the test of time.

Japanese paper (*washi*) is used for various types of restoration such as for hanging scrolls (*kakejiku*), folding screens (*byōbu*), sliding doors (*fusuma*), papering, and so on. As it has so many different uses, Japanese paper comes in many textures and thicknesses. This gives Japanese paper a number of different properties. It is (1) always compatible with the paper of the area being reinforced/restored; (2) easy to apply and sufficiently softens when soaked with water; (3) transparent; and (4) strong when it is folded. As Japanese paper is basically a fiber mat made of loosely-tangled long strong fibers, it can be easily molded in a humid environment. When it is used in restoration, even thin, frail, and nondirectional Japanese paper such as *Tenguji* provides great benefits. Japanese paper blends seamlessly with the surface of a painting since the moderate amount of starch contained within it makes it adherent. Among with a host of traditional techniques performed by craftsmen in which water is frequently used, Japanese paper is of great use.

The other special characteristic of Japanese paper is that it is alkaline. To extract fibers for Japanese paper, natural alkaline materials such as wood ashes and lime, as well as chemical soda, are used. Their residues make the finished paper mildly alkaline. This, consequently, serves to deter acid deterioration which accounts for most of the chemical deterioration of paper, or deterioration prompted in the acid side.

2. Propagation of Japanese paper as a material and Japanese techniques to the West

Before the World War II, some of the galleries and museums in the West which had trouble restoring paintings and documents from the Far East invited *hyōgu* (mounting) artisans from Japan or other countries to do the work for them. However, their techniques seemed to have never become widespread among conservation specialists of paper art in the West. For example, The British Museum holds manuscripts and documents collected from Dunhuang, China. One of them was discovered to be lined with a thick piece of paper, apparently wrapping paper, which a Japanese or Chinese specialist would never do. This poor piece of restoration was obviously

performed by some European specialist who had no knowledge of the techniques used with oriental paper.

In 1959, a shocking claim was made in the United States regarding the preservation and conservation of paper materials such as books and documents. In his book entitled “Deterioration of Book Stock, Causes and Remedies”, William Barrow warned that the acidic materials contained in the paper itself has a considerable impact on the life of books and documents, and that much of the human wisdom recorded in books would be lost in the near future. So when millions of items that were damaged by the flood of the Arno River in Florence, Italy in 1966, were rescued and restored, the acid paper issue had already become well known as a serious matter in Europe and the United States.

However, it wasn't until 1980 that the issue of acid in paper became known to the Japanese public. Back in 1966, traditional Japanese restoration workshops were not yet aware of the issue. The Association for Conservation of National Treasures, a group of traditional restorers in Japan, sent Japanese paper to Florence but this was not because they had noticed its neutral to mildly alkaline pH.

I have no idea how the Japanese paper was actually used after being donated to Florence immediately after the flood. But imagine how useful it must have been for the Western restorers who had gathered at the site to have tons of hand-made paper with not only usable physical properties, but also neutral to mildly alkaline pH. I believe that the experts who were well aware of the problem of acid in paper must have really appreciated the benefits of Japanese paper: elastic but strong, usable, and acid-free. I really think that the 1966 flood in Florence was a landmark event that encouraged the spread of Japanese paper in the Western world following the realization by experts that Japanese paper is an excellent material for conservation as it frees from the problem of the acid found in other types of paper.

3. Propagation of Japanese techniques through technical training

Keiko Mizushima Keyes came to Japan and trained in *hyogu* techniques only a month after the Florence flood. She subsequently studied Japanese pictures of everyday life (*ukiyo-e*) with her husband, Dr. Roger Keyes, and published articles and books about restoration techniques based on what she had learned in Japan. In 1975, she opened an independent conservation studio for art on paper and taught seminars at several universities. Ms. Keyes was only 50 when she died a year after she gave a presentation entitled "Japanese print conservation, an overview" at the IIC Conference in Kyoto in 1988. She earned my undying admiration for how she provided technical training courses for more than twenty years and did so much to promote Japanese paper and Japanese techniques among paper conservators.

In 1976 and 1977, I gave demonstrations of the process of making folding screens in Rome,

Italy. Subsequently from 1980 to 1981, I was sent to International Centre for Conservation Rome (ICCROM) in Rome to give practical training in Venice, Rome, and the United States. I taught some of the basic techniques during a three-week course for mounting hanging scrolls which could be applied to work with Western artworks.

I subsequently travelled overseas to provide practical training on a request basis. From 1992 with Mr. Kazunori Oryu, I taught technical training courses in Japan, which were hosted jointly by the Tokyo National Research Institute of Cultural Properties (TNRICP) and ICCROM. In 2000, I became a university professor and have since lectured on conservation techniques for Japanese lacquerware and paperware every other year at TNRICP, which became the National Research Institute for Cultural Affairs, Tokyo (NRICPT), an independent administrative institution, in 2001. In addition, I have cohosted training courses and have dispatched lecturers to Latin America with ICCROM in order to further promote the techniques. In the meantime, Mr. Oryu, who is no longer with NRICPT, has given technical training courses in Germany and France. Training courses on Japanese conservation techniques have been constantly held inside and outside Japan to facilitate the renewal of a generation of conservation specialists who have mastered Japanese techniques.

4. Propagation of techniques through the publication of process records

In 1977, TNRICP published a book called “Science in Hyogu”, in which I illustrated the process of mounting hanging scrolls and the restoration process. This book was later translated into English in Canada.

In 1979, the Foundation of the American Institute for Conservation of Historic and Artistic Works published “Japanese Scroll Paintings: A Handbook of Mounting Techniques”, which was written by Masako Koyano.

The great surge in interest in the conservation techniques for art on paper came to a head in 1976 when “The Paper Conservator” was published. The journal was another platform for the work on paper materials that was being detailed in the existing journal, “Studies in Conservation”, which had been published by the International Institute for Conservation of Historic and Artistic Works (IIC). An article in its third issue picked up on three types of Japanese paper and dealt with the applications of their characteristics and usability.

The ninth issue in 1985 featured *hyogu* and introduced techniques for hanging scrolls as well as the *karibari* process, while the 30th issue, published in 2006, featured techniques from the Far East and covered the phenomenon of Japanese techniques being applied to Western collections, among with other reports from China and South Korea.

Materials used in the training, which began in 1992, were only in English. However, at NRICPT, training materials are now prepared in both Japanese and English and distributed to trainees.

As just mentioned, through our practical training courses, as well as the distribution of the records of training details and materials, we are indirectly supporting our trainees to become

lecturers and so be able to provide training when they return to their countries.

5. Exporting Japanese paper as a conservation material

Almost all of the pages of Japanese paper sample books obtained by overseas art museums during the 1970s had decorative patterns and only a couple of types of blank white Japanese paper attached at the end of the book for the purposes of patching/repairing. In 1984, one exporter started distributing Japanese paper with descriptions relevant to conservation staff, such as material fibers, pH, thickness, size, suitable boiling agents, etc. This exporter's shop stopped using the names of paper traditionally used by exporters, and instead adopted a coding system in which the same code always represents exactly the same type of paper. Previously, two sheets of paper with the same name were quite frequently in different qualities and different colors. Today, an increasing number of shops are exporting Japanese paper as a conservation material with data such as the pH attached to each sheet, and this has become standard practice.

6. Studies by Japanese paper users

Paper cultural property conservators all over the world are independently studying the physical characteristics of Japanese paper to learn how they can best use it as a material to protect their own country's cultural properties. The results of one of the most systematic studies are listed in "A Study of the Quality of Japanese Papers Used in Conservation".

In this study, 84 sheets of Japanese paper were collected from one Japanese and four US producers, and their fiber composition and pH were compared.

In terms of fibers, the study concluded that the best fiber source for the purposes of preservation is paper produced from the mulberry tree (*kozo* plant), while the study regards wood pulp as unsuitable for such purposes. Therefore, types of Japanese paper that are produced using wood pulp are rated lower, among which paper that has been produced using a mechanical pulp appears, according to the study, to be more susceptible in terms of durability and endurance. Fibers were studied based on the TAPPI standard (T-401 om-82) and the TAPPI test (T-509om-83 for pH), using the cold water extraction method.

55 sheets, or 65.5% of all of the 84 sheets of paper studied were made from 100% bast fibers, such as trees of paper mulberry, *gampi*, and *mitsumata*. 40 sheets, or 72.7% of these 55 sheets of paper were *kozogami* (Japanese tissue made from the mulberry tree). However, wood pulp was found in 23 sheets, or 27.4% of all types of paper.

One of the most peculiar types of paper was called *Uda Usukuchi*, which has a fiber composition of 95% *kozo*, 5% ramie, and a trace of *gampi*. Two sheets of paper made from 100% abaca (Manila hemp) fibers were also sold as a member of the Japanese paper family.

In terms of pH measurement, most types of paper were neutral to alkaline, but the pH of only one paper, which was made from 60% paper mulberry and 40% wood pulp, was 5.0. The results of the paper exported from the Japanese producer that I mentioned earlier matched the descriptions provided by the shop on all counts.

7. Japanese paper sample books printed in Japan

Of all the Japanese paper sample books that I have obtained in Japan, two are entitled “Japanese paper for preservation and restoration/conservation” and both contain English translations. Let me give you some examples of the descriptions of Japanese paper’s physical characteristics from sample books and let’s take a look at an aspect of the sales of Japanese paper as a conservation material.

- 1) The paper samples from the Japanese paper sample book which was produced in commemoration of the 1983 International Paper Conference held in Kyoto, provides the following items of data in both Japanese and English: sample number, name, size (in millimeters), origins, materials, usage, and characteristics. The book contains 40 sheets of paper in total, including 17 uncolored/color free and two types of cardboard for woodblock printing.
- 2) Since the opening of the shop in 1984, the sample book produced by Paper Nao has contained Japanese paper for the purpose of the restoration of cultural properties with data provided in Japanese and English. The English version of the sample book is also available with a list of data including nine items: name, size, minimum price, weight, materials, cooking, drying, pH-value, and notes.
- 3) “The Manufacturing Process of Tosa Hand Made Japanese Paper”, which was printed in 1990, outlines the manufacturing process in Japanese and English with a description list of 18 Tosa paper samples attached. Listed amongst the five data items are sample number, artist/manufacturer name, materials, boiling agents, and the drying method. In “Materials,” the quality of materials, such as “100% whitened (*hon sarashi*)”, “60% whitened (*rokubu sarashi*)”, and “machine-made” are also noted.
- 4) “Masumi Japanese Washi Paper for Restoration vol. III”, which was printed by Masumi Corporation in January 2007, contains 46 hand-made Japanese paper samples and eight machine-made Japanese paper samples. Each sample includes seven data items in Japanese and English (sample number, name, weight in *monme* and grams, size in centimeters, materials, boiling agents, and the drying method). The feature of this sample book is that weights are presented in a range such as “3.1 – 3.2 *monme*”, which indicates that the same type of paper actually comes in range of thicknesses.

8. Conclusion

Japanese techniques are very simple and don’t require any large or complicated machines or tools, so they are easy to introduce at workshops once you master them. Materials are manufactured by traditional techniques and it is a historically proven fact that they remain stable for a prolonged period of time. In terms of price, they are always available at a reasonable price. This is because in Japan you can still find many Japanese paper workshops in full operation, as compared to Europe and the United States. Conservators recognize these advantages and use Japanese paper because they highly prize its functionality, rather than because of its artistic beauty. In that respect, I feel a bit dissatisfied as a lover of Japanese paper. Thank you for your attention.