

Conservation Treatment for Unbound Documents at the Toyo Bunko*

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Introduction

On several occasions between 2014 and 2015, conservation treatment was conducted for unbound documents of various forms, materials, years and places of publication. Here, “unbound documents” refers to documents and ephemera that had not undergone processes such as bookbinding or mounting. Since these documents were neither books nor scrolls, it was difficult to store them on the shelves and inconvenient to read them in the status quo. Also, these were susceptible to damage without any protection. Hence, conservation treatment was applied to improve their condition.

Until the end of March 2009, the Toyo Bunko had a Bookbinding Room where the staff bound some materials and made storage cases. However, after the Bookbinding Room was abolished due to the cancellation of the branch contract with the National Diet Library, it appears that the cataloging staff in the Library Department have been doing what they can to preserve the materials by mending simple tears in pages and making storage cases. Since April 2014, the conservation work has been resumed by three part-time employees including a former member of the Bookbinding Room. One of the other two who newly joined on this occasion is the author.

It seems there was a practice that cataloging staff brought library materials to the Bookbinding Room to ask the staff there for binding or preparing storage cases. At present, conservation procedure is being conducted under the similar process. Thus, the treatment performed varies from case to case, as it is examined and determined through discussions with cataloging staff or project staff, considering the nature of each material and how it is used. The author hereby presents four case studies of conservation treatment that is applied on the library premises, with some not requiring expertise and technical skills.

1. Autograph letters addressed to Basil Hall Chamberlain, with the typewritten copies of the letters (call number: MS-107)
2. *Shōyō Shimpō* 商用新報 (call number: JXIII-189)
3. Vellum Contract Documents (call number: A-LA-493)
4. *Ajia Taikan* 亜細亜大観 (call number: JXI-2)

2. Specifying the sender, location, and date of the letters on the mounts. Ensuring the stability of letters on the mounts
3. Deacidifying the materials

1-2-1. Storage cases

- 1) Ready-made ring binder boxes and album pages were used.¹
- 2) Since many of the materials were written in iron gall ink, un-buffered acid-free paper was used for the mounts and the interleaves.²
- 3) Heritage Archival pHotokraft paper³ (90gsm, un-buffered) was used for mounting and indicating letter numbers and other information. Materials were mounted by way of cuts made on the four corners. The same applied to photographs.
- 4) Pure Guard 45⁴ was used as interleaves to protect fragile paper and to prevent iron gall ink migration.

1-2-2. Cleaning and mending

- 1) All materials were dry cleaned⁵ with brushes. Dusting cloths,⁶ soot sponges, and plastic erasers were used occasionally.
- 2) Wheat starch paste and Japanese paper were used to mend tears that could worsen or were difficult to handle. Damages and tears that seemed to have been torn when they were opened and areas that were written in iron gall ink were excepted.⁷

1-2-3. Deacidification

- 1) The Bookkeeper Spray of Preservation Technologies Japan was used.
- 2) Materials that showed signs of acid hydrolysis and materials that appeared to be acid paper were deacidified, except for surfaces where iron gall ink was used.⁸
- 3) Merck's pH indicator strips were used to measure the pH.
- 4) A list of the deacidification was attached at the end of the ring binders.

1-2-4. Treatment for transcribed typewritten copies (performed by the cataloging staff)

- 1) Creases and wrinkles were smoothed out. If necessary, the materials were humidified with purified water and ironed out at low temperatures.
- 2) The materials were stored in stationery-quality plastic sleeve folders.

1-2-5. Treatment for materials as secondary sources

- 1) After dry cleaned, clips and staples on materials were removed.
- 2) Materials were rebound with linen or cotton thread where staples were removed.
- 3) Archival envelopes and folders were used to store the materials that were taken out of original envelopes or had their clips removed, to indicate the original sets of the documents.
- 4) Materials were housed in an archival storage box.



Figure 2: After treatment, letters and envelopes were housed in ring binder boxes, while transcribed typewritten copies were filed in plastic sleeve folders.

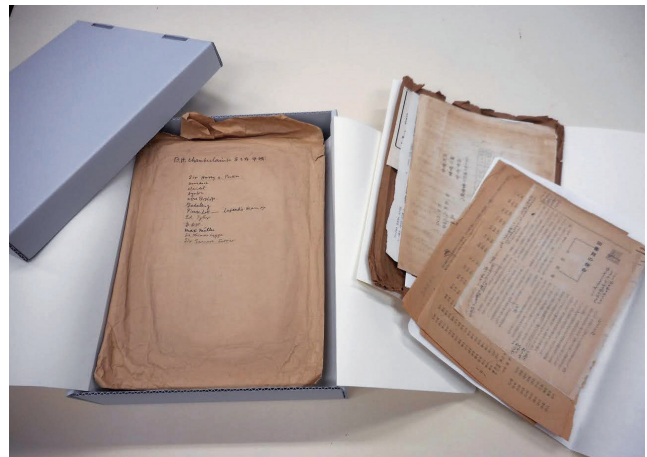


Figure 3: After treatment, related materials

1-3. Thoughts on the treatment

In the course of the treatment, all the materials were listed, showing letter numbers that have changed during the cataloging, as well as recording the progress status through treatment (Table 1). It helped to identify all those materials, since they are large in volume, and it is hard to read them as they are manuscripts produced by people from various regions. Consequently, a list of the deacidified items was extracted from the list, and disorders and misidentification were avoided.

While cataloging, the staff have applied the proper treatment to the transcribed typewritten copies, and have made photocopies of the original manuscripts. Physical access to the original letters would be limited after all of those works, we gave priority to indicate the information of each letter on mount paper while the letters would need to be taken out of sleeves to see them from the verso. This is an example of the effective use of ready-made products to organize and preserve materials in various sizes.

The Toyo Bunko holds correspondence between Lafcadio Hearn and B.H. Chamberlain⁹ which were bound quite a while ago. The letters shown here were also from prominent figures such as Ernest Satow, Okakura Yoshisaburō 岡倉由三郎, Max Müller, and Edwin Arnold. The author believes that these will contribute to further research. Although it is unknown whether or not Chamberlain had opened them, only a few of the envelopes were opened with a paper knife, which made me wonder if the careless letter opening was one of the English traits or a habit of his own. It is a great pleasure to imagine what lies behind original materials when facing and exploring them.

Table 1: Work progress table prepared for the Autograph letters addressed to Basil Hall Chamberlain

Letter #		pH	Ink		Qty		Written surfaces	procedure	
Old Number	New Number		Acidity before treatment	Ink type	Deterioration Ink	Envelopes		Letter paper	Interleaves
9	6					Alkaline		1	
27	14				1	1	Both sides		○
29	16		Iron gall	migration	0	1	Both sides	○	
30	17				1	1	One side		○
31	18				0	1	Both sides		
32	19	4.5	Iron gall		0	1	One side		○
33	20	4.0	Unknown		0	1	One side		○
34	21	4.5	Iron gall	halo	0	1	Both sides	○	
35	23		Iron gall	migration	0	1	Both sides	○	
36	22		Iron gall	migration	0	2	Both sides	○	
37	24		Iron gall		0	1	One side		○
38	26	4.5	Iron gall	halo	0	1	The whole sheet on one side, half on the other	○	○
39	25	5.0	Iron gall		0	1	One side		○
40	27		Iron gall		0	1	Half the sheet on both sides		
41	28	4.0	Iron gall	halo	0	1	Both sides	○	
42	29	5.0	Iron gall	halo, migration	0	1	The whole sheet on one side, half on the other	○	
43	30	4.5	Iron gall	migration	1	1	Both sides		

2. Shōyō Shimpō

2-1. Outline of materials

Tabloid newspaper providing market information

Published daily, one sheet a day, printed on both sides of the sheet, a total of 226 sheets

Year of publication: 1881 to 1883

Place of publication: Osaka

Publisher: Shōyō Shimpōsha 商用新報社 (Editor: Kōmura Naokichi 鴻村直吉)



Figure 4: Before treatment

Since the material is a daily newspaper that was printed for approximately two years, the quality of paper differs from one issue to the other, with some of them being printed on Japanese paper. The sheets that are of good quality, including sheets of Japanese paper, are virtually devoid of any visible signs of deterioration and are in a rather good condition. However, many of the sheets are darkening, overall or only on the printed areas, and it is difficult to read them in some parts. In addition, there are many black specks of dust that are thought to be ink residue. Some sheets have stamps, postmarks, and handwritten notes. The sizes of the sheets are roughly the same, but with some variations.

2-2. Conservation treatment

When unbound ephemera are inspected after being returned from readers, they are counted sheet by sheet. Thus, whenever the *Shōyō Shimpō* is returned, all 226 sheets are counted. To avoid this, the sheets were bound into separate booklets through the following procedure.

2-2-1. Binding into booklets

- 1) All materials were dry cleaned with a brush and a dusting cloth.
- 2) Creases and wrinkles were smoothed out. If necessary, the materials were humidified with purified water then pressed or ironed to dry.
- 3) Torn sheets were mended with Japanese paper and wheat starch paste. Stamps that had come off were lightly pasted back.

4) Binding margins

Strips of *kōzo* paper (RK #17¹⁰) were pasted to each sheet to create binding margins. The strips of *kōzo* paper thus attached were then bound, which prevented holes from being made in the materials directly. By providing spaces along the gutter, the characters were not hidden in the binding margins and it became easier to read them. Furthermore, the strain which had been placed on the gutter while being opened was also lessened, and the possibility of physical damage through reading and copying was reduced as well.

5) Interleaves

In order to alleviate the effects on adjoining sheets of paper by the oil and pigment in the printing ink, thin pieces of acid-free paper (Pure Guard 45) were placed between each sheet as interleaves. Since the interleaves were larger than the newspaper sheets they could be used for page-turning, making it possible to read the materials without touching the sheets directly. Further, since the newspaper sheets varied in size, interleaves were also used to align the edges on all four sides.



Figure 5: Sheets with strips of *kōzo* paper attached to them as binding margins

6) Inner binding

Sheets of the newspaper and interleaves were divided into ten booklets according to the months of issue. Each booklet was bound with paper strings as inner bindings in the same manner as Japanese stab binding. After the inner binding was completed, the excess binding margins and interleaves were cut off.

7) Covers

AF Protect H 209.4g acid-free archival paper was used to make covers. The covers were about 1mm larger on each side than the interleaves.

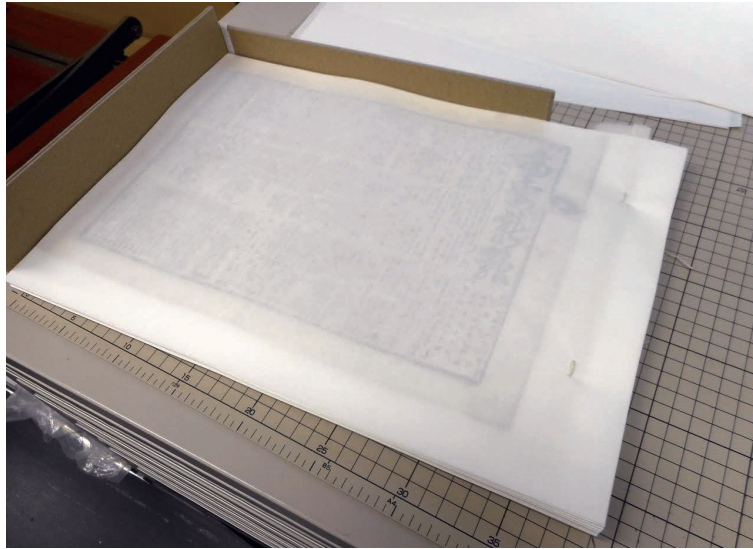


Figure 6: The edges were aligned and the inner binding was done with paper strings. Using a rectangular guide provides an efficient way of aligning uneven sheets.

8) Binding

Sheets of the newspaper, interleaves, and covers were bound all together. By using the four-hole stab binding technique, it is easy to unbind and rebind. Linen thread was chosen as the binding thread.

9) The contents of each booklet and a list of the missing newspaper issues were attached. Notes about the missing newspaper issues were written in pencil on the interleaves that they would have been placed next to.

2-2-2. Housing

A storage box was made using Archival Boards and 0.9mm AF Hardboards. It is because one call number is applied for all of the 226 sheets/10 booklets housed in one box.¹¹



Figure 7: After treatment, booklet bindings and their storage box

2-3. Thoughts on the treatment

There were concerns that the total volume of the materials would increase by placing interleaves. However, it became rather neat and tidy after the treatment, perhaps due to the flattening. Since the sheets are thin, they are also at risk of physical damage when handled. Therefore, the interleaves should be used to turn the pages. Besides, renewing the interleaves and covers after a few decades is also recommended.

3. Vellum Contract Documents

3-1. Outline of materials

There are eleven contract documents written on vellum¹² in ink. One of them is colored.

In some areas of the documents, stains, water damage, insect damage, tears, and losses can be seen.

The ink appears to be iron gall ink, and some parts have already faded to the point of being unreadable to the naked eye.

Date: Under investigation, currently being confirmed that the documents date to around 1573 to 1825

Place: Fès and Meknès (Morocco)

Temporary numbers 1-1 to 1-6:

These are six documents, including one that is colored. When they arrived at the Toyo Bunko, they were already unfolded but had prominent ripples. In particular, 1-4 had severe water damage.

Temporary numbers 2-1 to 2-5:

These are five folded documents that seem to have been first rolled up and then flattened. One of them was even folded in half after it was flattened.



Figure 8: Temporary number 2-1; after being rolled up and flattened, the document was folded in half.



Figure 9: Temporary number 2-2; The document was rolled up and flattened.



Figure 10: Temporary number 1–3; Pasted vellum on the verso has deteriorated.



Figure 11: Temporary number 1–4; An example of the damage that appears to have been caused by water. Both ends of the sheet are missing in lacy shape.

3-2. Work objective

The materials were set to be flattened until the characters could be deciphered through ultraviolet photography, and until they could be stored without trouble. Also, as temporary number 1-6 was scheduled to be displayed in a frame, it needed to be in a condition that would allow for this as well.

3-3. Conservation treatment

After flattening, dry cleaning, and mending the materials, they were placed between acid-free mat boards and stored horizontally in a map case.

3-3-1. Treatment of materials

1) Flattening

The materials were protected with Gore-Tex¹³ before being indirectly humidified with blotting paper dampened with purified water. They were then unfolded, flattened, and left to dry under weights at room temperature.

2) Dry cleaning

A soft brush, dusting cloth, and soot sponge were used.

3) Mending

Wheat starch paste and Japanese paper were used to mend tears and losses where the potential risk of further damage or which were difficult to handle. Areas with iron gall ink were avoided.¹⁴ Essentially, mending was only carried out from the verso to ensure that the characters were not covered with Japanese paper.



Figure 12: Temporary number 1-4; the aforementioned water-damaged area was mended on the verso with Japanese paper.



Figure 13: Areas that were not being treated were protected with acid-free boards. Blotting paper should be applied to absorb humidity immediately after applying liquids such as paste or water, and pressed until it dries sufficiently.

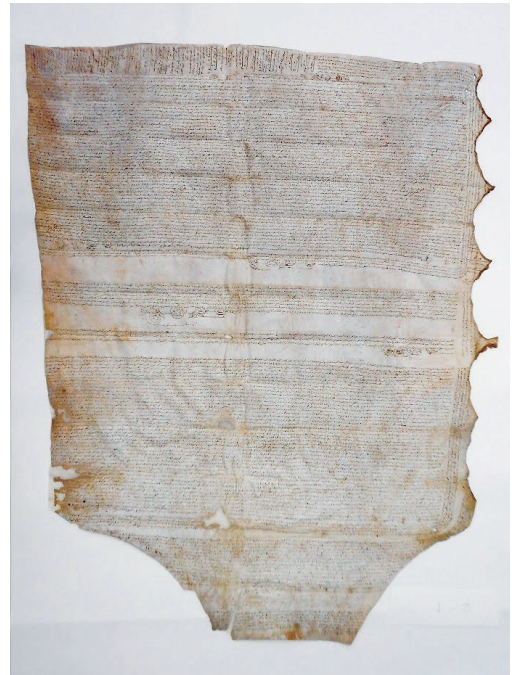


Figure 14: Temporary number 2-1 (Figure 8), after treatment

3-3-2. Storage cases

The materials were placed between archival mat boards (Timecare Heritage Conservation Boards) without windows. The long sides of the boards were connected with acid-free linen tape.

- 1) The materials were placed between boards in the same way that eight of the Vellum Contract Documents were already being stored at the Toyo Bunko.¹⁵

- 2) To prevent slipping, each material was fixed at two or three places using mounting corners. Heritage Archival pHotokraft paper (un-buffered) was used for the mounting corners. Also, filmoplast P90 was used to fix the corners in place.



Figure 15: A sheet of vellum placed between acid-free mat boards.

3-3-3. Exhibition preparation

Unlike other materials, which were contracts pertaining to matters such as real estate, temporary number 1-6 was a marriage contract that has decorated borders and headpieces. After it was confirmed that this material would be displayed at an exhibition¹⁶ at the Toyo Bunko Museum, the Museum Department requested for matting, alongside other Vellum Contract Documents already in the collection. Hence, the material was to be subsequently framed between a mat and a glass panel. However, it still had its natural ruggedness and could not be forcibly pressed. During the exhibition period of approximately three months, the material needed to be supported to prevent it from slipping off the mat. In addition, after the exhibition ended, the material needed to be removed with as little humidification and damage as possible. Due to these requirements, the O-shaped hinges of Japanese paper were fastened in several places by micro-dot adhering.¹⁷ The material kept its safe during the exhibition and hinges were removed without difficulty from both materials and mat boards.

3-3-4. Ultraviolet photography

On March 2nd, 2015, a specialist took ultraviolet photographs of ten of the materials, excluding temporary number 1-6, which was still on display. In the presence of Miura Tōru 三浦徹, a research fellow and director of the West Asian Studies Group at the Toyo Bunko who made great efforts to obtain the materials, a staff member from the Library Department of the Toyo Bunko, as well as the author, it was confirmed that the characters that were unrecognizable to the naked eye were highlighted by the ultraviolet rays. With the vellum quite moderately spread out, the above individuals

worked together to examine the rugged areas around the creases shown in the images and to make minor adjustments, to obtain images from which the characters could be deciphered.

3-4. Thoughts on the treatment

When humidified, vellum becomes flexible and soft, but also susceptible to pest and physical damage. It seems that the materials have been folded for many years, developing strong folds, as well as sustaining damage caused by humidity and water while folded.

In the course of this treatment, the author realized a great benefit brought about by the fact that a research library like the Toyo Bunko has special staff for material preservation. On the one hand, we, the author and the other library staff, could select appropriate treatment measures by actually unfolding the materials and examining their condition. On the other hand, a researcher belonging to the library could be invited to consult with us during the treatment, providing us useful advice.

At present, the West Asian Studies Group is conducting research on the materials. Obtaining new information about the physical aspects of “vellum” themselves is anticipated. The result of the research conducted on eight out of eleven documents was published as *The Vellum Contract Documents in Morocco in the Sixteenth to Nineteenth Centuries, Part II* in 2020 [Miura and Satō 2020].

4. *Ajia Taikan*

It is hard to label the *Ajia Taikan* as ephemera, as it comprises photograph albums. However, it will be introduced, as it is a collection of ephemera, assembled by pasting photographs, captions, and table of contents to mounts, then tying them with strings. Also, multiple people took part in preserving and achieved effective workflow.

4-1. Outline of materials

16 photograph albums

Year of publication: Around 1924 to 1940

Place of publication: Dalian

The materials consist of monthly published photographs and their captions by the Ajia Shashin Taikansha 亜細亜写真大観社. In the albums, silver gelatin prints were pasted on mounts and short captions were provided next to each print. It seems that a set of 10 sheets was distributed to members once every month.¹⁸

These sheets were compiled into one album for each year, with each album containing 100 to 125 photographs. In all, there were 16 albums with 1891 black-and-white prints in total.

For each album, there are two holes on the short side of the mounts and covers, which are tied together with black strings that are commonly found in office supplies. Black sheets of paper are used as the mounts, while sheets of cardboard wrapped in bookcloth are used as the covers. The mounts look like drawing paper, and the fibers of the mounting paper flew off like dust.

The photographs and captions are pasted on both sides of the mounts. For each piece of photographs, two adjacent sides are fixed to mounts with adhesive, while the other two sides remained unfixed. On the other hand, most of the

captions are only pasted on the upper side. Also, the captions, texts, and table of contents are printed on wood pulp paper.

The cover of volume one differs from those of volume two to sixteen. It appears that whereas volume one has the original cover, others were made in the Bookbinding Room at the Toyo Bunko modeled after the original.



Figure 16: *Ajia Taikan*

4-2. Chemical and physical deterioration

- 1) The emulsion sides of the photographs were stuck together.
- 2) The photographs and paper for the captions, texts, and table of contents were stuck together.
- 3) There was damage, flaking, cracking, silver mirroring, yellowing, and image transfer on the emulsion layer of the photographs.
- 4) There were torn or folded photographs.
- 5) Some of the photographs had come off their mounts.
- 6) There was mold, dust, and dirt.
- 7) Some mounts were damaged and vulnerable.
- 8) There were severed binding strings.

It is evident that pieces of photographs were stuck together after being stacked and stored in a high humidity environment over a long period of time. Also, there were traces that appear to have been left by spilled liquid such as beverages, as well as flaws and deterioration in the photographic emulsion layer. Furthermore, damages were seen in the photographs, captions, and other texts, which had likely resulted from forcibly opening the pages that had stuck together. Many pieces of photographs have come off their mounts due to rough handling or deterioration in the adhesive, and some of the photographs and captions have been lost. In particular, the damage and adhesion between items in volumes thirteen and sixteen were especially severe.



Figure 17: Pieces of photographic paper adhering to one another

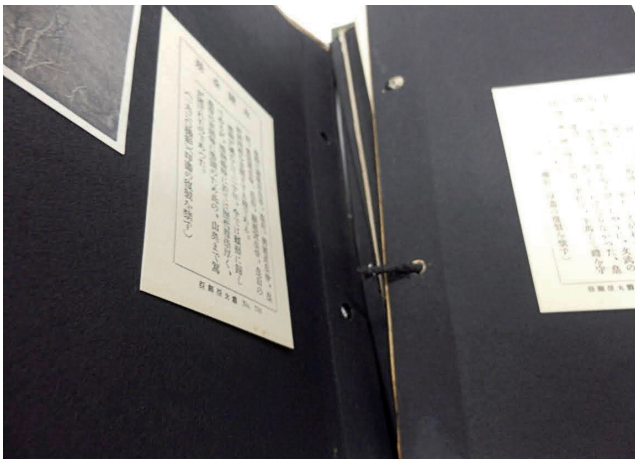


Figure 18: Severed binding string

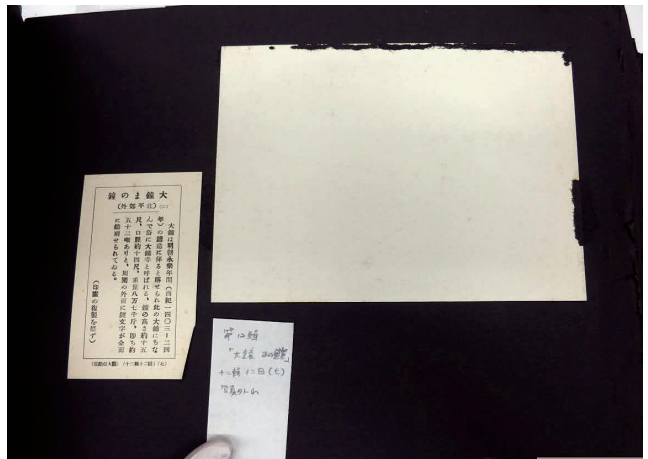


Figure 19: Photographic paper that has come off its mount

4-3. Work objective and procedure

The objective was to prepare a digital copy of all the pages and to open a database within the 2014 fiscal year. Before shooting, all of the photographs, captions, texts, and table of contents that were stuck together also had to be separated, then mended wherever possible, and pasted to their original locations.

The photographer who took the photographs for the database was Takeuchi Ryōko 竹内涼子 from Calo Works Co. Ltd. Since she is an expert in the conservation of photographs, she was able to provide the appropriate guidance and advice as well.

On August 12th, 2014, a briefing session was held where Takeuchi explained the state of the materials and the treatment to be performed. This session was attended by Aihara Yoshiyuki 相原佳之 of the Documentation Center for China Studies, Aitani Yoshimitsu 會谷佳光 from the Library Department (currently working in the Research Department), as well as Shinozaki Yōko 篠崎陽子, who was in charge of preservation in the Library Department. In addition, three part-time employees of the Library Department, including the author, also participated in the briefing session. Other two employees were Motomura Ikue 本村育恵 and Tomita Emi 富田絵美, who were repairing materials and making storage cases besides their regular work. While working in the Library Department, Motomura and Tomita were also enrolled in a doctoral course in East Asian history and were well-versed in the contents of the *Ajia Taikan*. Further, since the author graduated from a college of photography and was accustomed to handling photographic paper in tasks such as photographic printing, it was decided that the three of them were to implement the conservation treatment.

According to Takeuchi, the photographs in the *Ajia Taikan* are fiber-based photographic paper (baryta paper)¹⁹ with ferrotyping.²⁰ Therefore, the emulsion surface of the paper seemed smoother than usual and easy to stick on. At that point, Takeuchi had already looked over all the pages and listed the problems, along with methods of treatments. This proved to be very useful when the conservation work was carried out later. Also, the following procedure and duties were decided under the direction of Shinozaki.

- 1) The binding strings were removed and the materials were inspected while being dry cleaned. The photographs, captions, texts, table of contents, and mounts that needed treatment were sorted. The photographs that came off their mounts had their titles written on the back in pencil.
- 2) Damaged mounts and captions that were detached or torn were mended with wheat starch paste and Japanese paper. Since the mounts were black, black Japanese paper was used to mend them. Items that needed to be washed with water were put through the following process.
- 3) Adhered items were separated and dust was removed by bathing them in water. As to the photographic paper and wood pulp paper that were stuck together and difficult to separate, priority was given to retaining the images on the photographic paper.
- 4) The photographic paper and wood pulp paper were dried and flattened.
- 5) The photographic paper and wood pulp paper were mended.
- 6) The V-shaped hinges of Japanese paper were attached to the photographic paper.
- 7) Items were pasted back on their mounts. The V-shaped hinges on the photographic paper were attached to the mounts with wheat starch paste. The wood pulp paper such as captions was pasted directly to the mounts.
- 8) Photographs for the database were taken by Takeuchi.
- 9) The materials were rebound with binding strings. Severed binding strings were replaced with new binding strings.
- 10) Interleaves were inserted between pages to prevent them from adhering again and to reduce acid migration to the photographic paper from the mounts and wood pulp paper, which were thought to be acid paper. Pure Guard 45²¹ was used for the interleaves. Sheets of paper that were cut to a specific size were ordered and delivered.²²

As the treatment progressed, minor changes were made to improve the ease and efficiency. However, the essence of treatment procedures was generally conducted as described above.

4-4. Conservation treatment

Here, the work in steps 3) to 6), which the author was in charge of, will be explained in more details.

1) Preparation

The photographic paper and wood pulp paper that adhered to each other were detached from their mounts so that they could be bathed in water. A microspatula, bamboo spatula, and medical scalpel were used. At that point, the adhesive and dust were also removed to some extent. Next, the titles of the detached photographs were written on the back in pencil. For photographs that had developed silver mirroring,²³ a brush was used to remove deteriorated silver particles from the surface to prevent them from fixating on the photographs.

2) Bathing in room temperature water

A vat was filled with purified water, then the materials that needed to be separated were bathed into the water. In order to keep the water temperature around 20–23°C,²⁴ the temperature of the room was adjusted. The degree of adhesion varied among the items, some separated after being bathed approximately for 5 minutes, while others took about 30 minutes to encourage water to slide onto the surface of the emulsion layers. Also, since the photographic paper was vulnerable and the emulsion layer was brittle, the materials were separated with extreme care. When doing this, a bamboo spatula was used since a metal microspatula would have easily damaged the emulsion.

3) Bathing in warmer water

Materials that were severely stuck together were placed in water that was gradually warmed over time. The temperature of the water was raised to about 27°C while observing the condition of the photographic paper. However, the emulsion layer became too soft and was deemed to be at risk of damage with higher temperatures.²⁵ By adjusting the water temperature and the bathing time, all the photographs and wood pulp paper were separated successfully.

4) Removing impurities

Dust and other impurities that were attached to the materials were wiped off with a piece of non-woven fabric during or immediately after the bathing procedure. If the photographic emulsion became too soft, the work on the image surfaces should be temporarily suspended and resumed after the emulsion layers were solidified with colder purified water or were pulled out of the water for a brief moment. If the non-woven fabric was not wet enough, the emulsion could have been damaged. Also, dust and old adhesive that remained on the back of the photographic paper was removed using a spatula. At that point, the adhesive could easily be removed, as it was moistened and soft. It seems that there were several types of adhesive used, some of which had left yellow stains on the photographic paper. These operations should be performed on a stable flat surface that can be kept wet, such as a glass plate.

5) Transferred images and characters

As with the dust removal procedure, a non-woven fabric was used to erase or lighten the transferred images and characters.

6) Drying and flattening

Humidity was absorbed from the sheets of photographic paper using newspaper and blotting paper. Then, once the sheets were semi-dried, each sheet was pressed between two pieces of blotting paper. When semi-dried, the image surface of the photographic paper was dry and smooth to the touch, yet moist on the inside. During

this stage, the emulsion surfaces do not stick to blotting paper when pressure was applied, which allowed the photographic paper to dry flat. If the sheets were dried without being pressed, they would have formed curls. Therefore, the sheets were pressed for a few days to allow them to dry thoroughly.

7) Mending

Tears in the photographic paper and wood pulp paper were mended with wheat starch paste. When necessary, Japanese paper was also applied. Cracking and flaking areas of the image surfaces of photographic paper were protected or reattached with industrial gelatin (purified from beef bone).

8) Hinges

Photographic paper was mounted by V-shaped hinges of Japanese paper. To prevent the hinges from being seen from the front side, strips of Japanese paper, which were about 10mm shorter than the width of the photographic paper, were pasted onto the back of the margin of the photographic paper, slightly below the upper side, by using wheat starch paste. Thin Japanese paper (RK #2) was used for this procedure, to prevent the hinges from making the albums partially thick.

9) In the next step, the hinges were folded back and attached to the mounts, then two points on the left and right sides of the bottom were pasted down with wheat starch paste.

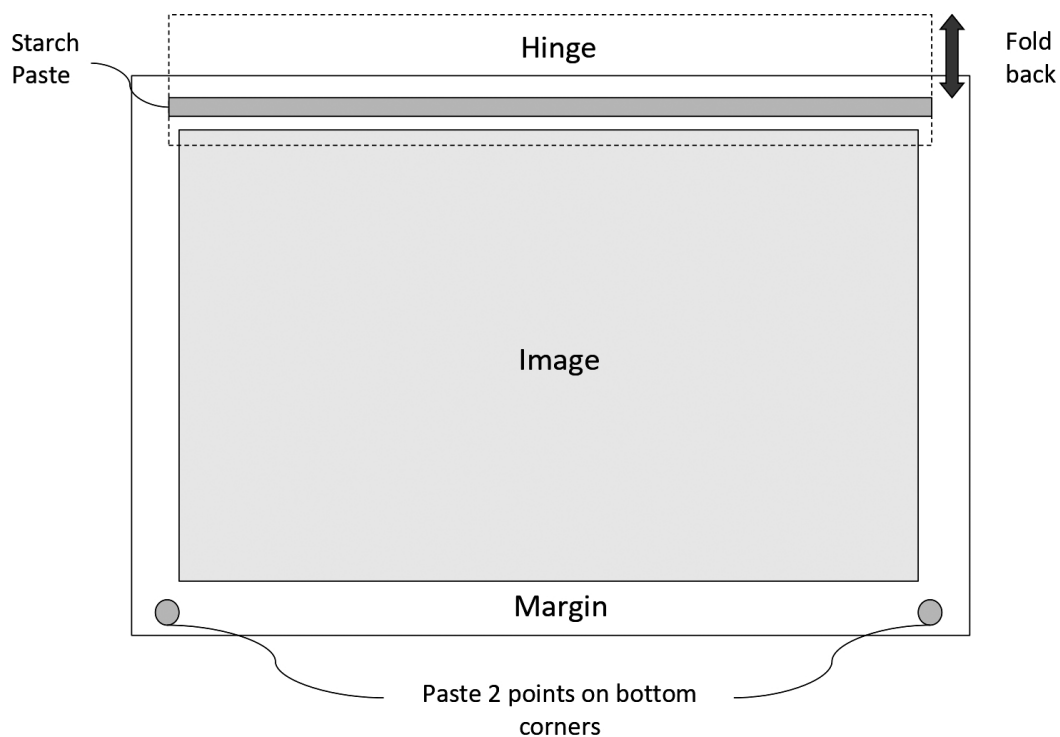


Figure 20: Mounting photographic paper using a hinge

4-5. Thoughts on the treatment

The *Ajia Taikan* database was opened on the website of the Documentation Center for China Studies in March 2015 as scheduled. The conservation work started in August 2014, with Motomura and Tomita working two days a week, and Takeuchi and the author working one day a week. Although the four people worked on different days, they were

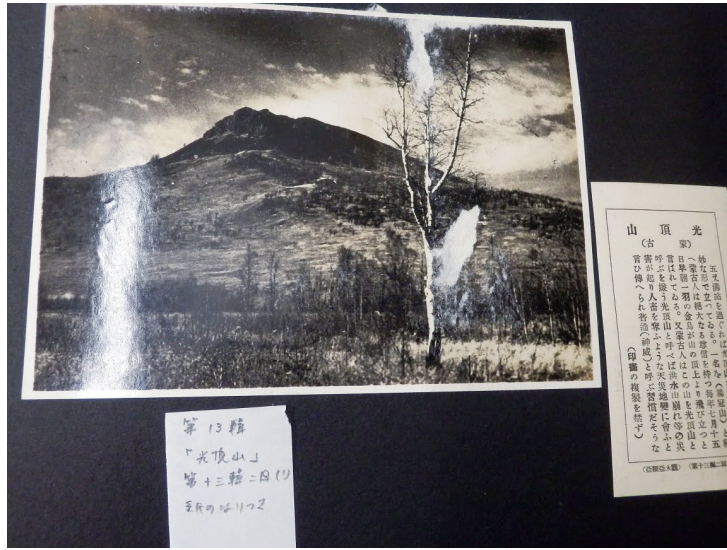


Figure 21: Torn texts on the facing page was stuck on the image surface.



Figure 22: After treatment



Figure 23: Whole image and texts can be recognized now, for the paper stuck to the image was removed and mended to where it should be.

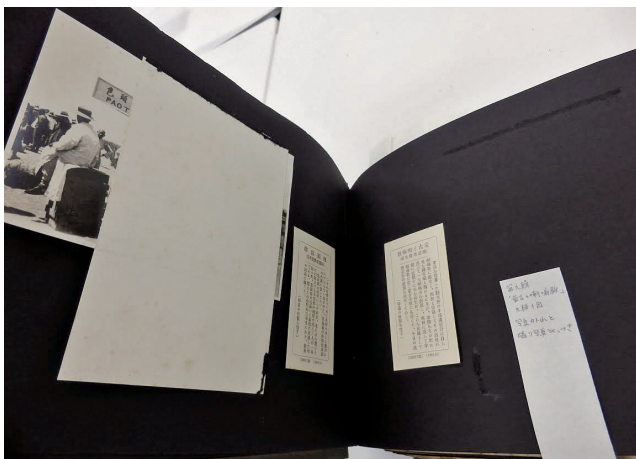


Figure 24: Two pieces of photographic paper adhere to each other, one of them detaching from its mount



Figure 25: After treatment

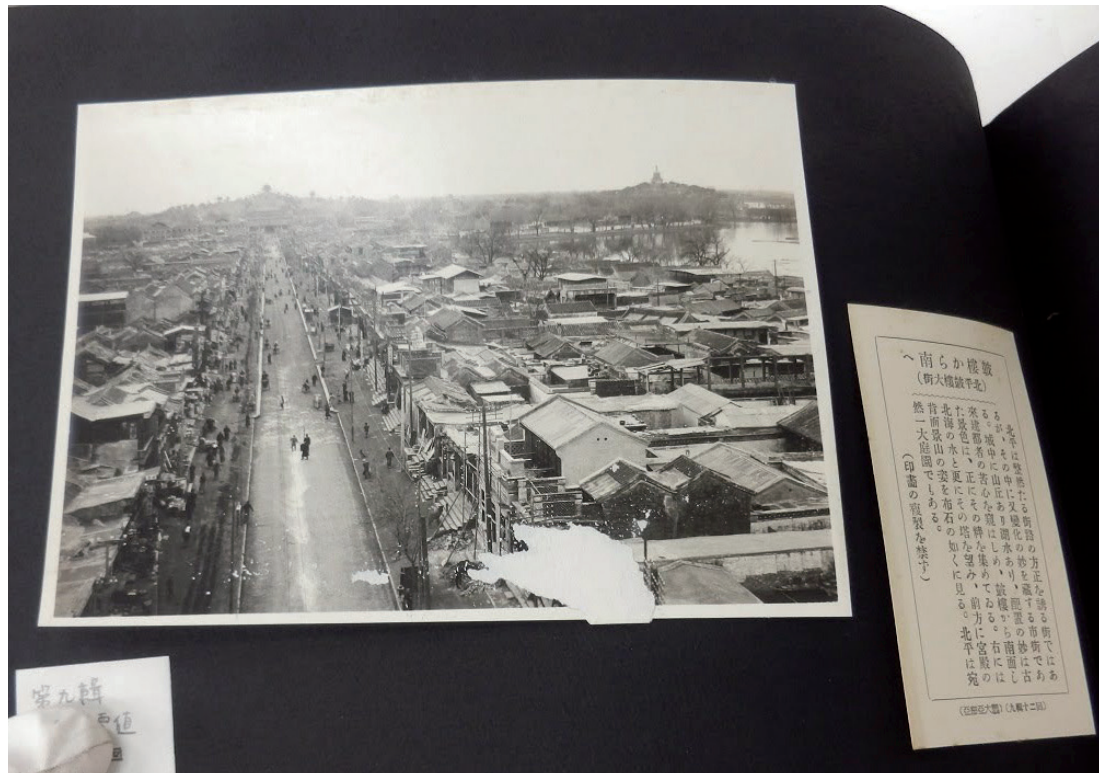


Figure 26: A part of the photographic paper (Figure 28) on the facing page was stuck on the image surface.



Figure 27: After treatment



Figure 28: The photographic paper torn locally and stuck to the facing page (Figure 26).



Figure 29: After treatment

still able to collaborate effectively, which allowed the work to proceed smoothly. Also, deep gratitude is expressed to all the staff who provided their care and consideration.

The photographs shown here depict the nature, townscapes, people, customs, historic ruins, temples, and other aspects of mainland China. Not only are the subjects of the photographs interesting, but many of the photographs themselves are also of high quality and are fascinating. In addition, the fact that each photograph had a title, a caption, and a number was very helpful in performing the work as well.

Unfortunately, since the pages that had adhered to each other were previously opened by force, many of the photographs and captions were already damaged. Had the pages been stuck together solely due to liquid, temperature, humidity, or pressure, they could have been publicized in a better condition. This was a case where the damages in the materials observed were man-made. However, with the help of the appropriate human resources, the materials were able to be viewed once again and were transformed into a database that is used widely.

Further, the author shall take this opportunity to thank Shinozaki, Takeuchi, Motomura, and Tomita for their great cooperation in writing this article.

Conclusion

The Autograph letters addressed to B.H. Chamberlain, *Shōyō Shimpō*, and the Vellum Contract Documents were materials that were deemed to need treatment when they were added to the collection and were brought to the conservation staff for consultation. The *Ajia Taikan*, on the other hand, was a case where the materials were treated for digitization. In each case, the primary objectives were to make the materials “usable” or “accessible,” while the second objective was to make them in “suitable condition for handling and storage.”

Arranging the materials for safe handling and keeping storage environments in a good condition plays a major role in extending the longevity of the materials as physical objects. However, the care of the users is another indispensable factor that helps in achieving this. It is important to raise awareness among staff, researchers, and readers, and to inform them of how to handle the materials.

Ephemera are easy to bind and unbind due to their very nature. Whereas the cases introduced here involved treating the materials to allow them to be used over a long time, efforts were also made to prevent the materials from deviating from their current states as much as possible. It is hoped that the best conservation treatment will be promptly carried out sometime in the future when new methods are discovered and present treatment measures end their role. Also, it is hoped that by leaving this record, future generations will be able to use it as a means of understanding the materials.

The Toyo Bunko holds documents of various forms, materials, regions, and eras, consisting of more than one million titles, and it is an incredibly difficult feat to store them. However, possessing the collection also means that responsibility must be taken to care for them. Therefore, as long as the aim is to conserve the original materials for many years to come, organized measures must be taken for gaining a systematic understanding of the collection as “physical objects” from the standpoint of collection care.

Notes

- * This is a revised English translation of the following article: “Ichimaimono shiryō no hozon shochi jirei” 一枚ものの資料の保存処置事例, *Tōyō Bunko Shohō* 東洋文庫書報 48, pp. 23–55, 2016.
- (1) Ringbinder box and polyester album pages, that have passed PAT (CXD Division of Larson Juhl Nippon Co., Ltd.).
 - (2) Highly acidic or alkaline conditions can cause color change in iron gall inks. To avoid changes in ink color, the pH should be kept between 5.0 and 8.5 [Guild, Tse, and Trojan-Bedynski 2012].
 - (3) Supplied in buffered and un-buffered versions. Also available in different colors and weights (CXD Division of Larson Juhl Nippon Co., Ltd.).
 - (4) Un-buffered tissue, available in three weights (TT Trading Co., Ltd.).
 - (5) Reducing or removing dust, insect frass, mold, and spore while maintaining the materials dry. Contrariwise, cleaning with water or organic solvent is referred to as wet cleaning.
 - (6) Fabric made of microfiber or microfilament, washable and reusable. Should be chemical free, museum and library quality, and soft and smooth enough for materials.
 - (7) In order to prevent migration of soluble acids and iron ions, humidification or local wetting of objects with iron gall ink should be avoided [Guild, Tse, and Trojan-Bedynski 2012].
Information about the preservation of iron gall ink was also heavily sourced from the speeches made by Alejandra Odor (Head of Conservation, National Archives of Mexico) and Anne Maheux (Head of the Conservation of Maps, Manuscripts, and Art on Paper, Library and Archives Canada) at the 28th Research Seminar on the Conservation of Modern Cultural Heritage, the “Conservation and Restoration of Western Paper,” which was held by the Tokyo National Research Institute for Cultural Properties in 2014 (<https://www.tobunken.go.jp/image-gallery/conservation/15e/>).
 - (8) For the same reason as Note 2, deacidification with Bookkeeper Spray was avoided to prevent the alkaline component from remaining on paper surfaces.
 - (9) Their reproduction was published as [Tōyō Bunko 2016] under the supervision of the Toyo Bunko.
 - (10) Item number for Paper Nao’s (Shiho Nao 紙舗直) Japanese paper, made for restoration work. R stands for “roll,” which indicates that the paper is machine-made, while K indicates that the raw material is *kōzo*.
 - (11) All the acid-free archival paper used for the treatment of *Shōyō Shimpō* is sold by TT Trading Co., Ltd.
 - (12) There is an opinion that “vellum” refers to the skin of calves or cow fetuses, while “parchment” refers to the skin of sheep, goats, and adult cows. On the other hand, there is also an opinion that “parchment” is used in a broader sense, and “vellum” is often used to describe a very fine quality of parchment. Currently, parchment is the word most often used in English-speaking countries, but here the word vellum is used, as “The Vellum Contract Documents” is the familiar term commonly used at the Toyo Bunko. In addition, the raw material of the documents is not specified.
 - (13) Fabric that is breathable and waterproof, allowing water vapor to pass through while repelling liquid water. This is used for treatments that apply humidification without wetting with water. Additionally, Entrant produced by Toray Industries, Inc. is a fabric having the same function.
 - (14) See Note 7.
 - (15) Okamoto Kōji 岡本幸治, a book conservator, was in charge of the conservation of these materials. The work report was published under “Tōyō Bunko shozō beramu-sei monjo no shūfuku” 東洋文庫所蔵ベラム製文書

の修復 (The restoration of vellum documents at the Toyo Bunko) in the pamphlet for the 64th Toyo Bunko Exhibition (November 1990). Also, the research results are detailed in [Miura and Satō 2015].

- (16) The “I Want to Know More about Islam!” Exhibition was held at the Toyo Bunko Museum from January 10th to April 12th, 2015.
- (17) Masuda Katsuhiko 増田勝彦, “Bishōten Secchakuhō ni yoru secchakuryoku to hikihagashi-go no kami no sonshō” 微小点接着法による接着力と引き剥がし後の紙の損傷 (The adhesive strength of Micro-dot Adhering and the damage caused to paper after peeling), *Dai 25 kai kenkyū happyō yōshishū* 第25回大会研究発表要旨集 (Summary of the 25th assembly and research presentation), Bunkazai Hozon Shūfuku Gakkai 文化財保存修復学会 (The Japan Society for the Conservation of Cultural Property), 2003; Idem, “Bishōten Secchakuhō no jissai: Dotto sutampu to pēsuto paddo” 微小点接着法の実際：ドットスタンプとペーストパッド (The practice of Micro-dot Adhering: Dot stamp and paste pad), *Dai 28 kai kenkyū happyō yōshishū* 第28回大会研究発表要旨集 (Summary of the 28th assembly and research presentation), Bunkazai Hozon Shūfuku Gakkai, 2006.
- (18) From *Ajia Taikan Dēta Bēsu* 亜細亜大観データベース (*Ajia Taikan Database*) of Gendai Chūgoku Kenkyū Shiryōshitsu 現代中国研究資料室 (Documentation Center for China Studies) at the Toyo Bunko, which is the research base for the Area Studies Program, Ningen Bunka Kenkyū Kikō 人間文化研究機構 (National Institutes for the Humanities; NIHU).
<<http://www.tbcas.jp/ja/lib/lib4/>> (Publicized on March 30, 2015)
- (19) Photographic paper that has a baryta layer placed on top of paper base, in order to increase its whiteness. The baryta layer is a mixture of barium sulfate and gelatin lying below the emulsion layer which contains photosensitive silver halide. Most of the current photographic paper is called RC paper, whose paper base is resin-coated. Since baryta paper does not have resin coating, it absorbs chemicals and water easily, and needs to be flattened in a semi-dry state or with special equipment for drying.
- (20) A process to produce a high gloss on gelatin silver photographic prints, by drying the print with its emulsion in contact with a chrome-coated metal plate, which is then heated. The photographic paper is also dried flat at the same time. At the time when the *Ajia Taikan* was published, the ferrotyping was a common method for drying baryta paper.
- (21) Interleaves for photography must have passed PAT (Photographic Activity Test, ISO18916) and preferably without being alkaline buffered.
- (22) When a large amount of same-size paper was needed, it was advantageous to have them ordered and delivered, despite the fee for having them cut, as the work efficiency improved with the paper of the correct size.
- (23) The phenomenon of deterioration seen in photographs caused by oxidation and reduction reactions. It occurs when silver is reduced after migrating to the surface of photographic emulsion. When this occurs, bluish particles with a metallic luster are seen mainly in high-density areas of a photograph, and it looks as if its black and white areas are reversed when it reflects the light.
- (24) Silver gelatin prints are usually developed at a solution temperature of 20°C. When the temperature rises, the chemicals work more effectively and more solution penetrates the photographic paper.
- (25) If the water temperature rises over 30°C, the photographs will be greatly affected as the gelatin in the emulsion layer will melt and other changes will take place. This in turn will cause the loss or deformation of the images, which means that great care should be taken to control the water temperature.

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