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Front cover:

"The Sultan's repose in nature", miniature from 'Abd al-Raḥmān Jāmī's *Dīwān*, manuscript C 1697 in the collection of the St. Petersburg Branch of the Institute of Oriental Studies, A.D.1486/87, fol. 243 b, 7.7×7.7 cm.

Back cover:

"Portrait of some Moghol principal or influential grandee sitting in a chair (throne?) with a falcon on his right arm", miniature from the same manuscript, fol. 1b, 7.3×14.8 cm.

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Du Weisheng

THE ANCIENT FENGKUI 縫 繢 (STITCHED) BOOKS FROM DUNHUANG*

Ever since the Han dynasty, as papermaking skills became more widespread, people came to use a wide variety of fibres to produce paper. Consequently, the quality of paper steadily improved. This higher quality paper and its increased production greatly helped the manufacture of books. Due to the need to satisfy the constantly growing social and cultural needs during the Sui, Tang and Five Dynasty periods, the quality of books also improved, inaugurating a new era in the production of ancient Chinese books. Due to the rapid increase in the quantity and use of books, people were no longer satisfied with the simple scroll format that had evolved from wood and bamboo slips. As people's thinking became more liberated, many new bookbinding formats were created. There was a great flurry of ideas in bookbinding between the Tang and Song dynasties. Proof of this lies in the many different book formats in the Dunhuang collections. There are some booklets within the Dunhuang collection that are considerably different from the traditional Chinese book forms one can see today. Since these books used hemp string for stitching, works composed during the Song dynasty called this form of binding *fengkui* 鋒 缗.

1. Previous works regarding fengkui books

A Song dynasty author, Zhang Bangji 張邦基, in his work Mozhuang Manlu 墨 裝 漫 錄 ("Miscellaneous Writings from the Mozhuang Studio") wrote: "Of bookbinding techniques, pasted leaves is best. If after some time the paste loses its effect and the book comes apart, the original order of the leaves can still be found and the book can be put together again as long as the leaves are intact. I have been in possession of many books that have come apart, and have been able to reconstruct them by these means. In the case of *fengkui* binding, it is very difficult to find the original order of the pages again if the thread breaks and the book comes apart. I once had a copy of Mr Dong's 董氏 fanlu 繁 露 "Many Dews", the pages of which had become jumbled up. It took me over a year to find the original order of the pages and recover the book's original state. This is the problem with *fengkui* bound books".

There are two bookbinding techniques mentioned above: pasted leaves and *fengkui*. The pasted leaves technique involves pasting the leaves of the book together. (The author of this article will soon be writing on "pasted leaves" bookbinding). *Fengkui* binding involves using thread to stitch the pages of the book together. However, there was no explicit description of the *fengkui* binding technique in *Mozhuang Manlu*, it only asserted the difficulty in finding the original order of the pages should the binding come apart.

2. Identifying fengkui binding

The original meanings of the two Chinese characters *feng* and *kui: feng* means to join objects together using needle and thread. The original meaning of *kui* is the beginning and end of a roll of cloth, but here it refers to the spine of the book. (The reason being that apart from the spine, no other part of the book is stitched). Since the exact binding technique of *fengkui* books was not divulged in *Mozhuang Manlu*, it is necessary now to analyse all the kinds of books in the Dunhuang collections that have been bound with thread.

There is more than one kind of thread binding in the books of the Dunhuang collections:

1. The leaves of this kind of book are comparatively thick. They are folded in half to form four pages, and the text follows from one page to the next. The spine of the book is formed where the folded side of the leaves are stacked together. The leaves of this kind of book are primarily pasted together, but where the paste has lost effect and the leaves have come apart the book is stitched with hemp string. The other three sides of the book are trimmed. The binding technique of this kind of book is highly irregular; there is no particular order to it. There are books stitched in only one place, there are books stitched at either end of the spine, others have been stitched all the way up the spine. Many of these books were discovered at Dunhuang. The national libraries of China, Britain and France have all got such books in their Dunhuang collections.

2. The leaves of this kind of book are comparatively thin. There is writing on one side only. The side without

^{*}This paper was delivered at the Fourth International Conference "Preservation of Dunhuang and Central Asiatic Collections", held at St. Petersburg, 7-12 September, 1999.

writing is folded in on itself, forming two pages. These leaves are stacked together, the folded ends form the mouth (open end) of the book. A book cover is added, and the other three sides are trimmed. The side of the book opposite the mouth of the book is pierced for string. The most typical example of this kind of book is BnF No. 4521 at the Bibliothèque Nationale de France. The text is Uighur, with some Chinese mixed in. The book is 250 mm high, 182 mm wide, and the leaves had not yet been died yellow with *Huangbo*. A string of approximately 1 mm thick has been wound around three holes at the spine of the book. Apart from this book only having three holes, there are no significant differences with the four holed thread bound books that can still commonly be seen today.

3. The leaves of this kind of book are comparatively thick. Several leaves are stacked together and then folded to form one "signature" (see fig. 1). Several of these signatures are placed together and stitched with hemp string (see figs. 2-4). The folded and stitched end of the leaves forms the spine of the book. There is a difference with the last two forms of bookbinding: since several leaves are folded together to form signatures, the order of the text from one page to the next will be different. The following is an example of a signature of four leaves stacked and then folded together: if we take the outermost leaf to be leaf α , then the leaves, from the outermost to the innermost will be ordered α , β , χ and δ . After being folded, each leaf will be split into four pages. After inserting the page numbers, the page would be arranged thus: the four pages of leaf α will be numbered 1, 2 and 15, 16; the four pages of leaf β will be numbered 3, 4 and 13, 14; leaf χ will be numbered 5, 6 and 11, 12; and leaf δ will be numbered 7, 8 and 9, 10. Out of all four leaves, only the last has text that follows from one page to the next.

The three different forms of bookbinding mentioned above are all bound with thread, and all the old Chinese books bound with thread commonly seen today are bound in the xianzhuang 線裝 (thread binding) format. Some people hold that since fengkui books were bound with thread, Mozhuang Manlu was simply referring to xianzhuang binding. This is not so. The word xianzhuang has already become a proper name referring to a particular ancient bookbinding method, and therefore cannot be used as a generic term encompassing all bookbinding techniques that use thread. Owing to this differentiation, I felt it more appropriate to use the name fengkui, employed by authors in antiquity, to describe bookbinding formats substantially different to xianzhuang binding. Following the social and economic progress of the era, so the bookbinding techniques multiplied also. In the development of a bookbinding method, an early model and the fully developed book might be quite different. However, the basic characteristics of the book should remain the same. To identify a particular bookbinding technique, one must consider many aspects of the book. One should distinguish bookbinding methods by considering their most unique characteristics, characteristics not easily seen in other books. One cannot take a characteristic seen in many different

kinds of book as a means to distinguish different bookbinding techniques. This point can be accentuated by a comparison between *hudie-zhuang* 蝴 蝶 裝 (butterfly binding) and *baobei-zhuang* 包 背 裝 (wrapped-back binding). Both books use the same technique in applying a cover around the back of the book, and the outward appearance of the books is exactly the same. Therefore, should we call both of these book forms *baobei-zhuang* (wrapped-back binding)? We cannot. *Hudie-zhuang* (butterfly binding) is so named because its pages move like butterfly wings when the book is opened, and *baobeizhuang* (wrapped-back binding) is so named because of the cover layer wrapped around the back of the book. Consequently, it is wrong to assume all books that use thread to bind the pages together are *xianzhuang* (thread bound) books.

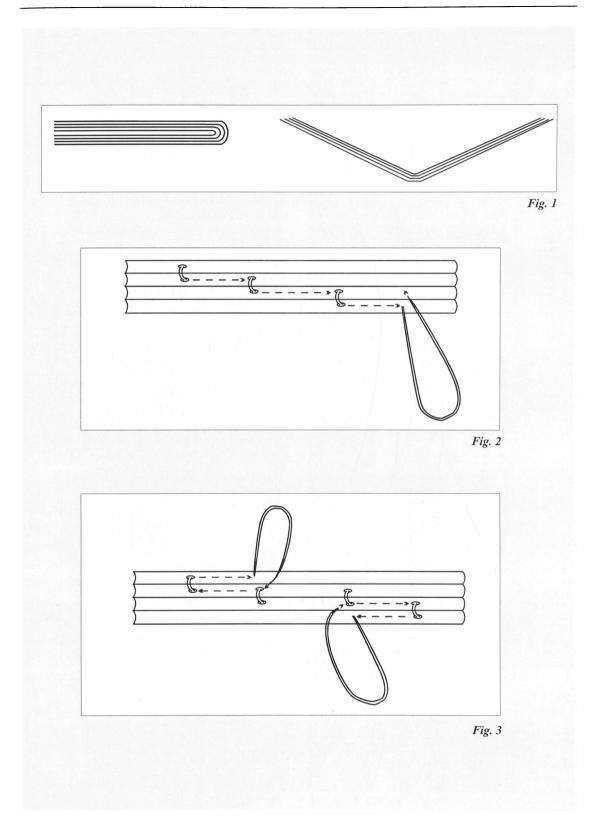
Most *xianzhuang* books are written or printed on one side only, and the other side is folded in on itself, leaving the written or printed side on the outside. Although the one leaf has been turned into two pages, the text still runs from one page to the other. In the case of the first two examples of thread bound books mentioned above, even if the pages come apart one can still reconstruct the original book by following the text on the leaves. Clearly, these are not the types of thread bound book referred to in *Mozhuang manlu*, whereby the leaves become jumbled up and confused if no longer bound together. The first kind of book mentioned above can be said to be the embryonic form of *xianzhuang* but the second form has all the characteristics of mature *xianzhuang* binding, and can indeed be considered a typical example of such a book.

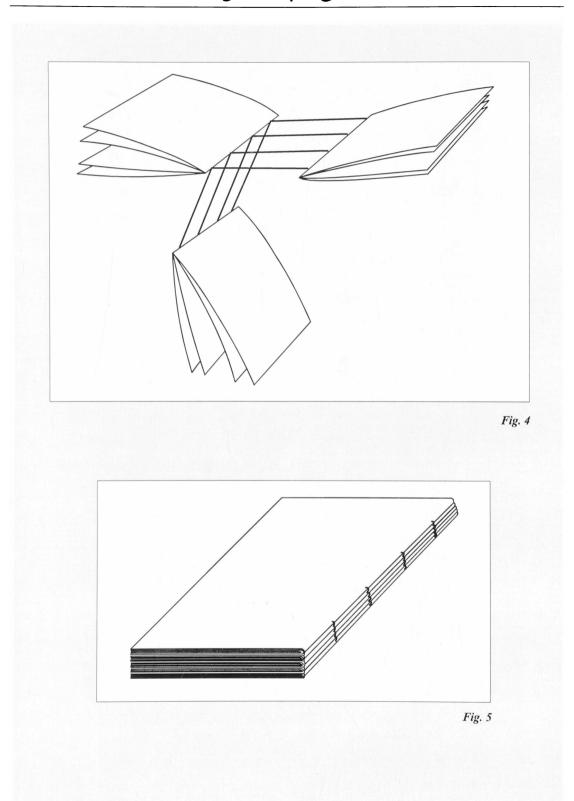
Is the third example of thread binding the fengkui book referred to in Mozhuang manlu? As I have described already, this kind of book is bound by stacking several leaves together, folding them and then stitching them together at the folded end. There are books where two sheets or four sheets are folded together, and other books where up to seven or eight sheets are folded together to form signatures. Those books with four sheets per signature are the most common. Or. 8210/S. 5433 kept at the British Library has six signatures of two sheets each (see figs. 6-7). Or. 8210/S. 5458, also at the British Library, has seven signatures of four sheets each; BnF No. 3292 kept at the Bibliothèque Nationale de France has six signatures of eight sheets each. As I have previously shown, the more leaves there are in one signature, the further apart the text is from one half of a leaf to another (apart from the middle leaf). Therefore, if the thread becomes undone and the leaves come loose, it would be very difficult to find the original order of the leaves again. This kind of book certainly conforms with what Zhang Bangji wrote on the subject in Mozhuang manlu: "If after some time the thread breaks and the book comes apart, it is very difficult to find the original order of the pages again ... " Consequently, it is possible to make the following conclusion on the description of fengkui binding: several leaves are stacked and then folded to form a signature, and several of such signatures are brought together. The folded part of each signature is stitched to the next to connect them all and form the finished book.

3. The difference between xianzhuang and fengkui books

I have already covered the difference in the way the pages are ordered between the two book formats. However,

the external appearance of the two types of book is also very different. The thread of a *xianzhuang* book is sewn on





the right hand side of the book, on top of the book cover. A lot of thread shows on the exterior of the book, very little thread is sewn through the leaves. The thread is not visible on the inside when the book is opened. In comparison, *fengkui* books are sewn at the spine of the book, and very little thread is visible externally (see *fig. 5*). However, one can see the stitch work upon opening the book at the spine of the signatures.

The leaves of *xianzhuang* books are all the same size, but they are different in size with *fengkui* books. The leaves of *fengkui* books are trimmed after being bound. Because the leaves are comparatively thick and many are placed together and then folded, the trimming of the leaves mean that although the leaves end up being the same height, they end up having different widths. Measurements taken from the leaves of a signature show that each leaf gets progressively shorter from the outermost to the innermost leaves. The height to width ratio of a *xianzhuang* book is 2:3, but the corresponding ratio of a *fengkui* book is 1:1 to 1:2.

4. The technique of fengkui binding

The biggest difference between xianzhuang and fengkui books is the binding technique. The main binding technique of xianzhuang books involves wrapping thread around the spine of the book. But with fengkui books the folded section of the leaves are sewn together. In order to explain the technique better, I would like to take the example of a fengkui book with four signatures, each with four stitching holes. Hole #1 is pierced near the tiantou (head margin) of the book. The other three holes are #2, #3 and #4 the last

There is also a big difference in the way the book is written before being bound. The leaves of the xianzhuang book are trimmed to size first, and the text is written on the separate leaves one after the other. This is not the case with fengkui books: larger sheets of paper are used, the size of which depends on the size of the book in mind. Then the exact form of the book and the order of the pages all have to be decided in advance. Once this has been resolved the text is written on according to the way the paper has been folded. Writing on a folded sheet of paper before being cut into four-page leaves means that the orientation of the text will be different. Moreover, it is very likely that different texts will have to be written on a single four-page leaf. This method of arranging text onto the paper is very similar to the modern technique of typesetting. This was very meaningful conceptual leap for bookbinding techniques of the period. The bookbinding of Or. 8210/S. 5538 at the British Library is proof of this "typesetting" style of bringing text together.

of which is pierced near the *dijiao* 地 腳 (foot margin) of the book.

Now let us turn to the exact sewing techniques applied to the book. First, the thread is secured to the needle. Then, from inside the fold, it is sewn through hole I of signature I, leaving enough thread behind to tie a knot. Coming out of hole I of signature I it is sewn through hole I of signature 2 from outside the fold. From there on, the stitching process continues as follows:

```
Coming out hole 2 of signature 2, it is sewn into hole 2 of signature 3;
Coming out hole 3 of signature 4, it is sewn into hole 3 of signature 4;
Coming out hole 4 of signature 4, it is sewn into hole 4 of signature 3;
Coming out hole 3 of signature 3, it is sewn into hole 3 of signature 2;
Coming out hole 3 of signature 3, it is sewn into hole 3 of signature 2;
Coming out hole 2 of signature 2, it is sewn into hole 3 of signature 1;
Coming out hole 3 of signature 1, it is sewn into hole 3 of signature 2;
Coming out hole 3 of signature 1, it is sewn into hole 3 of signature 2;
Coming out hole 3 of signature 2, it is sewn into hole 3 of signature 2;
Coming out hole 3 of signature 1, it is sewn into hole 3 of signature 2;
Coming out hole 3 of signature 1, it is sewn into hole 3 of signature 4;
Coming out hole 3 of signature 1, it is sewn into hole 2 of signature 3;
Coming out hole 3 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 4, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 3, it is sewn into hole 2 of signature 4;
Coming out hole 2 of signature 2, it is sewn into hole 2 of signature 4;
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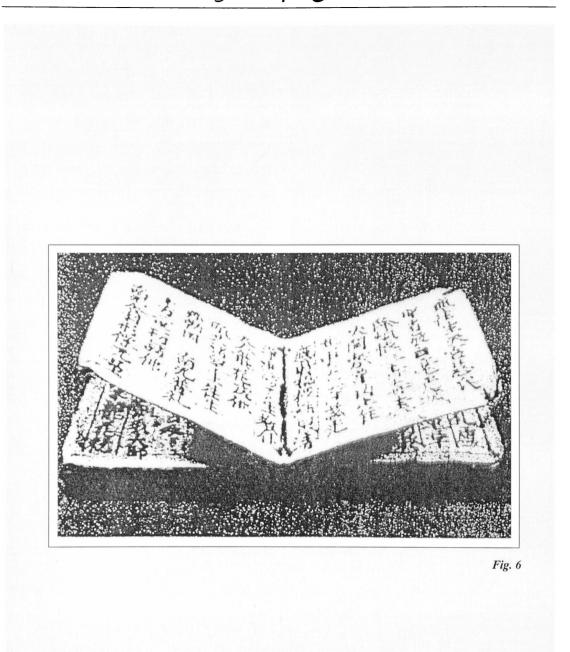
After that the thread is tied in a knot with the beginning of the thread at hole I of signature I.

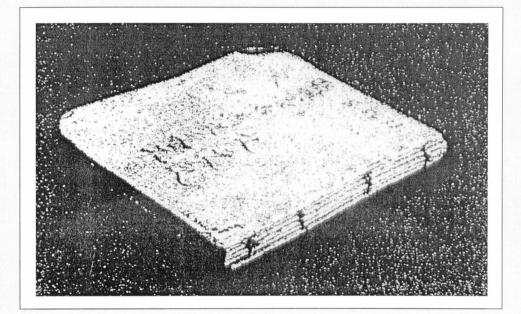
Judging from the *fengkui* books discovered to date, it appears that there was no fixed binding method and that there was a great deal of variation. For example, Or. 8210/S. 5433 is 91 mm high, 84 mm wide, and is sewn through four holes at the spine. Or. 8210/S. 5446 is 120 mm high, 103 mm wide, and is sewn through six holes at the spine. Or. 8210/S. 5458 is 240 mm high, 70 mm wide, and is sewn through eight holes at the spine. The number of holes pierced in the spine of the book determines how much stitching is done. The more holes, the more the book is stitched. Although in this respect there is a degree of uncertainty in how the book is stitched, the manner in which it is stitched is unchanging: the first signature is stitched to the one adjacent to it, then the rest of the book is stitched signature by signature in a cycle until the whole book is completed.

5. The reason why fengkui binding died out in China

The *fengkui* bookbinding format died out after the Song dynasty. Its demise can generally be attributed to several reasons. After the fall of the Song dynasty the production of books continued to grow and printing became very com-

mon. As I have mentioned above, the production of *fengkui* books require a form of typesetting, which is not at all a straightforward process. The size of paper required is bigger than the standard single sheet per woodblock size, and







printing on it is more difficult. Since the traditional single sheet per woodblock manual printing method was predominant at the time, it is little wonder that *fengkui* binding did not have a future.

The production of the *fengkui* bound book is more complex than the butterfly or wrapped-back books. The technique involves more steps and requires a higher level of skill. Compared to *xianzhuang* binding, for example, the time required to make a *fengkui* book is much longer. If it takes longer to make, then the production cost rises. Consequently, during the era of the printed book, when everything was made by hand and the book industry was constantly expanding, the *fengkui* book lacked the ability to compete. Since *fengkui* books are written on both sides of the page, the paper requires a certain thickness. If the paper is very thin the ink on either side of the page can seep through to the other side. Moreover, the string can easily tear through more delicate paper. Also, during and after the Song dynasty, paper was being made increasingly thin in order to reduce production costs. This increased thinness of the paper meant a corresponding reduction of resilience that made it difficult to satisfy the requirement to write on both sides of the page. Under these circumstances, there is nothing strange about the disappearance from history of the *fengkui* book.

6. The significance of fengkui binding

Fengkui binding was an ancient Chinese book form that was once popular during the Tang and Song dynasties. However, it has not been given recognition for a long time due to the fact that its popularity was comparatively short-lived, and that there are no significant accounts written on the format. Nevertheless, owing to the amount of international cultural communication of that era, it is very possible that fengkui binding was taken to other places in the world. In Japan, it is still possible to see examples of *fengkui* binding. The Japanese made some modifications to the *fengkui* binding technique: only four holes are pierced into the spine of the book, and two needles are used. Each needle concentrates on sewing only two of the holes (one needle sews together hole *I* and *2*, the other — holes *3* and *4*), thereby developing a new bookbinding format: *hezhui* 秆I 錣 (see *fig. 3*).

Illustrations

- Fig. 1. Sheets stacked and folder together.
- Fig. 2. The stitching method of a fengkui binding.
- Fig. 3. The stitching method of a hezhui binding.
- Fig. 4. Several signatures connected with thread.
- Fig. 5. Diagram of the exterior of a fengkui book.
- Fig. 6. An example of folding sheets, Or. 8210 / S. 5433 at the British Library.
- Fig. 7. An example of a fengkui (stitched) book, Or. 8210 / S. 5433 at the British Library.