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TRADITIONAL CHINESE BOOKBINDING FORMS AND THEIR INFLUENCE ON MODERN BOOK DESIGN

The purpose: to investigate and analyze the characteristics of ancient Chinese traditional book binding methods; explore the reasonable integration and innovative application of traditional elements in modern Chinese book design.

Methodology is based on system-analytical, comparative, complex-historical methods, which made it possible to comprehensively investigate the specified problem and reach reasonable conclusions.

The results. Based on the analyze of literature, a summary was made, and the traditional book-binding methods and characteristics of China in different periods were studied and analyzed. Such as bamboo and wooden strip books, scroll bookbinding, whirlwind bookbinding, accordion fold bookbinding, butterfly fold bookbinding, wrap back book binding, and thread-bound books. On this basis, the influence of traditional bookbinding on modern book design is analyzed, as well as the integration and application of traditional elements in modern book design.

Scientific novelty. It is proposed the concept of integrating and innovating the application of traditional Chinese binding methods in contemporary book design. It is suggested combining modern technological means and materials to improve traditional binding methods, applying them reasonably in suitable book designs. This approach not only imparts unique cultural characteristics to contemporary Chinese book design but also provides academic support and theoretical guidance for the inheritance and development of traditional culture, promoting the integrated development of design and craftsmanship.

Practical significance. To address the current crisis of the decline of traditional Chinese culture and the issue of homogenization in book design, this study analyzes and summarizes the traditional Chinese bookbinding methods. This not only provides a deeper understanding of the development of Chinese book design but also offers new perspectives and possibilities for contemporary book design. The study emphasizes the clever and reasonable application of traditional elements in design.

Keywords: Chinese bookbinding, historical and cultural significance, cultural heritage, aesthetics, tradition, modernity, craftsmanship.

Introduction. In today's era of rapid digitization, book design, as a combination of traditional culture and modern technology, carries the inheritance and innovation of human civilization. In this context, the application of traditional elements is of great significance for contemporary Chinese book design. However, there is a lack of depth in the application of traditional elements and a shortage of innovative integration of traditional binding methods in contemporary book design. Therefore, the relevance of directions is growing for research of forms of ancient Chinese bamboo slips, wooden slips, and paper books, the characteristics and styles of traditional binding, and explore in depth their evolution in the context of historical culture; the influence of

traditional binding on modern book design, including the inheritance of artistic styles and design concepts, innovation in binding techniques and craftsmanship, and the application of traditional elements in modern design; the development and challenges of modern book design in China.

Analysis of previous research. Ancient Chinese bookbinding has a long history and rich resources. It inherits the unique design concepts and aesthetic methods of the Chinese nation. In their book "4000 Years of Art History of Chinese Book Binding", Yang Yongde and Jiang Jie introduced in detail the development and evolution of Chinese bookbinding design [10]. The book combines pictures and text to comprehensively explain the binding methods,

materials used, and characteristics of Chinese books in various periods from oracle bone inscriptions to paperback books, and analyzes the causes of various binding methods. In her work "The Spirit of Chinese Culture in Book Art of the Ming and Qing Dynasties", Huang Qinxia carefully analyzed the design forms of Chinese books in the Ming and Qing Dynasties and the cultural attributes contained in them [2]. Books of the Ming and Qing Dynasties were a peak in ancient Chinese book design. During this period, bookbinding was mainly threadbinding. Thread-bound books are the last form of binding for ancient Chinese books, and this form has been very perfect in terms of binding and reading experience. The author believes that "the unity of nature and man" is the core design idea of ancient Chinese books. This idea has matured in the Qin Dynasty of China (221 BC - 207 BC). This idea believes that the movement of heaven and earth produces all natural things and human beings, so people's principles of life should correspond to the movement of heaven and earth and integrate with nature. Therefore, this cognitive way of "unity of man and nature" has influenced the Chinese people's way of thinking and values, as well as the Chinese people's aesthetic pursuit and artistic expression, and is further reflected in the design of ancient Chinese traditional books. The upper and lower spaces in the book layout of the Ming and Qing Dynasties are called "Heaven's Head" and "Earth's Foot", symbolizing heaven and earth. At the same time, the symmetrical patterns such as "fishtail" and "elephant trunk" come from natural animals, plants, or human shapes, so that the concept of "harmony between man and nature" is integrated and reflected in the book layout design. Wu Yuquan pointed out in his work "The Influence of the Evolution of Ancient Chinese Bookbinding Forms on the Development of Modern Bookbinding Design" that ancient Chinese book design attaches great importance to functionality and rarely uses additional decoration [8]. Ancient Chinese believed that books were important classics for recording and transmitting knowledge, thoughts, and history.

Therefore, they should not be made superficial by using too many fancy decorations. The design of books should be dignified, stable, elegant, and full of order on the premise of satisfying functionality. In his research, Chen Xixi analyzed the design and binding style of "Sikuquanshu", which was compiled under the order of Emperor Qianlong in the Qing Dynasty [1]. This largest series of books in the history of Chinese books not only embodies the design concept of "harmony between man and nature", but because it is the emperor's order, the layout design, material, and font selection are all solemn and rigorous, embodying the majesty of imperial power also confirms the dignified and steady design characteristics of ancient Chinese books.

Through the research and analysis of the literature, it can be found that although there is a certain research summary on ancient Chinese traditional bookbinding design, there is still a lack of effective and reasonable application of its expression form and spiritual core in contemporary book design. Therefore, this study can provide certain reference value for research and exploration in related fields, and at the same time promote the application and development of Chinese traditional cultural elements in book design.

Problem statement. Research and analyze the technical characteristics and spiritual essence of traditional Chinese bookbinding; explore the reasonable application of traditional binding methods and elements in modern book design; analyze the potential and development prospects of traditional techniques and elements in contemporary Chinese book design.

Research results and their discussion. Chinese bookbinding has a history of 3000 years. With the evolution of its forms, various distinctive and unique binding methods have emerged. By analyzing the evolution from bamboo and wooden strip books, scroll book binding, whirlwind book binding, accordion fold book binding, butterfly fold book binding, and wrap back book binding, to thread-bound book, it showcases China's aesthetic orientation,

design styles, spiritual core, and historical heritage. Meanwhile, traditional binding has a profound influence on modern book design.

As mentioned in Mengxin's work, while inheriting artistic styles and design concepts, as well as binding techniques, modern books also actively attempt to apply traditional elements in their designs [3]. For example, patterns and motifs, material selection and application, and the integration of content and form. However, Zhewenqing proposed that the use of traditional elements in modern Chinese book design tends to be simplistic and lacks depth and rationality [11]. Wangfan and Yuanqingxiu believe that especially in the face of current challenges such as the impact of digital technology, changes in market demand, and increased awareness of environmental protection, modern Chinese book design needs to deeply explore the cultural connotation and technical craftsmanship of traditional bookbinding, and strive to integrate innovation [7]. This could include combining traditional patterns with modern graphics, merging traditional themes with modern artistic expressions, and integrating traditional binding techniques with modern materials.

Renwen suggests that in the context of globalization, the current lack of Chinese design cultural identity has gradually attracted attention [4]. The issues of inheriting and innovating traditional Chinese ethnic culture, localization, and cultural re-creation have become key to resolving the problem of Chinese design cultural identity. Shi Lin, Guo Weimin, & Wang Le pointed out in their research, that currently, to embody China's unique cultural connotations and develop a distinct design style in modern book design, it is necessary to deeply understand the spiritual core contained in traditional cultural elements and binding methods [5]. Only then can works that meet contemporary aesthetics and convey traditional cultural connotations be designed. Therefore, it is necessary to first sort out and analyze the traditional forms of Chinese bookbinding to understand the values and meanings they contain.

The evolution of ancient Chinese bookbinding has inherited the unique design concepts and aesthetic methods of the Chinese nation. Yangyongde and Jiangjie have conducted a systematic analysis of the development of Chinese bookbinding [10]. Before the invention of writing, people recorded events and communicated through knot tying, wood carving, and drawing. Subsequently, oracle bone inscriptions, bronze inscriptions, stone drum inscriptions, jade inscriptions, and stele inscriptions appeared successively, laying the foundation for the emergence and development of formal traditional Chinese bookbinding forms. With the continuous progress of technology, aesthetics, and materials, the forms of Chinese bookbinding have evolved from simple bound books to stitched binding (Tab. 1).

Xiemengwei and Houxiaofeng point out that modern Chinese book design is deeply influenced by Western modern book design in terms of concepts and printing technology, presenting a phenomenon of replicating and transplanting Western design styles into Chinese book design. This has led to a lack of distinctive cultural characteristics in Chinese book design and a serious problem of homogenization [9]. In response to this situation, Shiqingfeng and Houjia propose that traditional artistic techniques can be directly or indirectly applied in the design process of modern books, such as the direct use, borrowing, reorganization, and re-creation of traditional art forms [6]. However, in the application of traditional elements and techniques, should not be limited to mere formal replication or the simple restoration of the appearance of traditional classics. It is necessary to break free from the constraints of traditional design thinking, combined with contemporary aesthetic trends and advanced binding techniques, as well as the needs of book usage, and refine, transform, and evolve the design language of traditional Chinese bookbinding.

Table 1

Traditional Chinese book binding methods

Binding form	Era	Material	Features	Advantage	Shortcoming
Bamboo and wooden strip book	About 10th century BC	Bamboo and Wood Chips	Punch the selected bamboo or wood chips, connect them with ropes, and roll them inward for storage.	Strip book binding allows the flexibility to add or remove the content as needed.	Easily damaged and heavy.
Scroll Book Binding	About AD 581-907	Paper, Cloth or Silk	Attach a shaft to one end of the paper or silk, and it can be rolled or unfolded, and the other end can be used to fix or hang.	The binding is simple, the style is unique and the decoration is strong.	It is inconvenient to read and has high storage requirements.
Whirlwind Book Binding	About AD 618-907	Paper, Cloth or Silk	Use a long piece of paper as a base and glue the pages underneath the previous page. Unfold the long scroll when reading, and roll it up for collection after reading.	Compared with scroll-bound books, they are easier to read, have a gorgeous style and are highly decorative.	The production process is complex, difficult to preserve, and the cost is high.
Accordion Fold Book Binding	About AD 618-907	Paper, Wood Chips	Fold the long paper into a front-side and back-side manner, and glue hard paper on the back of the first and last pages as writing for protection.	Easy to read and store, low cost.	The content of the book is small and easy to break.
Butterfly Fold Book Binding	About AD 875-960	Paper	Fold the pages in half according to the center seam, with the side with the printed text facing inward. Then align the pages of the book with the center seam as the standard, glue them to another wrapping paper with glue, and finally cut them into a book.	The innovation of one page per spread represents a significant advancement in bookbinding, signaling the transition of Chinese bookbinding from scroll binding to page binding.	It is easy to have wordless pages, which are easy to fall off and cause pages to fall off.
Wrap Back Book Binding	About AD 1271-1368	Paper	The printed pages are folded with the text facing outwards, arranged in order, and adhered together. A relatively thick and sturdy paper is used as the cover, wrapping the entire book spine.	Compared with butterfly bound books, pages are less likely to fall off and are easier to read.	The process is complicated and the quality is difficult to control.
Thread-bound Book	About AD 1368-1644	Paper	The pages are folded along the central fold, aligning the edges, with front and back covers added, leaving the spine exposed. The book is then bound by sewing through the holes made by piercing with thread.	It is easy to read, not easy to fall apart, and easier to save, repair and re-edit.	It cannot be laid flat completely and is not suitable for binding that is too thick.

In terms of innovative applications in modern book design, the optimization of structure and functionality should be prioritized. Modern design emphasizes practicality and functionality. Designers should optimize the binding structure while retaining traditional aesthetics to make books easier to read and protect. For example, the 'Collection of Rare Tibetan Manuscripts from Folk Communities in Tibetan Areas' excellently applies the accordion fold binding method and improves it through modern techniques (Fig. 1). The book is produced using the long strip paper unique to concertina binding. However, it adopts a wireless binding method, abandoning the traditional form of folding a whole sheet of paper used in traditional concertina binding. This avoids the issue of paper breakage and the inability to produce thick books common in traditional concertina-bound books. This set of books simultaneously achieves a high degree of

unity in form, content, and cultural connotations, as the folding method was widely used in ancient Chinese religious scriptures.

Furthermore, the integration of materials and techniques can be employed to enhance the tactile quality of books while preserving traditional craft characteristics. Traditional bookbinding emphasizes manual craftsmanship, while modern design requires more consideration of material selection and application. By combining traditional binding methods with modern materials and techniques, more durable and artistic works can be created. The book 'Xu Mao and His Daughters' adopts the traditional wrap back binding method but discards the purely manual production method to reduce costs and improve production efficiency (Fig. 2). It also uses paper with a tactile quality and softness similar to Xuan paper but more durable to ensure the book's durability.



Fig. 1. The 'Collection of Rare Tibetan Manuscripts from Folk Communities in Tibetan Areas'



Fig. 2. The book 'Xu Mao and His Daughters'

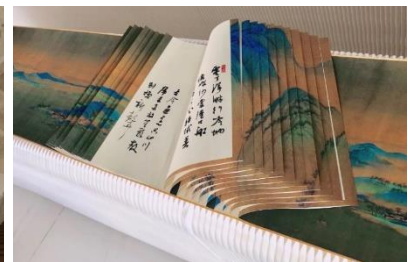


Fig. 3. The book 'Ancient Style of a Great Country'

Moreover, traditional binding methods can be fused with cultural creativity to create uniquely artistic works. Through improved development, traditional bookbinding can become a form of artistic expression. Designers can transform traditional binding techniques into a medium for expressing their ideas and creativity. For example, Zhang Xiaodong's book 'Ancient Style of a Great Country' (Fig. 3)

employs the distinctive whirlwind book binding method. The inner pages feature poems written by 34 calligraphers, and when fully opened, display the masterpiece 'A Thousand Miles of Rivers and Mountains' by the Song Dynasty (AD 1113) painter Wang Ximeng. This work is not just a book but also a unique piece of art.

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ТРАДИЦІЙНІ КИТАЙСЬКІ ФОРМИ ПЕРЕПЛЕТЕННЯ ТА ЇХ ВПЛИВ НА СУЧАСНИЙ КНИЖКОВИЙ ДИЗАЙН

Мета: дослідити та проаналізувати характеристики давньокитайських традиційних методів палітурки книг; вивчити розумну інтеграцію та інноваційне застосування традиційних елементів у сучасному китайському дизайні книг.

Методологія базується на системно-аналітичному, порівняльному, комплексно-історичному методах, що дозволило всебічно дослідити зазначену проблему та дійти обґрунтованих висновків.

Результати. На основі аналізу літератури було зроблено підсумок, а також вивчено та проаналізовано традиційні способи палітурки та особливості Китаю в різні періоди. Наприклад, книги з бамбука та дерев'яної смуги, палітурки книг у сувоях, палітурки книг вихрового типу, палітурки книг, що складаються гармошкою, палітурки книг, що складаються метеликами, палітурки книг з обгортанням і нитками. На цій основі аналізується вплив традиційної палітурної справи на сучасний книжковий дизайн, а також інтеграція та застосування традиційних елементів у сучасному книжковому дизайні.

Наукова новизна. Запропоновано концепцію інтеграції та інноваційного застосування традиційних китайських методів палітурки в сучасному книжковому дизайні. Рекомендовано поєднання сучасних технологічних засобів та матеріалів для вдосконалення традиційних методів переплетення книг, розумно застосовуючи їх у відповідних дизайнах книг. Цей підхід не тільки надає унікальні культурні характеристики сучасному китайському книжковому дизайну, але й забезпечує академічну підтримку та теоретичне керівництво для успадкування та розвитку традиційної культури, сприяючи комплексному розвитку дизайну та майстерності.

Практична значущість. Щоб вирішити поточну кризу занепаду традиційної китайської культури та проблему гомогенізації книжкового дизайну, це дослідження аналізує та узагальнює традиційні китайські методи палітурної справи. Це не тільки забезпечує глибше розуміння розвитку китайського книжкового дизайну, але й відкриває нові перспективи та можливості для сучасного книжкового дизайну. Дослідження підкреслює розумне та розумне застосування традиційних елементів у дизайні.

Ключові слова: китайська палітурна справа, історико-культурне значення, культурна спадщина, естетика, традиція, сучасність, майстерність.

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