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## Reflections on the Construction of the Discipline of Ancient Book Restoration: Post-print Edition

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### Abstract

[Purpose/Significance] In response to the long-standing phenomena in ancient book restoration that emphasize practical activities, weaken theoretical research, and adopt craftsman-style talent cultivation, it is necessary to strengthen research on ancient book restoration, cultivate high-quality restoration professionals, and establish discipline construction as the internal driving force for advancing the cause of ancient book restoration.

[Methods/Process] Analyze the connotation and characteristics of ancient book restoration, clarify the relevance of other disciplines to ancient book restoration. Based on the fundamental approach to discipline construction, construct a knowledge system for the discipline of ancient book restoration.

[Results/Conclusion] The combination of craftsmanship and technology is the main paradigm for discipline construction in ancient book restoration; introducing modern technology will greatly enrich the disciplinary connotation and promote the development of ancient book restoration.

### Full Text

#### Preamble

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#### Some Thoughts on the Discipline Construction of Ancient Book Restoration\*

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## Abstract

**[Purpose/Significance]** For a long time, ancient book restoration has emphasized practical activities while neglecting theoretical research, following a craftsman-style talent cultivation model. To address this, strengthening research in ancient book restoration and cultivating high-quality restoration professionals is essential. The disciplinary construction of ancient book restoration serves as the internal driving force for advancing the field.

**[Method/Process]** This paper analyzes the connotation and characteristics of ancient book restoration and clarifies its relationships with other disciplines. Based on fundamental approaches to discipline construction, it builds a knowledge system for the ancient book restoration discipline.

**[Result/Conclusion]** The craftsman-technology combination model represents the primary paradigm for ancient book restoration discipline construction. Introducing modern technology will greatly enrich the discipline's connotation and promote the development of ancient book restoration.

**Keywords:** ancient books, restoration discipline, restoration theory, discipline construction

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According to traditional disciplinary classification, ancient book restoration falls under the domain of ancient book conservation studies, intersecting with artifact restoration, archives restoration, artwork restoration, and cultural heritage preservation. For a long time, ancient book restoration has been perceived as a practical operation with little connection to abstract theory, and practitioners have been regarded as a special group of skilled artisans. While traditional restoration techniques and methods passed down through generations are relatively mature, systematic advancement and synthesis of restoration theories, experiences, and research are lacking, preventing the formation of a theoretical system. These factors have hindered the promotion of techniques, the cultivation of talent at all levels, and the discipline's overall development. Many in the field hold dismissive or helpless attitudes toward in-depth, systematic theoretical research, resulting in relatively few research outputs with narrow scope. The notion that “restoration equals practical activity” and “restorers equal artisans” carries simplistic yet fixed and deeply ingrained characteristics. Removing this stereotype requires using discipline construction as a supporting model—a craftsman-style training approach that increasingly warrants serious reflection.

Ancient book restoration has achieved fruitful results in practice, scientific research, and talent cultivation. However, compared with disciplines like library science, much foundational work remains unfinished, such as constructing basic theories and disciplinary systems. The depth of research requires further exploration, and the process of discipline construction remains a formidable task.

## 1. Significance of Ancient Book Restoration Discipline Construction

Discipline construction for ancient books involves transforming practice-oriented, application-focused, and fragmented research, achievements, and theories related to ancient book restoration into a systematic, professional, and coherent system based on the nature, professional uniqueness, and knowledge correlations of the field. This encompasses disciplinary frameworks, curriculum systems, and faculty development. As a component of book preservation, summarizing practices, organizing theories, and conducting systematic research have become the internal driving force for ancient book restoration to break free from “stereotypical” and “label-based” perceptions. National social science fund projects have begun including ancient book restoration, and large-scale initiatives like the National Ancient Books Protection Program have pushed restoration to the research forefront. Universities and many institutions are conducting training and higher education in ancient book restoration, attempting to 开辟大众化培养路径. The designation of national and provincial intangible cultural heritage inheritors for ancient book restoration projects signifies the emergence of academic leaders in the field. Against this backdrop, we must reconsider the main obstacles to ancient book restoration development. Constructing ancient book restoration as a discipline is the necessary path to solving these problems.

From a more rational and forward-looking perspective, ancient book restoration is closely related to other disciplines such as history, culture, art, aesthetics, materials science, craftsmanship, engineering, bibliography, computer science, biology, and environmental studies. The challenge lies in how to accurately apply relevant knowledge and theories from these numerous disciplines to ancient book restoration in an organic and systematic manner. In fact, various restoration-related disciplines currently constitute parts of this systematic knowledge and theory, applied at different stages. These include ancient book storage, collection, identification and evaluation, restoration material analysis, restoration process research (studies of the ancient books themselves and their carriers), edition identification, implementation of restoration operations, and evaluation of restoration techniques. These elements also involve restorers’ personal cultural cultivation, professional ethics, restoration ethics, and aesthetics. Together, these factors fulfill the mission of restoring ancient books to their original condition and transforming cultural heritage into historical and cultural resources. Establishing restoration studies will greatly promote disciplinary collaboration and provide an important platform for the holistic development of cultural heritage endeavors.

Disciplinary construction research builds a foundation for the healthy growth of the entire field, thereby facilitating consensus on ancient book restoration research. Natural sciences such as chemistry, physics, and materials science, as well as humanities like bibliography, history, and ethics, all find broad application in ancient book restoration as an interdisciplinary field. However,

ancient book restoration is far more than a simple superposition or application of these disciplines. Through multidisciplinary integration and intersection, it ultimately forms a unique logical, theoretical, and knowledge structure. When applying these disciplines to ancient book restoration, we must fully consider how their theories connect with restoration at both points and surfaces, ensuring systematicity while also considering applicability—neither wholesale adoption nor forced application. For instance, restoration materials science is part of materials science, but not all materials from materials science belong to restoration materials science. Restoration materials mainly include restoration paper, silk fabrics, and adhesives. In papermaking science, there are machine-made and handmade papers of numerous types, but restoration paper primarily involves handmade paper, mostly bark paper and bamboo paper. Silk fabrics most commonly used as restoration auxiliary materials include natural silk and gauze. While adhesives in materials science include many polymer types, wheat starch is most widely used in ancient book restoration.

When technologies and achievements from other disciplines are applied to ancient book restoration, there is inevitably a time lag, and the special nature of ancient books also limits the application of certain achievements. For example, many new materials in materials science may be mature technologies in other fields but cannot necessarily be applied to ancient book restoration. We must consider whether they are safe and reliable for ancient books, ensuring they have no impact or potential impact, while also possessing certain stability and reversibility. Aging of protective materials may cause secondary damage to ancient books. Ancient book testing and analysis should preferably be non-destructive or minimally destructive, with trace amounts sufficient—achieving accuracy without destroying the books. General methods from other fields may be unusable in ancient book restoration.

## 2. Connotation and Extension of Ancient Book Restoration

Discipline construction requires establishing disciplinary relationships, theoretical systems, working methods, and talent cultivation models [1]. Therefore, overall research on restoration studies is needed, including conceptual definitions and the induction and classification of its essence, characteristics, and forms. Without understanding the meaning of “restoration,” restoration becomes a completely arbitrary act, dependent on the restorer’s personal ability, skill, and aesthetic sense—sometimes even resulting in clumsy and damaging repairs. Ancient book restoration is a technique that uses physical methods, chemical methods, and modern technology through manual or equipment processing to remove extraneous, damaging, or preservation-unfavorable factors, enabling the ancient book entity or information to basically recover its original appearance. Restoration constitutes an important component of ancient book preservation. Its connotation lies in using certain materials and methods to restore damaged ancient books to their original condition.

Restoring damaged ancient books requires examining and researching the physi-

cal objects and related texts to identify the original creator's intent and the basic characteristics of the original. Then, using similar creative techniques, damaged or missing parts that conform to the original are supplemented and perfected, while extraneous parts are removed. In ancient book restoration practice, intervention in the main body of ancient books is not rejected, emphasizing material reversibility, compatibility, and identifiability. Meanwhile, effective ancient book restoration cannot rely solely on content and historical research; it also requires a series of technical analyses and studies. Modern equipment and technology can provide extremely important means. Comparative and analogical research methods are needed to accurately select materials, precisely determine processes, and scientifically choose methods, requiring experimental testing and analysis—making experimental means indispensable.

China has a large quantity of ancient books in diverse forms, with different characteristics formed during different historical periods, and restoration techniques have also changed accordingly. When ancient book restoration becomes the research object, we must explore the formation, development, and evolution of restoration techniques, describe their history, grasp the cultural core of ancient books, and reveal their role in social development. Discussing restoration techniques for ancient books in different social periods requires delineating several cross-sections in human history, using these as a basis for longitudinal historical research to reveal their original presentation. Understanding ancient books requires knowledge not only of their creation and development but also of how restoration techniques changed with material and cultural development across different eras. We must fully recognize the historical limitations of scientific development—for instance, traditional restoration transmission mainly relied on master-apprentice teaching through oral instruction. The closer the apprentice's methods were to the master's, the better the learning outcome. We must adhere to sustainable development, leaving room for future work. Currently, with the development of new technologies and materials, contradictions between traditional restoration techniques and modern technology have become prominent, making diachronic and synchronic research interdependent and equally important. In terms of effectiveness, this diachronic and synchronic research model solves the problem of combining traditional craftsmanship with modern technology, forming the basic research model for today's ancient book restoration discipline.

When paper and writing materials are bound to form an ancient book, it enters the temporal course of the physical world. As a material form, its historicity manifests in two aspects: first, its original history at creation, as a product of its era bearing that period's traces and characteristics; second, its present history. An ancient book preserved to the present has undergone many changes through the long river of history, witnessed by countless people—this present historicity cannot be erased. Therefore, restoration has dual demands: aesthetic and historical. Achieving balance between these two demands constitutes the connotation of restoration. Before restoration, intuitive confirmation is needed to identify its historical value and physical beauty. Restoration aims at transmission to

future generations, reconfirming the book from aesthetic and historical perspectives while preserving its original appearance. Restoration first considers the physical characteristics of ancient books—various materials forming the entity to ensure its physical properties and artistic image. The purpose of restoration is to attempt to restore the “integrity” of the ancient book’s image. Generally, only the material of ancient books can be restored, aiming to reconstruct the potential integrity of the work, not to create a forgery, while preserving traces of historical restorations.

### 3. Constructing the Knowledge System of Ancient Book Restoration Discipline

The goal of establishing an ancient book restoration knowledge system is to penetrate the essence of the research object. Restoration studies must take restoring ancient books to their original appearance as its core mission, with materials science, history, and aesthetics forming the core knowledge system. Restoration studies belongs to the humanities as an interdisciplinary field with both theoretical and practical dimensions. The theoretical system supports the disciplinary framework, including disciplinary history theory, guiding theory, and research methodology theory. Building the ancient book restoration discipline requires clarifying three points: ancient books are unique and irreplaceable research objects and fields; the theoretical system is dominated by restoration theory, with restoration materials science, bibliography, and history at its core, forming a knowledge system with historiography, aesthetics, and other literacy components; and unique research methods and disciplinary knowledge construction frameworks.

The primary purpose of ancient book restoration is to maximize the lifespan of ancient books to facilitate preservation and utilization, including both physical restoration techniques and information restoration techniques. Three principles guide restoration: benefiting longevity, maintaining original appearance as much as possible, and minimal intervention. Restoration work involves two aspects: first, removing all attachments and harmful substances from ancient books; second, repairing missing parts to restore original appearance and prevent harmful factors from continuing to damage the books. Restoration must be based on historical reality, not subjectively altering the original appearance. Restored parts should be similar to original parts. Each ancient book requiring restoration should undergo specific analysis and research for individual treatment, opposing the casual application of immature techniques to precious ancient books. Before restoration, the original material category, performance, and damage condition must be determined, with written records, drawings, and photographs taken before developing a restoration plan. Restoration materials should be as consistent or similar to the original as possible, using original production methods and procedures as much as possible. Restoration techniques mainly include decontamination, deacidification, reinforcement, handwriting display and recovery, mounting, and binding.

The theoretical knowledge system of restoration includes [2-3]: movable cultural heritage protection, ancient book restoration materials science, book restoration history, restoration technology, restoration and culture, restoration and binding, restoration and preservation, restoration and modern technology, restoration and identification, restoration ethics, restoration environment, and restoration technology management. Core knowledge includes restoration materials science, book restoration history, and restoration technology. Basic theory includes movable cultural heritage protection and restoration and culture. Specialized basic knowledge includes restoration and binding, restoration and preservation, restoration and modern technology, restoration and identification, restoration ethics, restoration environment, and restoration technology management. As a highly practical discipline, practical components of ancient book restoration include professional practice in document collection understanding, library and museum business processes, ancient book collation and restoration, artifact identification and restoration experience exchange, photography and videography, and comprehensive practice in ancient book collation, restoration, and preservation. Restoration practice can be conducted at different levels according to ancient book categories and value grades.

In the ancient book restoration discipline knowledge system (see Figure 1 [Figure 1: see original paper]), essential components include core knowledge, specialized knowledge, related knowledge for improving professional literacy, and practical operations. The first two basically define the restoration scope, territory, and composition, identifying the discipline's research boundaries, scope, research paradigms, and academic rules. Compared with other specialized practices, the latter two further demonstrate the discipline's self-sufficiency and independence, thereby establishing its identity qualifications, object content, behavioral norms, and patterns, while also requiring ancient book restoration studies to employ more refined and mature tools, processes, methods, means, and materials for restoring ancient books in different forms.

The craftsman-technology combination model begins by focusing on the characteristics of ancient books themselves and the significance of restoration, addressing issues of inaccurate subjective judgment in restoration. This combined model more readily accepts modern science and technology than craftsman-style approaches, and introducing modern technology will greatly enrich the discipline's connotation and promote the development of ancient book restoration. Conducting testing and analysis through modern equipment before and during restoration greatly promotes theoretical research and scientific work. Restoration theory research can reveal the essence and mechanisms underlying each operation, providing a basis for reasonable and scientific restoration. Recognizing this, restoration theory becomes a concrete question that restoration workers must pursue, far beyond textual games in studies, but a major practical issue concerning what to restore and how to restore it.

#### 4. Research Paradigms of Ancient Book Restoration and Discipline Construction

The development of a discipline requires a relatively complete research methodology system and academic evaluation system that reflects its research paradigms—an important sign of disciplinary maturity [4]. Chinese ancient book restoration has distinctively emphasized traditional methods, with modern materials, methods, and technologies gradually permeating the field in recent years. These can be summarized into three paradigms: craftsman-style restoration, craftsman-technology combination restoration, and technology-based restoration. These three research paradigms differ greatly in path, method, effect, and concept.

Craftsman-style restoration is basically manual operation, requiring restorers to undergo long-term training, accumulate rich experience, possess certain cultural cultivation, and have personal interest to be competent. Personal skill quality, subjective judgment, responsibility, and attitude determine whether restoration work can be carried out and its effectiveness. Ancient Chinese restoration transmission basically belongs to this type, passed down from master to apprentice through oral instruction—the closer the apprentice's methods to the master's, the better the learning outcome.

The craftsman-technology combination model focuses on the characteristics of ancient books themselves and the significance of restoration, solving problems of inaccurate subjective judgment. This model more readily accepts modern science and technology. With modern technology, equipment, and personnel mastering modern techniques being indispensable for restoration work, some technologies may replace original manual operations. For example, the technology-based restoration paradigm enables ancient book preservation to conduct extensive experimental research using experimental equipment, generating large amounts of data and producing numerous research results through quantitative methods. In recent years, Europe, America, Australia, and other countries have shown a distinct case study paradigm in ancient book and artifact restoration, using the opportunity to restore precious ancient books to determine restoration plans and methods through analysis of original components and structures using testing equipment.

Each of these three paradigms has its advantages and disadvantages. Considering that Chinese ancient book restoration has long emphasized manual operation with craftsman-style approaches dominating, accepting and promoting new technologies must overcome traditional inertia. If restoration is considered from a discipline construction perspective, we need to discard the shortcomings and limitations of various paradigms, utilizing modern technology while fully leveraging the essence of traditional restoration techniques. Therefore, the second paradigm is more suitable for current ancient book restoration discipline construction. Paradigm research endows the restoration discipline with its own characteristics and determines its future development, requiring a specialized

theoretical system as support to delineate clear territory and space, with clear boundaries between insiders and outsiders.

How can we reverse the stereotype that “restoration equals practical activity” and remove the label that “restorers equal artisans”? An irreconcilable contradiction obviously exists between theory and practice, but this contradiction is the internal driving force pushing restoration scientific theory forward. How should Chinese ancient book restoration view and resolve this contradiction in both theoretical research and practical work? How should both sides of the contradiction conduct themselves? Restoration practice development encounters many problems requiring systematic theoretical guidance, which must be obtained through discipline construction. As a marginal and interdisciplinary field, we need to break traditional model limitations and divide the discipline’s objects from a horizontal perspective. The emergence of this discipline will inevitably improve, supplement, and correct traditional ancient book restoration, representing an innovation in the field [7]. After long gestation, preparation, and development, restoration studies has acquired basic disciplinary characteristics, with its theoretical system, specialized methods, research institutions, teaching units, academic groups, academic activities, monographs, and publications, making disciplinary establishment a reality rather than a possibility. As restoration studies research continues to deepen, its disciplinary system construction will inevitably become more complete and refined, ultimately forming a unique interdisciplinary and integrated disciplinary system.

Ancient book restoration discipline construction needs to leverage libraries and related fields as a large platform to deliver knowledge to the public. The current government and society attach unprecedented importance to ancient book restoration, elevating it to the level of national development strategy, and restoration has gradually entered public view. Ancient book restoration belongs to part of restoration studies—a small community. If archives restoration and artifact restoration are considered together, they form a large community [8], which has particularities but tends more toward universality. For a large community, it imparts a common identity to community members through generational transmission. Discussing ancient book restoration discipline construction within a small community remains universal and applicable to all community members.

Restoration studies is an emerging discipline, and its construction meets the requirements of social practice and scientific development needs. Ancient book restoration discipline construction will greatly promote the construction of restoration studies. As a growth point for cultural heritage, museum studies, library science, archives science, and other disciplines, establishing a restoration discipline community is the general trend. Its further development requires building a new platform for resource sharing and collaborative cooperation—the concept of restoration studies is proposed in this context. This concept integrates various domestic sectors related to restoration, including cultural heritage preservation, artifact preservation, book preservation, archives preser-

vation, art and museums, art history, and ancient painting collation and publication, laying the foundation for establishing an independent discipline.

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## Some Thinking on Discipline Construction of Ancient Book Restoration

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**Abstract:** [Purpose/significance] In view of the fact that ancient book restoration pays more attention on practical action, overlook on the theory research, cultivate talents like craftsman, this paper construct ancient book restoration discipline as the internal-motivation of ancient book restoration development. [Method/process] This paper analyzed the nature and characteristics of ancient book restoration, distinguished the relationships between other disciplines and ancient books restoration. Then, based on the way of building for discipline, this paper tried to build knowledge system for discipline of ancient book restoration. [Result/conclusion] The cultivating mode of both craftsman and technology is the main pattern for discipline building, introducing modern technology can enrich discipline intention and promote the development of ancient book restoration.

**Keywords:** ancient book, restoration discipline, restoration theory, discipline construction

*Note: Figure translations are in progress. See original paper for figures.*

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