

The Digitalized Protection and Inheritance of the Woodblock Printing Called “Jinling Sutra Printing”

La protección digital y herencia de los bloques de madera impresos “Jinling Sutra Printing”

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Resumen

Jinling Sutra Publishing House, el sitio para la protección de las impresiones de madera en China, es la organización dedicada a la conservación tanto de los grabados en madera chinos como de las clásicas impresiones en tinta del budismo chino. Este trabajo, versa sobre "las impresiones Jinling Sutra" como objeto de estudio, presentando sus características de talla e impresión, y proponiendo que, por medio de la adquisición digital y la tecnología de almacenamiento, este patrimonio cultural inmaterial pueda ser completamente documentado y difundido a través de personajes, imágenes, audio, vídeo...

Palabras Clave: JINLING SUTRA PRINTING, IMPRESIÓN EN BLOQUES DE MADERA, PROTECCIÓN DEL PATRIMONIO CULTURAL, TECNOLOGÍA DE DIGITALIZACIÓN.

Abstract

Jinling Sutra Publishing House, a protection site for Chinese woodblock printing, is the inheritance organization for Chinese woodblock engraving and ink printing of the Chinese Buddhism classics. This paper, taking “Jinling Sutra Printing” as study object, introduced its carving and printing skills, and proposed that, by means of digital acquisition and storage technology, this intangible cultural heritage could be fully documented and presented through characters, pictures, audio, video and other information.

Key words: JINLING SUTRA PRINTING, WOODBLOCK PRINTING, CULTURAL HERITAGE PROTECTION, DIGITALIZATION TECHNOLOGY.

1. INTRODUCTION

The application of digitalization in cultural heritage protection projects is increasingly promising. *Memory of the World Programme*, began in 1992, is an international initiative launched by UNESCO with the aim of preserving and digitizing the documentary heritage of humanity. This paper, taking “Jinling Sutra Printing” of

Nanjing, Jiangsu Province as study object, by means of digital acquisition and storage technology, fully documents and presents the intangible cultural heritage—Chinese Woodblock Printing through characters, pictures, audio, video and other information. Secondly, this paper proposes the conception of reproduce cultural heritage by digital technology guided by the idea of bottom-up remake. While

respecting the traditional standards, it applies modern digital information technology and digital devices to the core of Jinling Sutra Printing—Woodblock printing to remake the woodblock, to pass down the traditional craftsmanship and to realize its sustainable development in modern society. In addition, this paper also researches the feasibility of digital resource bank building of the Buddhist classics from the Jinling Sutra Publishing House. Using modern information technology and network technology to process the documents, digital resource bank can be built to maximize resource sharing and social benefit of cultural heritage.

2. THE CHINESE WOODBLOCK CARVING AND JINLING SUTRA PRINTING

Woodblock printing is an old printing technique, in which the images and characters into Masterpieces of the Oral and Intangible Heritage of Humanity by UNESCO (RUTONG, 2009: 26).

Jinling Sutra Publishing House based in Nanjing was established by Yang Renshan, a Chinese lay Buddhist in the 5th year of the reign of Emperor Tongzhi (1866). It is a Buddhist cultural organization integrating the editing, engraving, printing and circulation of sutras, and the biggest treasury enshrining the Chinese Buddha image woodblocks in the world. (ZANCHU, 1980: 134) After almost 150 years, the House still preserves the traditional craftsmanship like block carving, printing, thread-stitching, etc. It is also the only organization famous home and abroad for block carving and ink-printing of Chinese sutras. The carving and printing technique is passed on from masters to apprentices through oral instruction. The publishing of a sutra contains almost 30 procedures including writing samples on the block, carving, printing, binding, etc. The whole process, purely handmade, have a cultural flavor of elegance and classical.

are reversely engraved into a block of wood. It uses relief printing, where ink is applied to the face of the block and the images and text are printed onto the paper by using relatively low pressure. (ZHIZHONG, 1985: 95) The popularization and application of woodblock printing greatly reduced the production cost of books, and accelerated the production efficiency, the spread of information and knowledge, and social civilization development. In 2009, the woodblock printing inherited by Jinling Sutra Publishing House, Yangzhou Guangling Ancient Book Publishing House and Sicuan Dege Sutra Publishing Monastery was enlisted.

3. THE CRAFTSMANSHIP PROCESS OF JINLING SUTRA PRINTING

The carving and printing of Jinling Sutra printing has complicated procedures, featuring assembly line with multiple types of work and many times of person. The technique itself reveals dynamic traditional culture. The process includes:

(1)Material preparation: woodblock-carving, and the preparation of ink and paper. The woodblocks are made of the birch leaf pear wood produced in Anhui Province. The pear woods are cut into pieces and put in boiling water until desiccated before made into woodblock. The ink for printing is self-made pine-soot ink which can only be used after over 3 years of retting in ink paste pool. With fine rice paper, the sutra printed is called Jinling Edition.

(2)Woodblock-carving: the procedures include writing samples, pasting samples on the woodblock, carving, etc. The contents to be carved are written in old Song style on rice paper by calligraphists. Today samples are made by computers in the same style, and then polished according to the requirements of

different carvings. The woodblock should be moisten and glazed with paste before the opposite side of the checked sample paper is pasted onto the woodblock. Rubbing off with finger the first layer of the paper, sweeping the scraps with brush, and sanding, then characters and images can be clearly presented on the woodblock. Remain the parts with ink while cutting off the rest until 1mm-height relief character is shaped.

(3)Printing: fixing the woodblock, brushing the ink, covering the paper, pressing and rubbing, peeling the paper, etc. Paint the ink onto the woodblock, cover the rice paper, press and rub with palm eraser, and we can get one printed piece after peeling the paper off the woodblock.

(4)Binding: The binding process of sutra includes picking and folding the page in half, aligning the middle mark of the pages, fastening them with paper staples, adding the title page, trimming the sides of the book, stitching threads, pasting the bookmark, etc. Some bulky sutras need slipcases in addition.

4. THE DIGITALIZED RECORDING OF JINLING SUTRA PRINTING SKILL

As intangible cultural heritage, Jinling Sutra Printing focuses on the people-oriented inheritance of such technique. In modern society, such inheritance is rather vulnerable because it relies on craftsmen, presents with skills and passes down through oral instruction. In recent years, there is a consensus that cultural heritage requires digitalized protection. It is convenient for permanent preservation and maximum sharing to convert intangible cultural heritage into digitalized existence.

Digitalized documenting can use modern camera shooting and video recording technologies to capture the whole process of sutra printing. Such documenting synergizes the digital cameras, recording pens, video cameras and other equipments to collect and convert the original information into direct “evidences” like digital texts, photographs, digital image and video, etc. The information can be permanently

stored and the culture can be completely recalled after the editing and composition by after-effect softwares (DONGMEI, 2006: 47-51).

(1) The Collection and Recognition of Voice Record the interview of the people who inherit and know the Jinling Sutra Printing by recording pen and other voice recognition devices, to realize the direct interaction and two-way communication of the interviewer and interviewee. In the process some newly-developed Apps can be used to recognize and convert voice into text, and thus improve the efficiency and quality of digital recording. For instance, Dragon Dictation, the voice recognition App of iPad, can automatically transfer the recording in the whole interview process, which offers a more effective information transfer way for faithfully recording Jinling Sutra Printing.

(2) The Capture of Digital Image and Video using digital cameras and video cameras, the real materials can be filmed and each skill of every procedure, dynamic and static, sound and picture, can be presented. The filming technology is able to completely capture all the details in the 30 procedures of the production process of Jinling Sutra Printing. The consistency of every procedure can be revealed or even segmented. In the last stage of digital imaging, pictures and videos can be edited and composited by professional software, which will realize the visual presentation and mass communication of cultural heritage.

5. “WOODBLOCK REMAKE”——THE DIGITALIZED PROTECTION

The research and application of digitalization in the field of cultural heritage protection is growing mature. The Jinling Sutra Printing should not be limited to written record, all the more, the reproduction and recreation of it by digitalization is imperative for the continuation of tradition and the sustainable development.

Jinling Sutra Publishing House enshrines over 125,000 pieces of national-class woodblocks, among which 40%-50% is severely damaged.

Remake the woodblock by hand costs much but with low efficiency and high difficulty. On the contrast, woodblock remake technology introduces digitalization and digital devices to the technique while following the traditional standards.

The production of bottom-up remake is based on CAD principles and 3D laser engraving formation. First, use high precision devices like 3D scanner to digitalize the original woodblock, including data collection and analysis. Then, according to the relative position of point data of neighboring scan layers, triangle-mesh partition and rebuild the data in the way of point cloud data. Through the analysis of CAD/CAE/CAM systems, NC Programming and NC processing, restore the point cloud data and generate STL-format 3D woodblock surface model that can be accepted by CAD software. Finally, using pear wood as material, based on digital model, and by 3D laser engraving formation devices, the remade woodblock can be output and completed.

The application of CAD and 3D laser engraving formation will greatly increase the carving efficiency and precision, featuring high-speed, flexibility, high-accuracy and non-intervention of model complexity, which upgrades the remake quality. Secondly, the digitalization of key skills will largely reduce the hand-made cost, and upgrade the traditional industry, making the delicate printing works of art, which used to have an intimidating price, affordable by the majority.

6. BUILDING THE DIGITAL RESOURCE BANK OF THE BUDDHISM CLASSICS FROM THE HOUSE

Many of the sutras published by the House are the only edition existing. The scrolls, with explicit notes and punctuation, strict collation and exquisite printing skills, are crowned the top of sutra edition. (ZHENG, 2010: 97) In its heyday, the House picked and printed over 3,300 scrolls counting up to 465 types, and over

100,000 pieces of sutra images, so Jinling Edition has literature value as Buddhism classic. Building the digital resource bank of the Buddhism classics from the House is an effective approach to melt the contradictory between the collection and utilization of the prints. Once the precious editions are digitalized to data disks or online information, they can be unlimitedly copied and used. Secondly, Building the digital resource bank can promote the updating of humanity academic research and Buddhism research approaches. The digital literature is easy to search and people can save a lot of time and energy by quick-access to the information, which is the way of spreading much suitable to modern pace of life. Thirdly, digitalization changed the traditional circulation pattern of prints by forming digitalized channels of publishing and circulation, providing users with broader room for reading and scientific research to maximize the social benefits of cultural heritage.

Building the digital resource bank is a systematic project with the crucial problem to be solved in technology rather than in content. The whole production platform should include multiple technological means like OCR recognition, image scanning, microfilming, paperless collation based on on-line software, XML structural markup, etc. In order to present authentically the Buddhism classics and Buddha prints, and to give users a physical understanding of the fine editions, apart from sorting the texts, the image database of the original books should be built by microfilming and image scanning. Such database enables users to appreciate the original look while reading the texts, integrating the value of literature and cultural relics.

7. CONCLUSION

As the society develops, more and more importance will be attached to the cultural heritage protection. Jinling Sutra Publishing House, as one of the protection sites for the world-class intangible cultural heritage—woodblock printing, has become well-known



among the public in recent years. But the reputation has not brought any substantial change in the development and inheritance of the Jinling Sutra Printing skills. The application

of digitalization to protect the traditional skills can effectively create a frame for the digitalized recording, presentation, regeneration, sharing and inheritance of the artistry.

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