
Digital Archiving Printing Blocks and Establishing Woodblock Bibliography

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ABSTRACT

A great number of printed books were published in Japan after the establishment of commercial publishing in the Edo period (1603–1867). Even though it is well-known that most of the books were printed by means of woodblocks, these printing blocks have not been studied in detail because they are difficult to access and physically handle. However, digitization of the printing blocks revolutionizes research and also facilitates information sharing. This article will present a new method of digitizing printing blocks and archiving them in an online image database. The article will also draw attention to what kind of information we can retrieve from the blocks, especially circumstances of publishing that conventional bibliographies based on the printed books cannot reveal.

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Introduction

My colleagues and I have been constructing a digital archive of approximately 5,000 printing blocks (*hangi*) in the collection of Nara University (Nara, Japan) as part of a collaborative project led by Professor Ryo Akama of the Art Research Centre (ARC), Ritsumeikan University in Kyoto, and Professor Kazuaki Nagai of the Department of Literature at Nara University (Kaneko, 2010c). This project is an attempt to incorporate printing blocks (also known as woodblocks) into Japanese bibliographical studies, which have so far centred around research on block prints and printed books (*hanpon*).

As described in Kazuaki Nagai's detailed works about the Nara University collection, which is cited below within this article, the most important materials of this collection are printing blocks that were formerly owned by rare book traders (old publishing companies) such as *Chikuhō shorō* and *Fujii bunseidō*. *Chikuhō shorō* was established in 1751 (Kan'en 4) by Sasaki Sōshirō, and its approximately 2,500 printing blocks were acquired by Nara University in 2005 (Nagai, 2007). *Fujii bunseidō* was established by Yamashiroya Sahei around the Bunsei era (1818–1829). Its printing blocks were added to the Nara University collection over a ten-year period starting in 1998 (Nagai, 2000); almost 500 blocks were purchased by Nara University and approximately 800 blocks were entrusted to the university by *Fujii bunseidō*. Including the 360 *Kōyaban* printing blocks purchased from Osaka rare book traders and other types of printing blocks that the university continues to acquire, the collection amounts to approximately 5,000 pieces (Nagai, 2009a).

Sasaki Sōshirō and Yamashiroya Sahei were both prominent publishers (*hanmoto*) in Kyoto from the eighteenth through the mid-twentieth century. Therefore, the printing block collection at Nara University is not only an extensive, but also a precious resource that demonstrates how publishers managed and utilized printing blocks in the early modern period. Furthermore, constructing a digital archive of this collection is a way of documenting how the blocks were used in the realm of commercial publishing, as well as documenting the time when their role as printing blocks were over. The archive contains ample information on how the printing blocks were actually used in the publishing business. Making this information public can stimulate research on Japanese publication history.

In accordance with the aims of the archival project, this article will present current problems in printing block research, a method of digitalizing printing blocks, as well as an introduction to the Printing Block Database I have been constructing. I also will provide examples how the printing block digital archive may be utilized in studies of book publishing of the early modern period. I will only mention the basic structure of printing blocks, as I discussed the matter in detail in my article, published in 2010 in *The Bulletin of Japan Art Documentation Society* (Kaneko, 2010a).

What is the importance of printing blocks?

SIGNIFICANCE OF PRINTING BLOCK RESEARCH

Conducting research on a specific block print publication needs to start with collecting the variants of the book that exist and establishing the relationships of the variants in a systematic manner. This requires examining the quality of the print surfaces, checking whether any revisions were made, and sorting out the relationship between initial prints and *fukkoku* (prints made from newly cut blocks based on the pages of an earlier printing). It goes without saying that such changes and variations were made not on the block prints but on the printing blocks from which such prints were made. Therefore, such research needs to be conducted through close examinations of both the block prints and the printing blocks themselves. This point has been made succinctly by Kazuaki Nagai:

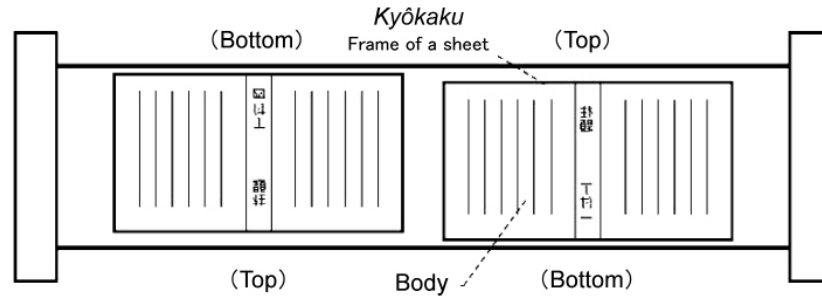
Printing blocks vividly exhibit what the publishers and the artisans had in mind. ... Combining this information [obtained from the printing blocks] with the information we can retrieve from the block prints shall provide a concrete “portrayal” of what the shop floors of the early modern publishing companies were like. (Nagai, 2000, p. 2)

Nevertheless, research on print culture thus far has centred around studies on block print publications, and research on printing blocks has been insufficient.

Researchers in general, and those of Edo period literature especially, more or less have to use printed books as their sources. However, many of them conduct research on Edo literature even though they are not aware of the actual conditions of commercial publishing during the period. Many researchers of Edo period literature seem to have only a vague idea about the printing blocks; many cannot even conjure up the image of a woodblock, so all the information contained in the blocks is missing from the present state of research.

Figure 1 is an illustration of a four-sheet printing block, which is the most common type of woodblock. On the front of the block there are two sheets cut side by side, and they are arranged in opposite directions: on the upper edge of the block the bottom of the left sheet and the top of the right sheet are aligned. In other words, looking at the front of the block, the left sheet seems to be upside-down. We find the same arrangement on the back of the block. There is a narrow margin on the bottom side, while the top margin is wider. In many cases, the first and fourth sheets are cut on the front side of the block, and the second and third sheets are on the back side. On both sides of the printing blocks, wooden clamps (*soridome*) were installed to protect the blocks from warping over the years. As noted above, many researchers of Edo period literature do not seem to be familiar with printing blocks, so all of the information contained in the blocks is missing from the present state of research. Comparative examinations of the surviving blocks and the relevant prints are necessary to establish a firm base for bibliographical and philological studies. Analysis of the structures and characteristics of the printing blocks can reveal information that has so far been uncovered.

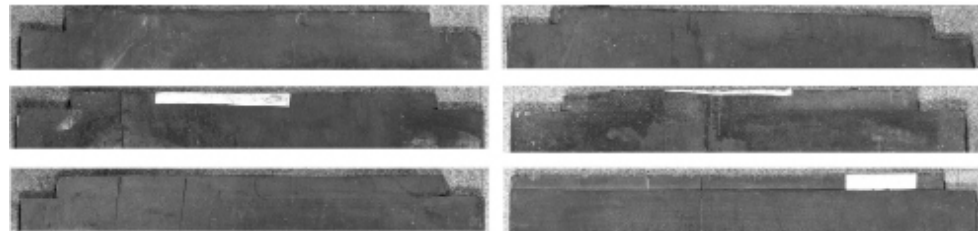
Figure 1: Image of a four-sheet printing block.



WHAT CAN WE LEARN FROM THE WOODEN CLAMPS?

Certain facts can be discerned from the different types of printing blocks. The *Jūhachirakanzusan* published in 1687 (Jōkyō 4)¹ consists of 20 sheets of block prints. Currently, there are six printing blocks in the collection of Nara University with which this book has been printed, including five four-sheet printing blocks (they produced 20 printed sheets) and one *fukuroita*, which is a two-sheet size block for printing the *fukuro* (the wrapping paper of the book that can also be used as *mikaeshi*, or inside front cover) and the *daisen* (title slip). When we examine these printing blocks, we can see that the wooden clamps have fallen off, but the edges of the printing blocks have been adjusted to specific types of wooden clamps. Comparison of the wooden clamps applied on the six blocks reveals that the wooden clamps for the *fukuroita* (book-cover block) (T1680) were different from those of the five other printing blocks (Figure 2), since their *soridome* were of a convex shape.

Figure 2: Wooden clamp types of the six Jūhachi rakanzusan printing blocks. From Top left: T0575, T0576, T0712, T0713, T0912, T1680 (held by Nara University Museum).



Wooden clamps can be classified into three major types (Kaneko, 2010a). Because wooden clamp styles have changed over time, identification of the style of a particular wooden clamp can help to date a printing block. As for the *Jūhachi rakanzusan* printing blocks, except for the *fukuroita* block, the wooden clamps are of the “old style,” which was in use at the time when the first edition of the book was published. On the other hand, the clamps for the *fukuroita* block are of a “newer style,” which indicates that the *fukuroita* was created much later than the blocks with which the first edition was made. While all six blocks came from *Chikuhō shorō*’s old stock, the first prints of *Jūhachi rakanzusan* were made before Sasaki Sōshirō started his company, the *Chikuhō shorō*. Thus, it can be speculated that Sasaki Sōshirō obtained the copyright for *Jūhachi rakanzusan* after he started his company, and the *fukuroita* block for the cover of the book was created after the transfer of the copyright, indicating a new publisher.

The block prints of *Jūhachi rakanzusan* under consideration also indicate that the *daisen* and *fukuro* are different from those of the earlier versions of the book. However, a print, unlike the printing block itself, will never show what types of wooden clamps were used. As the above example shows, determining whether the surviving printing blocks match the style of those blocks that were used when the first prints of a book were printed can tell us a lot about the circumstances of the publication of the specific book. Printing blocks are not secondary materials, but important primary sources that need to be examined in their own right. Printing block studies have been recognized in recent years for the contribution to the understanding of the publishing process and activities of the publishers, such as transfers of copyrights, ways of publishing *jūhan* (pirated prints), and the purposes of partial corrections. These issues were not fully grasped through conventional bibliographic studies of printed books (Nagai, 2007, 2008a, and 2008b). It is certain that printing blocks will continue to have a positive impact on publication research in the future.

Why do researchers tend to neglect printing blocks?

The urgent need to preserve and conduct research on printing blocks had already been pointed out within the research community. Isoo Munemasa noted that “there has been an increasing trend among researchers of Edo literature to focus only on publications” and called for “leaving [printing blocks] to posterity by establishing appropriate organizations for their preservation” (Munemasa, 1982, p. 421). Mitsutoshi Nakano stated, “there is a definite, urgent necessity to create a catalogue of the locations of the printing blocks” even though “it is mostly too late” (Nakano, Ichiko, Suzuki, & Takagi, 1996, p. 42). Notwithstanding these calls for attention, as well as the definite importance of the printing blocks as mentioned earlier, why have the blocks not been studied thus far?

Lack of information on printing blocks

The foremost reason for the insufficiency of studies on printing blocks thus far is the lack of information. When a printing block ceased to be used, its surface was scraped off to be used again. Examples of such re-use of blocks can be observed on some of the printing blocks held by Nara University. In other words, old printing blocks were turned into new printing blocks so their original forms were not preserved. In addition, it can be speculated that many printing blocks have been lost to fires, wars, and earthquakes since the early modern era. It is a historical fact that in the past, printing blocks had to be used as firewood and were reduced to ashes. Publishing records from the years between 1944 (Shōwa 19) and the early post-war years show notes that read: “Forced to destroy due to lack of fuel ration owing to the Greater East Asian War” (Nagai, 2009a, p. 189).² Confusion over such information has led to the notion that there probably are very few printing blocks left. These references have been taken for granted, and this way printing blocks have scarcely been referenced in research. In reality, there are in fact ample numbers of printing blocks that can be used for reference. The existing number of printing blocks could easily be as many as a few hundred thousand. However, except for certain special cases, information is limited regarding which blocks have survived, or the present location of the printing blocks.

Unlike the printed books that often survive in multiple copies, in most cases, there is only one set of master printing blocks. Thus, once the location information of a block is lost, it is impossible to determine whether or not it still exists, or to track it down even if it does exist somewhere.

DIFFICULT-TO-HANDLE PRINTING BLOCKS

Another reason for the limited use of printing blocks in bibliographical research is the fact that they are difficult to handle. Compared to lightweight printed books, the blocks are heavy, thick, and generally unmanageable. There is black ink on the printing surfaces, and the smudges that are unavoidable while viewing the blocks are difficult to remove.

Some of the prints are in colour, but the majority of the printing blocks used were only coated with black ink. Thus, standard black and white or greyscale reproductions of the printing surfaces would result in overall black images, making it almost impossible to accurately document the intricate patterns of the block surfaces. As the characters and pictures cut into the printing blocks are mirror images, it takes some time to decipher them. At Nara University, rubbings (*takuhon*) of the printing blocks were prepared. These rubbings are useful as they are very similar to the original prints and all the relevant information is obtained regarding the block. However, significant manpower is also required for this method, and since the rubbings are on paper, sharing them as references is cumbersome.

It is digitization that can revolutionize studies of printing blocks, by producing and sharing high-quality digital images and bibliographical information in a digital archive. That is why we at ARC have embarked on the project of creating the Printing Block Database.

Printing block digitization know-how

In 2007, we conducted three tests for digitizing printing blocks. Finally, we decided to take long shots with a 21.1 million pixel digital single-lens reflex camera. In this way, we were able to take one sheet per shot at a high enough image resolution. As for four-sheet printing blocks, we could shoot half a block on each side at a time.

As described above, most of the printing blocks are covered in black ink. Thus, with standard lighting methods, images of the blocks come out all black, and it is difficult to obtain clear images of the characters and pictures cut into the blocks. Fortunately, the black ink that covers the printing blocks is a mixture of ink and glue, so it is somewhat glossy. Making the most of this glossy quality, we succeeded in capturing images with a normal level of legibility by aiming the flash directly at the surface of the blocks. Because flashes were directed straight onto the blocks, the images obtained seemed flat. Clearer images were needed in order to examine partial revisions, missing parts, and the details of the cuttings, so we decided to use raking light to capture the three-dimensional features of the blocks. However, the depths of the cuttings of the blocks are varied and the directions of the concave-convex patterns of the surfaces are irregular. In order to avoid the blackout effect of the long shadows cast by the raking light and clearly capture the heterogeneous three-dimensional surface, we illuminated the surface by raking lights cast from four directions. As a result, including the frontal

flash image, we captured five different images with a single shot (Figure 3 and Figure 4). These lighting methods are based on our experiences in capturing digital images of *ukiyo-e* woodblock prints (Akama & Kaneko, 2008).

Figure 3: Printing block digitalization method

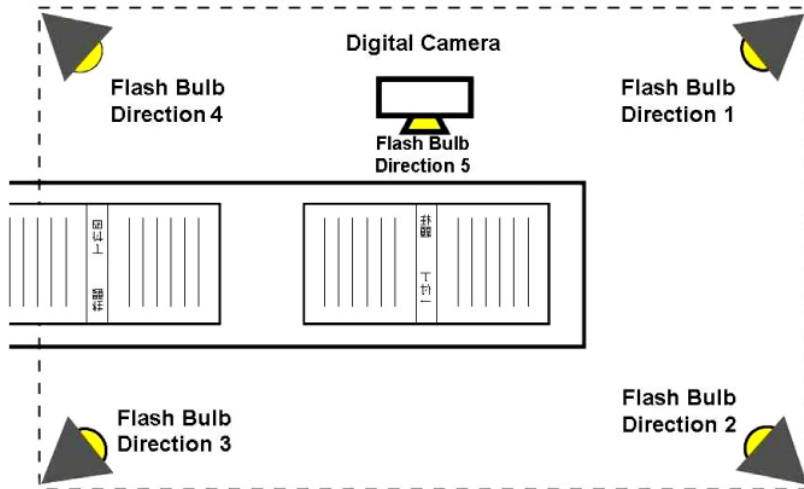


Figure 4-1: Pattern 1; Figure 4-2: Pattern 2; Figure 4-3: Pattern 3; Figure 4-4: Pattern 4
Figure 4-5: Pattern 5. Examples of the five patterns of lighting.

Sankashūshō published in 1795 (Kansei 7) (To838 Partial images, held by Nara University Museum)



While digitizing each sheet allows the examination of the details of the blocks, it is also necessary to capture the image of the blocks in their entirety, for the record. We used a 12.4 million pixel digital single-lens reflex camera to capture the overall images of the blocks, since these images do not require so many details. With the above-mentioned methods, we have photographed 5,000 printing blocks, and created a digital archive (image database) including approximately 80,000 images.

Constructing the Printing Block Database

The Printing Block Database was set up on the server of ARC in November 2008, and after being tested it was launched online in February 2009. The online database is available to the public on the Printing Block Browsing System website (<http://www.arc.ritsumei.ac.jp/db9/hangi>).³

METADATA STRUCTURE

In order to archive printing blocks, at least the following metadata elements are necessary: the printing block number (accession number), book title, volume number, sheet numbers on the printing block, owner, and former owner (publisher). As there are multiple numbers of printing blocks for a single book, it is necessary to group the blocks for a specific book, identifying them with a separate element, i.e., the so-called “block-group” number.

Since printing blocks are for block-printed publications, including woodblock-printed books, organizing printing blocks requires bibliographical information that corresponds with the bibliographical data of the books. A printing block does not necessarily bear the book title. To identify the books the particular blocks were used to print, we have to determine the *hashiradai* (abbreviated book title on the “pillar,” the central fold of a two-page sheet) and *hange* (information on the book or sheet numbers printed on the inner margin). We can match the printing blocks with the books by grouping them according to the *hashiradai* and *hange*. To facilitate the identification process, more work needs to be done to record the width and height of the frame for a sheet (*kyōkaku*) on the blocks.

However, in some cases the bibliographic data of the books cannot be simply applied to their printing blocks. For example, even though often the year of the first publication corresponds with the production year of the printing blocks, sometimes parts of the blocks, or even complete blocks of a series of blocks, were re-cut. Two Edo period books, *Shōkiken Bokuchikufu* illustrated by Ike no Taiga published in 1760 (Hōreki 10)⁴ and *Seifūsagen* written by Akinari Ueda published in 1794 (Kansei 6)⁵ are good examples of the latter. Of the twelve surviving printing blocks for the former volume, one was created in 1916 (Taishō 5) (Kaneko, 2010b). Six of the eight blocks for the latter book were made in 1915 (Taishō 4). That information is quite useful to establish the lineage of the publications. It would be useful if the years of modification were indicated on the prints, but these dates are not necessarily recorded. It shows that we cannot rely exclusively on information gathered from the books.

Other features that describe a printing block are the size of the block and the style of the installed wooden clamps, as discussed above. Even though there are irregularities, for the most part, printing blocks for the same book are of the same length and width.

When there is a block that is significantly different in size from the other blocks for the book, we should consider the possibility that the block was made at a different date than the rest of the blocks. Most of the printing blocks are two-centimetres thick, but the thickness is reduced to one centimetre if an older block surface was scraped off to be recycled. If a set of printing blocks for a book contains blocks that are thinner than the others, it means that they had been recycled. Sometimes recycled blocks were used at the same time as when the first prints were made, but occasionally they were used when partial modifications were made. Thus, it is important to pay attention not only to the length and width but also to the thickness of the blocks. As is the case with wooden clamps, the dimensions of a printing block cannot be determined from simply looking at the books.

To facilitate bibliographical research, we have also included information in the database on the *hashiradai* and *hange*, margin and character sizes, production year of the printing blocks, dimensions, and the types of wooden clamps. These, together with the above-mentioned elements, are combined with an image URL. Furthermore, information regarding the locations of the multiple image segments of the blocks, as well as the system data necessary to run the web database are added. Together they constitute the database metadata.

ONLINE DATABASE

The online database is operated with standard tasks such as keyword search, list all items (Figure 5), search results retrieval (Figure 6), and image viewing (Figure 7). Nevertheless, special considerations are required to accommodate the characteristics of the printing blocks and their digital images, especially of the image-viewing pages.

Figure 5: Printing block browsing system search screen

板木閲覧システム
検索語は基本的に先頭一致で検索します。
含む検索を行なう場合は検索語の末尾に「*」を付けてください。
検索語を入れてください。

キーワード:

資料名
(ひらがな可):

柱題:

判型:

旧蔵(版元):

ジャンル:

地域:

刊行年月: 西暦 和暦 年(閏) 月

所蔵機関:

資料番号:

整列順: 一度に表示する件数 件

検索 リセット

Figure 6: Printing block browsing system search results screen

込検索		板木閲覧システム 検索結果表示画面 12件中、1件目から10件目の結果を表示		新規検索	次へ	最後	
[1] 一枚を 閲覧	[2] 全体を 閲覧	板木番号: T0885 板木Group番号: T0043 資料名: 寛政野臺竹譜(ようざいんぼくずくふ) ジャンル: 画譜 出版年月: 宝暦10(1760)年02・月 戻り止め: 0型 板木備考: 紐有り、丸無し、金子貞時『寛政野臺竹譜』の板木『アートリサーチ』でwol.101参照。	外形: 横73.4×縦22.4×厚2mm 重さ1.65kg 巻二 総題 二 丁付: (正)11(正)2(裏題)・(未刷)	編集	研究 文献	本を 探す	出版 記録
一枚を 閲覧	全体を 閲覧	板木番号: T0882 板木Group番号: T0043 資料名: 寛政野臺竹譜(ようざいんぼくずくふ) ジャンル: 画譜 出版年月: 宝暦10(1760)年02・月 戻り止め: 0型 板木備考:	外形: 横78×縦21.2×厚1.9cm 重さ2kg 巻二 総題 竹譜 丁付: 二二二、三三三	編集	研究 文献	本を 探す	出版 記録
一枚を 閲覧	全体を 閲覧	板木番号: T0843 板木Group番号: T0043 資料名: 寛政野臺竹譜(ようざいんぼくずくふ) ジャンル: 画譜 出版年月: 宝暦10(1760)年02・月 戻り止め: 0型 板木備考:	外形: 横77.4×縦21.7×厚1.8cm 重さ2kg 巻二 総題 竹譜 丁付: 二二二、三三三	編集	研究 文献	本を 探す	出版 記録
一枚を 閲覧	全体を 閲覧	板木番号: T0385 板木Group番号: T0043 資料名: 寛政野臺竹譜(ようざいんぼくずくふ) ジャンル: 画譜 出版年月: 宝暦10(1760)年02・月 戻り止め: 0型 板木備考:	外形: 横76×縦22.1×厚2cm 重さ1.7kg 巻二 総題 竹譜 丁付: 十二、十二、九、十	編集	研究 文献	本を 探す	出版 記録
一枚を 閲覧	全体を 閲覧	板木番号: T0841 板木Group番号: T0043 資料名: 寛政野臺竹譜(ようざいんぼくずくふ) ジャンル: 画譜 出版年月: 宝暦10(1760)年02・月 戻り止め: 0型 板木備考:	外形: 横78×縦21.4×厚1.9cm 重さ2kg 巻二 総題 竹譜 丁付: 十三、十六、四十一(裏)・三十七	編集	研究 文献	本を 探す	出版 記録

Figure 7: Printing block browsing system image viewing screen



Printing blocks have two surfaces, a front and a back, and their images are photographed in segments. Therefore, a viewer needs to display multiple images of a single printing block, and this requires a page-turning function on the website. In the case of a single-block, we can view the images proceeding from the front to the back, which is in accordance with the structure of the block. On the other hand, for viewing a series of blocks for a book (by matching the blocks with their prints), it is better to display them sheet by sheet, which is similar to the way the books are displayed page by page. Our database allows the visitors to view the images in both ways (Figure 6 [1] [2]).

Practically, in order to decipher the cut characters or pictures, it is more convenient to view the printing blocks as mirror images. Accordingly, most users will look at them in that format. However, in order to examine the condition of the cuttings and engravings, it is better to view the blocks as they are in their original form. Thus, our database is designed to allow switching between the original and the mirror images of the blocks (Figure 7 [1]). It also allows switching between the images that were photographed under different lighting conditions (Figure 7 [2]). As described above, the left and right, as well as the top and bottom of the blocks are set in opposite directions, so it might happen that the user loses their sense of direction while viewing the digital images. Therefore, the database indicates the information regarding directions of the blocks to help users to identify which part of the block they are looking at (Figure 7 [3]). Moreover, to locate the segmented images on the block, the entire image of the block being viewed can be displayed on demand (Figure 7 [4]).

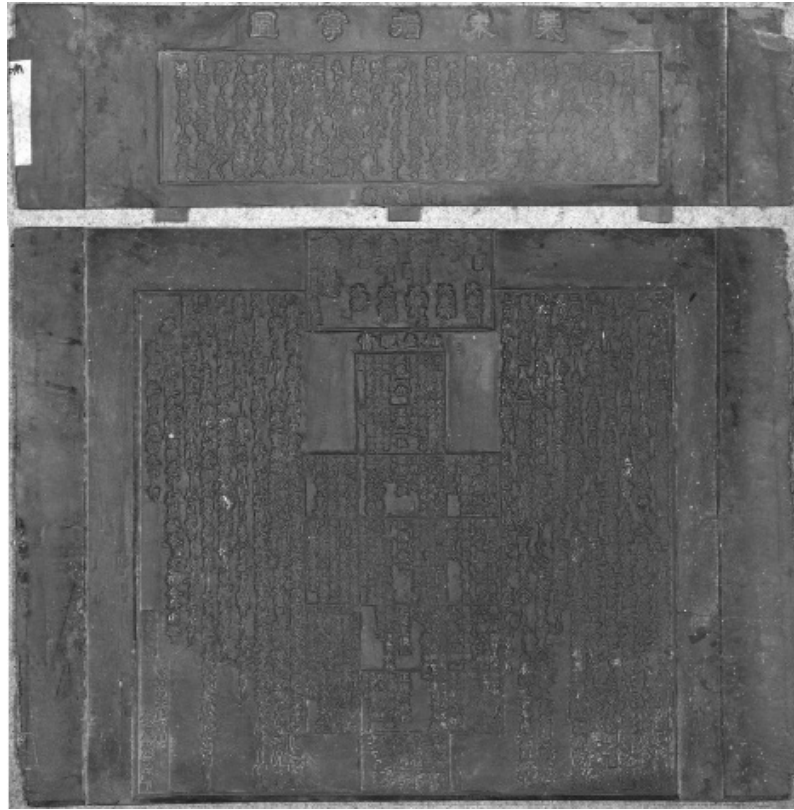
The ARC research group members have editing rights for the metadata described above, and it can be updated online whenever needed (Figure 7 [5]). Future developments in our research may call for modifications of the metadata structure and the online database functions, but the present functions and structures are sufficient enough to facilitate printing block research.

Research potential of the Printing Block Database

AS A TOOL TO REORGANIZE AND PAIR PRINTING BLOCKS

Sometimes a single printing block is divided into parts and kept in separate locations. A block for the *Shōzoku Shishōzu*, published in 1716 (Kyōho 1)⁶, is one such example; it consists of two parts (Figure 8). Before the creation of the database, these parts were each labelled with different accession numbers and kept in two separate locations of the Nara University storage. Compared with prints and printed books, which are visually easier to grasp, all-black images make the deciphering more difficult. If the block parts are separately stored, even if they are part of the same collection, it is troublesome to take them out and check if they actually match one another. In the case of the *Shōzoku shishōzu*, images retrieved from the database showed that one of the two blocks had three sticks from the end of itself to mortise into another, and the text on the two blocks seemed to correspond exactly. That is, the two blocks could possibly be paired with each other. We actually tested this at Nara University, and the blocks were indeed a pair. This result proves that we can use the database to bring together printing block parts as if they were pieces of a jigsaw puzzle.

Figure 8: *Shōzoku Shishōzu* (T1912, T2375, held by Nara University Museum) Mirror image



AS A TOOL TO IDENTIFY THE STRUCTURE OF THE PRINTING BLOCKS BASED ON THEIR PRINTS

Chōkijō is a book published by *Nagato zōhankyoku* in 1869 (Meiji 2)⁷. Its copyright was transferred to Sasaki Sōshirō in 1913 (Taishō 2)⁸, and Nara University has 56 of its two-sheet printing blocks. I have seen five variants of this book, and the one held at ARC (arcBK01-0020) consists of two clearly distinct types of paper. The subject of the book is calligraphy by Rai San'yō, a well-known literati. Since different types of paper were used even for a single page (consisting of two sheets) showing one type of calligraphy, it seems that the difference of the paper quality is not related to the content of the text. The disparity in paper quality is easier to observe when we look at the pages from the side (Figure 9) — it is irregular and does not seem to follow any pattern. What does this difference in the paper types mean? What was the reason for using two kinds of paper?

Figure 9: Side view of the ARC book *Chōkijō* (A book entitled Chokijo in the collection of ARC)



If we name the two kinds of paper “Type A” and “Type B,” and compare the printing blocks, the prints, and the paper quality, we can summarize the results in a table (Figure 10). Basically, it seems that the two types of paper were each printed with a distinct and separate block. Six printing blocks were used with both “Type A” and “Type B” papers, but for the most part, differences in the quality of the paper indicate differences in the printing blocks that were used.

Figure 10: Printing blocks and paper quality chart for the ARC book *Chōkijō*

Type A	Mixed	Type B
T1229 T1202 T1228 T1208 T1201 T1227 T1960 T1964 T1203 T1690 T1972 T1955 T1668 T1237 T1198 T1956 T1200 T1958 T2045 T1206 T1195 T1194 T2568	T1196 T2059 T1954 T1961 T1688 T1276	T1199 T1952 T1959 T1965 T2047 T2044 T2046 T1969 T1226 T1193 T1230 T1974 T1207 T1968 T1238 T1239 T2050 T1963 T1962 T1953 T1967 T1197 T1970 T1204 T1205 T1957 T1966

If we consider the process of printing, naturally the objective is to print a book, although other factors of the process, such as time and place depend on the circumstances of the production. A few types of *hanmoto-in* (publisher’s seal) stamped by Sasaki Sōshirō are seen on the *fukuro* (cover) and colophon of the ARC book, which indicates that the book was printed after Sasaki obtained the copyright in 1913 (Taishō 2). The book has *Nagato zōhankyoku*’s seal as well, but there is no evidence of divided ownership of the book (Nagai, 2009b). It can be speculated that the ARC book as we see it today consists of pages that were printed on one type of paper at one point, and on another type of paper sometime later. In other words, the ARC book is a compilation of two types of paper within a single volume, which indicates that pages can be printed at different points in time, and when that happens, pages with different qualities of paper can be merged together.

There are publishing records denoting that printing blocks under divided ownership were not kept in one location, and that the craftsmen (*surishi*) were moving back and forth between the various locations. In such cases, both the time and place factor of the printing vary, which can result in using different types of paper within a single book

as we see in the example of *Chōkijō*. It is not uncommon for a book to contain pages of different paper qualities. Nonetheless, attention should be paid to whether the different papers were used by two- or four-sheet “units,” because if the different kinds of papers appear by continuous two or four sheets in the book, it can be speculated that the structure of the two-sheet or four-sheet printing block is reflected.

It takes time to verify all of this information. In the case of *Chōkijō* described above, the printing blocks had been well organized, there was information regarding which sheets were cut in which printing blocks, and it was also possible to examine the structure of the blocks by using digital images. Luckily, digital images of the book also existed. As we can see, the digital archive makes bibliographical research much easier.

Conclusion

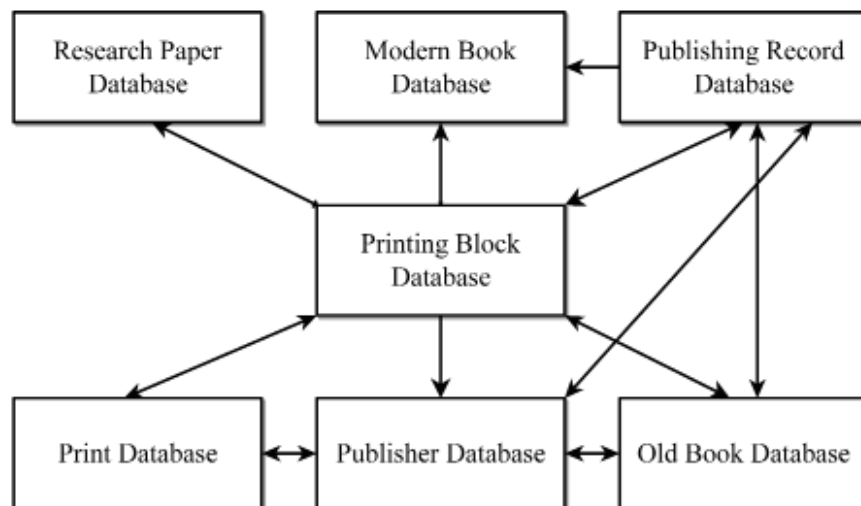
In this article, issues of printing block research, methods of digitization, and details of the Printing Block Database that we have been constructing were discussed. I also have provided examples how the printing block digital archive can be utilized in bibliographical research and studies of Edo period publishing. I believe that we have succeeded in digitizing difficult-to-handle printing blocks, sharing the information on the web, and accumulating data to advance bibliographical studies.

The examples introduced in this paper are to demonstrate the importance of printing blocks and the ways the Printing Block Database can be utilized. So far, these were fragmented pieces of information that were not meaningful on their own, but bringing together these details in an organized manner is a significant contribution to the studies of Japanese print culture.

Other than the Printing Block Database, ARC has also been constructing databases of old books, old prints, publishing records, research papers, as well as modern books, which will lead to further developments of the Printing Block Database.

My priority goes to the investigation of printing blocks, which need to be studied in their own right. Nevertheless, they also need to be examined in conjunction with the actual publications. To prepare the basis for these investigations, the block database and the old book database are already linked together. In order to develop a comprehensive digital archive of early modern publishing in Japan, we need to link the Printing Block Database to the already existing databases (Figure 11). The block database should be linked to the print database in the future. Moreover, linking it to the research paper database will make it possible to search for relevant articles. To acquire a deeper understanding of the printing blocks and Edo period commercial publishing, we need to examine printing blocks together with the relevant publishing records. For this purpose, we have been constructing a publishing record database, which needs to be linked to not only to the database of modern books but also to that of the old books. Furthermore, we are also planning to link the block database to the recently constructed publisher database.⁹

Figure 11: A comprehensive digital archive of the publishing in the early modern era



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Notes

1. Based on the printed book *Jūhachirakanzusan* held by ARC (Access number: arcBK01-0019).
2. Based on Sasaki Sōshirō’s publication record, *Zōhan insū*. Cited in Nagai 2009a. The citation is a record on *Shinkokinshū kohon* (9th sheet).
3. Printing Block Browsing System: <http://www.arc.ritsumei.ac.jp/db9/hangi/>.
4. Based on the printed books *Shōkiken Bokuchikufu* held by Kyoto University Library (Access number: 8-44T03), held by ARC (Access numbers: arcBK01-0017, arcBK01-0034, arcBK01-0036, arcBK01-0080), held by Akita Prefectural Library (Access number: 72-shin’ichi/39/). Originally arcBK01-0034 and 72-shin’ichi/39/ do not have the colophon.
5. Based on the printed book *Seifūsagen* held by the Professor’s office of Kazuaki Nagai, Nara University.
6. Based on the printing blocks *Shōzoku Shishōzu* held by Nara University Museum (Access numbers: T1912, T2375). The printed material is unknown.

7. Based on the printed books *Chōkijō* held by ARC (Access numbers: arcBK01-0020, arcBK01-0063), held by the Professor's office of Nagai Kazuaki, Nara University, held by the private collection. The arcBK01-0057 and the book of the private collection lost their colophon.
8. Based on Sasaki Sōshirō's publication record, *Zōhan insū* (152nd sheet). Cited in Nagai 2009a.
9. The publisher database has been constructed by Ryoko Matsuba (Nanzan University) and Akihiro Tsukamoto (Ritsumeikan University).

Website

Printing Block Browsing System. <http://www.arc.ritsumei.ac.jp/db9/hangi>

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