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How to Cite: Kreiseler, S 2018 Between Re-production and Re-presentation: The Implementation of Photographic Art Reproduction in the Documentation of Museum Collections Online. *Open Library of Humanities*, 4(2): 10, pp. 1–35, DOI: https://doi.org/10.16995/olh.273

Published: 10 September 2018

Open Library of Humanities

Sarah Kreiseler, 'Between Re-production and Re-presentation: The Implementation of Photographic Art Reproduction in the Documentation of Museum Collections Online' (2018) 4(2): 10 *Open Library of Humanities*, DOI: https://doi.org/10.16995/olh.273

REMAKING COLLECTIONS

Between Re-production and Re-presentation: The Implementation of Photographic Art Reproduction in the Documentation of Museum Collections Online

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Museums extend their visibility beyond the physical institutions by providing online collections. By doing this, the museums seek to make a whole collection accessible to visitors online and, as a result, to make the cultural heritage accessible to a broader spectrum of society. Although the collections are represented under the inherent conditions of the graphical user interface, online collections are based on earlier forms of representation, and have implemented their principles. To find precursors and influences on current online collections the following research questions are discussed: What influence has photography had on the inventory processes and the visibility of museum collections? What kind of remaking happened with the combination of text and image in classifying systems at the turn of the 20th century? What effect has this early remake had on current online collections?

This article explores one early remaking of a museum collection. The Museum für Kunst und Gewerbe Hamburg (The Museum of Arts and Crafts Hamburg) started to use photography as an addition to text based classification systems. Contemporaneously the photographic reproductions were used as an illustration for the depicted museum objects in publications. The first employee of the museum, Wilhelm Weimar, primarily made sketches of museum objects and in 1897 started to photograph them. As a result 1700 glass plate negatives in three different sizes were produced, which mainly show museum objects or details of them. In this article the photographic art reproduction on glass plate negatives from Wilhelm Weimar are analyzed. In a second step the history of index cards introduces a classification system that became omnipresent in libraries and all kind of offices since the late 19th century. In the Museum of Arts and Crafts Hamburg index cards were illustrated with images, and prints mounted on cardboard provided more accessible representations of the depicted objects, which were held in storage.

Finally, after a review of this early remaking at the turn of the 20th century, the article makes comparisons with current museum online collections. Six principles in online collections are ascertained where elements, arrangements or techniques are related to photographic art reproductions and classification systems of the late 19th century. The analysis of influences coming from physical archival processes helps to understand current GUIs and fosters questions for exploring new remakes of online collections.

Introduction

Art reproduction has a long history, encompassing many techniques. The appearance of photography in the middle of the 19th century changed art reproduction irrevocably. From the invention of photography in 1839 onwards, works of fine art and other objects were made its subjects. Photography simplified the reproduction process of images since Henry Fox Talbot's invention of the calotype process (Fox Talbot, 1844). While the report of François Arago in front of the French Chamber of Deputies only imagined reproduction using the daguerreotype process, invented by Louis-Jacques-Mandé Daguerre, the calotype process enabled reproduction out of one negative (Arago, 1839: 53; Mirjam Brusius, 2014). This triggered questions over the value of the original compared with photographic reproduction. Shortly after the invention of photography, museums, with their large collections, hired photographers to document their collections or exhibition rooms; photo studios specialized in photographic art reproduction and created distribution networks; and museums changed permissions for making reproductions of their exhibits (Brusius, 2016: 162; Hamber, 1996: 393f; Hauswald, 2016: 99; Bader, 2013: 330–340). These photographs, taken for research use, functioned as a working base for custodians, and were produced on commission for publications. Today, these photographic art reproductions of the 19th and 20th centuries, kept in the museum or other archives, have themselves become significant witnesses to a particular period. As such, they have shifted in status from working materials to collection objects, as the interest in exploring photographic art reproductions increases. Thereby, the view held on these photographs also changes. The photograph of an artwork is no longer analysed as a proxy for the depicted object but as an independent object; investigations are now based on the material of photography such as presentation in the image space, lighting or the image material itself. With this twist, many institutions began to review the image material in their archives and look at them as a source for research.

The first museum photographer at the Museum für Kunst und Gewerbe Hamburg (The Museum of Arts and Crafts Hamburg) was Wilhelm Weimar. He started to document a mostly three-dimensional collection with an inventorying approach in

1897. While other well-known museum photographers (Roger Fenton at the British Museum and Charles Thurston Thompson at the South Kensington Museum, both in London) started decades earlier, in the Museum of Arts and Crafts Hamburg they chose photography as a medium of documentation only when it became easier to print and reproduce. At the end of the 19th century the invention of the halftone process enabled the printing of photographs directly by simulating a continuous tone using different sizes and spacing of dots (Meggs, 1998: 141). Print photographs became more affordable, and this crucially was within the museum's budget. Standards on how to photograph two- and three-dimensional objects were established by experimenting with light, perspective, different cameras, and glass plate negatives. These shifts in both printing and technique changed the appearance of the museum's inventory. Custodians started to work with prints mounted on cardboard that represented museum objects, and photographic prints were added to index cards.

In this article, I aim to show how the implementation of photography changed and enhanced existing systems of classification in the late 19th century, using the Museum of Arts and Crafts Hamburg as a case study. Photographic art reproductions from this museum (glass plate negatives, mounted prints on cardboard or prints in publications) are the basis for my analysis. The techniques developed there changed the way we look at museum objects; one could say that this increase in images constitutes an important remaking of the presentation of museum collections. Furthermore photographic art reproductions were integrated in the grids of letterpresses and index cards; handwritten information was added beside the cardboard-mounted prints.

In this article I investigate the interaction between text and image around 1900, and the standards of how to photograph arts and crafts. When starting to digitize collections, text-based information was transferred first, with digital images being added gradually. The emerging databases assembled by museums were initially used for internal purposes only and based on older classification systems such as index cards or mounted prints. Today they often form the backup of museums' online collections. The term online collection is often used on museum websites, which

provide public access to a collection in its entirety instead of presenting a curated selection (Kreiseler et al., 2017). Museum objects, previously in storage and hidden from view, are made publicly available. In the following, when using the term online collection, it refers to museums' online collections.

The thesis of this article is that arrangements and elements in today's online collections are affected by these older classification systems. To test these assertions, the photographic art reproductions of Wilhelm Weimar and the following changes in systems of classification are introduced. Photographic reproductions are drawn into the flexible system of index cards, showing how grid-like combinations of text and image operated in classification systems in the late 19th century.

Finally six principles of current online collections are identified that echo this older remaking. The key research questions are: What influence does photography have on the inventory processes of museum collections? How was the combination of text and image remade in systems of classification at the turn of the 20th century and what effect does this early remaking have on current online collections?

Background

To analyze photographic art reproduction and the network it was part of around 1900 addresses a diversity of research fields, including the history of photography, art history, history of science, media studies and digital humanities. Relevant topics from these fields are introduced below.

Papers and articles written about **photography around 1900** mainly discussed photographic techniques — for example daguerreotype, calotype, heliography, or photogravure — alongside emerging chemical processes (Photographische Mitteilungen 1870–1895; Photographische Rundschau 1878–1903; Schmidt, 1902; Buehler, 1994; Nickel, 1959). Another main topic included different ways of photographing scenarios such as landscapes, portraits, architecture or three-dimensional objects like sculptures or crafts (Wölfflin 1896, 1897, 1915, Schmidt 1902, Weimar 1906). Weimar was a part of the photographic community and he published many articles where he shared his knowledge about how to photograph different scenarios and use different plates, filters, or chemicals (1901, 1905, 1906,

1912, 1917). Furthermore, he wrote a book about daguerreotypes he collected for the museum (1915). This book is considered a standard reference even today (Klemm, 2004: 56).

The convergent **development of art history** as a discipline alongside the invention of photography brings a technique into focus which we are used to today: comparative visual analysis. With photography this technique could be performed with the help of lantern slides which became basic equipment for lecture halls in art history seminars and for public presentations. The artworks shown on the lantern slides produced interest rather than the medium of the slide itself or the network they were a part of (Caraffa, 2009; Tietenberg, 1999; Ratzeburg, 2002; Dilly, 2009; Roberts, 1993). Anthony Hamber describes this phenomenon:

> The photograph is a window on an original and, unlike current art-historical methodology, photographic historians frequently consider the assessment of the characteristics of the window as being as important as the appraisal of the original being viewed through it. (Hamber, 1996: 5)

This article focuses on the characteristics of this window, and its influence on contemporary forms of collection presentation.

In art history but also in media studies discussions about a separation between **original and reproduction** (an art or craft work and its drawn or photographed reproduction) became stronger in the 1920s (Sauerlandt, 1974; Benjamin, 2007). While sketches or engravings, both as a form of art reproduction and as used for distribution, were handmade and therefore originals in themselves, photographs produced with a mechanical apparatus and chemical processes were seen as a proxy for the original object they showed. The distinction between original and reproduction grew. Discussions arose on the nature of the original and how its perception changes through an increase in reproduced images (Benjamin, 2007).

Another topic is the connection between photography and the approach to creating **"objective" images** for the emerging and fast changing sciences, whether it be natural sciences or art history. The requirement for objective images grew to

prove that it was possible to show visual material that was not influenced by human intervention and to show the "real" nature of the depicted objects. The emerging photographs seemed to be objective because an apparatus had made the image, and this apparatus should simply receive it as it was (Hauswald, 2016; Daston and Galison, 2017; Brusius, 2013).

Today, in **online collections** (part of discussions in the field of **digital humanities**) the separated photograph is not the sole focus, but arrangements of image and text; static and dynamic elements; or user behaviour are also considered (Kreiseler et al., 2017). More generally, the interfaces of museum websites are compared or social media activities examined (Lin and Gregor, 2006; Marty, 2007, 2008; Padilla-Meléndez and Águila-Obra, 2013; Pallud and Straub, 2014). But, little has been said specifically about the historical influences of online collections and their presentation through graphical user interfaces (GUIs).

The following analysis draws on each of these topics to argue for the connection between early collection photography and current presentation of online collections.

Wilhelm Weimar and his Photographic Art Reproductions

The photographer Wilhelm Weimar was not a pioneer in art reproduction photography but he started when the process of taking photographs was made simpler and less expensive by the invention of dry plates. Earlier photography used a glass plate negative coated with Wet-collodion. This process "consisted of pouring collodion containing potassium iodide onto a glass plate which was then tilted until the emulsion formed an even coating." As Hamber describes, "once the plate had been coated with the collodion solution it was then immediately sensitised in a bath of nitrate of silver and the camera exposure taken" (1996: 80). This short description shows how much knowledge of chemical processes a photographer had to have and how laborious it was. Furthermore, all darkroom equipment had to be immediately available at the place where the photograph was being taken. The invention of dry plates allowed for easier handling and more time to develop the negatives.

Wilhelm Weimar began taking photographs in 1897, learning autodidactically. Primarily he was an engraver and one of his key tasks at the museum was to sketch

objects in its fast-growing collection (see **Figures 1** and **2**). In 1883, Weimar was the first employee of the museum, which had been founded in 1874. Therefore, he worked closely with the museum's director and founder Justus Brinckmann (Klemm, 2004: 34, 55). Brinckmann later emphasizes the benefit of photographs:

> What we want, gentlemen, is this: not to make art history but to provide impeccable documents for historical research into the art history that is being made and [...] the sketch is never a perfect document. (Hauswald, 2016: 103)

Figure 1: Wilhelm Weimar, *Japanese Basket*, Pen and Ink Drawing, 1901, Museum für Kunst und Gewerbe.

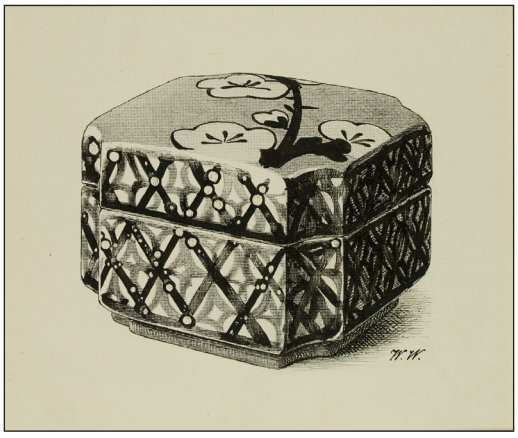


Figure 2: Wilhelm Weimar, *Kogo*, Pen and Ink Drawing, 1901, Museum für Kunst und Gewerbe. (Photography: Sarah Kreiseler).

He had changed from his belief in sketches during his career, and by 1903 he had stated his trust in photography by highlighting its objective quality. Even more important is Brinckmann's demand to provide documents for research purposes. This fact indicates that the photographs were not only made for institutional work but also for research. Even if the documents in the museum leave open who gave the initial impulse to start photographing the museum's collection, Weimar's aspiration in taking photographs was serious, and he truly grasped the features of the medium and experimented with its possibilities.

Wilhelm Weimar had high expectations while producing photographic art reproductions: every single shot was supposed to be ideal. In a journal article about the photographing of arts and crafts objects, he wrote: 'Even if intended for publication in a journal of the arts or in a luxury volume, each individual shot should be awarded the utmost care; it should be exemplary' (Weimar, 1906: 187). Furthermore, Weimar points out how important an analysis of the texture of a photographed object would be by influencing the photographic setting and its configurations. In his personal working journal, where Weimar listed every shot, one can see that an ideal shot often needed to have a long exposure time, sometimes up to three hours (see **Figure 3**). This led to a very sharp and well-illuminated shot. The long exposure time is attributed to the use of different kinds of filters. For instance, he used a yellow

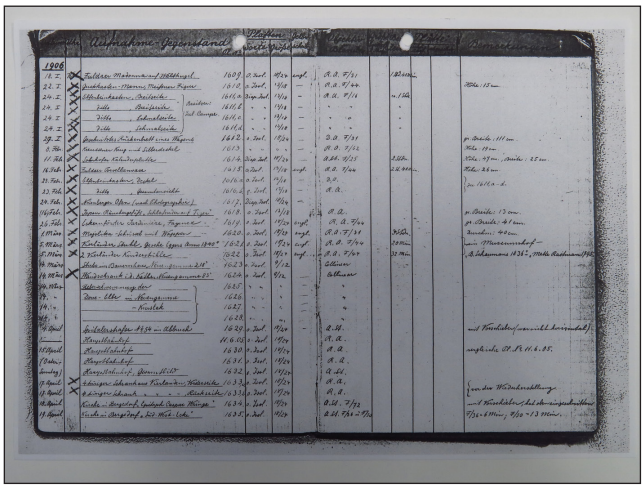


Figure 3: Wilhelm Weimar, *Work Journal from Wilhelm Weimar*, 1906, p. 1, (Copy).

filter for high-contrast museum objects and an obscured the window with paper to dim the light when photographing glass objects (Weimar, 1906: 187, 193f). His small studio was situated on the ground floor, with no electric illumination and the window was north-facing (Weimar, 1912: 540). Although many inventions simplified the photographic process, it was still time consuming. Yet, as a result of this, Weimar produced high-quality photographs, which could be used for different purposes.

To convey an impression of Wilhelm Weimar's photographic art reproduction I will elaborate on one glass plate negative in detail. Around 1901 he took a photograph of an art nouveau cup with the negative number 742 (see **Figures 4** and **5**). The cup

Figure 4: Wilhelm Weimar, *Becher mit Silberfassung*, around 1901, Museum für Kunst und Gewerbe Hamburg (Public Domain), https://sammlungonline.mkg-hamburg.de/de/object/Becher-mit-Silberfassung/P2017.3.742/mkg-e00154391?s=%2A&h=0.

Figure 5: Wilhelm Weimar, *Becher mit Silberfassung* (reversed), around 1901, Museum für Kunst und Gewerbe Hamburg (Public Domain), https://sammlungonline.mkg-hamburg.de/de/object/Becher-mit-Silberfassung/P2017.3.742/mkg-e00154391?s=%2A&h=0.

is placed in the middle of the display detail and the point of view focuses on the middle of the cup. The three-dimensionality is visible without giving an inside view of the cup. The gaze is guided to the floral silver ornament that edges the ceramic. Instead of presenting the ornament from a central perspective, it is photographed in the golden ratio. The eye follows the momentum of the silver at the top end and reads the pattern of the ornament where it is repeated around the lip of the cup. As a consequence of picking this perspective, the plasticity and the pattern of the silver ornament is visible, not only on the left but also on the right side of the cup. While the eye oscillates between the ornamental elements, the shiny ceramic comes into focus. The glass plate negative reveals a dark cup with a white tone at the bottom. On the printed photograph the tones of grey are inverted and the cup is light with a darker bottom. The whole surface of the cup is sharp and only at the small three-dimensional depths is a blur visible. The surface upon which the object stands has a clear edge, which divides the frame horizontally. It is not relevant if this surface is a table or a pedestal. It has a simple white tone, but the leading edge of the surface is on view at the foot of the image. The background has a similar but slightly darker grey tone than the surface. Whereas the contrast between surface and background is not strong, it leads to the awareness that a three-dimensional object was photographed. Finally, the fine shadow thrown by the cup on the right side is brought into view. On the glass plate negative, the shadow seems to mystify the object because it appears as an illumination and not as a shadow. Moreover, it demonstrates Weimar's knowledge of lighting, with neither the cup's reflections nor shadows from other objects disturbing the scenery.

An important aspect for Weimar was the harmony between the photographed object and the background. He indicates how important the right grey tone of the background is to get a 'künstlerisches Zusammenklingen' (artistic harmony) between object and background (1906: 191). The color and the material of the photographed object would affect the chosen grey background tone. Weimar advises the reader of the article not to use black since it would make the object appear too sharply raised (Ibid.) (see **Figures 6** and **7**). In all given examples of Weimar's photographs, the arts and crafts objects are photographed individually. He rarely arranged more than one

Figure 6: Wilhelm Weimar, *Figur Scaramuz* (reversed), 16.02.1907.

Figure 7: Wilhelm Weimar, *Figur Scaramuz* (reversed), 16.02.1907.

object in a shot. Therefore, he transferred the arrangements he learned from making sketches into photography.

As a comparison to the described photograph made by Weimar, a contemporary one of the art nouveau cup can be found in the online collection of the Museum of Arts and Crafts Hamburg (see **Figure 8**). An obvious difference between the old and the contemporary photograph lies in the advanced camera and negative material. The contemporary image is a color photograph, whereas Weimar's is black and white photography. A smaller difference can be seen in the chosen perspective on the cup. The contemporary photograph highlights the silver ornament in the middle, and the symmetry of the silver ornament is accentuated. Likewise, the background has changed. No horizontal line separates the foreground from the background. The illumination is soft and the shadow on the right is light. The color photograph was made professionally, but who made it is not recorded in the online collection of the Museum of Arts and Crafts to avoid image copyrights on the art reproduction photograph.

Figure 8: Pierre Adrien Dalpayrat and Marcel Bing, *Becher mit Silberfassung*, around 1898, Museum für Kunst und Gewerbe Hamburg (Public Domain), https://sammlungonline.mkg-hamburg.de/de/object/Becher-mit-Silberfassung/1900.245/dc00000977.

The Flexible System of Index Cards

The proliferation of photographs as a new documentation technique is tightly linked with the role of index cards in museum collections. While parenthetical, the history of index cards demonstrates an important change in the structuring of collections, whether it be in libraries, offices, or museums. Markus Krajewski describes the development of the index card (2011). He traces its roots back to the 16th century, at Konrad Gessner's *Bibliotheca Universalis* (Ibid., 9–24). Although in this *Bibliotheca Universalis* unmounted notes were organized and fixed in books, it was innovative in that every new thought was written in a new line (Ibid., 13). Not only thoughts but also related books and notes were listed. One invention that might have been influenced and fostered by the new system of index cards was letterpress printing, which involved the separation of each letter and their array in a type case. Krajewski draws a parallel to cabinets used by scholars. Here they saved their unmounted notes in note boxes or even in specially built cabinets, with single ideas separated but held together at the same time (Ibid., 19). The advantage of these arrays was the mobility they brought to the materials they contained. The existing order could be reorganized and new notes could also be added more easily than in books.

In libraries, one innovation was the implementation of catalogs as a search tool. Even if these catalogs were themselves books, they enabled librarians to classify and rearrange books without changing the order of the library itself. The catalog made the library accessible because a whole book collection became searchable in one single book. Before this system emerged, books often had one specific place on a shelf, with labels on the shelves indicating the books they contained. Therefore, librarians had to know where a particular book had its place. One anecdote features Gotthold Ephraim Lessing finding treasures in numerous strolls like a 'human search engine' (Ibid., 32). He found these treasures by walking through the space, a privilege only a select group of people had.

In the 18th century, two developments influenced the emergence of index cards as we know them. First of all, the size of each card was standardized in these note boxes for single cataloging projects (Ibid., 42). The precursors of these standardized

cards were simple playing cards, which had a standard format and a white back. Before librarians discovered them as a useful material, they were altered for both death announcements and business cards (Ibid., 33). An advantage of playing cards was their material. The cardboard was more stable than paper and therefore lasted longer. The second standardization concerned the information held on each note. 'The goal of a unified, adequate catalog can be reached only if one can ward off the risk that the data will be arbitrarily diversified whenever employees act randomly' (Ibid., 40). This quotation refers to a regulation regarding the cataloging project of the *Josephinischer Katalog* in Vienna in the 18th century. The process of registration was itself being standardized since it was not only librarians that worked on huge projects, like the catalog in Vienna, but also laborers without deeper bibliographic knowledge (Ibid., 41). Even in the *Josephinischer Katalog* the card catalog should have been only the first step of documenting the collection. In a second step they planned to transfer the notes to a bound book catalog. While this never happened and the book was never made, the card catalog was used successfully for many decades.

Another innovation which affected the development of classification systems took place at Harvard (USA) around 1861. Librarians usually had full or even exclusive access to the so-called master record of a card catalog. Only in this record were all new purchases listed immediately. Other users of a library had no access to the latest entries listed in this master record. The librarian Ezra Abbot introduced a system where two cards were generated from the master record, and new entrants were noted on three cards for three catalogs. One card was filed in an alphabetical, the other in a systematic order, and these two were accessible to users of the library (Ibid., 81–83). Here, the same information is used for different structures, making the collection of a library accessible in different ways for everyone who uses it. The different arrays increase the chance of finding the sought-after result when users arrive with varying pieces of information. To a user who searches for a special topic, the alphabetical order of author names seems to be useless. Instead, they will want to work with the systematic order. This development is strongly reminiscent of the new information retrieval methods discussed by Marcia Bates in 1989. She calls her

model *berrypicking,* an enduring a metaphor for the selection of information. While browsing through search GUIs she argues one might find information and select or 'pick' it (Bates, 1989).

The index card system (as still in use today) became successful worldwide when it left libraries and was transferred into offices in the late 19th century. Here, it was used for reports and accounts. The company Library Bureau proclaimed index cards in its advertising catalog in 1890: "in fact, it is as great a labor saver to the business man as to the librarian" (36). The advertisement slogan underlines the diverse possible applications of index cards and explains the expansion of this company.

Museum Classification Systems: the Juncture of Text and Image

Wilhelm Weimar began taking photographs just as the use of the index card became widespread. In the 18th century, collectors began to classify and organize their increasing art, book, plant, or animal collections in other ways. In natural science, systems of ordering became popular, for example the taxonomy system introduced in *Systema Naturae* by Carl Linnaeus. Similarly in art collections and cabinets of curiosities, systems of ordering changed the conditions of access. In an analysis of frontispieces, the art historian Robert Felfe shows a transition in the way that cabinets of curiosities were presented (2003: 226–264). This transition changed both how collected objects were arranged in physical space and how they were accessed. In a typical frontispiece of a 16th century cabinet objects of all materials and periods are displayed side by side. Two centuries later cabinets showed different arrangements. One 18th century cabinet reveals a tidy space where a single man sits immersed and bent forward over an object, a book in his hand. In front of him, shelves cover the wall, filled with beaded objects. Behind him, books fill the cabinet's shelves, stretching back to its end. A ladder stands ajar by a bookshelf and conveys the impression that the man just took a book some seconds ago (Ibid., 244). This second frontispiece suggests a manner of studying where objects were classified. To study meant not only to work with the collected objects of interest, but also with secondary information. The development of classification implements the

desire to measure and therefore understand the whole world. Instead of getting an encyclopedic overview, as renaissance cabinets of curiosities aspired, 18th century cabinets sought to give a comprehensive overview by having representative objects: not every original object had to be on display. Only in a catalog or inventory book were all objects listed visibly at a glance. Just as in libraries, here the catalog forms the entrance to a collection of objects.

The first director of the Museum of Arts and Crafts Hamburg, Justus Brinckmann, was familiar with these methods, and applied them to an inventory of his collected objects. In his schooldays he learnt how to classify and sketch botanical collections and trained his eye, as Alfred Lichtwark pointed out in his biography of Brinckmann from 1902.

> The actual benefit lay in the scientific training of the eye and the accustomization to research methods of the natural sciences. The scientific art of observation enables the eye to sharply and rapidly recognize all characteristic features […]. Coming from a background of schooling in this field, Brinckmann's eye was later able to observe and analyze the work of human hands with the same objectivity he was used to when dealing with plants and insects. (Lichtwark, 1978: 18–19)

Brinckmann transferred methods from the natural sciences to his increasing collection of arts and crafts in the museum. Equally, the method of using images as an addition to the metadata of object inventories can be attributed to his early experiences in natural science.

> Among other things, he had created a visual repertory of images of insects organized by type and place of publication. From this early capability and experience came the illustrated catalogs of his museum, which can today be understood as containing exemplary illustrative images whose scientific accuracy was given the highest importance by Brinckmann, and which provided a model for related publications throughout the world. (Ibid., 16)

Brinckmann knew that it is important not only to collect but to inventory, and this ideally included making sketches of the collection's items. The sketches would simplify the work of the director, and other employees of the museum, when they worked with the collection. Furthermore, loan requests coming from other museums or for exhibitions could be answered by sending images. A third role of the object images would be as sets of prototype models that craftsmen and artists could use for their work. In an early printed copy of the museum's regulations most of the paragraphs determine what can be reproduced or taken out of the cupboards. Importantly, the regulations state that this collection of prototype models could be used without a written request (MKGH-Archiv DirBr 24, 1894–1927). Therefore, Brinckmann's main focus was to make the museum's objects accessible, providing great examples of arts and crafts from different periods for craftsmen. The ornament engravings and other image material in the collection could be easily used by trainees and teachers of the re-established school of arts and crafts. In Hamburg this school was located in the same building as the museum until 1913 (hfbk, 2018). The sketches and later photographs of Wilhelm Weimar helped to realize Brinckmann's comprehensive aspiration, and Weimar himself was also disposed to being highly ordered. In his working journals Weimar documented every shot with a title, date, exposure time, type and size of the glass plate negative, filter he used, and extra remarks. The glass plate negatives themselves are organized by size and date of exposure. The first one would have had the number 1 (although the first preserved one is number 4); Weimar's last photograph bears the number 2785. Therefore, his glass plate negatives are classified in chronological order, a practice which was continued after him. With the help of the working journal one can find the negative with the depicted object. Prints made from the glass plate negatives were ordered differently according to their use. On the one hand, Weimar's printed photographs and sketches were used as additions for the index cards (Klemm, 2004: 118–119). On the other hand the original sketches were kept in portfolios and printed photographs were mounted on cardboard and ordered according to subject groups (see **Figures 9** and **10**). The collection of mounted prints grew and metadata was added gradually, as is evident by analyzing different handwritings and

Figure 9: Wilhelm Weimar, *Koro in Gestalt einer Mandarin-Ente* (Mounted Print on Cardboard), around 1903, (Photography: Sarah Kreiseler).

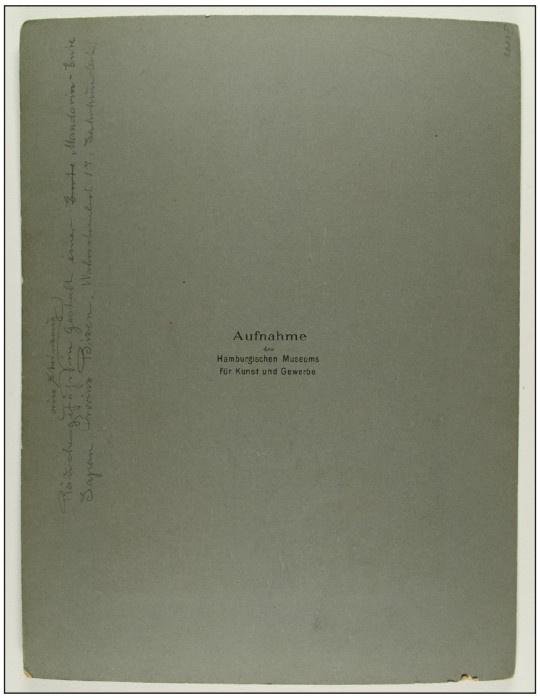


Figure 10: *Koro in Gestalt einer Mandarin-Ente* (backside of Mounted Print on Cardboard), around 1903, (Photography: Sarah Kreiseler).

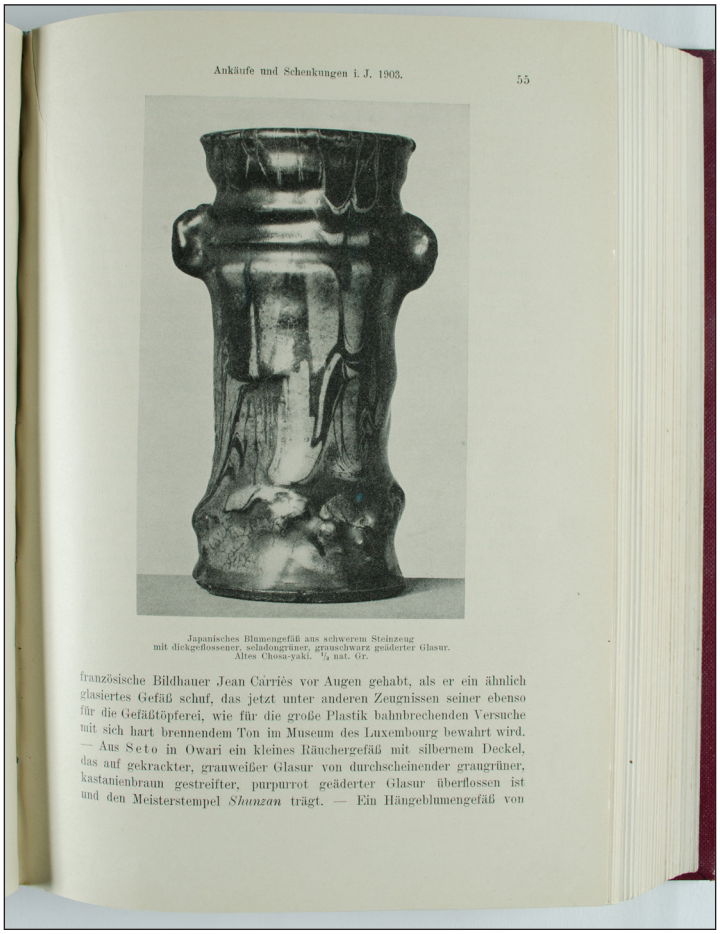
pens. Today, these mounted prints showing museum objects, as well as other arts and crafts objects of interest, can be found side by side in hanging files. They are similar in size to the standard A4 format used today, and they are ordered by the department then secondly by material, cultural period, or museum collection. The mounted prints made of the glass plate negatives provided the working basis for generations of custodians in the museum.

To work with the mounted prints meant to work with the collection without endangering the original objects. The transformation from three-dimensional (original) to two-dimensional (print) objects standardized the objects of a collection in their size. As Mirjam Brusius pointed out, for photographic art reproductions made at the British Museum over a short period in the 1850s by Roger Fenton, the photographs served as research tools and turned 'the museum into a research institution' (2013: 235). Photographs of clay tablets shot by Fenton 'served as mobile proxies that could be distributed among scholars and also used as tools for the archive and the inventory' (Ibid., 234). Mirjam Brusius' observation of the shift that turns a museum into a 'research institution' is reasonable but limited in the case of the British Museum. Only carefully selected scholars got prints of the clay tablets to decipher. Therefore, access was limited to a selected group. Access to both the original objects and the photographs was restricted by the trustees. Only the museum's exhibition itself was open to the public and all social classes (Ibid., 239).

Photographs mounted and described on cardboard in the Museum of Arts and Crafts Hamburg, and in many other institutions, transformed heavy original museum objects into mobile objects, standardized in their size and dimensionality. Museum objects could be easily compared without using the originals. This standardization raises the problem of a loss of sense for the size and material of the depicted objects. To address this Weimar developed a formula to calculate the reduction or enlargement a depicted object has in its photographic reproduction (1906: 189). A caption in publications refers to the size of the objects (see **Figures 11** and **12**).

An advantage of the mounted prints on cardboard is that the arts and crafts objects are protected from damage. In the museum, custodians and interested people got

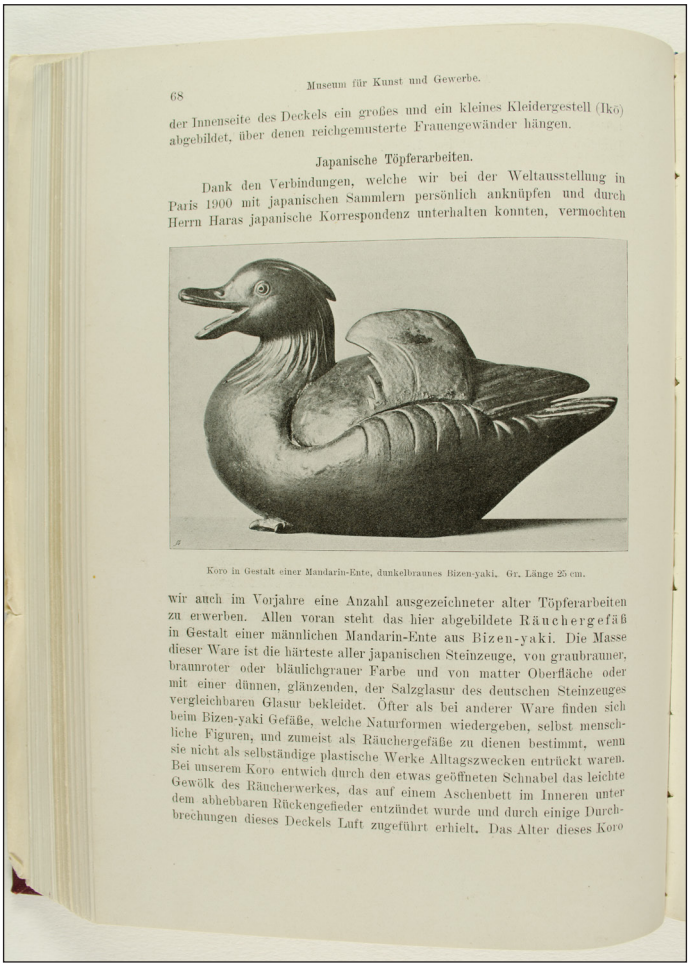
access to museum objects that might be hardly accessible in the depots. The separation of each object, on one mounted print or index card, enables many visual orderings, which cannot be arranged in the physical space. In archives and depots, the key task of preserving museum objects dictate an order, separating different materials to optimise the longevity and preservation of cultural artifacts (Deutscher Museumsbund e.V., 2006). Mounted prints made museum objects visible while protecting the originals, enabling different access points for collection users. These multiple access points support exhibition curation as a museum practice, as well as research.


Ankäufe und Schenkungen i. J. 1903. 55

Japanisches Blumengefäß aus schwerem Steinzeug
mit dickgeflossener, seladongrüner, grauschwarz geäderter Glasur.
Altes Chosa-yaki. 1/3 nat. Gr.

französische Bildhauer Jean Carriès vor Augen gehabt, als er ein ähnlich glasiertes Gefäß schuf, das jetzt unter anderen Zeugnissen seiner ebenso für die Gefäßtöpferei, wie für die große Plastik bahnbrechenden Versuche mit sich hart brennendem Ton im Museum des Luxembourg bewahrt wird. — Aus Seto in Owari ein kleines Räuchergefäß mit silbernem Deckel, das auf gekrackter, grauweißer Glasur von durchscheinender graugrüner, kastanienbraun gestreifter, purpurrot geäderter Glasur überflossen ist und den Meisterstempel *Shunzan* trägt. — Ein Hängeblumengefäß von

Figure 11: Wilhelm Weimar, *Japanisches Blumengefäß aus schwerem Steinzeug*, In: "Museum für Kunst und Gewerbe in Hamburg: Bericht für das Jahr 1903", p. 55, (Photography: Sarah Kreiseler).



68 Museum für Kunst und Gewerbe.

der Innenseite des Deckels ein großes und ein kleines Kleidergestell (Ikō) abgebildet, über denen reichgemusterte Frauengewänder hängen.

Japanische Töpferarbeiten.

Dank den Verbindungen, welche wir bei der Weltausstellung in Paris 1900 mit japanischen Sammlern persönlich anknüpfen und durch Herrn Haras japanische Korrespondenz unterhalten konnten, vermochten

Koro in Gestalt einer Mandarin-Ente, dunkelbraunes Bizen-yaki. Gr. Länge 25 cm.

wir auch im Vorjahre eine Anzahl ausgezeichneter alter Töpferarbeiten zu erwerben. Allen voran steht das hier abgebildete Räuchergefäß in Gestalt einer männlichen Mandarin-Ente aus Bizen-yaki. Die Masse dieser Ware ist die härteste aller japanischen Steinzeuge, von graubrauner, braunroter oder bläulichgrauer Farbe und von matter Oberfläche oder mit einer dünnen, glänzenden, der Salzglasur des deutschen Steinzeuges vergleichbaren Glasur bekleidet. Öfter als bei anderer Ware finden sich beim Bizen-yaki Gefäße, welche Naturformen wiedergeben, selbst menschliche Figuren, und zumeist als Räuchergefäße zu dienen bestimmt, wenn sie nicht als selbständige plastische Werke Alltagszwecken entrückt waren. Bei unserem Koro entwich durch den etwas geöffneten Schnabel das leichte Gewölk des Räucherwerkes, das auf einem Aschenbett im Inneren unter dem abhebbaren Rückengefieder entzündet wurde und durch einige Durchbrechungen dieses Deckels Luft zugeführt erhielt. Das Alter dieses Koro

Figure 12: Wilhelm Weimar, *Koro in Gestalt einer Mandarin-Ente*, In: "Museum für Kunst und Gewerbe in Hamburg: Bericht für das Jahr 1904", p. 68, (Photography: Sarah Kreiseler).

Shared Principles: 19th-Century Documentation and 21st-Century Collections Online

After examining the remaking of collections in the 19th century through the gradual yet transformative introduction of index cards and photographs, thus combining metadata with images on a huge scale like the museum's collection, I want to emphasize six principles of 19th- and 20th-century documentation processes that influence current online collections. The comparison is made by focusing primarily on the online collection of the Museum of Arts and Crafts Hamburg.

The first principle is to provide views of **single objects** in online collections. This can be compared to Wilhelm Weimar's photographs, where each object was shot separately. In an analysis, colleagues and I have shown that many online museum collections have similar website structures. Seven out of eight examples in our analysis offered a start page (A), all provided different intermediate pages (B) showing lists of compilations, and, thirdly, the online collections offered detailed information pages for each object (C) (Kreiseler et al., 2017). Photographs or scans of single depicted objects in a collection are a common element in the GUI arrangement on all page types of online collections, whether it is a thumbnail in an overview or a large image on a C-page.

The second principle concerns intermediate pages (B), where overviews usually show an abundance of images to represent the variety of a museum's collection. The separation of each object (see principle one) enables the creation of **flexible arrays**. Since the 16th century these could be found in scholar's cabinets, where each idea was written down in separation from others but held together at the same time in the cabinet. This separation was continued in the classification system of index cards and the mounted prints on cardboard in the museum. The flexible system of index cards and Ezra Abbot's invention of three records with different arrays — an alphabetical, a systematic and a master record — can be extended in online collections. The creation of browsable tags generates another array of objects with each click on one tag. This option enlarges the access points and arrays users can generate. Beside the use of tags, which are mainly found on C-pages, a user can filter the collection of the Museum of Arts and Crafts Hamburg on the intermediate page (B). These categories include collection, object type, artist/maker, technique, date, place, classification and further use (see **Figure 13**). Each filter provides several other filters and additionally one can search for individual terms. Therefore, an online collection enlarges accessibility by showing similar objects that are linked through the same.

The third principle is the **primacy of images**. Especially on C-pages, but also in overviews (B-pages), images take up most of the screen area and are positioned over the page fold. While the space for photographs or other image material on old index cards was quite small, the mounted prints on cardboard that Weimar and

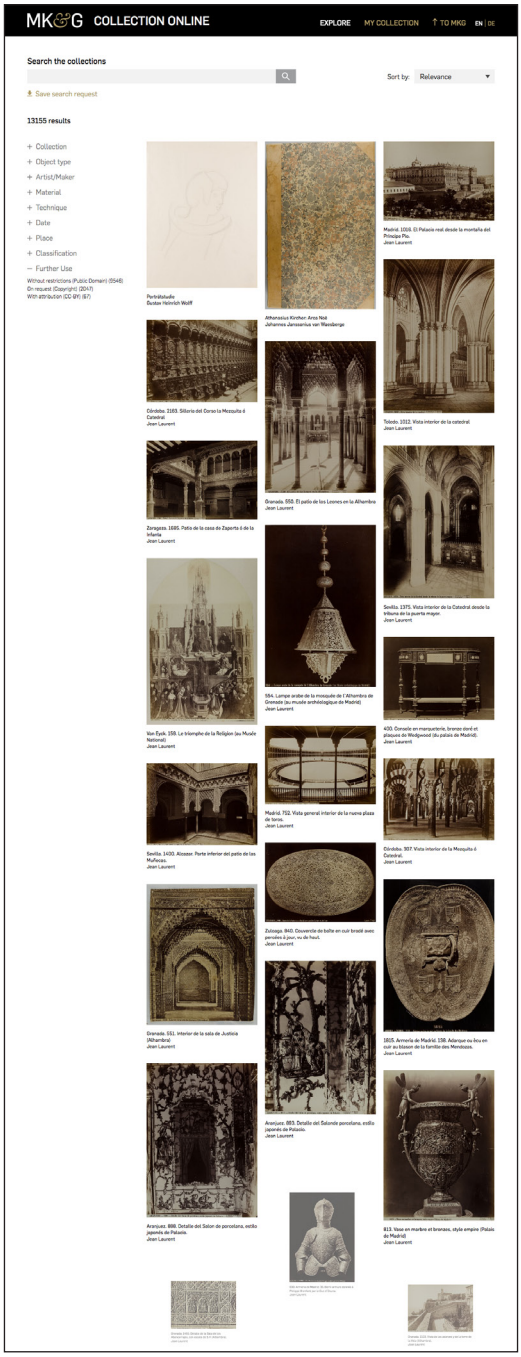
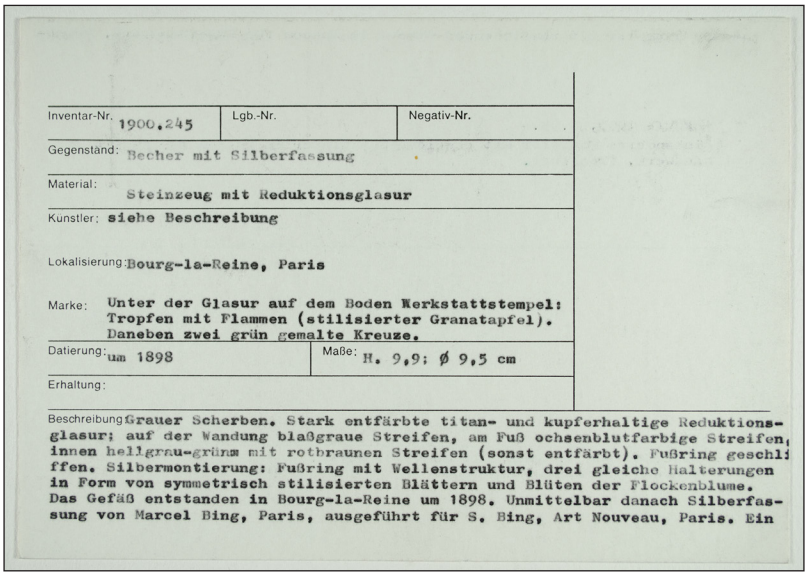


Figure 13: *Screenshot of the web site sammlungonline.mkg-hamburg.de*, https://sammlungonline.mkg-hamburg.de/de/search?s=*&h=undefined&sort=scoreDesc, Accessed March 08, 2018.

others produced have an aesthetic similarity to the detailed information pages (C) in online collections. The cardboard is filled with a larger image and less text. They standardized museum objects in their size and dimension; the mounted print took most of the space on the cardboard. Therefore, the visual information, not the text, was important in this classification system. Online collections could be classified as a successor to this model because images form the focus. In online collections information from the old index cards is included with the larger images used on the mounted prints.

Especially on detailed information pages (C), an adaptation of one single **index card** is recognizable (see **Figures 14, 15** and **16**). Item metadata features prominently under the page fold in online collections, so one must scroll to get to the text information. By comparing the segmentation and information on old museum index cards with the GUI arrangement of a C-page many similarities can be found. First of all, on both, information is given in a horizontal rectangle (the format of the index card and the information block under the image in online collections). On the index card the information is separated through lines where the writer could


Inventar-Nr. 1900.245 | Lgb.-Nr. | Negativ-Nr.

Gegenstand: Becher mit Silberfassung

Material: Steinzeug mit Reduktionsglasur

Künstler: siehe Beschreibung

Lokalisierung: Bourg-la-Reine, Paris

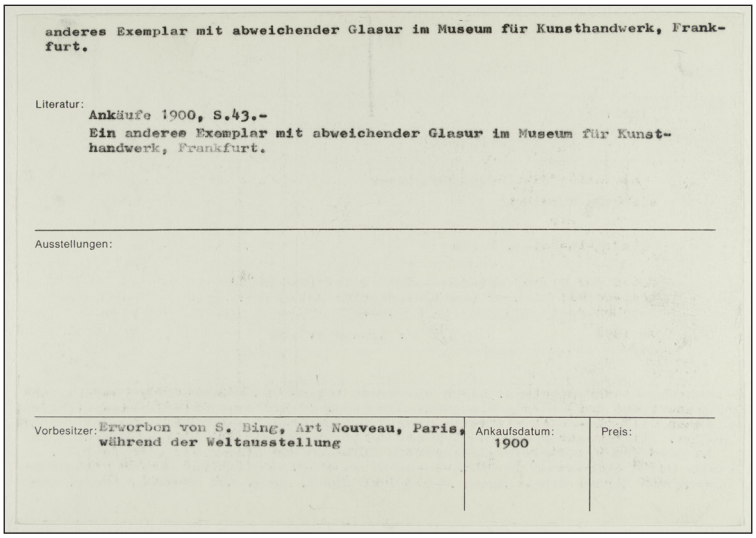
Marke: Unter der Glasur auf dem Boden Werkstattstempel: Tropfen mit Flammen (stilisierter Granatapfel). Daneben zwei grün gemalte Kreuze.

Datierung: um 1898 | Maße: H. 9,9; Ø 9,5 cm

Erhaltung:

Beschreibung: Grauer Scherben. Stark entfärbte titan- und kupferhaltige Reduktionsglasur; auf der Wandung blaßgraue Streifen, am Fuß ochsenblutfarbige Streifen, innen hellgrau-grünm mit rotbraunen Streifen (sonst entfärbt). Fußring geschliffen. Silbermontierung: Fußring mit Wellenstruktur, drei gleiche Halterungen in Form von symmetrisch stilisierten Blättern und Blüten der Flockenblume. Das Gefäß entstanden in Bourg-la-Reine um 1898. Unmittelbar danach Silberfassung von Marcel Bing, Paris, ausgeführt für S. Bing, Art Nouveau, Paris. Ein

Figure 14: *Index Card of the Museums Object "Becher mit Silberfassung"*, (Photography: Sarah Kreiseler).


anderes Exemplar mit abweichender Glasur im Museum für Kunsthandwerk, Frankfurt.

Literatur:
Ankäufe 1900, S.43.-
Ein anderes Exemplar mit abweichender Glasur im Museum für Kunsthandwerk, Frankfurt.

Ausstellungen:

Vorbesitzer: Erworben von S. Bing, Art Nouveau, Paris, während der Weltausstellung

Ankaufsdatum: 1900

Preis:

Figure 15: *Index Card of the Museums Object "Becher mit Silberfassung"*, (Photography: Sarah Kreiseler).

easily fill in the information. This helped the museum staff to get a quick overview. In the online collection of the Museum of Arts and Crafts Hamburg no lines separate the information, but the categories are listed and have a similar order to the one seen on the index cards. The information block is separated from the image and other elements of the GUI through a grey background. The given information in both cases is similar: inventory number, object type, modification, material, designer/artist and dimensions are listed. Interestingly on the index card one can find a detailed description of the object, which is not part of the online object metadata. Instead of putting the information in one text element, in the online collection the listed categories are extended and the user finds the index card text information separated. Another difference is the ability to create tags, which can provide more connections between museum objects than ever before. However not all information on the original index cards is provided online; for instance further readings can be consulted only on the index cards or in the Museum's internal database.

The fifth principle is access to **high quality images**. As described, every shot made by Weimar was supposed to be perfect, here meaning highly aesthetically refined. He only had time to take one shot; a second would probably have taken him

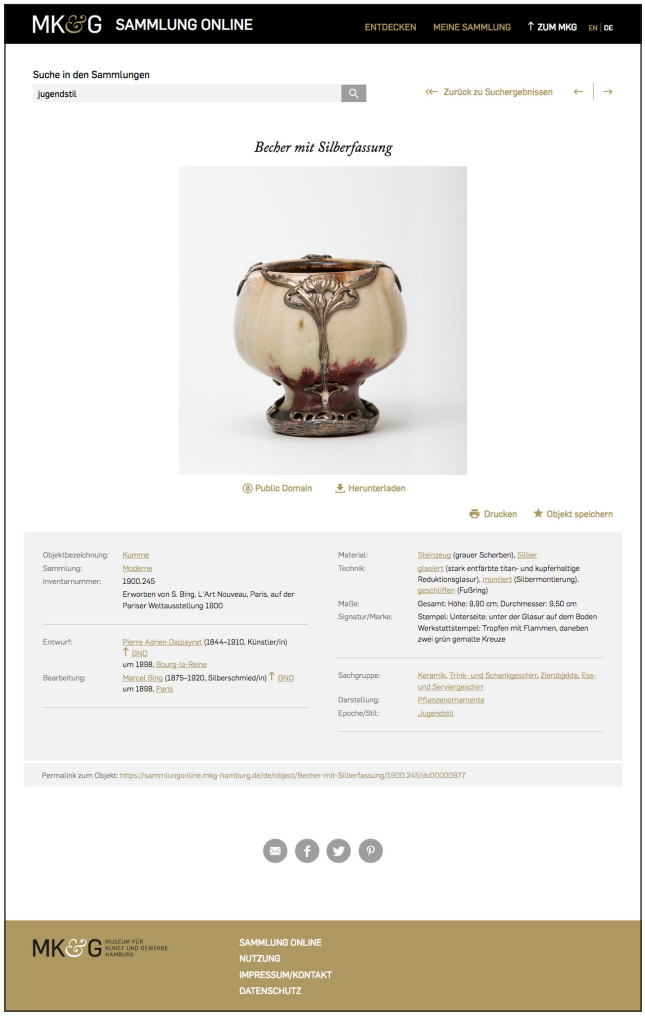


Figure 16: *Screenshot of the Museums Object "Becher mit Silberfassung" of the web site sammlungonline.mkg-hamburg.de*, https://sammlungonline.mkg-hamburg.de/de/object/Becher-mit-Silberfassung/1900.245/dc00000977?s=becher+mit+silberfassung&h=0, Accessed March 08, 2018.

the whole day. Therefore he worked precisely and his photographs were in use for many decades for internal classification systems and in publications. Today, one would say his work was sustainable when producing high resolution images. By comparing the policies of different online museum collections, it is apparent that they provide different image resolutions. Whereas the online collection of the Rijksmuseum offers the possibility to download a jpg image 'of 4500 × 4500 pixels on average' and 'free

high-res TIFF files with colour references for professional use'; the online collection of the Museum of Arts and Crafts Hamburg provides jpg images of 1200 × 1200 pixels on average, and high resolution images can be requested but might need to be paid for (Rijksmuseum 2018, Museum of Arts and Crafts Hamburg, 2018). Even if museums have high resolution images, they often make lower resolution images available and just a few have an open access strategy for their public domain image material: for instance, the Metropolitan Museum of Art, the Museum of Arts and Crafts Hamburg and the Rijksmuseum.

The last principle concerns **open access** image material in the Museum of Arts and Crafts Hamburg. The previously mentioned rules of the Brinckmann era from the 19th century, regarding the reproduction of the exhibited objects, offered levels of access that are comparable to today's open access principles (MKG-Archiv DirBr 24). The collection of the Museum of Arts and Crafts Hamburg was primarily intended to be a role model for craftsmen and trainees. They were allowed to take the museum objects out of their cupboards and had access to sets of prototype role models (for example ornament engravings which show patterns, ornaments and therefore styles of earlier stylistic eras). Generally in the physical space of museums in the 19th century not everyone had the permission to work directly with objects or make reproductions of them (Bader, 2013: 330–40). Furthermore limited time, dependence on physical museum space and staff costs limited the access to objects. Today, the online collection of a museum allows everyone access, at any time, and at low cost. It is nevertheless essential that the collected information and images are added with professional care and in cooperation between experts and interested users.

But in contrast to the old physical classification systems, once the collection is digitized approaches to the objects can still be changed, and curatorial questions come to the fore in online collections.

Conclusion

Taking Weimar's photographs of arts and crafts objects as an example of an attempt to create an image inventory, this paper has drawn a new line between old photographic art reproductions, classification systems, and current online collections of museums.

First, Weimar and his aspiration in taking photographs was (re-)presented. The precision of his work can be seen through the example of the art nouveau cup, as well as through his knowledge of materiality and image structure. Second, the history of index cards introduced the classification systems that were used in museums in the early 20th century. In the Museum of Arts and Crafts Hamburg's current internal database, much of the metadata is based on earlier index cards. While written metadata in catalogs improved access to library collections, images of physical objects improved the accessibility of museum collections. Museum objects changed into mobile objects and the classification system became flexible and extensive. Third, I have shown how Weimar's photographs were implemented in the museum's classification systems. His photographs served as an extension of the index card inventory system and mounted prints on cardboard highlighted the images. They enabled comparative object analysis — a well-known technique in art history, and useful for research and to curate exhibitions. The simplified process of reproducing prints from the glass plate negatives enabled custodians to sort one subject within different classification systems. Finally, Weimar's technique of photographing arts and crafts objects, and the way the photographs were used in the museum, are connected to the current interfaces of museums online collections. As the six outlined principles show, today's GUI arrangements and elements are affected by older classification systems.

The introduction of photography as a tool for documenting a collection changed the mechanisms of ordering and arranging museum objects. Custodians no longer worked with the original museum objects but with the mounted prints. These prints developed into the primary visual source for custodians and researchers. The visual information provided by the mounted prints was completed with textual information drawn from index cards. Thus the advent of fast, affordable image reproduction gave rise to an early remaking of museum collections. The influences of this early remaking remain evident in current online collections, be it in the manner of photographing arts and crafts objects or in the structure of web pages. Photographic art reproductions are omnipresent on all page types of online collections, and

depicted objects are being photographed quite similarly to the photographs Weimar shot over 100 years ago. Further, on the detailed information pages (C) of online collections, older arrangements of the mounted prints and index cards are combined. While some information is withheld internally, other metadata is added in online collections; for instance the use of tags reveals similarities between objects. Providing high quality, visual access to a whole collection online requires time and money. Therefore, sometimes not all images in an online collection are visually appealing. Access to high resolution images varies strongly between different online collections. Whereas a handful museums offer many thousand high resolution images with a public domain license (Rijksmuseum), other institutions have a more complicated image policy (for instance the Tate). The Museum of Arts and Crafts Hamburg offers open access to the photographic art reproductions of public domain museum objects and encourages downloading of images by clearly displaying license information nearby.

Differences between contemporary digital collections and 19th century documentation are also apparent. Online collections often have a start page, unlike the physical archive of collection records. A start page allows users to orientate themselves and to gain initial information about a collection. Although it might be compared with inscriptions on cupboards or other storage, the start page is often an introduction and not an overview. Another difference between physical and online collections is the digital potential to add tag metadata and to generate additional data such as colors from the images.

The increased flexibility of creating new views or arrays using tags simplifies investigations of a whole collection. The creation of personalized overviews, structured by tags, is especially useful for internal museums work. Also Weimar's photographic art reproductions were mainly used by experts; the director and later custodians worked with the index cards, sketches, and mounted prints. As pointed out earlier online collections are based on internal databases, in both their content and structure. Therefore the structure of online collections with their search-based methods is familiar to experts. The extended accessibility of online collections

raises the question of a new remaking of online collections where expert use and institutional collection management might not be the main focus. To design other user experiences, one could draw upon curatorial and mediating approaches that are developed for physical exhibitions. Examples, to name but a few, would be the creation of juxtapositions to reveal interactions between single objects, or the combination of mixed media such as audio, video, text and interactive elements (see Jolly and de Courcy, 2018). With this, principles of curating come to the fore in online collections. The examples of tagging, creating juxtapositions or the use of image information such as color generates new access points, suggesting the creation of environments that are made not only for experts but for all interested users of online collections.

Competing Interests

The author has no competing interests to declare.

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How to cite this article: Kreiseler, S 2018 Between Re-production and Re-presentation: The Implementation of Photographic Art Reproduction in the Documentation of Museum Collections Online. *Open Library of Humanities*, 4(2): 10, pp. 1–35, DOI: https://doi.org/10.16995/olh.273

Published: 10 September 2018