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Searching for Meiji-Tokyo: Heterogeneous Visual Media and the Turn to Global Urban History, Digitalization, and Deep Learning

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For a long time, urban history, as a field of study, focused on textual sources and elite subjects, and the scholars were mostly historians. In the twentieth century, historians studying large western cities started to experiment with a more holistic approach, engaging with other disciplines and sources to gain deeper insight into bigger questions; in particular, they integrated approaches from social sciences and started to shift questions away from material culture to social interaction in a broader sense. Then, in the late 1980s, the spatial turn in the social sciences influenced urban studies, bringing forward the intermingled complexity of social and physical space that is only hinted at in textual sources and thus elusive in research. Some years later, the pictorial turn further widened the field to include more disciplines: as more visual sources became available, they attracted the attention of scholars other than the archaeologists, historians of art, architecture, and urban form who had traditionally worked with visuals. This holistic character of urban history also makes it particularly fitting for studies on the global scale, as the case of Tokyo shows.

Since the Meiji Restoration in 1868, Tokyo has seen rapid and comprehensive change. This process is documented in textual sources, ranging from travelogues to official statements of the government. But much of the material culture and architecture of the city and its environs, and most of the archival material documenting this transition, has been lost to political change and to natural and man-made disasters. Among the remaining records are a number of genres of visual media new to urban history, including woodcuts and photographs from a range of genres (souvenir, documentary, postcard).

Japanese woodcut prints come first to mind; they have attracted foreign interest since the early Meiji period and their influence on European art history has led to a vast number of publications, both academic and popular. So far, scholars have focused on their depiction of the social dimensions of Japanese life or on their aesthetics. Yet the woodcuts are worth noticing in terms of urban history. Famous collections of notable sights like Utagawa Hiroshige's (1797–1858) series *One Hundred Famous Views of Edo*, 1856-1859 and his *The Fifty-three Stations of the Tōkaidō*, 1833-1835, provide insight into streetscapes, building forms, and infrastructure. They include a whole sub-genre of motifs displaying foreign residents, their settlements, and their life styles from the 1850s to the 1880s. Their focus is often on the foreign settlement in Yokohama, such as Utagawa Sadahide's (1807–1873) [Complete Detailed View of Yokohama Street and the Miyozaki Quarter](#), 1860, but they also depict Tokyo's street life. Even more interesting for urban historians are the much less known *Meisho zue*, travel guides to places all over Japan that depict famous sites.

Using woodcuts for urban history research raises two challenges. First, their creators did not document urban life but offered what we might call infotainment within an aesthetic context to their viewers. Second, subsequent scholars and collectors catalogued and discussed them as pieces of art, highlighting rare examples and famous artists. We can find information on the

urban environment only by systematically canvassing catalogues of entire collections. The exhibition [“Yokohama 1868–1912. Als die Bilder leuchten lernten” \[Yokohama 1868–1912. When Pictures Learned to Shine\] at Museum Angewandte Kunst in Frankfurt am Main, 2017,](#) is a prime example: urban topics were depicted throughout the exhibition but the catalogue did not discuss the urban fabric. The same challenges apply to other artistic representations of the urban: sketches, aquarelles, and paintings, not to mention films and literature.



Utagawa Hiroshige: Hot air balloon test at the Navy Department in Tsukiji (Tsukiji kaigunshō...), 1877, triptych woodcut print, Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA, LC-USZC4-10935, <http://www.loc.gov/pictures/item/2002700172/> [29.01.2018], trimmed size

Photography is the most heterogeneous and yet potentially most informative genre of visual media on the modern urban history of Tokyo. *Souvenir photographs* are particularly valuable source material, but those in archives usually lack meta-data specifically describing and identifying the images. Researchers studying them need specific competence in the history of the region or city to be able to use them to understand urban life. A telling example of the complexity of using this genre to write history is a series of three images of Japanese streetscapes. A photograph in possession of the New York City Library is entitled [“View of Main Street, Tokio.”](#) Along with this location, the meta text gives the size and type of the original photograph, but no address, time of day, date, or photographer. The Smithsonian Institution holds a similar photograph, taken from a more elevated position, and the weakness of the archival situation becomes evident: This picture is also entitled [“Main Street, Tokio.”](#) But there is further information on the photograph itself, which reads “Ginza, Tokio.” The meta text dates the image as “ca. 1870s.” As it happens, the [same image is available at Harvard Library’s Visual Information Access](#), this time with the age determination “circa 1885” and without the reference to Ginza. So what does the image actually show, and where and when was it taken? How many similar urban street scenes are out there in public or private image collections with similarly shallow annotations?



View of Main Street, Tokio, Still image (albumen print), [Date Unavailable], The New York Public Library, The Miriam and Ira D. Wallach Division of Art, Prints and Photographs: Photography Collection (MFY 96-4255), <https://digitalcollections.nypl.org/items/510d47d9-c5f7-a3d9-e040-e00a18064a99> [29.01.2018]

The first *documentary photographs* of the country date back to the first [European diplomatic missions to Japan in the 1850s and 1860s](#). Today, a broad variety of documentary photographs is available in digital format. Many of these photographs are available online – including the [collection of the Nagasaki University Library](#) and the photographs of noteworthy architecture taken in the course of the [Jinshin Survey on national heritage in 1872](#), but the material largely lacks comprehensive annotation and cannot be found via search engines: Scholars must do a lot of focused work to find and evaluate specific image material and to reconstruct the source context to include it in their research on urban history.



Carriages carrying Admiral Togo, naval officers, and government officials during Togo's official visit to Tokyo in Oct., 1905, New York, N.Y.: Underwood & Underwood, c1905, Library of Congress Prints and Photographs Division Washington, D.C. 20540 USA, LC-DIG-ppmsca-08012, <http://www.loc.gov/pictures/item/2005678639/> [29.01.2018]

Another photographic medium that merits a second thought as a source for urban history is the *picture postcard*. Collections like [Old Tokyo.com](http://OldTokyo.com) offer a variety of urban scenes: representative architecture, shopping and entertainment quarters, and infrastructure and dwelling. These allow us to trace urban restructuring across the decades, see the rise and fall of office buildings, and discern the urban narrative of Tokyo as a modern city. However, as with all the visual media addressed before, there is a caveat. Picture postcards are even more underrated than many other historical visual sources and often as insufficiently meta-texted. They need some serious collecting and sorting to become useful for global urban history.



Tokio Edifice Marenconeti / Marenconeti gebouw (Marunouchi Building), picture postcard, 1926-1933, personal collection.

While searches in digitized text documents have gained ground in historical research, searching for image content remains a challenge. Metadata describes the content of images, but it takes a lot of time, competence, and commitment for archivists, librarians, and historians to acquire this information retroactively and add it to their enormous collections of images. Imagining the sheer amount of visual representations of architecture scattered around the world in archives and on servers, it becomes clear that only a fraction of this inventory is actually available for research.

Computer science can help by inventing and improving procedures for the automated recognition of image content of visual images in general, and in this case especially of the built environment. Research projects such as our [ArchiMediaL](#) are currently working to solve this problem by extracting or generating meta information directly from the image, for example exact geographical position, and establishing links to related visual and non-visual materials. In a process called Deep Learning, moreover, algorithms can be conceivably trained with a large number of images and the desired meta information. By establishing an autonomous connection between visuals and the tags, the computer will learn to recognize buildings, architectural styles, and cities and regions. Different writing systems and linguistic barriers are no longer a restricting factor, as the information is read directly from the visual content and can be made available in many languages. By extracting information from millions of images and semantically linking these images, it will be possible for scholars to write new histories of familiar buildings and urban spaces – and new stories of architecture previously treated as B-sides and from globally underrepresented regions.

Automatic recognition and linking will make it easier for a scholar to find and retrieve the Ginza photos, for example, via various search queries or by entering a location and date. It can also be assumed that more images of the same place and objects will appear, whether photographs, drawings, or woodcuts. Urban historians will be able to take the time that they spend extensively researching image source material and use it instead for qualitative research on the content of the material. Or perhaps they will take that time to find even more images – because after all, there will soon be a large number of new illustrations available, which in turn will contain *much information* that we have not dealt with so far, since we have not been able to open them up effectively.

Many challenges remain and new struggles will emerge. The biggest challenge, first, will be to convince archives, authors, and copyright owners that the open availability of cultural data contributes to better research environments, enhanced knowledge, and more balanced historiography – a win-win situation for everyone. Moreover, if the increased number of digital sources available includes more of the European/American traditions that have been extensively documented in visual media, we risk perpetuating colonial perspectives and emphasizing traditional concepts of high architecture at the expense of vernacular buildings. We are asked to keep a close eye at the workings of algorithms – as helpful as they might be – as well as on the research questions we ask and those we avoid asking.

Dr. [Beate Löffler](#) received an engineering degree in Architecture (University of Applied Studies in Potsdam) and majored in Medieval History and the History of Art (TU Dresden) afterwards. Inspired by onsite experiences in Tokyo, she extended her field of interest towards Japanese architectural history. She works at the University of Duisburg-Essen on Christian church architecture in Japan, the transcultural exchange of architectural knowledge, and the (western) narrations of Japanese cities.

[Carola Hein](#) is Professor and Head of the History of Architecture and Urban Planning at TU Delft. She is the author of *The Capital of Europe* (2004), editor of *The Routledge Handbook of Planning History* (2018), *Port Cities: Dynamic Landscapes and Global Networks* (2011), *European Brussels. Whose capital? Whose city?* (2006) and co-editor of *Cities, Autonomy and Decentralization in Japan* (2006/2009) and *Brussels: Perspectives on a European Capital* (2007), *Rebuilding Urban Japan after 1945* (2003). She is the recipient of an Alexander von Humboldt fellowship for her work on large scale urban transformation in Hamburg and a Guggenheim Fellowship to pursue research on *The Global Architecture of Oil*. Her current interest is the study of international networks and the transmission of architectural and urban ideas along these networks, focusing specifically on port cities and the global architecture of oil.

[Tino Mager](#) is an architectural historian and media engineer. He earned his doctorate at the TU Berlin with an award-winning dissertation on authenticity in architectural heritage. He was a visiting scholar at UCLA, Elsa Neumann Fellow, and Fellow of the Leibniz Association. After lectureships at the Technical Universities of Berlin and Istanbul and research work at the TU Dortmund University, he is currently a postdoc at the Faculty of Architecture of the TU Delft, where he deals with the implementation of artificial intelligence in architectural history research.