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Revisioning Art History: how a century of change in imaging technologies helped to shape a discipline

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Abstract

Beginning in the latter nineteenth century, the use of photography to document works of art was a key factor in the emergence of art history as an independent discipline. The subsequent introduction of new technologies such as lantern slides, 35mm. color slides, and carousel projectors resulted in significant transformations in pedagogy. In the twentieth century, the growing use of photographic illustrations influenced a shift in emphasis in the textual content of scholarly publications such as exhibition catalogs, artist monographs, and journal articles. More recently, the digital revolution has increased access to art information, transforming the ways works of art are studied and taught. Today the high quality digital image is a fundamental scholarly resource, and specialized forms of investigative photography offer new ways of analyzing the ultimate primary sources: the works of art themselves.

Author Bio & Acknowledgements

Art historian Allan T. Kohl is the Visual Resources Librarian at the Minneapolis College of Art & Design, where he has taught courses in the history of ancient, medieval, and Renaissance art. He also teaches special topics art and cultural history courses for the College of Continuing Education at the University of Minnesota/Twin Cities. He did his graduate study in Library/Information Science at the University of Wisconsin-Madison, and in art history at the University of Minnesota. He is Past-President (2008-2010) and current Treasurer of the Visual Resources Association

In 2002, I was contacted by the props department of Columbia Pictures, asking to borrow MCAD's collection of vintage lantern slides and carrying cases for use in a forthcoming feature film about an art historian in the early 1950s. So when "The Mona Lisa Smile" hit our local movie theater the next year, of course I went to see "my" lantern slides and cases in their cameo roles.

Instead, the portion of the film that impressed me most was a sequence showing actress Julia Roberts as a newly-minted assistant professor attempting to give her first lecture, only to have it hijacked by her aggressively competent class, with the connivance of a tag-team duo of student projectionists operating the lecture hall's enormous lantern slide projector: a cogent reminder that—whether fifty years ago, a hundred years ago, or today—imaging technology has had a major shaping influence on how we actually "do" art history's essential tasks: study, research, writing and publishing, lecturing and teaching.

Line drawing after Attic red-figure hydria. Lantern slide from the Minneapolis College of Art & Design collection.

During its formative years as an independent academic discipline in the last quarter of the 19th century, art history made what has been called "the Great Compromise:" to accept photographic reproductions, along with direct personal experience, as primary evidence. This was to prove a far-reaching—and consequential—decision. The close association of art history and photography goes back at least to 1845, when the English critic John Ruskin travelled to Venice to study its architecture. Before returning to England, Ruskin purchased a set of Daguerreotypes depicting the *palazzi* along the Grand Canal, to which he would refer repeatedly over the following years in the process of writing his monumental work *The Stones of Venice* (1851). Ruskin enthusiastically hailed photography as "the most marvelous invention of the century."[1]

By the mid 1800s, photography had emerged from its infancy of Daguerreotypes and tintypes into a robust adolescence of glass-plate negatives and albumen prints. Specialists began to cultivate niche markets. In Florence, in 1852, the Fratelli Alinari (comprised of brothers Leopoldo, Giuseppe, and Romualdo) founded a photographic studio specializing in views of notable Florentine buildings, selling prints of these as souvenirs to visitors making the Grand Tour. Because they were also the premier portrait photographers of Florence's elite, the Alinari used their social connections to gain permission to photograph works in the collections of the Uffizi, despite the initial misgivings of its director.[2] After gaining both valuable experience and an enviable reputation as faithful and respectful guardians of the integrity of the works they photographed, the Alinari took their specialized equipment on the road to other Italian cities as well. By the last quarter of the century, the Alinari firm published an annual catalog of over 10,000 art and architecture subjects, and recorded extensive sales of photographic prints to European and American museums and universities.[3]

At the end of the 19th century, as cameras became more user-friendly and dry plates simplified the process of shooting on location, reputable scholars also began cultivating their skills as photographers, bringing to the task an insider's knowledge of what to look for when documenting a work or monument, along with the cachet of peer associations among their university colleagues. Dr. Franz Stoedtner (1877-1944) of Berlin exemplified the scholar-photographer, not only photographing works in German museums but also taking his equipment on location to major historic buildings. The Stoedtner archive, consisting of tens of thousands of glass negatives, narrowly survived

the Second World War, and became an invaluable reference documenting works lost during that conflict, as well as the pre-war appearance of buildings that had been damaged or destroyed.4
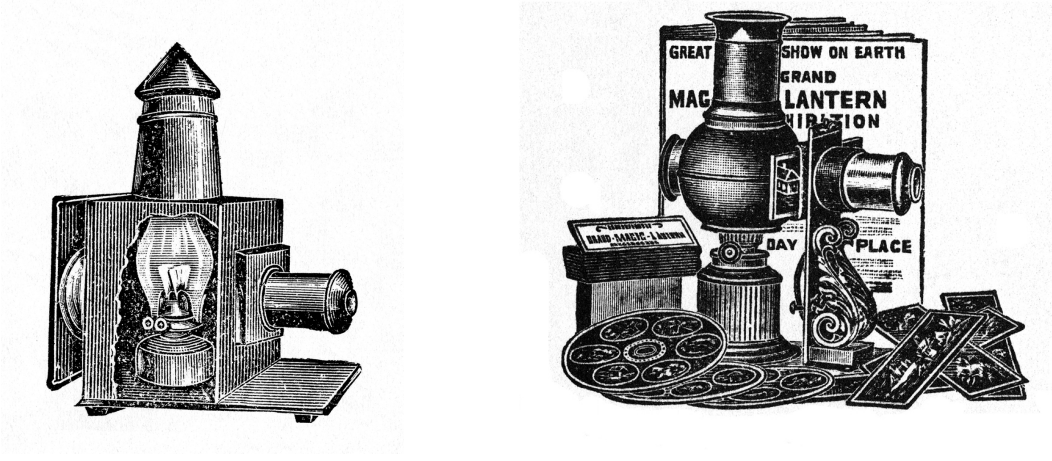
Nineteenth-century magic lantern projectors.

By 1874, Professor C. E. Norton was teaching history of art courses at Harvard using photographs provided by firms such as the Fratelli Alinari. While the professor lectured, small groups of students seated at a table would pass the photographs around to examine the features he was describing – clearly an inadequate experience for even a seminar-sized class.5 One solution for large group instruction was provided by the lantern slide projector, the use of which was first documented in art history lectures given by Bruno Meyer in 1873 at the Polytechnisches Institut in Karlsruhe.6 With the appearance of glass positive photographs in the 1860s, the lantern slide projector enjoyed an immediate spike in popularity. Early projectors, however, were cumbersome and dangerous to operate, employing live-flame lamps burning flammable liquids such as alcohol and kerosene. Later projectors offered a brighter image by using illuminating gas supplied by cylinders connected to the projector with rubber tubes.
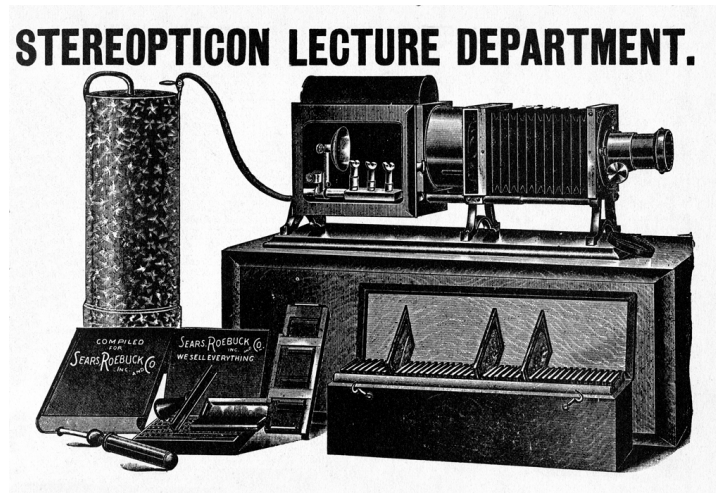
Stereopticon lantern slide projector using illuminating gas from attached cylinder.

Besides loading the slides in the correct order and orientation, the projectionist needed to be a skilled technician to prevent fires and explosions. Despite these dangers, lantern slides were first used to illustrate lecture classes at Princeton in 1882, with Yale and Harvard quickly following suit.7 It must have been a relief to all concerned when the first electric lantern slide projectors made their appearance in 1892.8 In 1912, pioneering methodologist Heinrich Wölfflin began using dual projectors to show comparative works simultaneously, and full views of works alongside their details.9 Wölfflin's dual-projection lectures led to his further refinement of the comparative method, which formed the basis of his seminal publication *Principles of Art History* in 1915 – still considered an essential foundation work for graduate study in the discipline.

Along with teaching, publishing is essential for disseminating research. Art history, based on the study of visual phenomena, is particularly dependent on illustrations. As it was not yet technically possible to use photographs in publications, some of the earliest illustrated art history books instead used line drawings, such as this example, appearing in Wilhelm Lübke's *Outlines of the History of Art*, 1881, showing a Giotto fresco from the Arena chapel in Padua.10

The inadequacies of such illustrations were noted even at the time, giving only a general sense of the more linear aspects of composition and figure poses, and completely inadequate at conveying more nuanced aspects such as tonality, shading, and facial expressions.
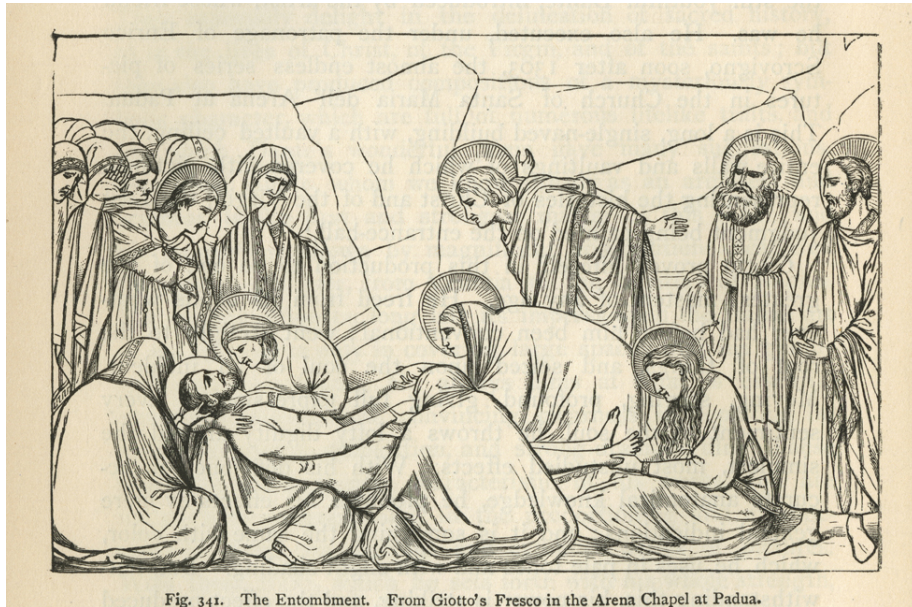
Line drawing illustration after a detail of Giotto's "Life of Christ" Arena Chapel fresco cycle; from Wilhelm Lübke's Outlines of the History of Art (1881)

More typically, early publications were illustrated with engravings, which tended to present highly subjective interpretations of each work. Striving for beauty rather than accuracy, engravings were often notable for both their omissions and their alterations.
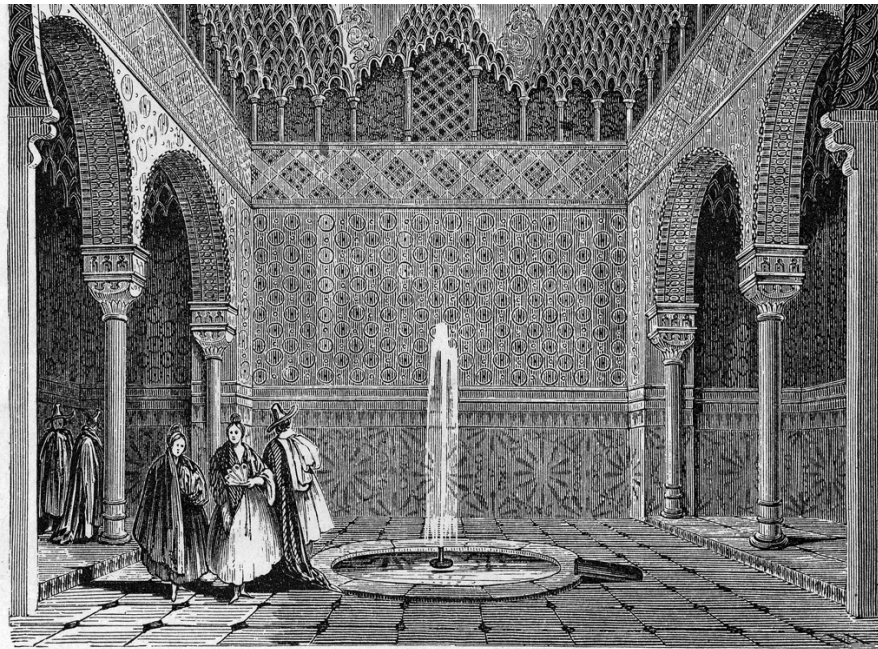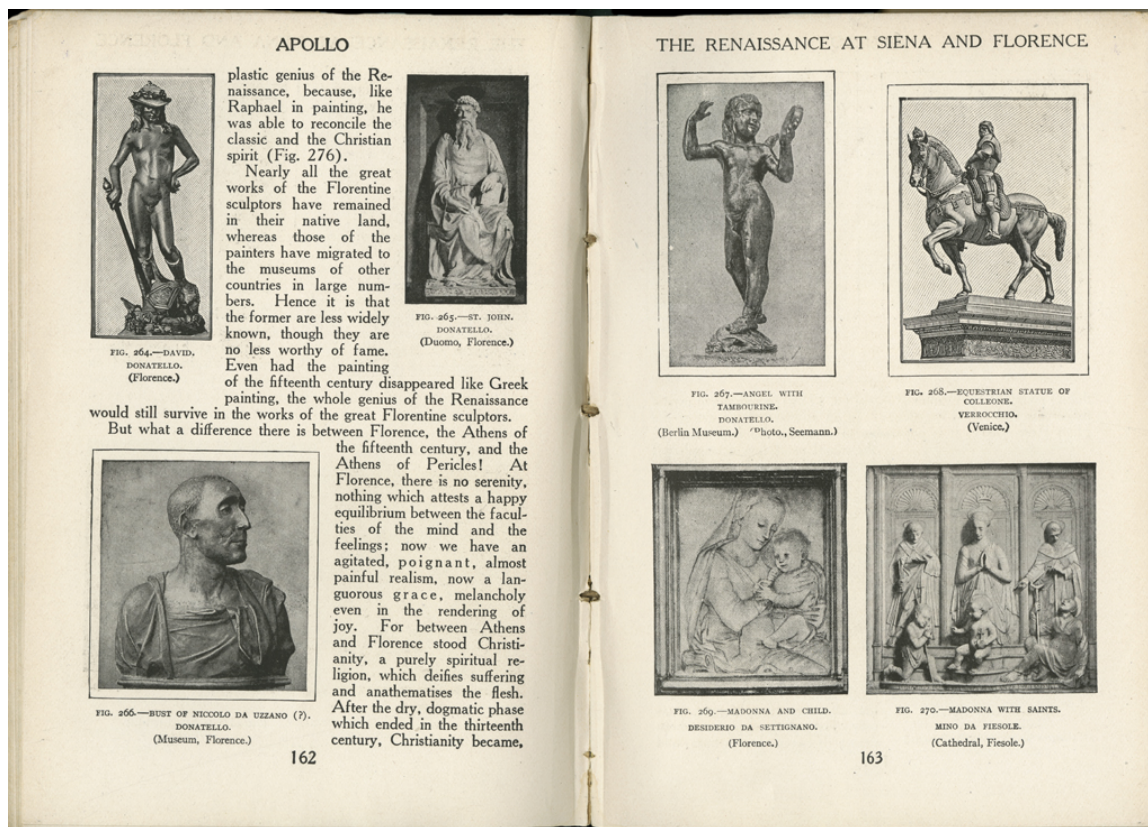

Detail of engraved illustration of the Hall of the Abencerages, the Alhambra; from Architecture, Sculpture, and the Industrial Arts Among the Nations of Antiquity (Boston: Prang and Company, 1879

By the turn of the century, photo-engraving began to allow for the reproduction of tonal nuances and subtle details. In this spread from a general survey by Salomon Reinach in 1914, seven tiny photo-engravings – each approximately 1 ½ to 2 inches high – provide for only a "thumbnail"-type recognition of the works described in the accompanying text. 11

Spread with inset photo-engraved illustrations; from Salomon Reinach, <u>Apollo / an illustrated manual of the history of art throughout the ages</u> (New York: Charles Scribner's Sons, 1914)

Things were not much improved by 1926, when the 1st edition of Helen Gardner's *Art Through the Ages* was illustrated with some 200 separately bound plates, each containing 3 or 4 small black and white photographs. Gardner's illustration of the Sistine Chapel, shown here, measures 2 ½ by 1 ½ inches, and again is suitable for little beyond flash-card type recognition. By comparison, the full-page illustration in a modern survey textbook – benefitting from both larger page size and computer-controlled color separations – is nearly 20 times larger than its predecessor of 75 years, allowing a student to actually see the interrelationships of the various portions of Michelangelo's composition.12

Michelangelo's Sistine Chapel fresco cycle as illustrated in [L] Helen Gardner, <u>Art Through the Ages</u>, 1st ed., 1926; [R] Laurie Schneider Adams, <u>Art Across Time</u>, 2nd ed., 2002.

Color was a particularly elusive and controversial aspect of photographic reproduction. Because early color processes were notoriously inaccurate, some instructors resorted to using hand-coloring black and white lantern slides in the early 20th century. This slide of Gros's *Napoleon Visiting the Plague Hospital at Jaffa*, in addition to cropping the painting to a square format, displays only a distant relation to the original colors of the painting.

Early twentieth-century hand-colored lantern slide of Antoine-Jean Gros, <u>Napoleon Visiting the Plague Hospital at Jaffa</u>.

All this would begin to change in 1935, when the Eastman Kodak Company developed Kodachrome for use by the motion picture industry. Kodachrome, with three separate color-sensitive emulsion layers on a thinner celluloid acetate base than had hitherto been available, was widely hailed as being the first "true" color film for general use. The following year, in 1936, Kodak began to distribute Kodachrome for use in 35mm. still cameras, capitalizing on the growing popularity of the small format camera first introduced by Leica in 1925. When in 1939 Kodak began to offer Kodachrome processing with the finished slides "ready to project" in cardboard mounts, more art historians began using lightweight, easily portable small format 35mm. cameras to photograph on location during their research, travels, and field work.13

Every technological innovation comes at a cost, and prompts resistance from those with vested interests in older, familiar technologies. In 1943, dueling articles in the *College Art Journal* argued both for and against the use of color photographs in art history scholarship and instruction. James Carpenter of Harvard warned: "a color slide can never be regarded as a true substitute for an original work of art. The danger becomes greater, as the photograph comes closer to the original."14 In other words, at least his beloved black and white lantern slides were not misleadingly "wrong."

But by the post-World War II years, the tide had clearly turned in favor of 35mm. slides. One of the first directories of slide sources ("Where to Find Lantern Slides"), published in *College Art Journal* in 1946, listed a mere 19 sources, most of which offered for sale both black and white lantern slides and 35mm color slides.15 Many professors lamented the fact that commercial sources tended to concentrate on popular periods such as Ancient Egypt, Classical Greece, and the Renaissance, to the relative neglect of less popular eras, non-Western cultures, and the so-called "minor arts." Especially problematic was the lack of coverage of modern and contemporary art, a deficiency that tended to skew curricular focus towards historic art, and away from current developments.

Through the 1950s, the 35mm. slide steadily supplanted the older lantern slide format. In 1962, Kodak introduced the first Carousel slide projector, which made it possible for professors to pre-load their own lectures. The addition of remote control and auto-focus features to Carousel projectors in the late 1960s encouraged more instructors to adopt the dual-projection approach pioneered by Wolfflin more than half a century earlier.

And by the early 1970s, these instructors had a lot more choices of works to show their classes. The development of single-lens reflex cameras in 1952, and the introduction by Nikon in 1959 of the first "system" cameras, with interchangeable lenses and viewfinders, added to the versatility of the small format. By the late 1960s, the availability of macro lenses for use on system cameras meant that copy stand slides could now be easily produced in house, on demand, from illustrations in publications. The result was a "Golden Age" of academic slide collections, and departmental holdings in large research universities grew to include hundreds of thousands of slides by the end of the century.

But by then the seeds of change had already been planted. In 1989, the TIFF (Tagged Image File Format) was introduced as the baseline standard for digital imaging. 1992 saw the public release of the JPEG (Joint Photographic Experts Group) file format. Both TIFFs and JPGs would prove essential building blocks in the transition to digital images, which gained momentum with the development of the World Wide Web and the first browser software applications. Today, after two decades, digital imaging has largely replaced analog photography for most of the art historian's principal tasks. In 1997, PowerPoint97 incorporated VBA language, allowing for the insertion of image files, and accelerating the transition from 35mm. slides towards the use of digital images for instruction.

Today a typical scholarly article devotes around 30% of its column space to photographic illustrations and their captions. The first decade of the 21st century has seen a shift away from paper publishing towards e-journals; for those publications dealing with the visual arts, inclusion of images remains a major area of concern, pitting the desires of authors and readers for large, high-resolution images against the fears of publishers and image providers that these images might be too readily extracted from their authorized contexts and re-used without payment, proper attribution, or acknowledgement of intellectual property rights.

Whither the future of our discipline and its oft-contentious relationship with imaging technology? I actually considered three alternate endings for this presentation. One option was to talk about advances in investigative photography. For over half a century, infrared and ultraviolet photography have been used to study sub-surface layers of paintings to reveal preliminary underdrawings and compositional changes, and to assess earlier alterations and repairs. Now, scholars are using advanced photographic technologies developed by the military and medical imaging fields to conduct deep research, as evidenced by diagnostician Maurizio Seracini's controversial attempts to locate the remains of Leonardo da Vinci's long-lost *Battle of Anghiari* beneath the later Vasari frescoes in Florence's Palazzo Vecchio.16, 17 Or, I thought of revisiting Christopher Witcombe's imaginative vision of the art history classroom of the future as something akin to a black box theatre, in which 360-degree interactive projections would allow instructors and their students to move flexibly about the space – which could

transform itself into a Gothic cathedral, or the Sistine Chapel, or the gallery of a major museum.18

In the end, I found myself most intrigued with the idea that future art historians will use images themselves as points of entry into text-based information, rather than the other way around. Perhaps refinements in recognition software will allow us, using selected image details, to search by an artist's signature style, or by targeted iconographic features. I look at steps in this direction such as Google's Inside Search (simply plug in a small image file and it will search for better examples and associated text). Or the San Francisco Museum of Modern Art's "Explore Modern Art" ArtScope feature, which permits collection searching that is entirely visual – think of the advantages for users who aren't already familiar with specialized terminology, or who don't speak the dominant language.19 I anticipate with optimism that the future will see the true complementary synergy of each aspect of information – idea, word, and image – as essential partners in the art historian's core tasks of study, research, writing, publishing, lecturing, and teaching.
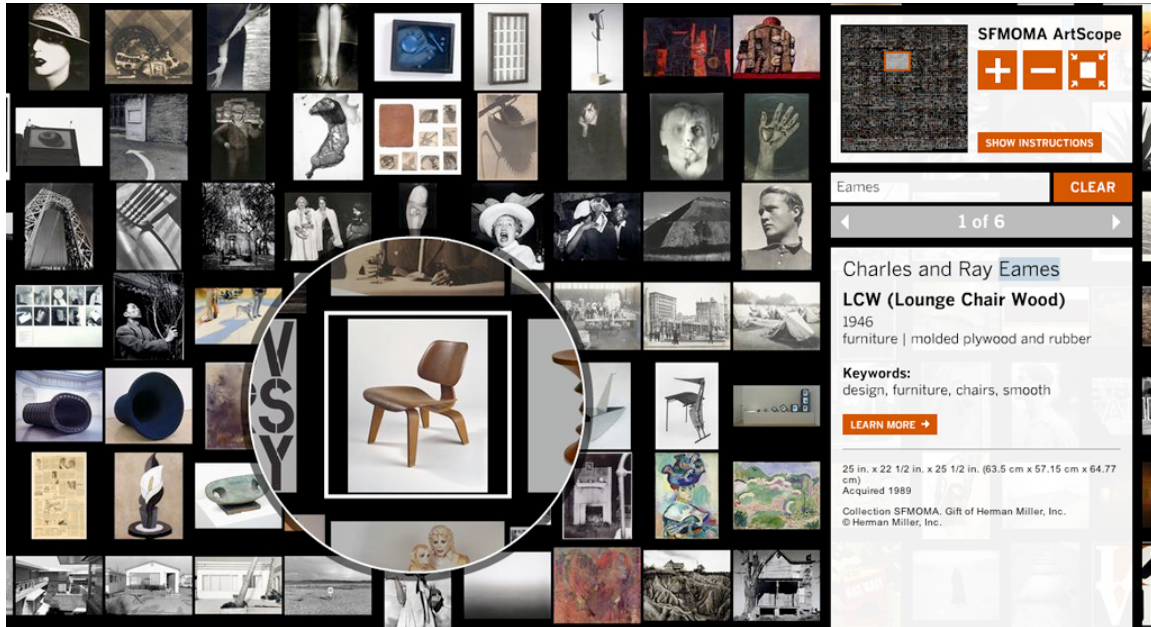
Search page from San Francisco Museum of Modern Art's interactive ArtScope web site.

This article is based on a paper of the same title presented by the author as part of the Visual Resources Association's affiliated society session "Paint, Prints, and Pixels: Learning from the History of Teaching with Images" at the annual conference of the College Art Association, Los Angeles, California, February 22–25, 2012.

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