Session 1

Viewing Our Past, Making It Present: Lantern Slides and Visual Resources Collections

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Introduction

Jenni Rodda, Institute of Fine Arts, New York University

Lantern slides provide a fascinating window into the history of our profession, even as they slowly disappear from many of our institutions. The papers that follow explore the history and status of several important lantern slide collections, describing current projects with lantern slides, addressing problems of preservation and access, pedagogical use, and database and imaging project management. These papers will be augmented in the near future with data gathered through the North American Lantern Slide Survey, a project supported by both VRA and ARLIS/NA, and currently available through the websites of both organizations.

Why, at the cusp of the digital age, should we concern ourselves with such seemingly outmoded technology as lantern slides? What lessons can they teach us about institutional history, records-keeping, planning for the long haul, transitioning from one media to another? What should institutions do with their lantern slide collections? How should they be housed, if kept at all? Answering these questions may help us address similar ones as we make the transition from analog to digital. We might also be able to preserve and better describe this important part of our professional heritage.
The Early History of Lantern Slide Projection

Joseph Romano, Oberlin College

The history of image projection is as old as humanity itself while the history of lantern slide projection goes back almost three and a half centuries. To introduce this topic it is best to start with the camera obscura. We usually think of the camera obscura as a device. However, long before it was ever used as a device it existed as a natural optical phenomenon and was known to the ancients in both the Western and Eastern worlds. Aristotle, among others, refers to it, and Mo-Ti, a fifth century BCE philosopher describes it as a “locked treasure room.”

The principle of the camera obscura, which literally means “dark room,” is very simple. If a small aperture or pinhole is pierced on the wall or window of a darkened room, the outside will be projected into the interior of the room opposite the aperture. This effect is explained by a simple law of the physical world. Light travels in straight lines and when light rays reflected from a bright subject pass through a small hole they do not scatter but cross and recombine as an upside-down image on a flat surface held parallel to the hole. The result is a double inversion of the image, both top to bottom and left to right.

As early as the thirteenth century, early astronomers such as the English friar, Roger Bacon, exploited the camera obscura to study eclipses of the sun. These medieval scientists, interested in the study of optics, also worked with mirrors and lenses. But surprisingly, they apparently never discovered the reflective and refractive properties of mirrors and lenses in relation to the camera obscura. It was not until the 1520s that a bi-convex lens was placed in the aperture of a camera obscura, thus creating an actual device. Giovanni della Porta is often given credit for this invention, because he mentions it in his book Natural Magic published in Naples in 1558. However, the device was likely invented during a previous generation. In any case, improvements in the camera obscura were now rapid. Another major improvement was to make the camera obscura portable. Having to be confined to a dark room can be very limiting, but a portable camera obscura opened up many possibilities for use.

Johannes Kepler, the famous German scientist, devised a portable camera obscura around 1611, which could also rotate (Figure 1). As previously mentioned, scientists were the earliest users of the camera obscura. Eventually, artists such as Vermeer discovered that such a device could be used for renderings. For the most part, however, the camera obscura’s earliest uses belonged to the realm of science. Even Leonardo da Vinci, who exploited the phenomenon of the camera obscura, was much more interested in using it to...
determine the distance of the earth from the sun than as an aid to painting. Its use as a drawing aid was certainly known to Leonardo, but again it was incidental compared to his scientific studies.

The earliest account we have referencing a lantern for projection is from Giovanni da Fontana's *Bellicorum Instrumentorum Liber cum Figuris Delineatis et Ficticus Literis Conscriptus* (Book of Instruments of Warfare with Drawings and Enciphered Descriptions), which was written around 1420 (Figure 2). Fontana, a Venetian academic working in Padua, illustrated a technique for terrifying visitors by which a man (or possibly a woman) holding a lantern projects a large image of a devil upon the wall. Inside the lantern there is a rod-shaped object, likely a candle, and a smaller image of the devil drawn on the cylindrical wall of the lantern. The image on the lantern is upright as is the enlarged projected image. This is optically correct since there is not a lens or any precise point where the light rays are converging to invert the image, as in a camera obscura.

This simple lantern actually derives from an earlier lantern used in the Middle Ages called the “lanterne vive,” which could only emit a colored glow and did not allow for true projection. A strip of translucent paper, on which were painted grotesque or devilish figures, was inserted into a cylinder of decoratively pierced sheet metal. A propeller made of tin spun around from the heat of a candle that rotated the painted strip. So in regard to the “lanterne vive,” Fontana's
lantern was quite significant. During the next two centuries, this type of lantern became more complex in its construction, yet it employed the same optics used in Fontana's lantern that projected an image right side up. Figure 3 is an example of a lantern by Athanasius Kirchner, a German Jesuit priest, who worked with optics, including the use the camera obscura, mirrors, and lenses.

It seems that it would be a small step to combine this device with a camera obscura to create a Magic Lantern, but Kirchner never realized this. A Dutchman, Constantin Huygens, a well-known scientist who discovered the wave theory of light, invented the Magic Lantern in the 1650s. He was also the first to project slide images. His original slides do not survive, but a series of drawings from his notebook document the images that were derived from Hans Holbien's *Dance of Death*. The slides were projected in tandem to create a rudimentary form of animation. By projecting two images simultaneously it would appear that the skeleton is removing his skull (see Figure 4).

The drawing in Figure 5 is by a Dane, Thomas Walgenstein, who was much more interested in the Magic Lantern than was Huygens, but it is based on Huygens' design. It was sent to Huygens along with a note requesting the actual length of the lens tube needed for projections of twenty feet. Walgenstein was interested in producing lanterns for sale and he is one of the first to see how it might be used for entertainment rather than for art or science. Huygens was a serious scientist who thought that the device, in spite of the fact that he had invented it, was much too frivolous an endeavor. However, even his colleagues, such as Robert Hooke, the inventor of the compound telescope, thought the lantern marvelous.
The Magic Lantern quickly spread throughout Europe and across the continent during the eighteenth century. As more lanterns were being built and sold, an entire class of itinerant lanternists developed. In France, they were called “Savoyards” because many of these itinerants came from the impoverished region of Savoy. They would move from town to town with their lanterns strapped to their backs performing in taverns and houses, while projecting images against white sheets (Figure 6).

There were also entrepreneurs who performed in less static venues such as old abandoned cathedrals. This was the trend in the latter part of the eighteenth century and the early nineteenth century, when Magic Lantern shows became known as Phantasmagorias. The Phantasmagoria show sought to frighten the audience by seeming to raise ghosts and by projecting diabolical images of devils and other grotesques (Figure 7). Often the projector was hidden behind a screen to further the illusion. One famous Phantasmagorist, Robert Robertson, referred to his magic lantern projectors as “fantascopes.” A fantascope projected images against a screen. The images were made larger or smaller by moving the projector back and forth, changing the distance between the projector and the screen.

Magic Lantern shows were a popular form of entertainment during the Victorian era, especially before the invention of the movies.

“Professors” put on elaborate shows with several large format cameras with spectacular dissolving views upon twenty-five-foot screens (see Figure 8). The projected images, painted or drawn, varied from Bible stories to fantastic
grotesques. Magic lantern shows were popular across the entire social spectrum. If there was anything that these various shows had in common, other than the optics, it was that they were meant purely as entertainment.

At the height of the popularity of lantern slide shows during the Victorian Age, there was a movement by educators to take advantage of the improved technologies for the benefit of educational institutions and organizations. Before this could happen, some form of standardization was needed, as lantern slides came in several physical formats (see Figures 9 and 10). Besides various proprietary sizes, the usual English format was 3-1/2 by 3-1/2 inches and the French format was 3-1/4 by 4 inches. The 3-1/4 by 4-inch format was eventually adopted by most American companies as well as by many independent scholars. Before the end of the nineteenth century, standardization of format aided the economics of production. Lantern slides were produced in abundance by commercial purveyors. Gelatin plate photography, suitable for transparency work, facilitated the spread of camera clubs such as the Boston Camera Club, which circulated illustrated slide lectures in the early 1890s. Within a decade lantern slides were being used regularly in support of college and university curricula.

Before the second half of the nineteenth century there is no evidence to suggest that lantern slides had any educational value at all. But there is one notable exception. Marie Antoinette, who originally had only disdain for the Magic Lantern, which she associated with the lowly itinerant Savoyards, had a dramatic change of heart. The Compte de Paroy, a courtier and educational advisor to the Court,
suggested that the Magic Lantern might be useful in the education of her son, the Dauphin, the young Louis XVII. Evidently the Dauphin had difficulty concentrating on his studies. Paroy convinced the Queen that a Magic Lantern would get the attention of the Dauphin. She arranged for a Magic Lantern projector to be built as well as a series of educational aids to be made into lantern slides for the instruction of the Dauphin. Unfortunately the Royal Family was imprisoned during the French Revolution before this educational experiment could unfold. As far as we know, such an experiment was not to be considered again until after the middle of the nineteenth century when photographic lantern slides became available for production.

Notes

Learning from Lantern Slides, 1979-2004: A Twenty-Five Year Reminiscence

Maryly Snow, University of California at Berkeley

In 1976 I accepted a one-year temporary position as the slide librarian in the Architecture Visual Resources Library at UC Berkeley. In the windowless room that housed the circulating slide collection were five wooden cabinets, spanning nearly ten linear feet of space, full of lantern slides. During that year, no one ever borrowed a lantern slide, or even opened a lantern slide drawer.

From 1977 to 1978 I worked part-time, evenings and weekends, in the Visual Resources Library. No one ever borrowed a lantern slide then, either.

In 1979 I accepted the position of full-time permanent slide librarian. Now that the collection was “mine,” I began to address several issues, one of which was the need for more 35mm slide cabinets. If I could get rid of the lantern slides, I would have room for seven banks of Neumade cabinets. In 1981 I invited the department’s three architectural historians to meet with me to discuss the lantern slides. I proposed that we get rid of the lantern slides. The faculty were aghast and insisted that the lantern slides be kept. Did I really intend to dispose of them, or just to move them out of the library to make room? I suppose, in my youthful exuberance, I really did mean to throw them out. But the faculty insisted, so the lantern slides remained where they were.

Five years later in 1986, I again gathered the architectural historians together to discuss the lantern slides. I had come to believe that someday someone would want to study the history of architectural pedagogy and would use the lantern slide collection as a primary resource. I now proposed we store the lantern slides in the college archives. The faculty were, once again, aghast, and said in unison, “Throw them out!” They had adopted my position, and I had adopted theirs.

In 1989, still badly in need of space, I asked the dean where to store the department’s lantern slides. He gave me permission to store them elsewhere if I would bring together in one place all the lantern slides from the departments of Decorative Arts, Landscape Architecture, and City Planning. That summer my students and I gathered all the lantern slides we could find in the building, including, unexpectedly, lantern slides from the Department of History and the Library School. We crammed six wooden cabinets with 37,400 lantern slides. The cabinets were moved; out of sight, out of mind.

All that involvement with the lantern slides brought my attention to glass lantern slide negatives, many of which, if not all, were probably copy stand negatives, as revealed by a visible dot screen pattern. Each of the eight drawers of
negatives had areas where the photographic emulsion was oozing and bubbling, making the negatives stick to each other and to the wood. Were these the dangerous silver nitrate emulsions I had been hearing about, the ones that could explode or catch on fire? I had no idea, and did not know how to find out.

Around 1987 I was approached by two young architects who had heard, via the architecture student grapevine, that I had been worrying about the glass negatives. I do not remember exactly how the two young architects approached me, but I remember liking their idea for use of the negatives. I gave half the negatives without asking anyone’s permission, a secret carefully guarded until now.

In 1989 John Randolf and Bruce Tomb, calling their firm the Interim Office of Architecture, or IOOA, created an installation entitled Panopticon of Utility and Obsolescence. They installed 2,200 glass negatives at S.F. Camerawork in a gigantic, room-sized welded carousel, a panopticon. They coated the gallery walls with cyanotype chemistry. Using a 4,000-watt light source at the center of the carousel, they projected and developed photographic images on the photosensitive walls from the lantern slide negatives. In 1991 the panopticon was installed for a second time at the California Museum of Photography in Riverside, California, where it was renamed Subjective Archives: Panopticon of Utility and Obsolescence. One reviewer wrote:

As images of architectural history coalesce and their negatives crack under the lamp’s intense heat, Subjective Archives registers the elusiveness of historical artifacts. In the end, nothing remains: even the cyanotypes, which take days to print, begin to fade immediately until they vanish. Moreover, the obsolescence of the glass slides and the outmoded cyanotype technique emphasize the historicity of forms of historical representation.1

In 1991 the storage room housing the lantern slides was needed as a computing lab. With little time to find proper storage, the dean suggested moving them to a little used but wide hallway elsewhere in the building; out of sight, out of mind, again.

This was until 1992 when the fire marshal came upon them and insisted, of course, that they be moved. I requested and was surprised to receive space in the University-wide, offsite cold-storage library facility, Northern Regional Library Facility (NRLF). A cataloger from the University Library created one collection-level MARC record for the lantern slides, which were trucked out to NRLF in 1993, a place some half hour away, by the University Library movers; out of sight, out of mind, once again.

In 1993 President Bill Clinton and Vice-President Al Gore announced the National Information Infrastructure (NII). One question not answered by the NII hearings was how to manage “fair use” of intellectual property in the digital age.
Congress convened a series of meetings in Washington between 1994-1996 called the Conference on Fair Use, or CONFU. The goal of CONFU was for "stakeholders," both content creators and content providers such as educators and librarians, to hammer out agreement on fair use in the digital age. During the always contentious and fretful two years of digital archive meetings, attorneys from Disney, Paramount, and Microsoft, among others, who apparently had never taken any art history classes or ever understood standard American visual resources practices, were shocked to learn that slides are routinely made from copyrighted sources without the expressed permission of the copyright holder. These “content” attorneys were outraged over unlicensed uses of intellectual property by institutions of higher education and threatened to end the process of copystand photography. Many visual resources professionals consulted with their institution’s legal counsel, in many cases developing long-term supportive and informative relationships. I, too, sought the advice of my University legal counsel. She told me that copystand photography was just fine; it was the saving or archiving the images for future use that was clearly illegal!

I was angered, and frightened, that this was happening in spite of, well, I did not know how many years of precedent. I knew that universities and colleges had been acquiring lantern slides at least since the 1880s. Is that when the practice of copystand photography actually began? And for how many years have lantern slides been collected and archived for future use?

In 1996 I applied for and received a research grant to find the answers to questions such as these, proposing to explore The History of the Visual Copy: Implications for Intellectual Property. In 1997 I began scouring periodical indexes and bibliographies, reading more than forty books and 125 papers on the visual copy. What I found was information on counterfeits, reproductions, derivative works, prints after original paintings, visual copyright infringement cases, and snippets of information about lantern slides. I did not learn how William Ware, founder of the Massachusetts Institute of Technology and the MIT Architecture Department, acquired 660 stereoscopic views and 250 glass slides in 1865. Nor did I learn how MIT managed to acquire 26,000 more lantern slides during the next twenty years. I did not discover how Charles Eliot Norton of Harvard acquired the lantern slides used in his lectures, nor any mention of the early days of his teaching with visual images.

For several years I puzzled over my failure. Was I a poor researcher? Did I lack the systematic, rigorous sleuthing skills of a true academic? Was I a sloppy bibliographic hound? Was I essentially lazy, maybe not very smart? I continued to brood over my failure.

Eventually I came to understand that the history of visual instructional materials, which is, after all, what visual copies are, had not been published. The history of visual
that the time had finally come to scour my University Archives to cobble together the history of the visual copy in at least one instructional collection (mine).

Because so few records existed from my department, I searched for any and all references to lantern slides, photography, photographers, projectors, anything visual, departmental budget requests, even information about the earliest teachers in the department.

John Galen Howard is known as UC Berkeley’s supervising architect from 1903-1927, where he implemented the campus plan and designed and built twenty-three neoclassical buildings, including the Greek Theatre (1903), California Hall (1905), Hearst Mining (1907), Sather Gate (1908-1910), Doe Library (1911, 1917), Hilgard Hall (1918), UC Berkeley’s most notable landmark, Sather Tower, known to all as the Campanile (1914), and the football stadium (1923). John Galen Howard is less well known as the founder of UC Berkeley’s Department of Architecture in 1903, the first architecture program west of the Mississippi, and one of the early schools of architecture in the United States. He is even less well known as the first professor to teach architectural history in the West. I felt like I finally was getting somewhere when I read that “Howard began immediately to build up a collection of lantern slides. These series of illustrations became the backbones of the architectural history lectures.”

The footnote did not state when he began building the collection, but it did reference two boxes of John Galen Howard’s papers in the Bancroft Library manuscript collection. When I had the boxes paged, I found neatly typed, double-spaced verbatim typescripts, on onion skin paper, for his three-year-long, six-semester architectural history course. At the end of each typescript, usually running about fifteen pages, was a sheet or two labeled “Plates.” The next day, with a photocopy of one list of plates, I drove to NRLF. That fine summer day, bundled up to enter the 60-degree storage facility, I found the lantern slides that matched his plate numbers and his captions!

John Galen Howard’s first lecture of August 1905 was illustrated with fourteen lantern slides, thirteen of which were still in “my collection!” Not only had I found a very early date for my collection, I had also found an important historical resource. Of course, the lantern slides had been there all along, but the fact that these were made and/or bought for John Galen Howard had been forgotten over time.

Finding the Howard lecture slides performed an important service for me. It changed my perception of the value of the lantern slide collection. It was now truly an important historical resource. Believing in its importance, I began taking it more seriously, and I could convey that to other people, people who had resources.

I told Scott Miller, the manager of NRLF, about my finding. He then became concerned that the cabinets housing the lantern slides were not seismically secure. We
discussed many options for bolting the cabinets, but because NRLF is an archival facility for library materials, its walls are fire- and vapor-barrier walls and cannot be punctured. After much deliberation, he suggested that we completely rehouse the lantern slides in Russ Bassett twelve-drawer microfilm cabinets, which are metal, archival, bolt to the floor, and to each other. But lantern slides weigh considerably more than microfilm. Scott weighed a foot of lantern slides, calculated the collection’s total weight, learned the weight-bearing load of the drawers from the manufacturer, and determined that we could not use the last eight inches of each of the five rows per drawer. NRLF agreed to purchase and install four microfilm cabinets on the condition that my library would assume responsibility for transferring the 37,400 lantern slides from wood to metal cabinets. Of course I agreed.

While the cabinets were on order, I called Kathleen Hardin, visual resources curator at the University of California at Santa Cruz, because they have been actively working with their Branson DeCou lantern slide collection. How did they store their lantern slides, I asked. Kathleen said that after each lantern slide was cleaned and rebound, it was slipped into an archival polyethylene sleeve called a Plastine, available from Gaylord. To reduce the weight of the heavy glass slides leaning against each other, archival foam core is used between every twenty or so slides. She could not remember how they made the foam core blanks, and sadly, I forgot about the fantastic cutting machines at our University Library bindery. So I contracted with the campus Carpentry Department to cut the foam spacers. Do not repeat my mistake. Where I should have nice clean edges, I have ragged ones that shed.

The next question was how to stop, or fill, the last eight inches of the rows in the drawers? Simply fold an 8 x 8" piece of archival corrugated cardboard in half until it forms a triangular stop. Ask your Library bindery to cut and score the cardboard, and cut off one inch on one end of the stops so the lantern slides can lean slightly backwards in the drawers.

After the cabinets arrived and were bolted in place, it was time to transfer the slides, a handful at a time, from their old housing to the new. The task was dusty and dirty, tiring and slow-going. We decided this was a two-person job: one to remove a handful from the old drawers and one to receive the handful and place it in the new drawers. We inserted foam core blanks, turned vertically-stored slides to horizontal, cutting down guide cards as we went along. We refilled slides found in wrong place, tossed out badly damaged slides, and did not remount slides with bad bindings as there are simply too many.

In the process of handling so many lantern slides, my old curiosity about them was rekindled. Where did they come from? How can you tell, definitively, an original from a copy slide, since both are made from a contact printing process? Who were the primary vendors who sold ready-made slides, and who were the photo-processors who made lantern slides to order? How much of our collections overlap with each other? How do we learn what is unique in each collection?

Questions like these led me to propose a survey of institutional lantern slide collections at the 2002 ARLIS/NA Visual Resources Division meeting in St. Louis. There, Jenni Rodda readily agreed to partner with me to devise the survey. After review and approval by both ARLIS/NA and VRA Executive Boards, the jointly sponsored survey was posted online as the North American Lantern Slide Survey (NALSS) at <http://www.arlisna.org/nalss/index.htm>.

NALSS is in its first phase of data collection. For six months, from March 1 to September 1, 2004 you are invited to complete the survey. The questions are often difficult and you will not know the answers. Therefore, we propose that you print out the survey, formatted specifically for this purpose, and take it to your lantern slide collection to do some sleuthing around. Give yourself ample time to sleuth. Two days might not be enough. For example, in my collection we are slewing all our vendor slides, marking them with orange dots with the first one or two letters of the vendors’ and producers’ names so that we can determine who they were and what percentage of the collection is derived from them.

After September 1, Phase 2 begins, lasting four months. Because the survey has been mounted on the Web, everyone will be able to view the results of all the respondents. We can compare our answers with our colleagues. In this way, we might be able to learn which name belongs to a vendor and which to a photo-processor producer. We can then update or revise our responses based on what we learn from one another.

And what will we learn? We will have a pretty comprehensive picture, for the first time ever, of the timespan of lantern slides in North American academic institutions. We will learn who the vendors were. Maybe we will learn to tell the difference between a vendor-produced and an original slide. We will learn how many lantern slide collections are still intact. We will be able to tell ARListor or granting agencies and foundations about what we have that is valuable, unusual, and unique. We will learn something about the visual media that preceded 35mm slides, and maybe, in the process, we will discover something stimulating, or unpredictable, from that look into the past.

The one lesson I have already learned from lantern slides is their remarkable persistence. Even in the twenty-first century as we transition to our fourth two-dimensional visual resources format—from photoprints to lantern slides to 35mm slides to digital images—most of us are still managing lantern slide collections. These collections still need preservation. They still warrant special project attention. They still tell us about institutional and pedagogical history. Because lantern slide made before 1923 are now in the public domain, they have new-found value as sources for
digital images. What this persistence tells me is that analog collections will not disappear soon, even as they become replaced in the classroom. Their shelving will undoubtedly get more compacted. They might go into storage, but they will still be managed by visual resources curators for years to come.

Notes
1 Henry Urbach, “Dancing on Ruins: the allegorical architecture of IOOA,” *Oz (Kansas State University)*, 16 (1994):26-31. In 2004, Bruce Tomb reported that *Subject Archives: Panopticon of Utility and Obsolescence* is in storage.
2 More information on visual resources and CONFU can be found in a series of papers and reports, many authored by Virginia “Macie” Hall, posted on the Visual Resources Association’s Intellectual Property Rights Committee webpage at <http://www.arthist.umn.edu/slides/IPR/papers.html>.
4 Names and dates of selected John Galen Howard buildings come from the *Campus Historic Resources Survey*, prepared by the Campus Planning Study Group under the direction of Richard Bender, 1978, and are consistent with Sally Woodbridge’s monograph, *John Galen Howard and the University of California: the design of a great public university campus*. (Berkeley: University of California Press, 2002).

Figures
1. New, seismic microfilm cabinets housing old lantern slides. Note the archival stops, or fillers, in the back of each row, which prevent over-weighting the drawers; white archival foam core blanks as additional spacers; polyethylene sleeves denoting selected slides; yellow guide cards in the classified section of the collection on the left, black taped lantern slides to the right without guide cards.

2. Three lantern slides, each in a protective polyethylene sleeve. The left lantern slide is "from" the M.S. Stewart Lantern Slide Company, Oakland, California, produced ca. 1905. Did Stewart Co. make the slide at our request, or did we buy it ready-made from them? The center slide is from McIntosh Company of Chicago, a company known as both a vendor of original lantern slides and a photo processor who produced lantern slides on demand. Both slides went through “recon,” or retrospective conversion, in the mid-1950s when they were assigned classification numbers. On the right is an original color lantern slide from the 1950s, its film stock faded to magenta.

3. The front and back of a hand-colored lantern slide showing East Hall of the St. Louis 1904 Exposition. Just as interesting as the architecture are the variety of marks on the slide. The mask shows that it was produced by ____ of New York. The red star probably denotes the lower left corner of the slide, and also serves to cover up some unknown numbering scheme. The classification number, both typed and hand-written in orange grease pencil, was added in the 1950s. We are able to date the classification number by recognizing the hand of the orange grease pencil. The verso shows a lovely hand from the turn of the century. Whose was it?
Architectural Views of the World, 1870-1920: Digitization of Lantern Slides from the Harvard Fine Arts Library

Amy Lucker, Harvard University.

In May 2003, the Fine Arts Library of Harvard College Library was awarded a grant to digitize a significant number of lantern slides representing largely original images of architecture and monuments.

Congratulations! The LDI Grant Review Committee is pleased to inform you that your project, Architectural Views of the World, 1870-1920: Digitization of Lantern Slides from the Fine Arts Library Collection, has been funded. It was selected as part of the Library Digital Initiative Internal Challenge Grant Program to assist in the creation of infrastructure for a digital library at Harvard and to contribute to the University Library collections.

Like many of its peers, the Fine Arts Library at Harvard has a huge collection of lantern slides. A lantern slide is a positive photographic image on a glass plate, protected by another piece of glass, both 3 x 4 inches. The slides are projected onto a screen by means of a “Magic Lantern” (also sometimes called an electrical stereopticon) projector. Lantern slides came into wide popular use for instruction and public lectures at the end of the nineteenth century. Their introduction coincided with the development of art history as a discipline. Lantern slides were enthusiastically embraced by influential German scholars Bruno Meyer, Hermann Grimm, and Heinrich Wolfflin, as well as by others in the field.

By the year 1894, when the Fogg Museum opened its doors, projected lantern slides had become the favored technology for art historians. The 1894 annual report to the President of Harvard University, submitted by curator Charles H. Moore, reported that, in addition to an excellent collection of study photographs, “the lecture hall is provided with an electrical stereopticon of the most improved type, and the formation of a large collection of slides is begun. These afford the most ample means of illustration for large classes.” In his next report, in 1895, Moore reported that the collection of slides had grown to number 948 with further growth anticipated.

The collection continued to grow and was used extensively over the next sixty to seventy years until supplanted by the 35mm color slide in the 1970s. Indeed, even today, some faculty members continue occasional use of lantern slides, preferring the detail and clarity for which they are rightly prized. The Fine Arts Library collection numbers approximately 95,000 slides covering painting, sculpture, architecture, decorative arts, prints and drawings, and illuminated manuscripts from Europe, America and Asia. Among the special collections is a series documenting the building of the “new” (i.e. current) Fogg Museum in 1925-26 that will be featured in an upcoming Harvard University Art Museum commemorative exhibition. Another noteworthy group is the collection of teaching slides of Byzantine architecture assembled by Prof. Ernst Kitzinger.

Our project proposed to convert the cataloging data and digitize the images for fifteen thousand of these lantern slides, documenting architectural views of North America (including all material pertaining to Harvard University architecture), Europe, and Northern Africa. This comprises about two-thirds of the architecture collection represented by lantern slides. About half of these images are unique to this collection. They include some of the special collections such as those documenting buildings at Harvard (including the Fogg Art Museum), as well as Byzantine architecture.

The architectural views are of continuing interest, documenting as they do many cities and buildings that have been demolished or were reshaped in the second half of the twentieth century. Numerous views bear witness to wartime destruction (for example, the Patriarchal Museum, Kremlin, Moscow after bombardment, 1918, and Mostar Bridge), others document interiors renovated beyond recognition (Berlin, Schauspielhaus, 1919, Strawberry Hill, and Holbein chamber). The photography is in general of exceptional clarity and the images retain detailed information that has proved to be well served by digitization.

Because of the fragility of the materials, we determined that it would be both safer and more efficient to do both the data conversion and scanning in-house. The slides are being scanned, and cataloging data is being converted from analog to digital form. The data is based on that which is evident from the shelf list card, which is the most comprehensive single source available from the card catalog. Cataloging is done in Harvard’s image cataloging system, OLIVIA. The scans are deposited into the Harvard Digital Repository Service. All resulting data will be available in VIA, our union catalog of visual information.

Retrospective conversion projects present specific challenges to maintaining control over the data. On the one hand, the desire is to put in data that is as clean as possible; on the other hand, the project requires large amounts of data to be input and checked within a relatively short period of time. Given the magnitude of the project, we clearly needed to balance concerns of production with those of quality. We are addressing quality control for this project with a view towards achieving a healthy balance between speed and quality.

The project workflows also incorporate quality control checks: OLIVIA is a robust and well-supported system, and best practices are currently being documented. OLIVIA depends on controlled vocabulary as well, which aids with the consistency of the data. We are also using an in-house developed job-tracking tool (Job Track), which includes two validation steps, to ensure that the scanned images match the slides sent for scanning, and later to validate that the scans sent to the DRS were, in fact, the ones loaded. Finally, after
linking the image to the OLMVA cataloging record, the records will be viewed prior to exporting the data to VIA. This will allow for a final look at the data and the image and to check that the image and the orientation are correct and that the correct image is linked to the data record.

Another concern that we had to address was that of intellectual property rights. The cataloging data being converted belongs to the University. In addition, because of the age of the materials we were not overly concerned with copyright issues surrounding the images. We plan to make all digitized images available online to the Harvard University community and other qualified users who access the VIA database within Harvard.

Clearly a project such as this one comes with a big price tag. While the Fine Arts Library has a Digital Imaging Lab (FAL DIL) already set up, this facility is used to produce the approximately five hundred slide scans produced per week to support the teaching and research needs of our faculty and students. We discussed options for trying to do double duty with the one scanner set up, but ultimately determined that, in fact, we would need another scanner in order to accomplish this project on schedule.

The FAL DIL was already equipped with a high-end Heidelberg Topaz IX scanner, a Barco color-calibrating monitor, and a Mac G4. Because this equipment is high quality and sophisticated, it is ideal for scanning the lantern slides. It is also a production-quality scanner, able to withstand heavy use. It is, however about four years old, thus perhaps halfway through its expected life span. We are using this equipment for the project, and have acquired in addition another production-quality scanner, Mac CPU, and monitor for our ongoing slide digitization program.

Other costs covered by the grant include the project staff. We have one full-time image cataloger and one full-time scanning operator working on this project, both for three years. The total amount requested for this project was $251,633 (half grant money from the Library Digital Initiative program, and the other half matched funding from Harvard College Library), plus another $40,000 to cover the additional equipment, along with a maintenance contract on the new scanner for three years.

Finally, we needed to determine specifications for the digital images being produced during this project. The image specifications and workflows used in this project adhere to the standards that were established when the FAL DIL was created. They are the same standards as those upon which current slide scanning in the FAL DIL is based.

We are producing four files for each slide: an archival, raw image; a projection quality image; a screen deliverable for use in VIA; and, a thumbnail image. The archival image is in TIFF format, scanned at 1200 dpi at the original dimensions, resulting in an average size of 3631 pixels along the long side. This image is left "raw," whereas the derived JPEGs are sharpened and color corrected. The projection image is a JPEG file averaging 1024 pixels along the longest dimension. The screen image, which is the large image available in the union catalog (VIA), averages 800 pixels, while the thumbnail is generally 200 x 200 pixels. All of these files are deposited into the Digital Repository at Harvard. Currently Harvard is investigating a Large Image Delivery system that will take advantage of JPEG2000 formatted images. At such time that this is a viable option, we plan to convert the archival images into JPEG2000 and will probably not save the other JPEG files.

Ultimately this project will significantly enhance a currently under-populated area of VIA. The slides included in the project were originally used in teaching architectural history and the major buildings and cities of the western world are thoroughly represented. Previous projects undertaken by the Fine Arts Library did not include architectural views, so this project serves as an important and natural continuation of these earlier projects.

By making these images available on the Web we will take a remarkable resource that has been underused for over forty years and bring it to the attention of a new audience. Many of our current art history faculty members are aware of the superior quality of the images that were produced in this format and have found that transferring them to 35mm does not capture the image adequately. The digital image will provide the clarity and detail of the original, previously unavailable in copy slides. The slides themselves are fragile and currently can only be used with greatest of care and under special circumstances. As well, the equipment to project these slides is now obsolete.

As we have seen, faculty and students in a variety of academic departments are now avidly seeking images to support their research. This collection documents a period from 1870-1920, a period during which many changes to the cities of Europe and America took place. Of considerable interest to faculty and students of architectural history, these images and their documentation will also be of interest to historians, urban planners, and others.

One final product of this project will be a generalized report outlining the basic procedures and methodology used to handle and digitize the lantern slides. We anticipate that this will be of great benefit to others in the library community who wish to embark upon this type of digitization project.

Notes

1 The author wishes to acknowledge the input and text contributed by Martha Mahard, Curator of Historic Photographs and Special Visual Collections at the Fine Arts Library, who is co-manager of this project.

2 FAL Round Six Award Letter, 6 May 2003, from the Harvard LDI Grant Review Committee.

3 For information on Harvard’s systems, please visit <http://hul.harvard.edu/ldi/index.html>.