

# On-Site Photography

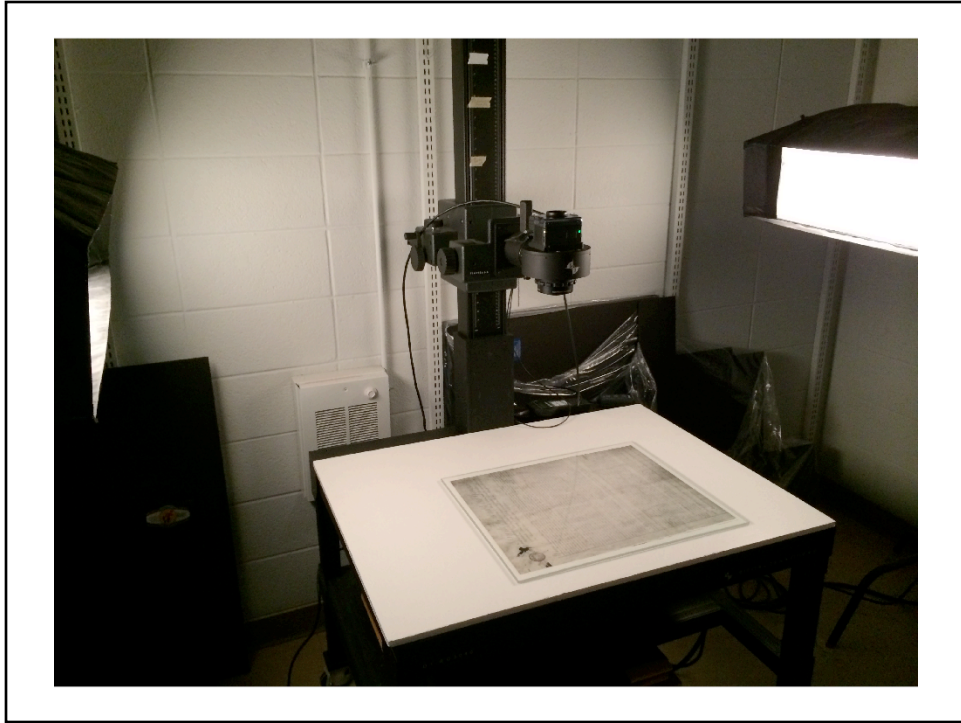
## Digital Production Services

Lindsay Elgin  
Technical Services Meeting  
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## The Basics



Before moving into the details of digitizing more unusual materials, I thought it would be useful to take a quick look at our standard digitization setup. This shows our camera room with the reprographic setup we use for documents and books. We have a 30 x 40 inch platform, which is carefully measured and calibrated so that it is as level as possible. The camera itself is mounted on a rail, and we have hand controls that allow us to raise or lower the camera to suit the size of the object we are photographing. The camera is also carefully measured and calibrated to ensure that it is level with the platform, so that the field of focus remains constant across the image. For lighting, we have strip softboxes that are equidistant from the platform, illuminating the platform at the same 45 degree angle to ensure diffuse, even lighting.



This is a basic setup for digitizing a flat document. We have Optium Archival plexi above this object to keep it as flat as possible, since it had been stored folded for many years.



This is a basic setup for a book; sometimes we use foam wedges to support the materials, but we also have two different kinds of book cradles that we can use to keep the books open for digitizing without causing them harm or stress. Note that we have a target present here - we put these targets in every shot, and they provide us with references for the white and black points, the white balance, and multiple colors. The rulers also provide us with real-world size references



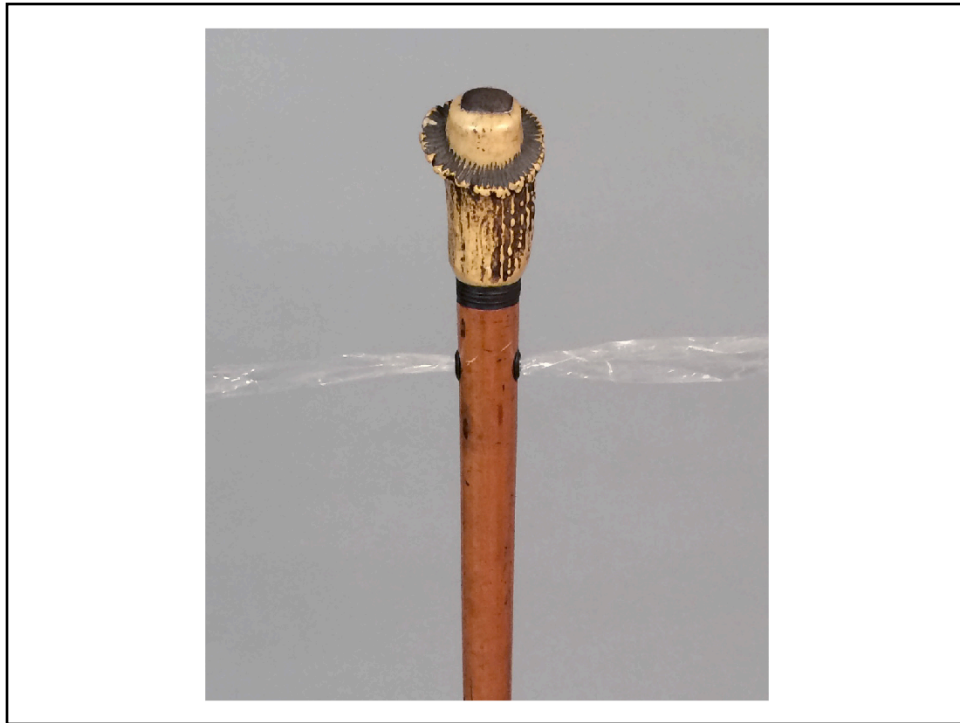
This book had a very large foldout that required special handling to capture the entire image (in multiple shots that were then stitched together).

## A Little Prestidigitation



DPS received a number of objects to photograph for the Brown's 250<sup>th</sup> celebrations – some for the exhibit, and some for the book Ted Widmer was writing. One of these objects was the Edwards Cane, which is small enough that I was able to bring it to the camera room for photography, and construct a decent enough setup to make an accurate reproduction. The bottom of the cane is rounded and does not stand on its own; it also has an ivory head with a small silver plate bearing an inscription. It was important to shoot both the cane overall as an object, but also focus in on the inscription. The main challenge here was determining how to adequately support the object while keeping the intrusion of the support elements into the image at a minimum. The best way to photograph it would be to build a support that gently but firmly clamps onto the cane and holds it at a precise position, so we could have the exact angle we wanted without damaging the cane. However, despite multiple attempts, I was unable to find any support mechanism that would support the cane well, not allow any movement, not cause any damage to the cane, and not be incredibly difficult to digitally remove from the final image. And then I found the trick. The cane actually has a hole running through it a few inches below the top, visible in the detail of the inscription. The hole runs through the width of the cane and is lined in metal; it's sturdy, and at just the right spot as a center of gravity of sorts. It was perfect – I just had to find the right material to run through this hole to keep the cane supported and at the correct angle. After trying multiple types of rope, twine – even extra strong fishing line – the material that worked best was regular clear packing tape.





When folded over itself, the packing tape leaves no residue behind on the object, and it's possible to fold it in odd shapes as you go. This was important, because I was able to create small bumps on either side of the cane, which did not cover any of the object when photographed but did keep the cane perfectly in place. The cane is very light, so this turned out to be the perfect option for keeping it in place.

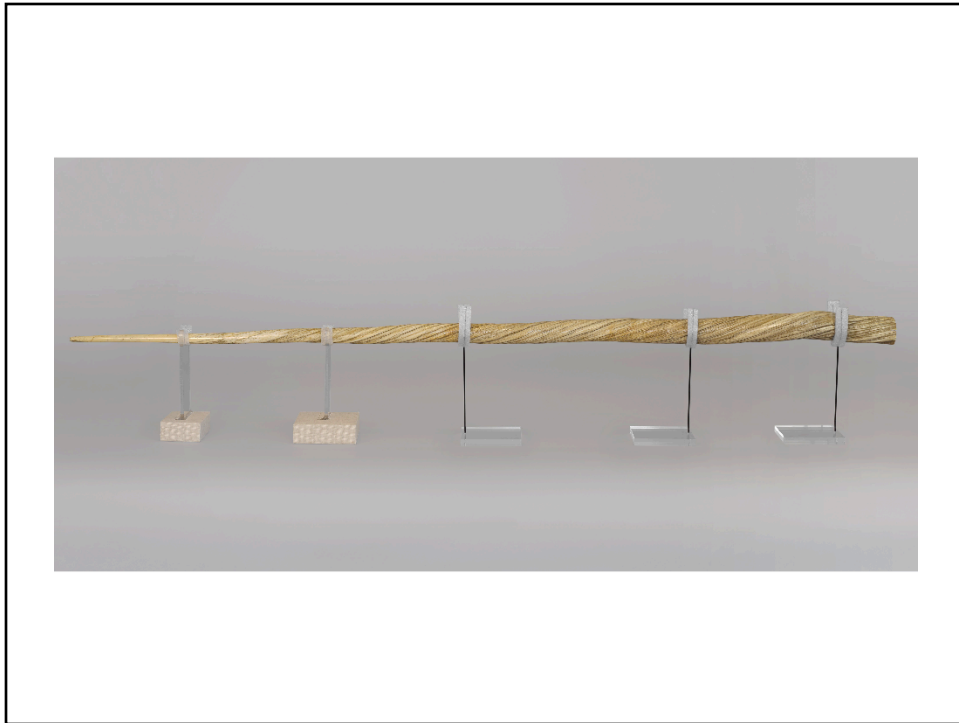


This overall view shows the setup with tape, the lighting and background, and that's our digital back mounted on a regular SLR-type camera instead of the reprographic one shown earlier. I was able to angle the cane forward to get the inscription as well. It was relatively simple to remove the tape in Photoshop.



Final, processed images. The inscription has been layered for focus and lighting.

Set It and Forget It



Sometimes, we photograph materials that belong to other institutions: a bible from Providence Public Library, prints from RISD, and the shackles currently on display that belong to the International Slavery Museum in Liverpool. This narwhal tusk is part of the Special Collections at PPL, and was on display at the Hay as part of the Unicorn Exhibit. It needed to be digitized for the exhibit materials, and we wanted high quality reproductions that both Brown and PPL could use in their image databases. It was a challenge, since it was necessary to minimize handling and moving the tusk, so it needed to be photographed in its display case in the Hay.



Jordan Goffin, the Special Collections Librarian at PPL, snapped this while Ben and I were digitizing the tusk. Here you can see our lighting and background setup, with the camera mounted on a tripod on a table (since the table is not mobile and we needed to be as straight-on as possible), and Ben manning his laptop so we can see the images as they're made.

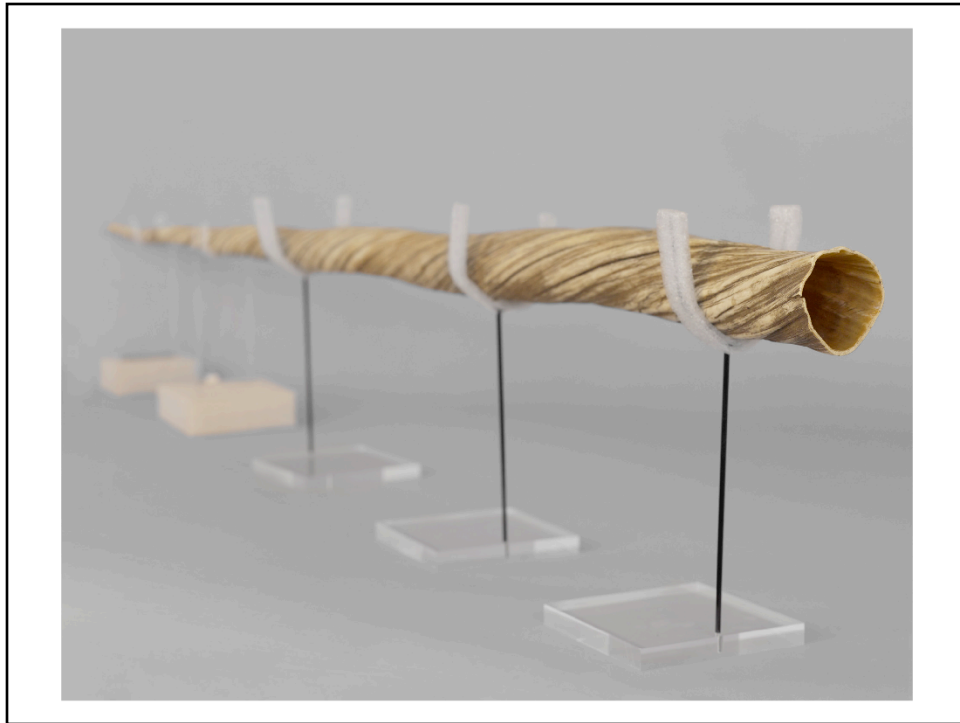


This should provide a little better idea of how the setup works in terms of lighting and camera angle.



We try to get as high-resolution images as possible when shooting, even if eventually we may resize the images to make them small enough for web display (it's easy to make images smaller, not so going the other way around). When we shoot at our highest resolution, we can also make high quality details for closer inspection.



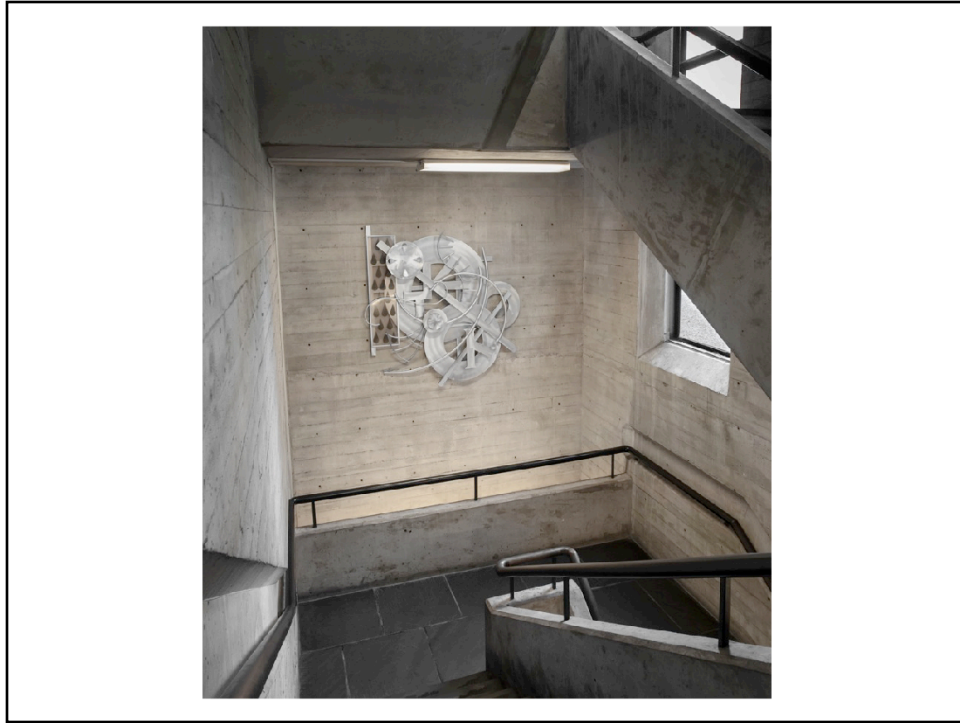


In addition to the main, more straight-on shot, I also tried to get some shots that would convey more information about the shape, texture, and weight of the tusk. We could not move the tusk very much, but by shifting the camera around, I was able to get some different angles that give the viewer more visual information about the tusk.

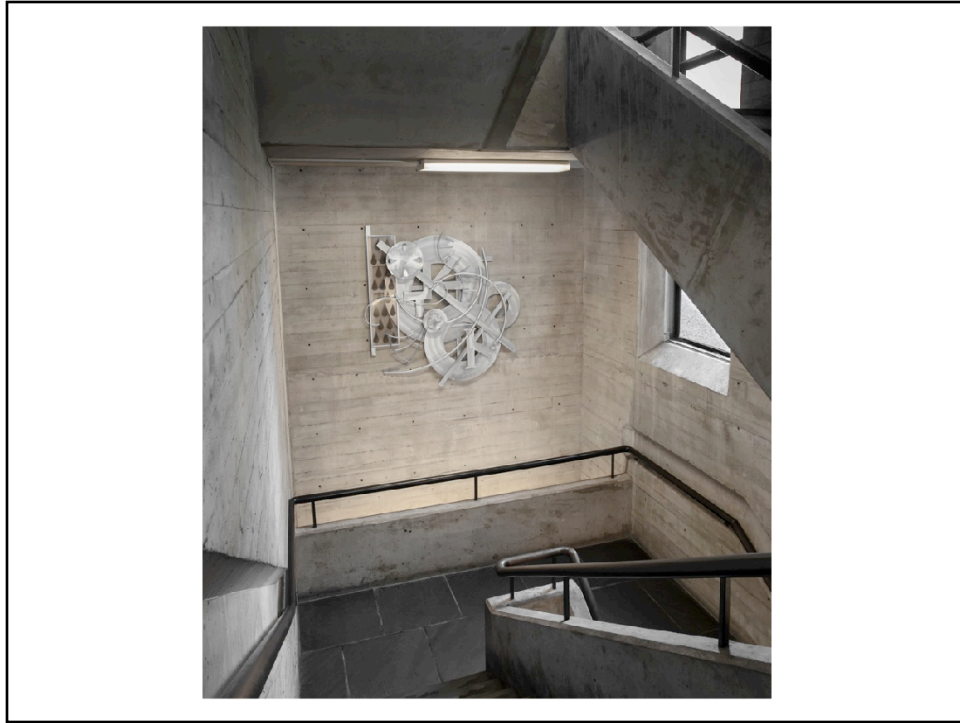


Something that I found fascinating about the tusk is that it's hollow. I'm not terribly well-acquainted with narwhals, so I wasn't expecting the tusk to be hollow. I moved the camera and the lighting to attempt to shoot down the tusk as much as I could, to give a sense of the hollowness and texture. These additional shots are useful for study, but only in addition to the main, overall shots.

Trick Lenses, Trick Lighting



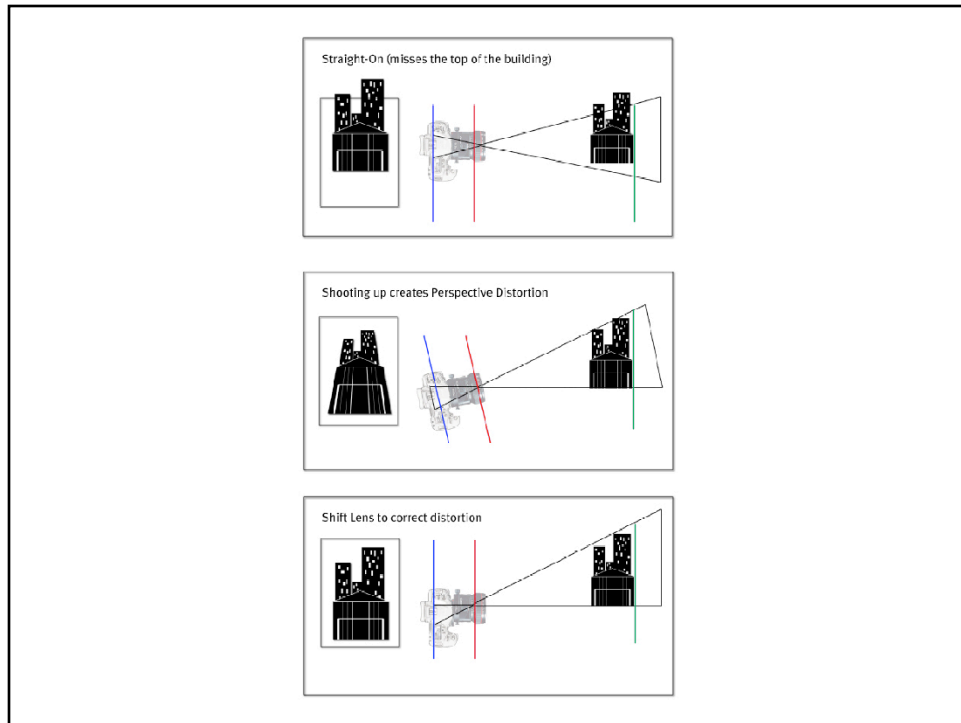
As an example of an item that cannot be moved from its installed location, I was asked by Harriette to photograph this sculpture, the *Break Up of Time*, 2006, by [John Okulick](#), donated by Elizabeth Z. Chace. This is installed in a well-travelled stairway in the Sciences Library (between the first floor and level A). This presents several challenges: it's a crowded space; you can't get directly in front of the object, and the lighting is problematic. There's no real solution to the first problem, except to keep all my equipment out of the way (i.e. tripod legs) so that no one trips on it, and make multiple exposures in case someone's coming up the stairs that I can't see.



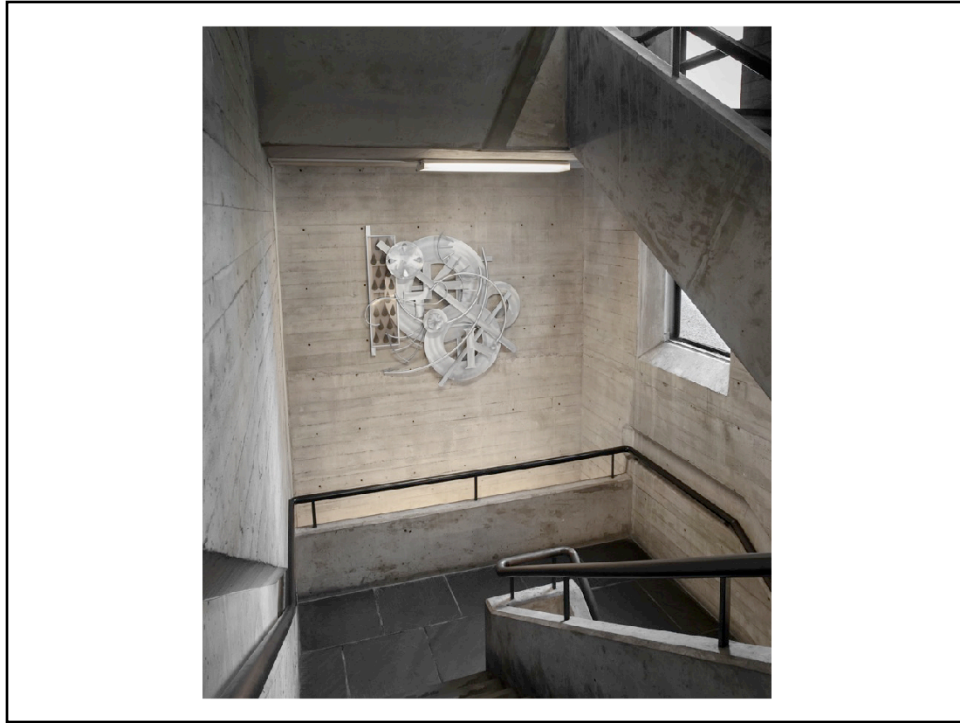
In reprographic photography, where the main goal is representing the subject with as much accuracy as possible, it's important to make sure you're shooting as straight-on as possible. If you photograph from any kind of angle, you risk distortion of the object that may not be obvious – which is a misrepresentation of the object. In cases where I cannot shoot straight on (due to space constraints, or other problems like high reflections/objects behind glass)



I use a tilt-shift lens, which lens allows the photographer to photograph an object from the side, above, or below, with keeping the lens parallel to the object (otherwise, we would see great distortion). This is called shift: the lens and film plane/digital sensor are parallel to the object and to each other, but the image circle shifts within the camera, allowing you to capture a different area of the scene than that which is directly in front of you.

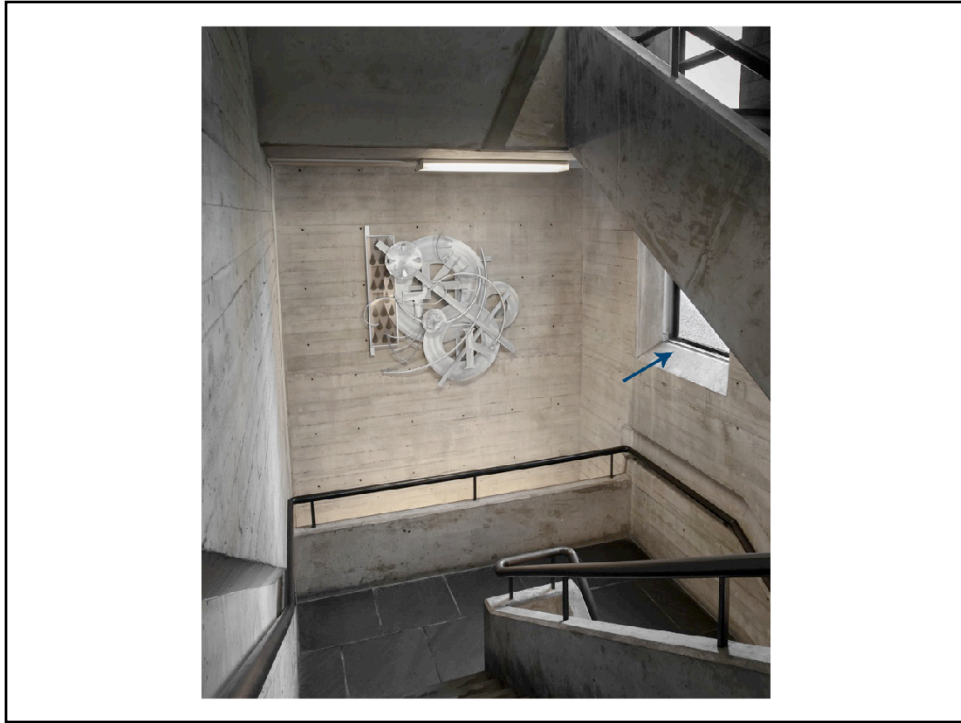


This diagram shows rise and fall, which is just a vertical shift movement. Shifting the lens up, down, left or right changes the part of the image circle that is projected onto the film or sensor – it changes the view of your scene without changing any angles, so spatial relationships do not change, the shapes of objects do not change, only the part of the scene that you record changes.

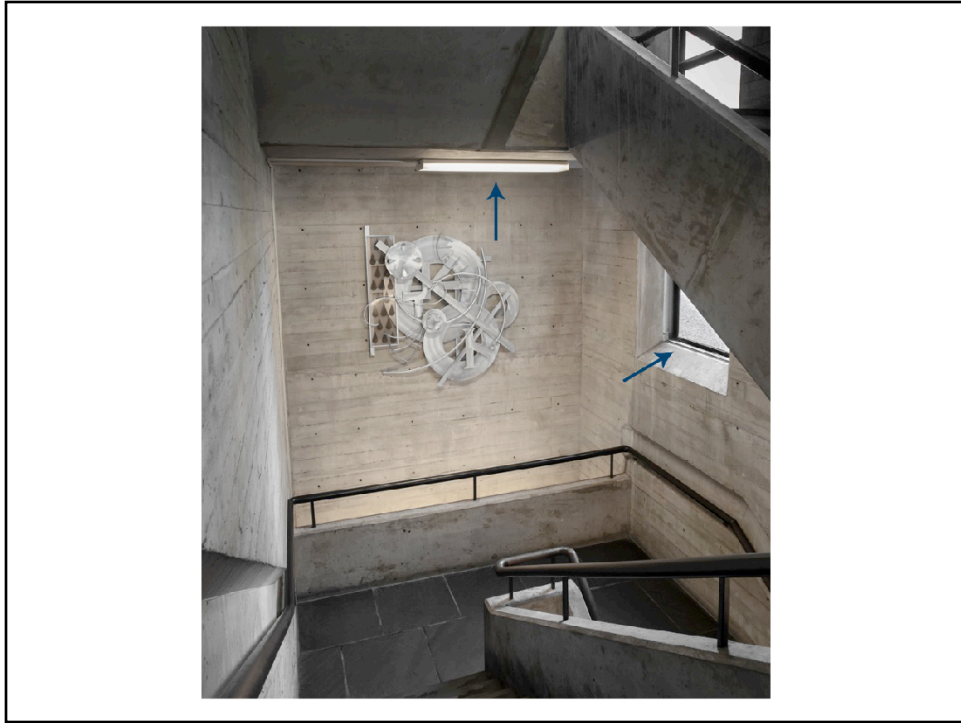


The next issue is the lighting. The goal in photographing any museum object is balanced lighting that illuminates the subject evenly and without color variation. This sculpture is lit by three different types of light - from

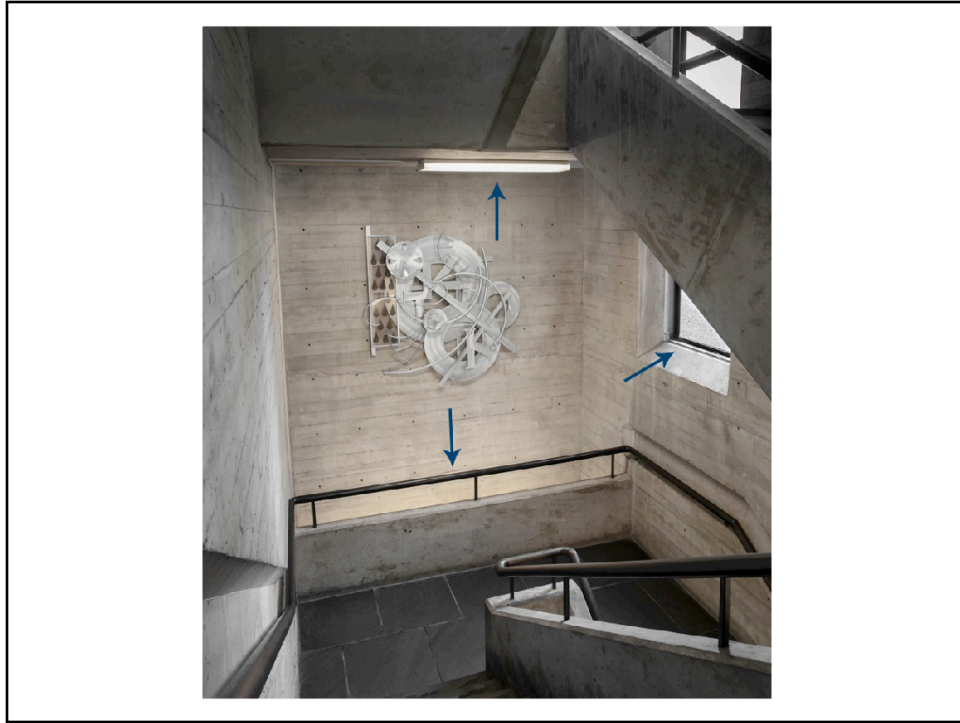




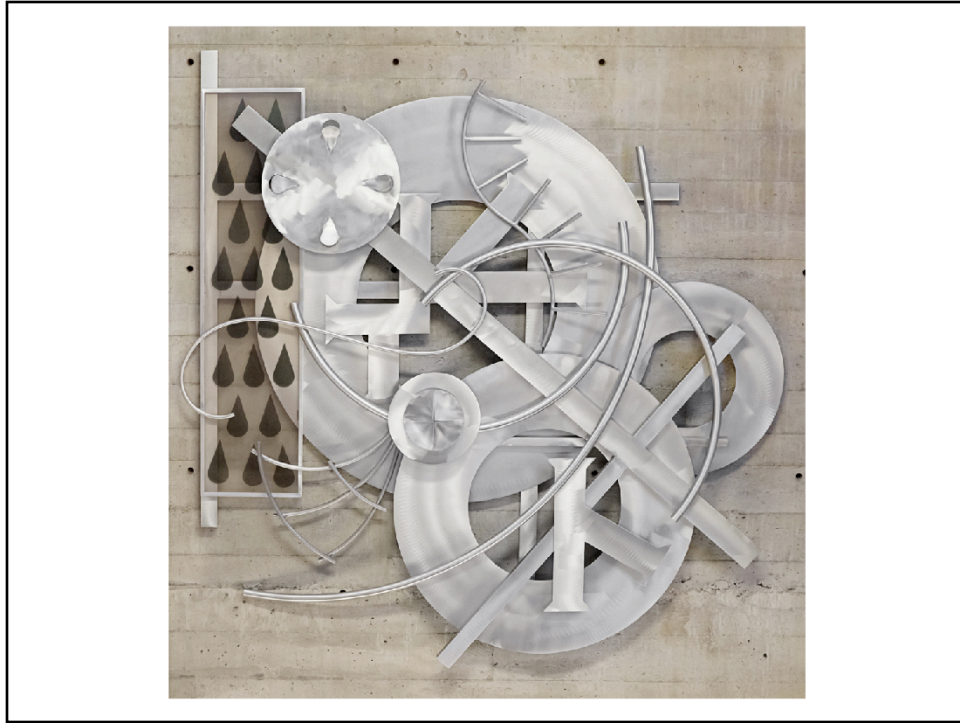
One side (daylight)



Above (fluorescent), and



Below (tungsten?). The trick here is to take shots at all the different exposures and white balances, and see which ones work best once I'm back at my computer. Very often, I'll either blend the different images together or use masks to edit only a portion of the image.



This final image had been shot several feet over from straight on and shifted using the t-slens. I blended three separate images and performed additional retouching to get the color as even as possible.

Have Camera, Will Travel



We're also asked to photograph paintings from the library's collections – presidential portraits in Sayles,

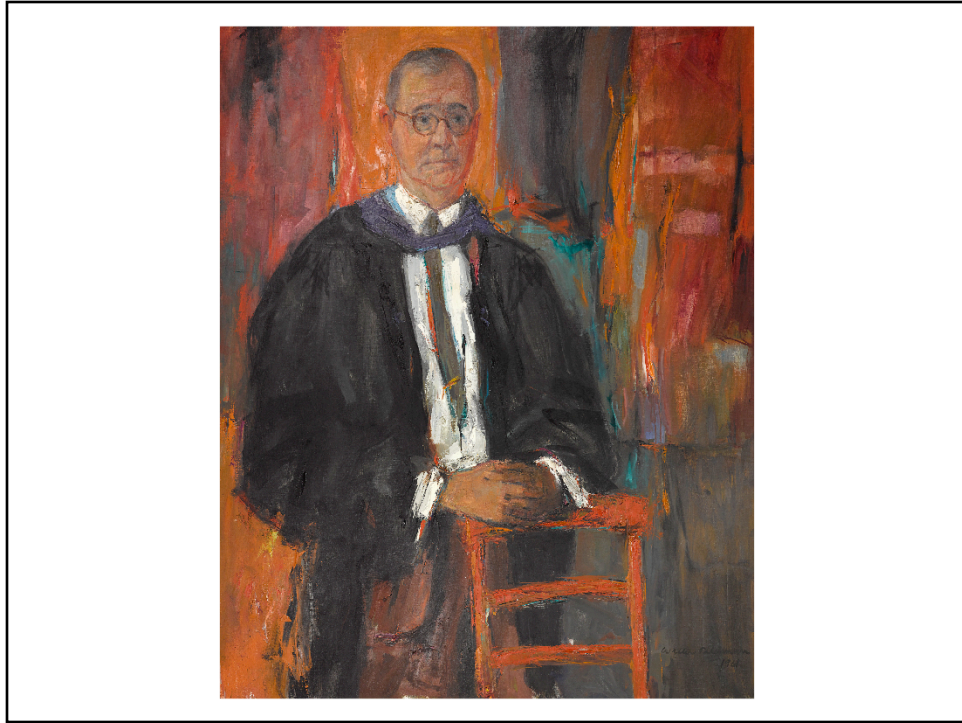


Paintings in the Rush Hawkins collection in AnnMary Brown



and other works of art that Brown has across campus. Rob Emlen, the university curator, is often the requestor for these images and comes with us on our shoots.





Occasionally, the paintings we're asked to digitize are off-campus. This is a portrait of President Keeney, that is in storage with many other works out at the Annex.



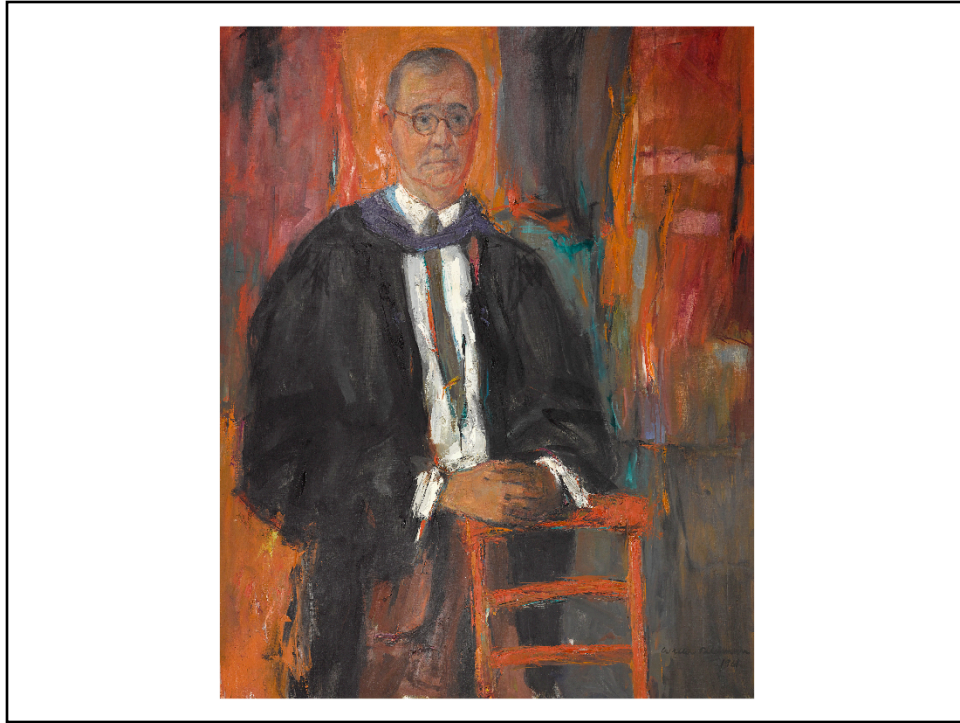
Although not what it's particularly known for, the Annex is home to an "art room" that houses a number of paintings, which Ben and I will go digitize in groups.



The shooting space is not the best, but it's the best we can do, especially since moving these materials is not terribly feasible. This is a loading dock-type space right outside the art room (which you can see the open door to on the right) where we set up our lights and a shooting platform as best as possible.



In order to capture these works as best as possible, we have a traveling setup that we bring with us. This includes our digital back, mounted on a medium format SLR, tripod, hot-shoe level, x-rite color checker card, tungsten light set with light stands and umbrellas, and a MacBook Pro with Capture One installed for tethered shooting. We also bring white foam core reflectors to even out lighting, and black foam core to reduce any unwanted light (which gives a nasty glare off oil paint). Below is a setup from a shoot in the Annex, where you can see most of this equipment brought into play.



Once all our images are captured, we process the files to look as accurate as possible in terms of color, contrast, etc. These files are often added to the Brown Portraits or AMB web pages.

You're Gonna Need a Bigger Boat

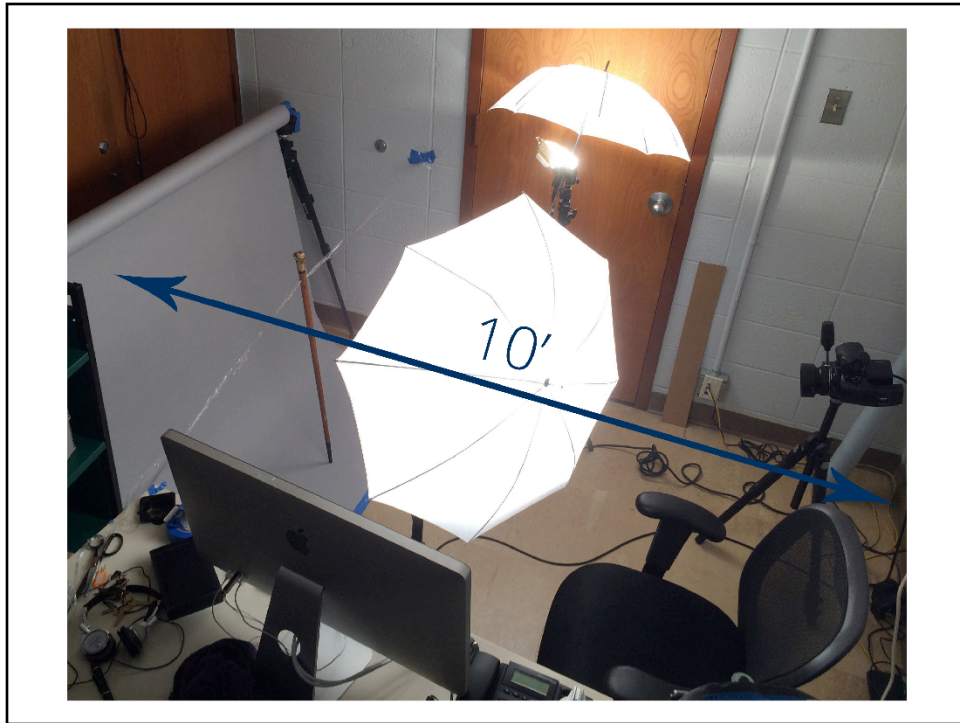


Occasionally, I'll be asked to photograph items in our collections that can be moved for photography, but are too large to be photographed in our camera room. Several items from the Vietnam Veterans collection in the archives, set to go on exhibit at commencement, needed digitization but are too large to be shot in 217. The main issue is that they're so tall; this flight suit, as well as a set of fatigues and a dress uniform require the camera to be so far from the object that there's not room to light it properly. There's also an issue with the background: you need several between an object in the background to avoid shadows, but in 217

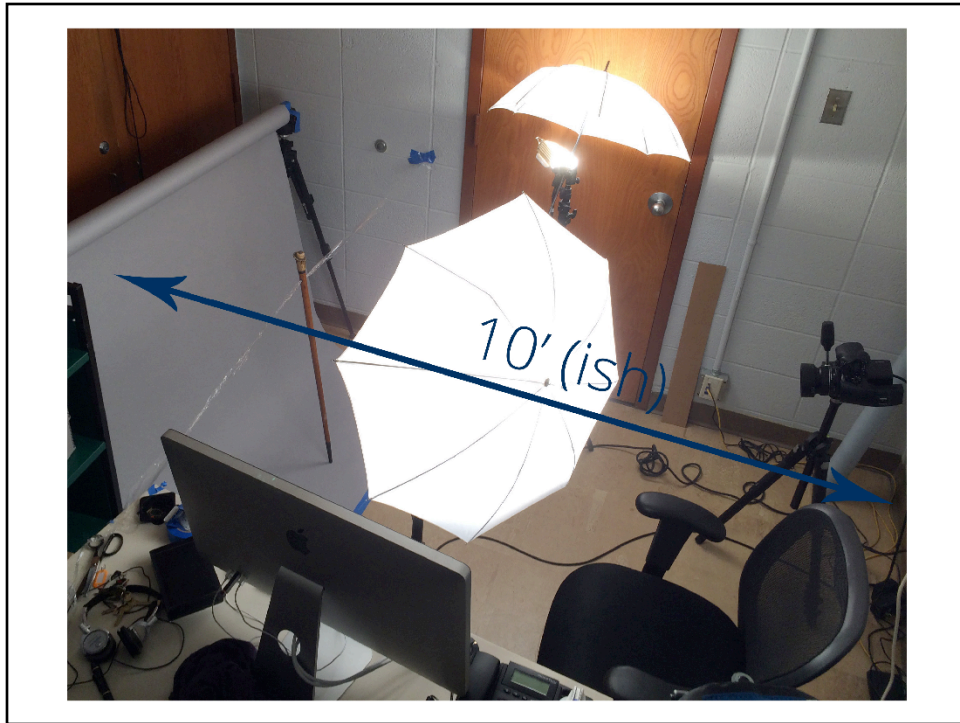


And again this is the space we're looking at – we only have about 10 feet here. We need about 5 feet between the flight suit and background, but I needed about 8 feet minimum between the camera and the flight suit. So I decided to find another spot a Brown that might be available. As it turned out, just as I was preparing to photograph these items, we received the shackles on exhibit downstairs, which also needed to be photographed. I was set to photograph them at the Hay, so I decided to find a room at the Hay that would give me the space I needed. As it turned out,





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The Lownes room was available, and had the space that I need to properly photograph the flight suit and other items. Here you see the two speedlights and umbrellas, set up with one to illuminate the flight suit and another to illuminate the backdrop. The camera is attached to my laptop so that I can see the objects as I shoot. Normally, I would have brought in a backdrop setup to hold up the items on a hanger (or used it on an actual backdrop – but I was able to tape the backdrop against the walls, so that wasn't an issue). However, that would have been too much equipment to bring in so I made do with an extra tripod I'd brought for this express purpose, a whiteboard of useful height, and an extra metal broom pole that Rachel brought up from the conservation lab. It worked very well, and I was able to get all the shots I needed just from this setup.



I took very basic shots – just front and back – for this set (that’s what was requested).

Thanks!