

Wet Plate Collodion Course

2nd February 2020

The wet plate collodion process was published in the Chemist magazine in 1851 by Frederick Scott Archer. This process allowed the reproductions of images from glass negatives with shorter exposure times and lower costs. Scott Archer realised that when these negative plates were placed on a black surface, they read as positives, these were known as ambrotypes. The wet collodion process can also be applied to tin, known as tintypes. These are the methods we focused on in this one day course. Wet plate collodion images look typically aged, really dramatic and often imperfect at the edges.

It was the work of David Emitt Adams who first inspired me to discover more about the wet collodion process. He uses this process to create images on litter and reflects on desert landscapes as a place for dumping litter and forgetting. This is a concept that I am interested in with regards to my own work and was interested to know how I could apply it to found objects. Having attended the one day course, this may be more difficult than I thought given the limited access I have to experimental photography with darkroom access. The tutor explained that Emitt Adams uses an enlarger in the darkroom to project the images onto the treated objects and feed the enlarger with a positive image (as opposed to a negative image, which would normally be the case in photography). She suggested an exposure time of 2 mins as opposed to seconds. I wonder if this could be done on a larger scale with a wall projector. The reason for having to do it this way is that found objects would not fit into the plate holder of a camera.



David Emitt Adams - raw material for his Conversations with History Series.

www.davidemittadams.com

David Emitt Adams



Part of Conversations with History Series
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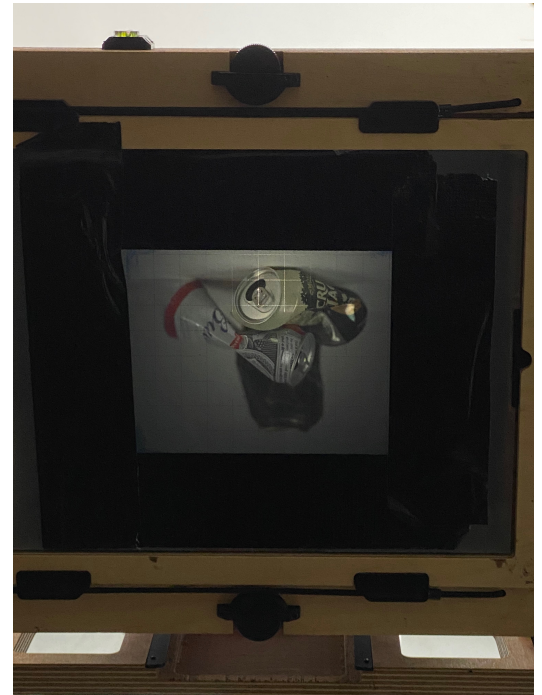
On his website, www.davidemittadams.com, Emitt Adams talks about his series 'Conversations with History':
"I collect discarded cans from the desert floor, some more than four decades old, which have earned a deep reddish-brown, rusty coloration. This rich patina is the evidence of light and time, the two main components inherent in the very nature of photography. For this body of work, I manipulate these found objects through a labor-intensive 19th century photographic process known as wet-plate collodion. I create images on their surfaces that speak to human involvement with this landscape. The results are objects that have history as artifacts and hold images connected to their locations."

This absolutely resonates with my work - where the found material is indexical - it has a trace of place, time and human existence or intervention. Discarded objects do hold history in them and this connection between image and object is extremely strong and I can't wait to explore the possibilities.

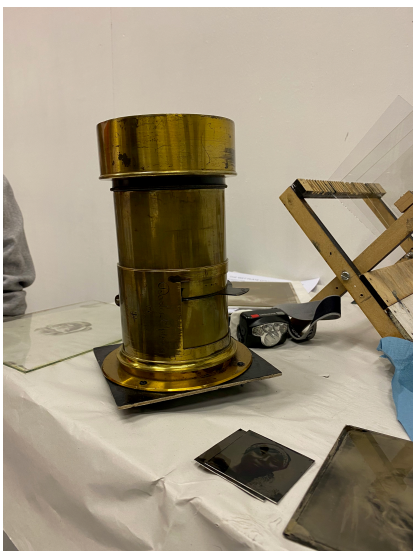
MATERIALS

Materials Required (from Course Handout):

- A camera, unless you are doing photograms (now there's a possibility I hadn't thought of - I definitely need a darkroom now!) or using an enlarger or a projector to expose your plates.
- Plate holder (for camera)
- Substrate. Glass, tin, acrylic. For the purposes of this course, we used standard Anodised Aluminium Black 1mm from engraving.co.uk.
- Silver Box
- Collodion chemistry (will explain later)
- Photographic trays
- Sundries: Glass or tin cutter, Kitchen towel, Nitirle gloves, Goggles, Hair Dryer, Drying Rack.



We used a large format camera, this doesn't have a shutter or a mirror, as this would create movement in the picture. The image is transferred directly onto the plate. Instead of a shutter, you just have to remove/replace the cap to stop the exposure. When looking through the 'view finder' at the back, everything is upside down and left to right. The large format camera used here is about £500 from the Intrepid camera company.



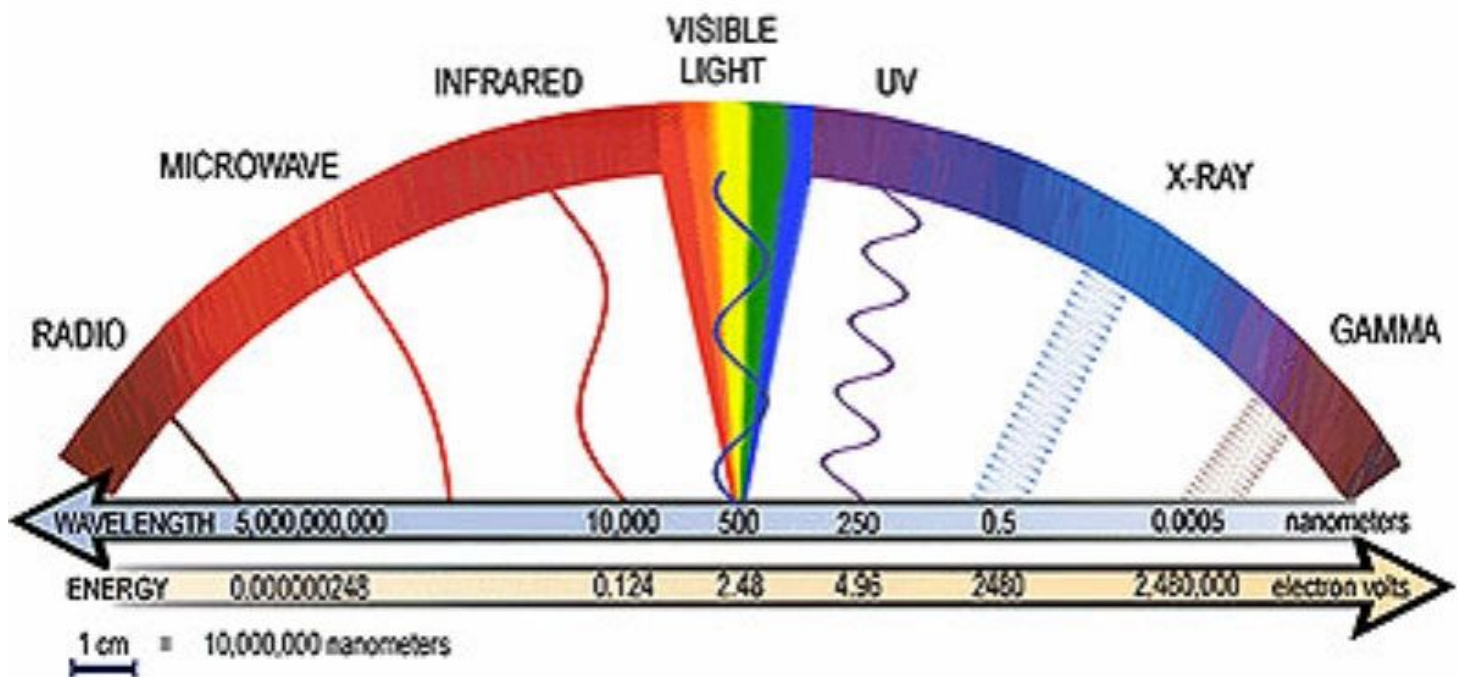
Petzval Lens

There are 3 types of lenses that can be used for the wet plate collodion process: Petzval lens; pre 1950's (Hellier lens - 4.5 aperture for 10 x 8 is very good); and 19th Century modern lenses. I need to research more about the different types of lenses. One pointer was that in order to check the quality of the lens, simply check the quality of the focus. Where the aperture isn't shown, simply divide the diameter of the lens by the length of the lens. The ISO for this process is only 1 which is extremely low (think analogue films start at 100 for really bright conditions), therefore, exposure time is longer.

One of the important factors to remember concerning the wet plate collodion process is that the plate must remain wet (the clue is in the name), so this means that the plates have to be processed quickly - if out in the field, you could use a mobile darkroom (or even a red acrylic box as the process is not sensitive to red light), or suspend the plates before processing back at the studio. Any camera can be used that will accept plates - including an old Brownie camera which would be great to experiment with.

- **Glass Plate Cleaner:** Contains 1/3 of calcium carbonate (CAS#471341) + 1/3 of distilled water + 1/3 methylated spirit.
 - **Collodion for Positives:** For this course we used the Poe Boy formula which is cadmium and ether free and is the one used in museums and universities. It contains: USP Collodion (110ml), Ethanol (140ml), Potassium iodide (2.3g), Potassium bromide (1.4g).
 - **Developer for positives:** Acetic acid 3-10% + Ferrous sulphate 1-5%.
 - **Silver Nitrate Bath:** Silver Nitrate 9% solution. (Highly Corrosive)
 - **Fixer:** Mis 150g of sodium Thiosulphate per 500ml of distilled water.
- These chemicals can all be bought from 'Wet Plate Collodion Supplies'.

The Technical Bit ...



The wet plate collodion process is only sensitive to the high energy end of the visible spectrum from green to UV light, and thus the plates can be processed with a red safelight. This means that yellow, orange and red colours will be recorded as blacks and green, blues and violet colours will be rendered as whites. A sky with white clouds is very difficult to capture, as the white clouds and the blue sky will look as highlights in the plate. Lemons and tomatoes will appear shiny black and old tattoos, that are blue looking, might not show in the picture.

"The wet plate process is very sensitive to UV and blue light and not sensitive to red. Sunlight has a lot of UV light in it which the human eye cannot see... UV light is absorbed because materials, including glass. Modern cameras often use filters to block UV light and lenses are coated to absorb the UV and correct colours for film cameras." (<http://nizas.com/twiku/photography/workshops/light-and-lighting-for-wet-plate-photography/>).

This is why it is important not to use a lens that is coated to absorb UV light - the wet plate collodion process needs UV light. To this end, taking photographs outside in sunny conditions is optimum to creating great wet plate collodion images - maximum UV, means less exposure time. To create wet plate collodions in a studio, means a lot of light - and UV light where possible! Daylight bulbs are better than tungsten in that sense. To shoot inside, you need continuous lighting with a temperature of around 5600k. White and blue lights are needed rather than yellow light. Exposure meters used in modern photography will not measure UV light, so it is only experience that will help with exposure times. It is better to overexpose, particularly in studio set ups. In this process a point is reached that the image doesn't continue to expose. Other factors to consider are, if the 'model' is wearing sunscreen with UV, they will need to take it off as this will block the light.

PROCESS

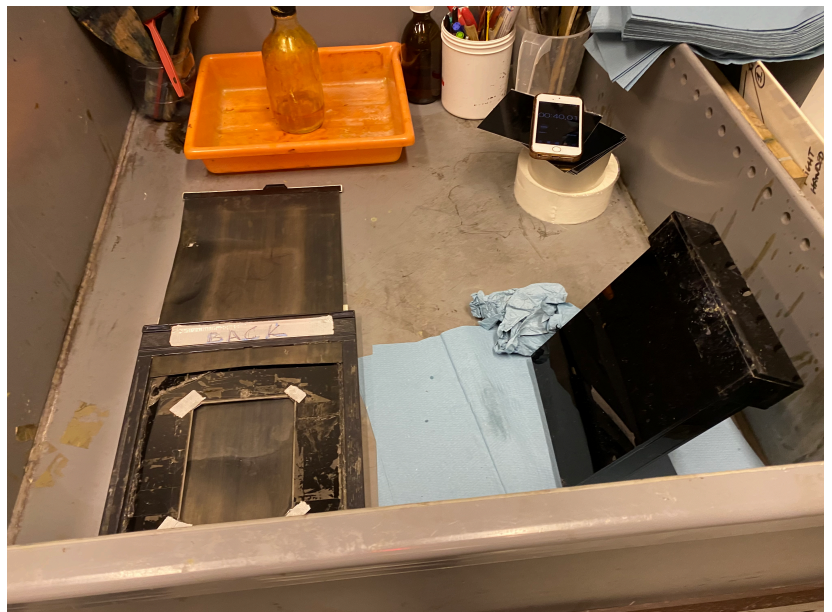
1. Pour the collodion substance (Poe Boy) onto the glass or tin plate, starting from the middle and reach each of the corners one after the other. Place hands underneath plate. Place the plate upright and rock from side to side in the neck of an empty glass bottle to catch drips. Check that the collodion has gelled by pinching a corner.



2. Immerse the plate in the silver bath and leave it for 3 - 5 minutes depending on weather conditions. During this time the bromide and the iodide salts of the collodion react with the silver bath forming light sensitive silver halides. Hold the plate at the front to make it easier to place it in the silver nitrate bath. Steps 1 + 2 can be done in light.



3. In safe light conditions (ie red light only), take the plate out of the silver nitrate bath, wipe the back of the plate and absorb any drips onto the paper towel. Load into the plate holder for the camera. Notice that the plate holder is clearly marked 'back' so that the plate is inserted correctly, with chemical side down.



4. Once the plate has been loaded into the plate holder, the plate holder is inserted into the camera ready for exposing. For still life I used an exposure time of 35 seconds, for portraits (where people can't sit still for that long), an exposure time of between 9 and 12 seconds was used. It is better to over expose than underexpose.



5. Unload the plate in safe light. Holding the plate underneath, pour a small amount of developer over the plate starting along the edge. Hold the plate flat and let the developer work - about 15 secs. It is important not to overdevelop as foggy will occur. Within 3 or 4 seconds highlights will appear, then midtowns and the shadows. Safelight means I was unable to photograph this.

6. Still in safelight conditions, stop the development of the plate by pouring 1.5 litres over the plate (front and back). The surface shouldn't look greasy.

7. Under normal lighting, place the plate in the fixer, agitate slightly until the white lines disappear. Dispose of the fixer after a session.

8. Wash the plate for at least 15 minutes. Let the plate dry naturally if possible. If time is of the essence, the plate can be rinsed under running water (near the spout for better distribution) and dried, from the back with a hairdryer, from a distance.



9. Once completely dry, the plate should be waxed or varnished to protect it. We waxed it. Take a finger tip of wax and rub it over across the plate, do not use small motions or the wax will harden unevenly. Using a lint free cloth take off the excess and then polish up. The wax we used was Renaissance Micro-crystalline wax polish.





Joanne Forrest, Lighters (2020), Tintype 4" x 6"

With reference to the early information regarding the fact that the Wet Plate Collodion Process is sensitive to UV light, in this final image of lighters that I made, the red, yellow and orange lighters are really black, whilst the light purple and green lighters are much lighter and more readable.



Joanne Forrest, Tin Cans Tintype (2020), Tintype 4" x 6"

This image was slightly overexposed, the darks should have been darker - we live and learn!



This is an ambrotype which is the wet collodion process on glass. The only difference in terms of preparation is that the edges should be brushed with old collodion or egg white before using to ensure the collodion has full coverage. The first image is of the glass plate, which reads negative, but once placed on a black background it reads positive, as can be seen in the second image. I prefer tintypes as these create much more dramatic effect, they look more aged and seem to bring out the lights and darks much more effectively.

Going Forward ...

I am hooked and really keen to explore the possibilities of using the wet plate collodion process in my practice. In order to start, I need to explore the following:

- Find a camera that will take plates (may start with an old Brownie, or could even use a pinhole camera).
- Buy the chemicals and the plates.
- Convert my bathroom at home into a darkroom - sink, running water, table, variety of trays for chemicals and water, silver nitrate bath, drying rack, battery operated safe light.
- If I am not going to invest in studio lighting, I will need to take photos outside and experiment with exposure times.
- Once I have mastered the basics, I will enrol myself on a darkroom course to gain a better understanding of the enlarger process and then work out how I can use this to create photographs on found objects.

