

# Making Digital Negatives

When the time comes to make your first negative, not every image will be suitable just by converting to black and white. After you have selected your image and converted it to monochrome, ensure that you have good tonal range throughout from shadow to highlights. Some alternative processes (gum, cyanotype etc;) will work better with thin or less dense negatives, whilst salt and Van Dyke Brown negatives require good density throughout with strong contrast. Check for details (if there are any) in the shadow areas of the image particularly.

The following technique has been adapted from several eminent sources to make a more simple approach to making negatives.

## USING CHARTTHROB TO CREATE A STEP WEDGE

Start by downloading the free [Digital Negatives](#) zipped folder (from my website [Interesting Stuff](#) page). In your downloaded folder you will find a script file [ChartThrob.jsx](#). This script has been developed by Kevin Bjorke and is freely available on the web (but difficult to find) so I have incorporated it into my workflow and have made it easy for you to use by following the instructions below.....

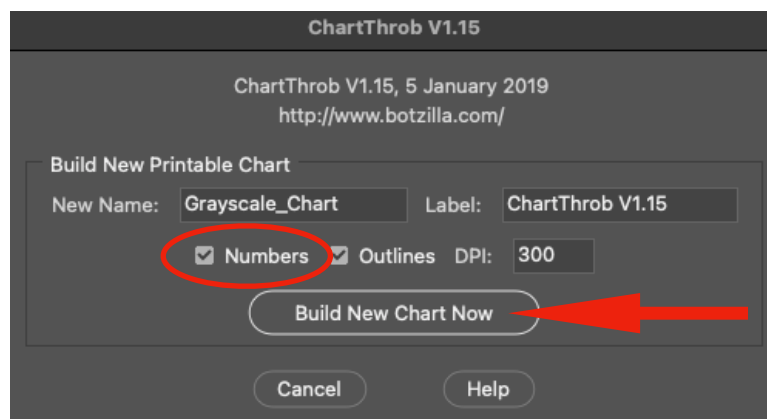
The beauty of using ChartThrob is that it resides as a script inside of Photoshop, so you don't have to rely on being connected to the internet to get your profile curves. They are generated within Photoshop itself (after scanning a print file). Close Photoshop and place the script file in the following locations on your hard drive -

Mac: ***Applications/Adobe Photoshop (version)/Presets/Scripts/ChartThrob.jsx***

Windows: ***Program Files/Adobe Photoshop (version)/Presets/Scripts/ChartThrob.jsx***

The next time you open Photoshop, the script will be available for use and can be used to generate your step wedge file and also analyse your printed result. Go to [File>Scripts](#) and select [ChartThrob](#). We will be working initially in Adobe 1998 RGB colourspace band only change at the printing stage.

- 1 A new window will open like the one below.



If you want to add numbers and K% to your patches make sure the Numbers box is checked (but is not really necessary)! Click the [Build New Chart Now](#) button and the resulting file should now look like this:

ChartThrob V1.15																							
0%	0	1%	3	2%	5	3%	8	4%	10	5%	13	6%	15	7%	18	8%	20	9%	23				
1										2													
10%	25	11%	28	12%	31	13%	33	14%	36	15%	38	16%	41	17%	43	18%	46	19%	48				
3										4													
20%	51	21%	54	22%	56	23%	59	24%	61	25%	64	26%	66	27%	69	28%	71	29%	74				
5										6													
30%	76	31%	79	32%	82	33%	84	34%	87	35%	89	36%	92	37%	94	38%	97	39%	99				
7										8													
40%	102	41%	105	42%	107	43%	110	44%	112	45%	115	46%	117	47%	120	48%	122	49%	125				
9										10													
50%	127	51%	130	52%	133	53%	135	54%	138	55%	140	56%	143	57%	145	58%	148	59%	150				
11										12													
60%	153	61%	156	62%	158	63%	161	64%	163	65%	166	66%	168	67%	171	68%	173	69%	176				
13										14													
70%	178	71%	181	72%	184	73%	186	74%	189	75%	191	76%	194	77%	196	78%	199	79%	201				
15										16													
80%	204	81%	207	82%	209	83%	212	84%	214	85%	217	86%	219	87%	222	88%	224	89%	227				
17										18													
90%	229	91%	232	92%	235	93%	237	94%	240	95%	242	96%	245	97%	247	98%	250	99%	252				
19										20													
100%	255																						
21																							

ChartThrob V1.15 ©2006-2019 Kevin Bjorke  
<http://www.botzilla.com/>  
 Original Chart Design by Thomas Howard  
<http://LuminaryArts.com/>  
 THIS IS A POSITIVE IMAGE WITH DARK TEXT ON WHITE  
 MORE INFO: <https://github.com/joker-b/ChartThrob>

When printing the negative, it's important to have the emulsion side down (in contact with the paper emulsion). This is to get the most sharpness out of the print. It might sound picky, but you don't want to have the thickness of the negative separating the emulsions, which is why the image must be reversed prior to printing.

2 Duplicate the Layer (**Cmnd+J Mac or Ctrl+J PC**), Invert the image (**Cmnd+I Mac or Ctrl+I PC**) to make it a negative, then flip it horizontally (**View>Flip Horizontal**).

ChartThrob V1.15																							
0%	0	1%	3	2%	5	3%	8	4%	10	5%	13	6%	15	7%	18	8%	20	9%	23				
1										2													
10%	25	11%	28	12%	31	13%	33	14%	36	15%	38	16%	41	17%	43	18%	46	19%	48				
3										4													
20%	51	21%	54	22%	56	23%	59	24%	61	25%	64	26%	66	27%	69	28%	71	29%	74				
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60%	153	61%	156	62%	158	63%	161	64%	163	65%	166	66%	168	67%	171	68%	173	69%	176				
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## PRINTING YOUR NEGATIVES

The image needs to be printed onto transparency film. There are several on the market but I use one from [huntthemoon.co.uk](http://huntthemoon.co.uk) and comes in various sizes, easy to get hold of and not expensive.

3 When printing the transparency, select **Premium Gloss Photo** 170 (or film) and print using **Photo Black** ink (PK), as this is a strong absorber of UV light and helps build contrast in our negatives. We can further enhance the negative by printing just in Black & White, (Epson printers have an **Advanced B&W** feature built in - other printers are similar).

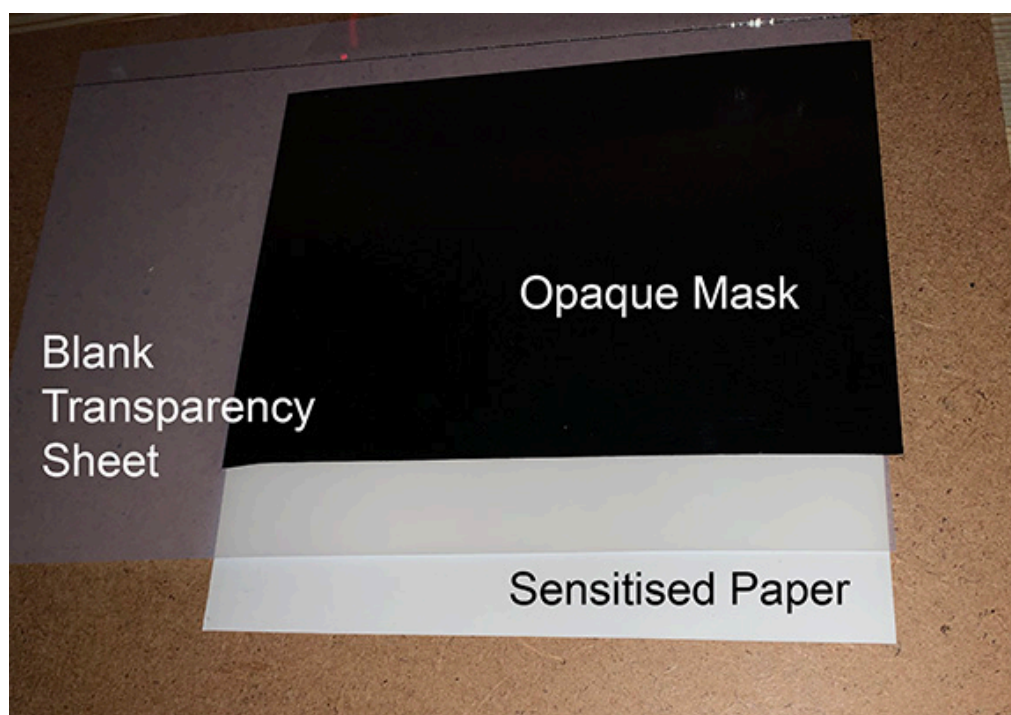
We now have a digital negative to print from. Wait for the 'milky fog' to clear from your negative before using it to print. It will take at least 10 mins for the ink to dry completely. If you're too impatient, you may end up with ink transfer on your print!

## DETERMINE THE EXPOSURE TIME (DMAX)

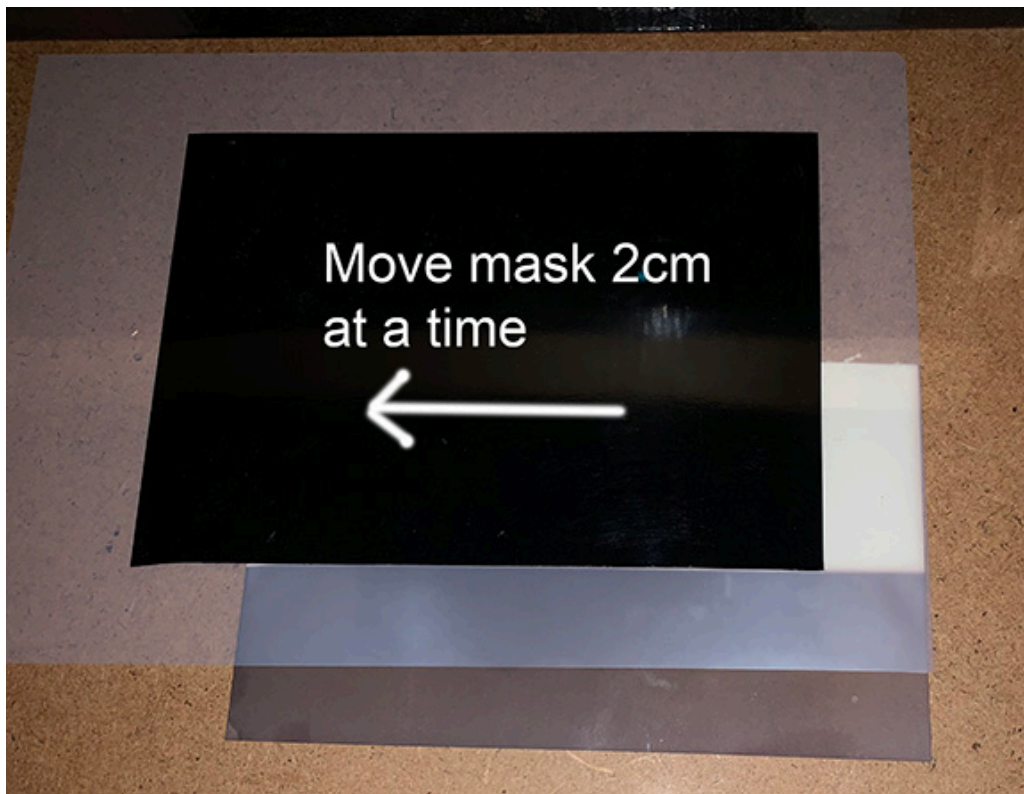
4 Take a sheet of thick watercolour paper and coat it with the emulsion of choice. (Salt, Gum, Cyanotype etc.)

5 When dry, cover the entire paper with a sheet of blank transparency. Keep everything flat with a piece of glass over the top.

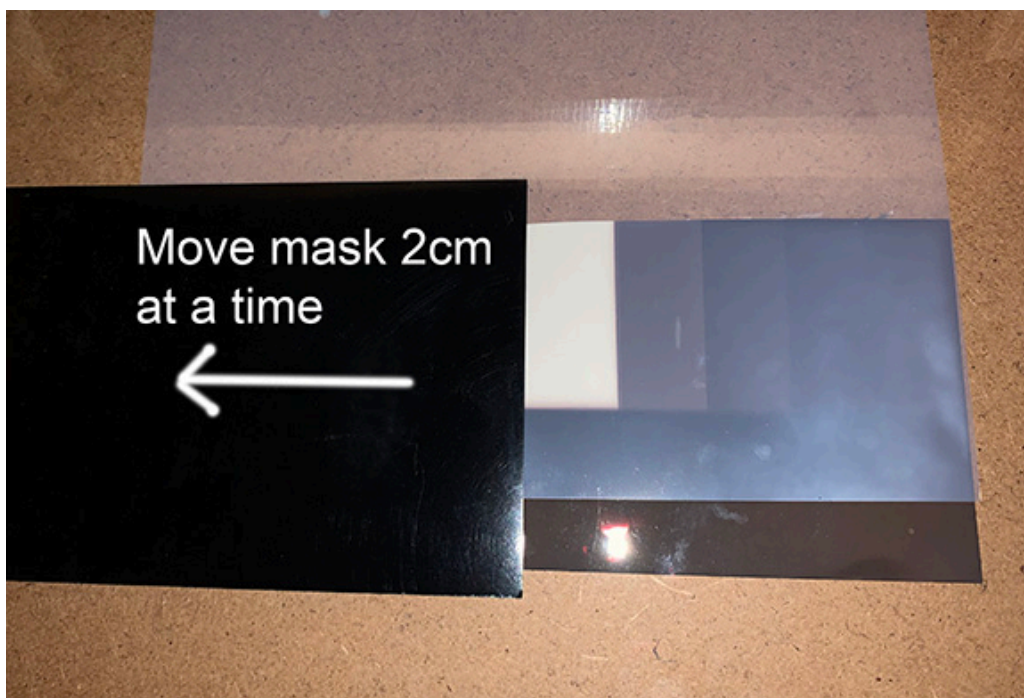
6 Use an opaque sheet as a mask and cover everything except the first 2cm of the sensitised paper (above the glass).



- 7 Expose the paper to a UV light source for a period of time (say 2 mins). As a rough guide, most processes will be in the range of 4 - 15 mins for DMax to occur.



- 8 Move your mask down the paper approx 2 cm and make another exposure for the same time as the first.



- 9 Continue moving the mask further down, 2 cm at a time until the entire paper has been exposed.



10 Develop the print fully and dry completely (at least two hours). Do not take short cuts with the development - the results will also look different when damp or wet.

Once dry, you can evaluate the print to determine the maximum black (blue or brown etc.) that your paper/process will be capable of producing, and should look something like the image below.



In this Cyanotype DMax test, there is a point at which the line between the masked area and the unmasked area will disappear (or almost), and this is the optimal exposure time to achieve the maximum density (the print will not get any darker in the shadows and is known as DMax).

In this test, It merges at around 11 minutes!

This time will not change for every image you print with the same paper and process combination. This is of course assuming you are using a constant UV light source, and not the sun.

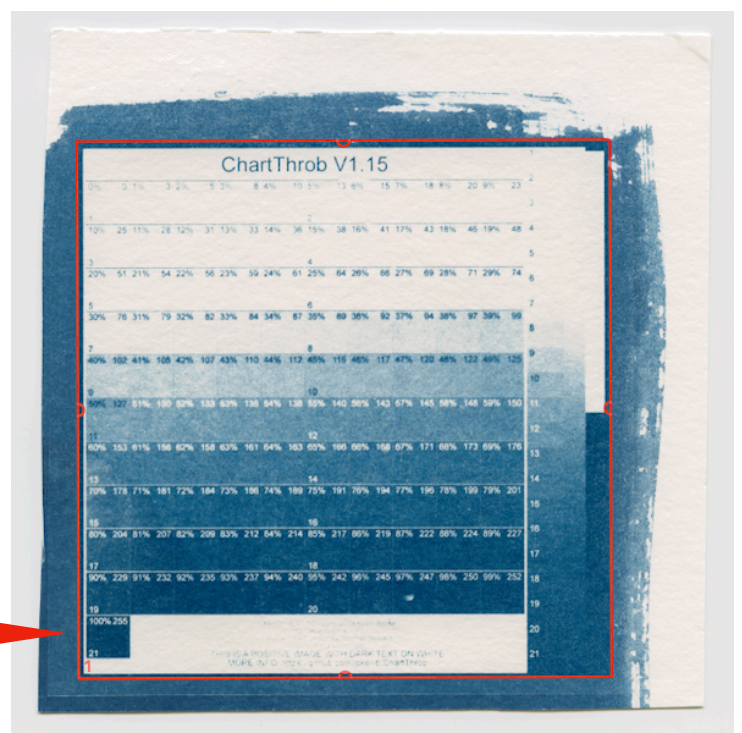
11 Using the Step Wedge Chart we printed in stage 2 above, make a print (emulsion faces together) for the DMax time just determined above. Wait for it to dry as before (stage 10), then proceed to the next stage.

## SCAN THE IMAGE

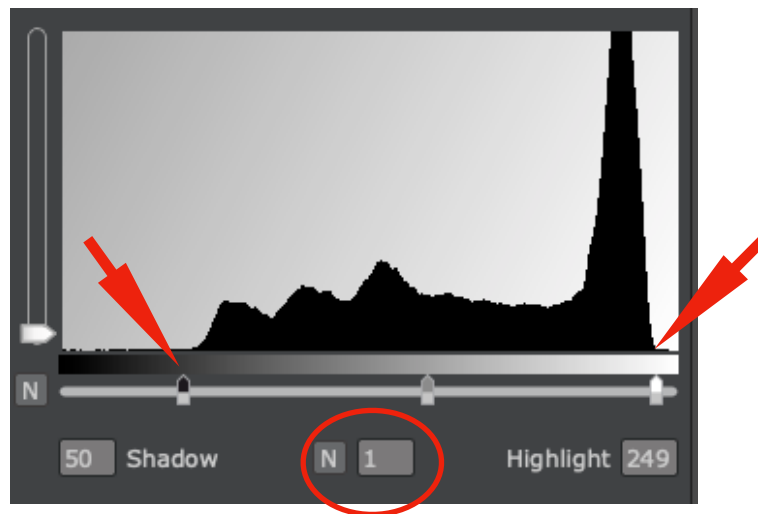
It's important to set your scanner up to deliver the best possible resolution and capture the full tonal range of the print. For this reason we will be scanning in colour mode, after all your image may be a blue colour if it's a cyanotype!

12 Set your print of the Step Wedge on the scanner and perform a **Preview** scan, then select only the area of the patch wedge and make a full scan.

Select only the area tight to the actual step wedge chart

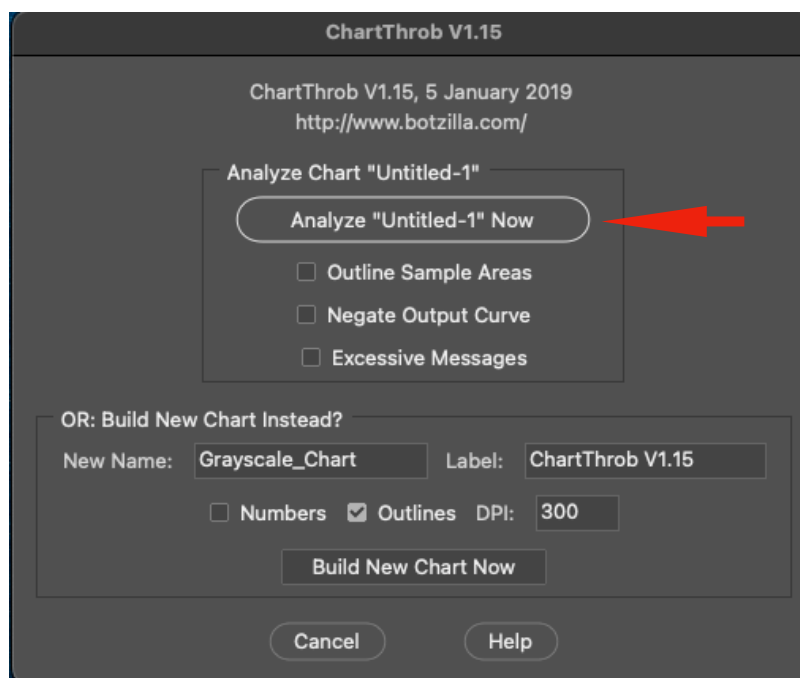


13 Set the black point and white point of the bottom sliders at the edge of your histogram (not the extreme edges) and make sure the midpoint gamma is set to 1.

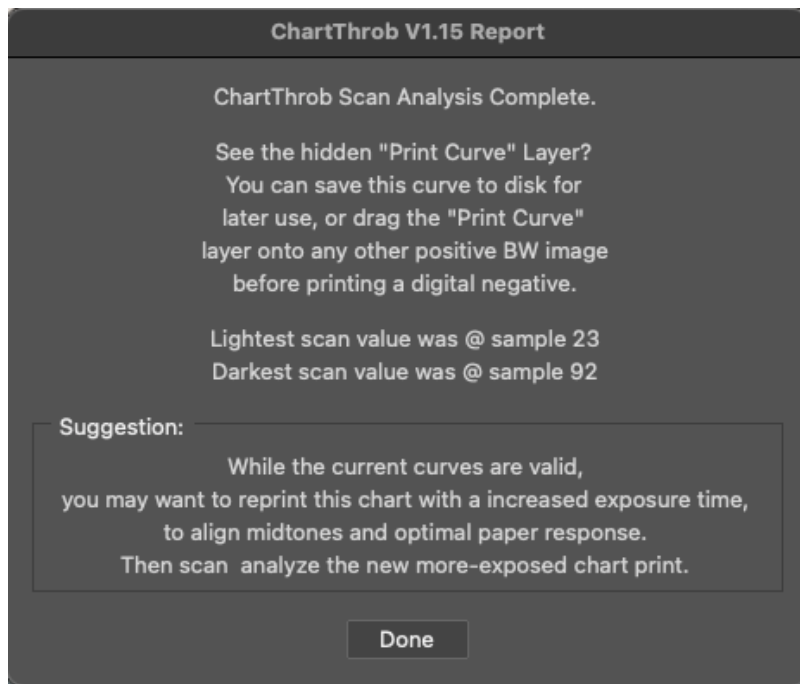


14 Now do a full scan....

15 With the scanned image open in Photoshop, we now revisit the ChartThrob Script. When we run the script this time, it recognises that an image is open and shows a dialogue box like the one below. This dialogue give us the opportunity of creating a new curve or *Analyse (image) Now*.

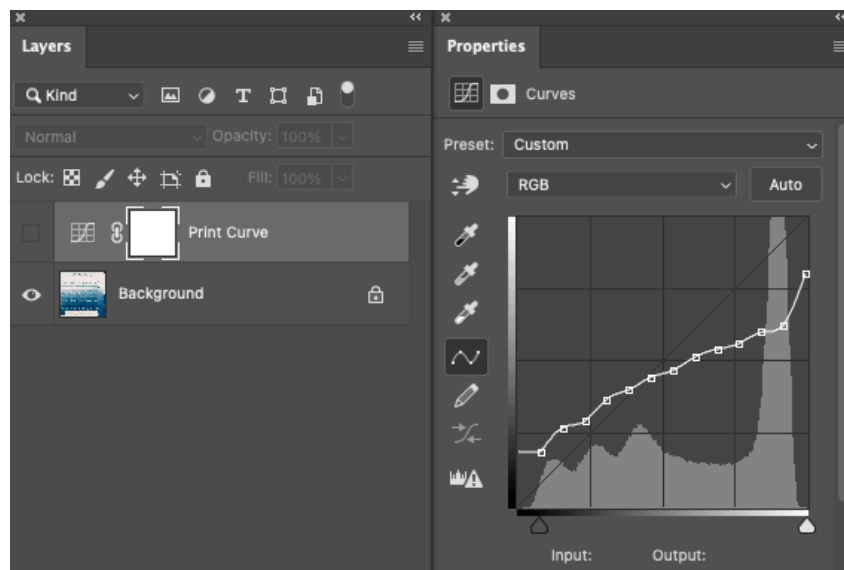


Occasionally another pallet will open 'suggesting' a tweak to your results, but were going to skip this step and carry on.....

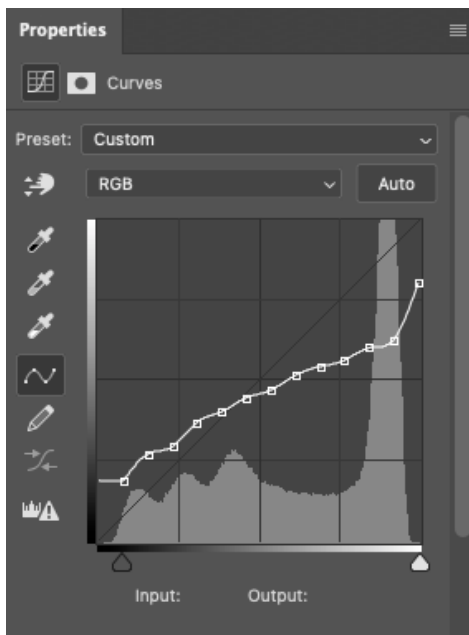


The additional pallet box making a 'suggestion'. Click **'Done'** when happy and review the Layers Palette

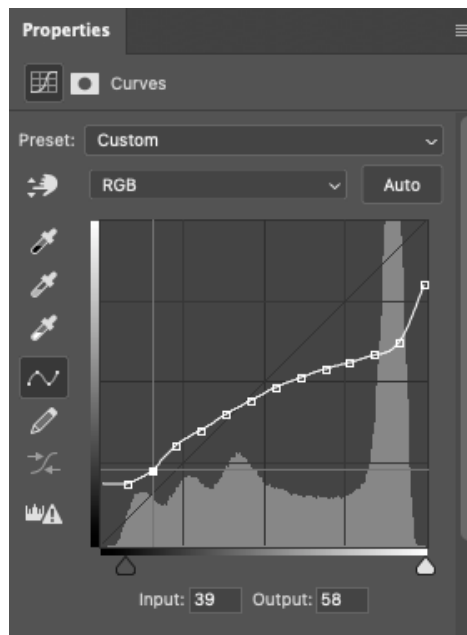
There should now be a second layer in the Layers pallet, above our original image with an adjustment curve (but not active). When we look at the properties box for this layer it will show a Curve Adjustment for the scanned image. (Note that this is still in RGB mode).



The curve on the right is for my Cyanotype process on Hahnemuhle Mixed Media paper. Your curve may be completely different depending on the process and paper used. It may look slightly bumpy in the odd place, but we can manually adjust the curve slightly to smooth it out at this point. Even if it looks slightly odd, trust it until we have applied it to an image and printed it.



The ChartThrob adjustment curve produced after analysing. (Slightly irregular)



Click Here to save the preset curve

The ChartThrob curve smoothed out, ready for saving.

- 16 Click the stacked lines in the top right of the curves dialogue box and choose **Save Preset**. Name the curve and save it with the default curves.

**(Windows) C:/Users/<username>/AppData/Roaming/Adobe/Adobe Photoshop/Presets/Curves.**  
**(macOS) Applications/Adobe Photoshop/Presets/Curves.)**

The curve may require a small tweak here and there but you should get it spot on after your first 'real print'. Just decide which areas need lightening (or darkening) and adjust the curve manually.

## PRINTING YOUR IMAGES

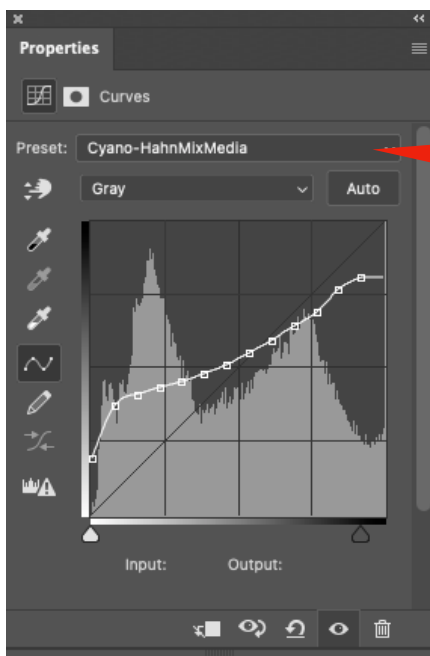
- 17 Choose any image. If your image is in colour, convert it to black and white (your preferred method) and make adjustments as you would for a normal print (RGB mode).

- 18 Use the dropdown menu in Photoshop to change the mode to **Image>Mode>Greyscale**. This should change the gamut to 2.2 and flatten the image (if it's not already).

An RGB image converted to Greyscale Gamma 2.2







Use this box to call up a previously saved preset

19 Now we can apply our saved correction curve. Go to **Image>Adjustment>Curves** to open the dialogue box. In here, we have a **Preset** option (saved in step 16). Open this box and we should find our named Preset Curve. Choose this and we have now applied our adjustment curve (based on our previous ChartThrob Analysis).

Note that the curve is now inverted due to the greyscale mode!



20 Make a Stamp Visible layer by pressing **Cmd+Option+Shift+E** (**Ctrl+Alt+Shift+E** on **Windows**).

21 Invert the image to make your negative then flip this layer Horizontal

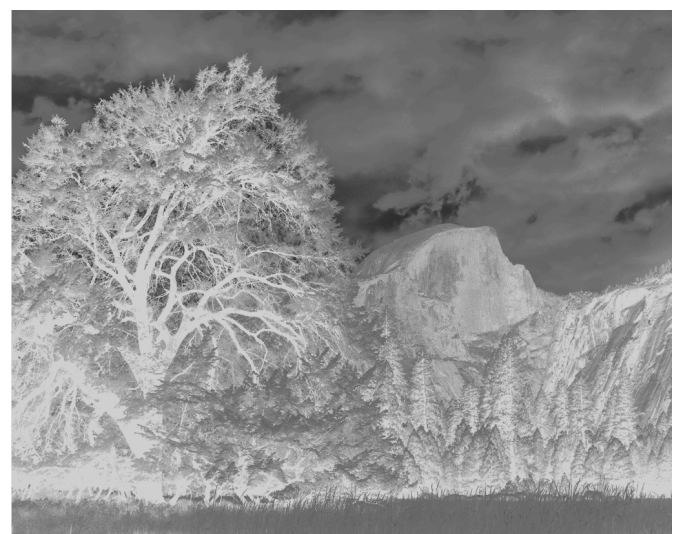
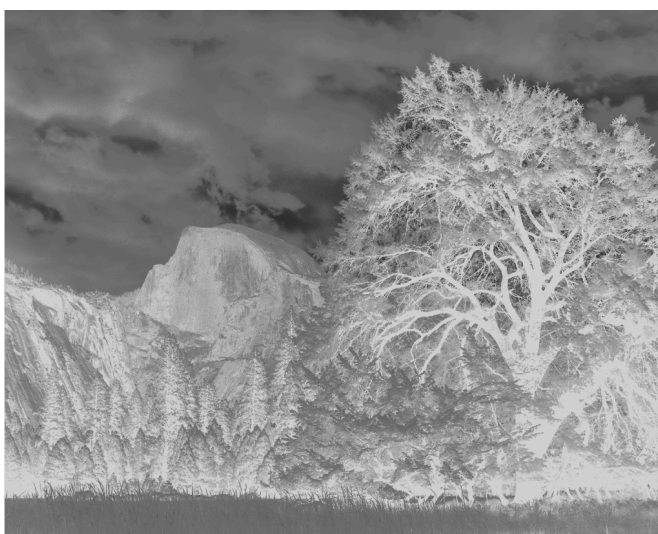


Image made negative (Invert) Then flipped horizontal



22 Print your image using the print settings as before in step 2, and we have a finished Digital Negative ready for contact printing.



The finished print from our Digital Negative - 'Half Dome from the Meadow'  
Cyanotype print on Hahnemuhle Mixed Media Paper.  
Preset Curve (Cyano-HahnMixMedia) exposed for 10 minutes.

For any given image, we only need to:

- o Make a Greyscale image.
- o Apply the Adjustment Curve Preset.
- o Make a Stamp Visible layer.
- o Invert the Image.
- o Flip the Image.
- o Finally print the negative.

NOTE: If you change the Process or the Paper used, we need to create a completely new Adjustment Curve.

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