A SURPRISINGLY COLOURFUL IR CAPTURE FROM THE HERITAGE MUSEUMS AND GARDENS IN SANDWICH, CAPE COD, MA.
Fujifilm X-Pro2 with 590nm filter (Super Color). I added a subtle 'Orton Effect' and manipulated the colour in Photoshop.
*X-Pro2 + XF18-135mmF3.5-5.6 at f/8, 1/600 sec, ISO 400*

INFRARED PHOTOGRAPHY WITH FUJIFILM:
PART 2

—— Lee Varis ——

Lee Varis continues the exploration of the ins, outs and throughs of infrared converted Fujifilm cameras! Part 2 concentrates on colour infrared, entering a whole new magical realm of the unseen.

A Standard IR capture with 720nm filter. This is pretty much straight out of camera.
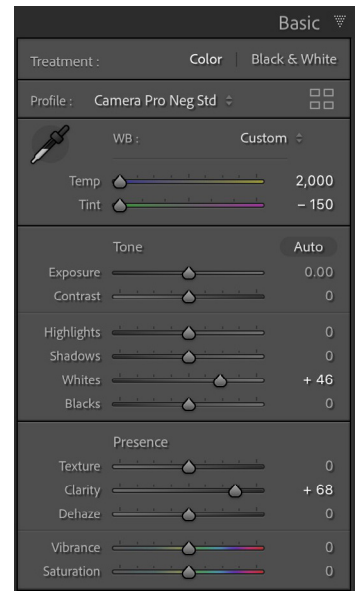*X-T2 + XF18-135mmF3.5-5.6 at f/10, 1/250 sec, ISO 400*
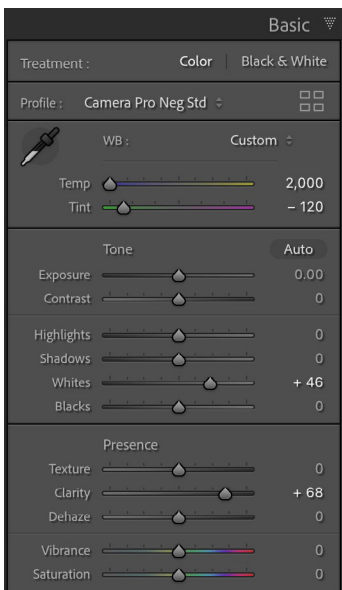
Minimal adjustments with a white balance set to neutralise the green foliage.

We usually think of Infrared captures as being more or less monochromatic. Certainly with the IR only 830nm filter (basically a Wratten 87A or B), which blocks all visible light, you only get a monochrome image. The 'standard' IR filter passes a small amount of red wavelengths around 720nm and IR wavelengths longer than that — the net effect of this small amount of coloured light is a muted, very limited pallet of lavenders and browns.

However, we must remember that digital image files, especially in the RAW format, are very malleable and can be rendered in all kinds of ways using the simple controls in Lightroom. In fact, this muted colour rendering requires a pretty radical white balance to arrive at the muted colour result. Mostly the standard IR look comes from setting a custom white balance in-camera by shooting a green lawn instead of a white balance card. This results in the most common IR rendering where green foliage shows up as neutral, near white. Even small deviations in the white balance slider can generate a lot of colour.

Here the green slider has been moved towards green about 30 points

White balance adjusted slightly towards green, resulting in more of a sepia colour.
*X-T2 + XF18-135mmF3.5-5.6 at f/10, 1/250 sec, ISO 400*

I have heard all kinds of silly rules regarding IR capture settings. Things like "never set a white balance in-camera", "never shoot JPEGs", "don't convert to DNG", etc. My favourite one is this: "Fujifilm does not recommend setting a custom white balance or a film simulation for IR captures." That last one comes from a so-called IR expert, who shoots with a Canon DSLR. He certainly did not talk to a Fujifilm technician because Fujifilm does not make an IR camera for consumers, and consequently they would have nothing to recommend regarding IR. I've also heard things like you can't use Lightroom because it "throws away" a lot of information from the RAW file! This is, of course, absurd. No RAW processing software throws anything away from a RAW file; nothing touches the RAW file one way or another. RAW processing software only generates instructions for rendering the RAW data into a bit map that is legible, with RGB colour. Lightroom is a perfectly adequate software for RAW processing and since it is also one of the easier applications to use, it is at the top of my list for dealing with the wacky colours of IR capture.

As far as setting a custom white balance and film simulation for Fujifilm IR converted cameras, you must set something in both cases to even have something usable in your viewfinder — you are not looking at an optical image through the lens, but a RGB rendering processed on the fly! The Fujifilm film simulations can give you a leg up on your ultimate destination. So, if you are only interested in black and white, go ahead and set Acros as your film simulation. I always use Acros G for a reasonable preview of the black and white rendering in the viewfinder! For muted colour renderings, I choose Pro Neg Standard (or even Eterna.) For a more colourful result, there is no reason to use anything but Velvia!

White balance adjusted the other way towards magenta, resulting in a more saturated lavender/purple colour.
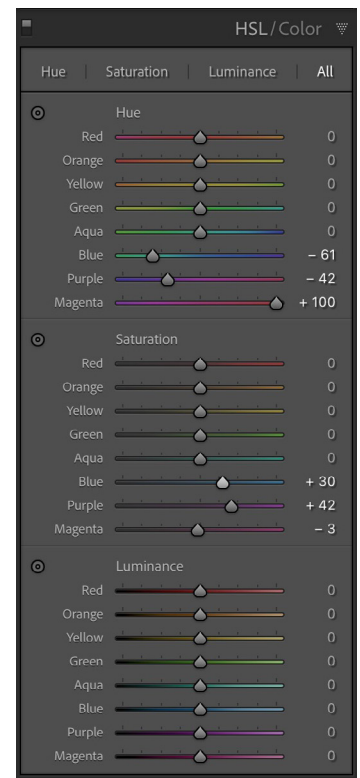*X-T2 + XF18-135mmF3.5-5.6 at f/10, 1/250 sec, ISO 400*
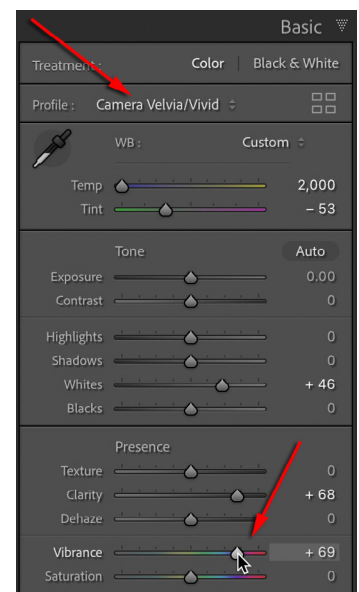
Here the green slider has been moved towards magenta about 103 points. Also notice the Profile and the Vibrance slider.

Concentrating on the colour sliders to force more colour variation into the image. The trees here go from blue to purple, and the sky is more red.

X-T2 + XF18-135mmF3.5-5.6 at f/10, 1/250 sec, ISO 400

Notice how the purple and magenta sliders are moved in opposite directions.

Now on to White Balance in camera. It's always a good idea to set a custom white balance for IR. This is how you do it (slight variations depending on what camera you have):

1. Select SHOOTING MENU > IMAGE QUALITY SETTING >WHITE BALANCE > CUSTOM. You usually have the option of saving multiple custom white balance presets, which can come in handy under different lighting conditions.

2. Point the camera toward a surface to use as a neutral reference, commonly a green lawn. Make sure the surface is large enough to be fully covered by the white balance metering frame in the viewfinder.

3. Fully press the shutter button to meter and set the new custom white balance. The live view will change accordingly and will simulate the adjusted colour temperature. If you are happy with the result, confirm it by pressing the OK button.

You can always re-adjust the white balance later in post. This just gives you a way to preview a standard IR look. The real magic with colour IR comes later when you are making your processing decisions in Lightroom or Photoshop. Lightroom gives you a lot of options for colour that go beyond what you can achieve with just the White Balance slider.

First up is the HSL/Color panel. You can often force more colour variation into the image by pushing the colour sliders, especially in the purple, magenta and blue sliders.

You can see in the screenshot that the magenta slider has been pushed all the way towards the right, which yields more red. The adjacent purple slider has been moved to the left, which yields more blue. This trick of moving adjacent sliders in opposite directions is key to getting more variations in colour when you have a mostly monochromatic colour palette! The other trick is once you have some colour slider settings in place, go back to the white balance and see if you can improve the image with slightly different white balance settings — small moves go a long way!
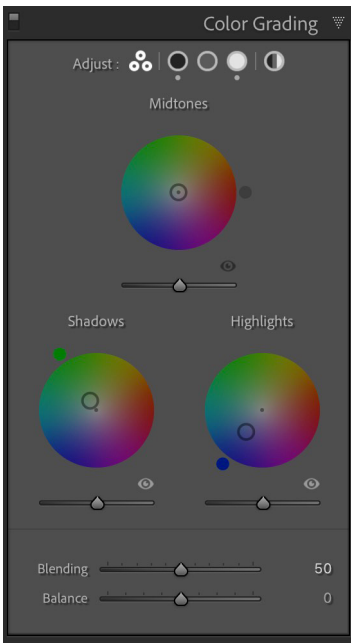
Notice the 'colour wheel' in shadows shows the slight shift towards green —the little circle nudged off centre towards green. Highlights has the circle moved towards blue.

Next is Color Grading (used to be known as Split Toning in earlier versions of Lightroom/ACR). Here we can apply colour shifts in shadows, midtones and highlights separately.

Adjusting the shadows towards green has essentially shifted the sky away from red towards yellow, giving us a little more colour contrast because blue is opposite yellow on the colour wheel. All this additional colour movement is revealing a subtle hot spot with extra blue in the sky at the very centre of the image. We can fix that later in Photoshop.

Manipulating the Color Grading has put more blue-purple colour variation in the trees and shifted the sky more towards brown.
*X-T2 + XF18-135mmF3.5-5.6 at f/10, 1/250 sec, ISO 400*

Finally, we can look at the Calibration panel where again, we find Shadows, but now Red Primary, Green Primary and Blue Primary sliders. This area can be used for subtle adjustments in colour, though it is sometimes hard to predict the result with limited colour palette images. The example image gains just a tad more yellow in the brown of the sky by moving the Red Primary slider towards the right – towards orange.

It's much less of a struggle to get colour into the image if you allow more visible light wavelengths to hit the sensor. My X-Pro2 is converted with the 590nm Super Color IR filter, so captured images start off with much more colour. I find it fairly easy to get a good blue-to-yellow colour variation with just simple slider settings.

The biggest issue for me with a Lightroom-only workflow is that you end up with a more-or-less duotone look. To go further you need Photoshop. Once you open your image into Photoshop, you have a much broader range of tools to control colour and contrast. I like to play around with channel swaping using the Channel Mixer adjustment layer and various layer blend modes!
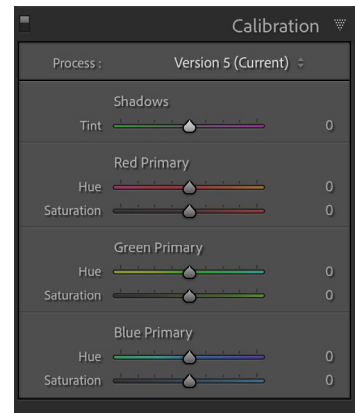

The "Calibration" slider can be useful for subtle adjustments. Moving the Red Primary slider to the right slightly shifts the sky towards yellow.

Another angle and a different time of day with a Super Color IR capture.
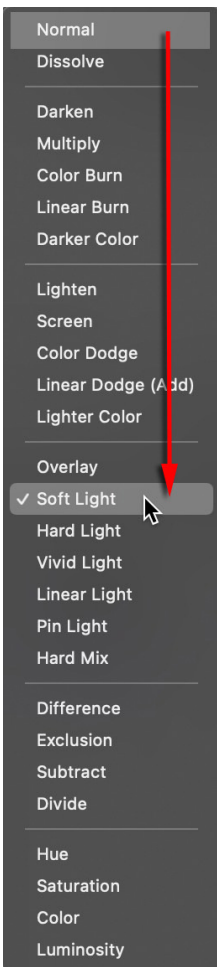*X-T2 + XF16-80mmF4 at f/8, 1/680 sec, ISO 400*

Notice how the purple and magenta sliders are moved in opposite directions, and the red slider is moved towards orange.
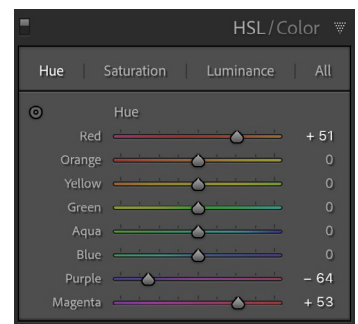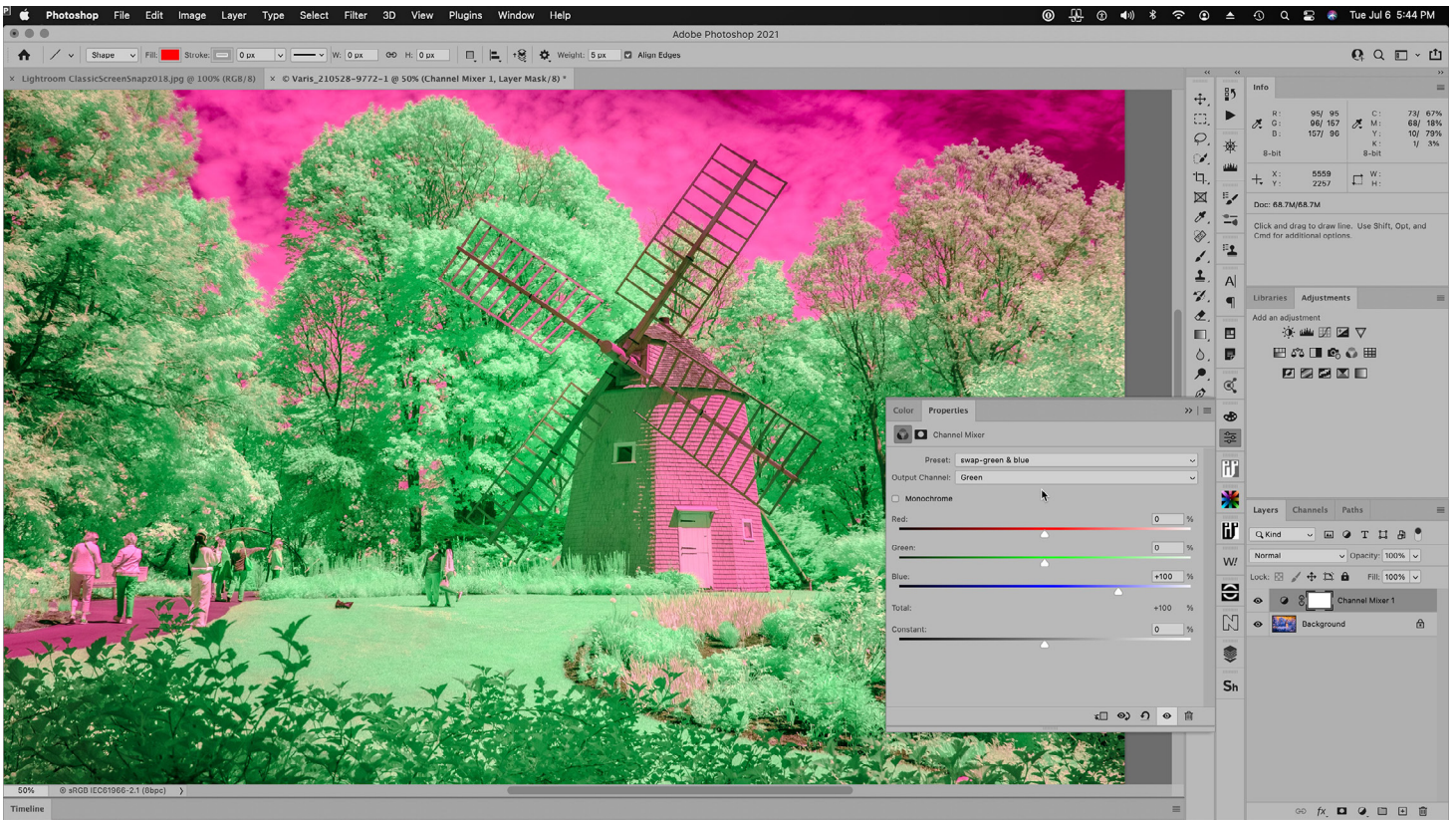
Whacked out green/magenta colour is the result after Channel Mixer move that swaps green and blue channels.

Change the layer blend mode to Soft Light for the next colour variation.

One thing I always try is to swap green and blue, putting the green channel into the blue position and the blue into the green, then placing that adjustment into Soft Light Blend Mode. The initial green-blue channel swap really whacks the colour to bright green and magenta instead of blue and yellow but changing the layer blend mode to Soft Light brings us an interesting result.

A lighter blue, redder sky, which gives more contrast overall.
X-T2 + XF16-80mmF4 at f/8, 1/680 sec, ISO 400

The green colour has given us highlights that are more cyan, a lighter blue colour, and the magenta has delivered a sky that is more orange than yellow.

There is another blending option available for Layers that is accessible from the Layer options hamburger icon at the upper right corner of the Layers panel. I use the advanced blending options to reveal the darker blue colour in the shadows, generating even more contrast and colour variation.

At this point we can try another Channel Mixer move that swaps the blue and red channels.
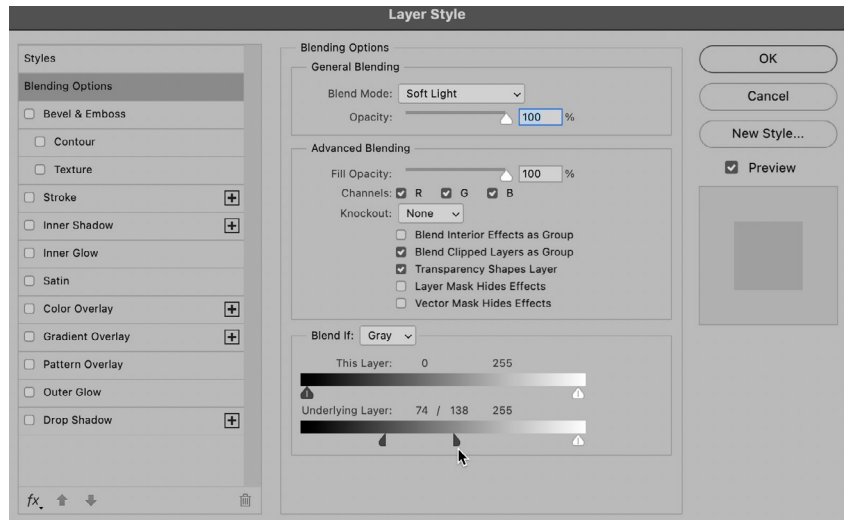
Use the Blend If area to blend through the shadow values to the layer underneath, revealing the original blue colour in the shadows — split the black slider by holding down the option/alt key.

Now suddenly we have something that looks more like a fall colour scene.
*X-T2 + XF16-80mmF4 at f/8, 1/680 sec, ISO 400*

Compare with image 5 – here we've literally coloured over the blue spot with colour sampled from the brown sky.
X-T2 + XF18-135mmF3.5-5.6 at f/10, 1/250 sec, ISO 400

I mentioned that we could fix the blue hotspot from our fifth example image. To fix the issue, open the image in Photoshop, create an empty layer and set the Layer Blend Mode to 'Color'. Now sample the colour of the sky region outside the blue hot spot and paint over the blue colour with the brown sky colour.
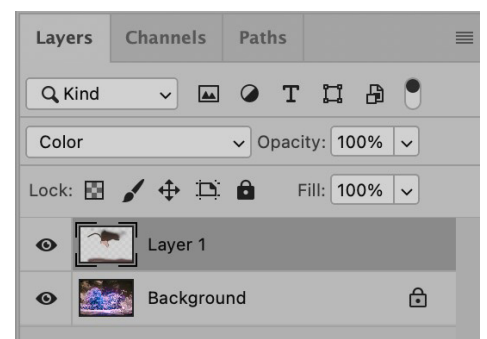
Shows the Layer panel with the colour layer containing the brown sky colour over the original image.

These few examples demonstrate the tip of the iceberg as far as colour possibilities go for IR captures. My current preference for IR conversions has become the 590nm Super Color, as this offers the best colour possibilities and with a written 87 filter in front of the lens, the same camera delivers great black and white deep IR images.

To finish off, I'll leave you with a few more examples of colour IR.

HERITAGE MUSEUMS & GARDENS, CAPE COD, MA
X-Pro2 + XF16-80mmF4 at f/22, 1/50 sec, ISO 400

SHELBURNE FARM, SHELBURNE, VT

X-Pro2 + XF18-135mmF3.5-5.6 at f/8, 1/210 sec, ISO 400

RED ROCKS PARK LOOP TRAIL, BURLINGTON, VT
X-Pro2 + XF18-135mmF3.5-5.6 at f/8, 1/210 sec, ISO 400

I hope you found this article helpful for your consideration of infrared image capture with Fujifilm cameras. Make sure you check out part 1 from last month if you haven't done so already. I am continuing my explorations with infrared, and working on new methods for post processing in Photoshop and Lightroom. If you want to dig deeper into infrared, click here. We have in-person workshops for Infrared photography, and I will be publishing an online video tutorial on post-processing IR soon.

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