Here's another case study.

I simply put two pieces of paper overlapping.

These papers are used for particular medical analysis.

So I captured it, once again, at a very high resolution, so that as we zoom into the image, we can actually see the fibers in the paper.

Here's an image where I added background color.

Now, I'm not changing the important information in the image-- the structure.

The structure is the data.

I'm just adding an additional component to allow the viewer to see the material better.

We'll be looking at adding backgrounds in the how to do it section.

I want to spend a few minutes on backgrounds.

I am a bit of a background collector.

And, frankly, I think you should be one, too.

Really, it helps a lot to imagine your images, even while you're not even working on it.

Whenever some interesting envelope or card arrives in my mailbox, I keep it, believe it or not, thinking that it might help with an image one day.

Or platters.

Or wired thingies.

Anything that might be appropriate for a background for small devices.

And besides, it's fun to think about.

So let's take a look at one particular idea.

Take this simple graph paper, which I tried as a background for this device.

Looks OK.

Here I tried some bubble wrap, of all things.

Definitely over the top, and doesn't work quite well.

There should be some sort of intelligent visual connection between your device and your background, and bubble wrap doesn't quite cut it.

In the end I finally landed on using simple green paper with this device.

And because the image was captured with the scanner sitting at a high resolution-- it was about a 400-meg file-- I was able to zoom in, crop, and finalize the image.

I think that both the simple colored background and the composition works.

Here we see three microfluidic devices, which I initially lined up in a pretty boring way, as you see here.

And once again, I'm always playing with composition, so what I did was I used two of them instead.

Just the two of them really visually say what you need to say.

We don't need three.

You might think about that in your own work.

So I captured it at a very high resolution, putting the devices on an angle-- a much more interesting composition.

And because of the high resolution, I was able to zoom in and crop the image.

Now, watch what happens when I enhance the image using a sharpening tool.

We'll talk about sharpening images in the how to do it section.

This is an important technique.

The sharpening filter is not changing your data.

If your data is about form and structure, it's permitting you and your viewers to see the image clearly.

But whenever any of these filters are used, it's imperative to always indicate the process in the caption.

Something that I encourage you to consider.

Because I captured this at such a high resolution, we can zoom in and see 30-micron structure.

Here is again.

First, the original image.

And here it is sharpened, where you can really see the detail.

It's pretty neat.

So this is our first week, imaging with a flatbed scanner.

Think about it.

It's not an expensive piece of equipment, and if used properly, you can achieve high-quality images without spending an inordinate amount of time.

In the next weeks, we'll talk about cameras, lenses, lighting, approaches to imaging science and engineering.

We'll also discuss how to graphically use these images for figures and potential cover designs.

So lots more ahead, and I look forward to it.