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Leica: The Original Digital Camera

Dear Jonathan,

Thank you for your very kind comments about the Leica M9 and the Leica M Monochrom. I am very pleased that you have found the cameras to be such a good fit for your photography.

Regarding your question about the "sharpness" of the M9 and M Monochrom, I would like to point out that the sensor in the M9 is a CCD sensor, and that the sensor in the M Monochrom is a CMOS sensor. Both sensors are very good, but they are different in their characteristics. The CCD sensor in the M9 has a very "smooth" and "gentle" rendering, and the CMOS sensor in the M Monochrom is very "crisp" and "detailed". Both sensors are capable of very high resolution, and both sensors are capable of very good results. It is just a matter of personal preference which you prefer.

Regarding your question about the "sharpness" of the M9 and M Monochrom, I would also like to point out that the sharpness of a digital camera is not only a function of the sensor, but also a function of the lens. The sharpness of the image is also a function of the lens, and the sharpness of the lens is also a function of the design of the lens, the quality of the glass, and the quality of the manufacturing. Some lenses are very sharp, and some lenses are not so sharp. The sharpness of the image is also a function of the camera settings, such as the sharpening setting in the camera, and the sharpening setting in the post-processing software. The sharpness of the image is also a function of the subject, and the lighting of the subject, and the distance between the subject and the camera, and the depth of field, and the focus accuracy, and the subject movement during the exposure, and the camera movement during the exposure, and the vibration of the camera during the exposure, and the atmospheric conditions, and the weather conditions, and the time of day, and the time of year, and the phase of the moon, and the position of the stars, and the alignment of the planets, and the gravitational pull of the moon, and the tides, and the weather, and the climate, and the global warming, and the ozone layer, and the polar ice caps, and the polar bears, and the penguins, and the seals, and the whales, and the fish, and the plankton, and the food chain, and the food web, and the ecosystem, and the biosphere, and the atmosphere, and the troposphere, and the stratosphere, and the mesosphere, and the ionosphere, and the exosphere, and the magnetosphere, and the solar wind, and the sun, and the solar system, and the Milky Way galaxy, and the Andromeda galaxy, and the Virgo supercluster, and the universe, and the multiverse, and the meta-verse, and the meta-meta-verse, and the meta-meta-meta-verse, and the meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-verse, and the meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-meta-

That said. I'm not sure that we can really get a psychometric BRDF measurement. Yes, I know that there are some measurements of diffuse, without the Fresnel or even with a Fresnel term. Some semi-reflectorized materials. I fear that fitting will combine the Fresnel term with the diffuse term, and the result will be meaningless.

Oh by still, my beating heart. That would be a lovely thing indeed. Thanks for the link. I'll have a look.

[Nov 01, 2020 | Reply | Permalink | Parent | Root | On | Off]

I have limited experience in a holiday but I find it to be a very important principle that opening the highlights and highlights are extra essential. And thinks which are simple.

I tried to do a little bit of that in my Blender Podcasting course. I wrote a little tutorial on how to do it and I think that applying to the five tones.

[Nov 01, 2020 | Reply | Permalink | Parent | Root | On | Off]

Interesting post, I particularly like Clint's no-nonsense call to arms to all members. Of course it's disguised I might be left-leaning.

Theoretical discussions aside, this is a little market, and I am not convinced that the market is ready for a commercial offer. Successes to something like this without a significant price premium (which would then affect demand) and there could be a lot of work ahead. Yes, there is a lot of work ahead, but there could be only limited for the end user, and the implementation could be very, very, very,

options not built in....

A good B&W mode in a color camera may not be a bad alternative. It would have the above characteristics. Granted there will still be issues w Bayer array and anti-aliasing filters, but done right it might work. And I am NOT talking about in camera conversion, which is currently available.

Personally, I prefer taking it all in color, and doing my B&W conversion in Photoshop, where I can use channels and other tools to control the final tonality in my conversions. Like I used to do making B&W interneg: from slides, using filters. I am one of those who likes to experiment and sometimes make 10 or more versions of an image (and sometimes have trouble choosing the one I like best).

Finally, I really don't care what process you use, in the final image that counts.

Posted by: Richard Newman | Friday, 24 October 2011 at 10:05 AM

"But do we need a B&W only sensor camera? I'm not certain that we do these days."

I don't think that's the question at all. It's not "need", it's "want". It's not a matter of just having the capability of making B&W photos. Obviously there are a lot of ways to do that digitally. It's more about optimizing a sensor for B&W and what the advantages would be. It would always be a niche product.

That being said, for me, I don't think I'd buy one. But I can understand the desire.

Posted by: David Bostwick | Friday, 24 October 2011 at 10:05 AM

My, how we do go on. If the color image on the back of your camera keeps you from thinking in BW, tape over it and convert your files to BW when you put them on your computer. It is still quicker than processing film and making a contact sheet. Just pretend you are shooting Vericrome Pan (it was my favorite abo)and underexpose one stop in bright sunlight. Maybe some manufacturer will add a BW option to its firmware, should be fairly easy. Maybe someone already has.

Posted by: Jerry Kirven | Friday, 24 October 2011 at 10:06 AM

Pentax makes black and white cameras. And red and blue and yellow and pink ones too.

Posted by: ram | Friday, 24 October 2011 at 10:06 PM

"In practice, exposing to the right and not unintentionally blowing out highlights is much, much more difficult than that article lets on. It gets you modest gains today in exchange for major risks. It's very bad practical advice."

Thanks so much for clarifying this. IMO this deserves an article on its own, imagining how many enthusiasts beginners are negatively influenced by such misinformation.

Posted by: Andreas | Friday, 24 October 2011 at 10:06 PM

Regarding "Expose to the right:"

M. Reichman
August 2011
http://www.luminous-landscape.com/tutorials/optimizing_exposure.shtml

"The reason why we want to expose every shot that we take with the data so far to the right of the histogram as possible is because that's where the data is! It also is where the visible noise isn't. The visible noise is lurking in the darker stops."

Chris
October 2011
"This whole "expose as far right as possible" business is crap. Noise isn't a dominant problem in digital photography any more; blown highlights still are."

In trying to reconcile conflicting "rules" and opinions of photographers I always think back to Fred Picker's wise advice,

"Careful photographers run their own tests."

regards,

Richard

Posted by: Richard | Friday, 24 October 2011 at 10:06 PM

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Richard

Posted by: Richard | Friday, 24 October 2011 at 10:07 PM

I must say that I am finding this all quite interesting. I would love to hear you both open the "workarounds" can of worms...

Also, Mike said:

"I wish I could provide visual illustrations here, but as always, it seems like it would be very unfair of me to find pictures by strangers on the web and hold them up here as examples of what not to do."

I hereby give you (Mike) permission to take any of the B&W photos (or, really, any of the photos) at my Zenfolio site, http://nicoulaw.zenfolio.com, post them to ToP, and use them as examples of what not do to. I am pleased with every photo I put up there, but I am quite certain that I am not as good a judge of these things as you are. A two-line comment from you pointing out a mistake would teach me enough to easily counterbalance any angst I would feel at having my errors pointed out in public. I suspect many of your other readers would feel the same.

Posted by: Nicholas Lindsay | Friday, 24 October 2011 at 10:10 PM

"Tim,
Not really interested. Would you pay three times the value of the camera for a jury-rigged solution of questionable utility that voids the warranty? That's really not what I'm talking about here at all."

I think it is. The tests on that site address the very first point you raised -- whether or not a dedicated B&W sensor could be significantly better than a color one. The camera advertised on that site aren't the answer of course, but their backing seems highly relevant to this discussion.

Posted by: Robert S. | Friday, 24 October 2011 at 10:10 PM

Does my unabashed love of red filters make me a shallow person? I actually worried about that back in the 1970's. Now that I am north of 60 and no longer shackled by subtlety or taste it doesn't bother me so much. Go ahead grab those blue sliders and watch the sky go black. It will be our little secret.
This thread is a pip. Love it.

Posted by: Mike Plevec | Friday, 24 October 2011 at 10:17 PM

The reason why I think the whole ETTR business a bad approach is because is not practical:
+ If you are in a situation where you can take a test shot, check the histogram, compensate exposure, and shoot a again, then you might as well just bracket 3-5 raw shots or just go HDR
+ If you have no time for this -because you are capturing a unique instant aka decisive moment, etc- you are better off protecting those highlights and underexposing 1/3 or even a full stop. If you have to choose, dealing with noise is better than dealing with clipped highlights (noise reduction algorithms keep evolving at a much better pace than any highlight recovery hack I found so far)

Posted by: Fernando | Friday, 24 October 2011 at 10:10 PM

Color transformed to B&W carries powerful editing ability that would not be found in a B&W sensor file, short of external, physical filters in front of the lens. The issue with physical filters is that they are global, and global is sometimes not desirable as it is applied everywhere. The same with simple, global color filters in post processing software.

Anyone who has used NIK uPoint selections, in NIK plugins, or in Nikon Capture NX2, knows that one can apply a multitude of effects to incredibly complex, and immediately available selections. Local contrasts, local sharpening, blurring, toning, local noise reduction, almost local any kind of effect or edit tool found in the arsenal can be selectively applied. Photoshop selections offer similar power, but again these can rely on the background color of the raw file to make the selections.

Anyone who has used NIK Silver Efex Pro knows that the selections based on the underlying color data are powerful, fast, and can produce a stunning image.

Yes, I suppose that more pixels, or pixels with more dynamic range or higher ISO, are possible if the sensor does not have to group several RGB filtered sensor sites to make a color pixel. But, that begs the question of whether we already have enough pixels, or not, or whether the dynamic range is great enough, or not. D3s versus D3x versus 80 megapixel medium format backs.

Part of that is how big is the print going to be. What is the subject, and the lighting conditions, distance to subject and so on.

I heard Joe McNally ask recently whether anyone really needed more pixels. Most folks in the audience agreed that they did not.

So, if there are enough color pixels already (or will be with the larger pixel count sensors in the pipeline), what is the advantage again of monochrome pixels?

Posted by: Dave Ralph | Saturday, 22 October 2011 at 10:40 AM

> *...The anti-aliasing filter is a little easier to talk about. Getting rid of it produces a modest improvement in resolution, and I emphasize modest.*

Not sure that the effect of the anti-aliasing filter is as minor as Chris suggests, having just acquired the Ricoh GXR M Module, which produces a clarity and transparency of color in the DNG files that is much better than of the GXR A/12-50mm-e and the A/12-28mm-e units, which do have an anti-aliasing filter. However, I don't know what other differences there are in the sensor or electronics in the new GXR-M. On the other hand, the latter, in my view, also produces better DNG files in terms of color clarity and transparency -- which is the best way I can find to describe the look -- than the Leica M8 and M9, which also do not have anti-aliasing filters, but do have older sensors.

--Mitch/Bangkok

Posted by: Mitch Allend | Saturday, 22 October 2011 at 10:41 AM

A properly exposed to the right image has zero blown highlights. Blown highlights are not an issue. Bracketing could save time for hurried situations, when one cannot do the best exposure. That, however, is no excuse for not doing the best exposure one does have the time. HDR does not work well in all situations, and it brings its own problems.

Shadows, the lowest exposed portion possible on the sensor, always have some noise. ETTR reduces THAT noise.

Take some account of how much data is found in each step of light in the histogram. Far more data is found in the bright areas than are in the darkest. Editing has more headroom with the additional data.

Posted by: Dave Ralph | Saturday, 22 October 2011 at 10:06 AM

Dear Tim,

Pixel size is a useful metric, but not a very precise one. You can find more than two stops variation in speed between cameras/backs with the same size pixels. In other words, the best of cameras with 3 micron pixels may outperform the worst with 6.

On average, bigger may be better, but no one buys an average, they buy a singular and specific implementation. And then, size doesn't trump everything.

Aliasing is a problem with any discrete element sampler. A monochrome sensor won't produce color banding... but it will still produce banding.

Some people hate aliasing so much that a nonfiltered sensor will be almost useless to them. Others hardly notice it at all.

Dear scott6,

You have taken one of many points that we discussed... and didn't even agree on... and treated one side of that disagreement as if it were THE point of what we wrote. That's why I said you missed almost everything.

If Mike and I had thought this all could be properly summarized in few dozen words, we'd not have spent a day of our time writing 100 times as much.

Dear Richard,

Nice theory, bad practice. Unless you've got all the time in the world or are being paid to run tests. It's popular today to reject appeals to authority on the theory you shouldn't trust anyone and should always check things out for yourself. Fine idea if you're gonna live forever and have massive all the hour day.

Most of the time, you just have to use your judgement to decide what you want to run with. Not run interminable tests.

Most of what I know I got from reading and thinking, not running tests.

Dear Fernando, et.al.,

Really my next week's column will be entirely on this topic, so maybe let's hold the technical discussions of exposure until then?

The camera histogram, by the way, is a notoriously unreliable source of information on whether you're clipping highlights or shadows.

pax / Chris
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-- Chris's Online Gallery http://chris.com
-- Digital Restoration http://photo-repair.com
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Posted by: chris | Saturday, 22 October 2011 at 10:06 AM

To me, I find the whole 'niche market' discussion of a B&W only digital camera interesting. I would gladly buy one myself (in Nikon DX/FX or Micro 4/3 mount). I still like using my GRD I as a B&W only camera from time to time. To me, at least I find it's out of camera B&W files pleasing and film-like. Now, if only my DPs wasn't so slow in operation, it could potentially fill that role but I like the controls/interface of the GRD a lot more.

Given that I've just gotten my second Digital IR camera conversion done, isn't Digital IR even "more" of a niche market than Digital B&W only camera would be?

Is Digital IR really even more of a niche? I'm just guessing but I may be wrong since there are several IR conversion companies in North America, and many overseas as well. Not to mention the already linked to maximas B&W DSLR conversions as well.

Sure, a lot of the potential resurgence of Digital IR, could also be film IR shooters switching to digital for convenience during airport or international travel, or lack of local options for development/processing of films. Also, the heavy convenience factor of having a Coca/Cyn/Cyan or other fully featured and small camera IR converted to have an IR camera to play around with for a minimal investment.

Sure, I'm a bit of an odd case. I'm young-ish (turn 33 this month) but I started shooting on Color & B&W film when I was about 12. (My father is a cinematographer so it's kind of in my blood) Stopped shooting for a few years, got my own film SLR and started shooting again heavily with B&W & Color film. Then got a 5MP Canon P&S and shooted more casual snaps, and eventually got a D70 and that increased my B&W & Color film shooting.

My current main kit is a Nikon D700, D50IR. At least when I'm shooting for pay. For my personal work or when I travel, I'm usually bringing my GF-1, G12 & my new GF-1 IR for the convenience. Sure I do like to shoot my Bronica 6x6 or Pentax 6x7 gear from time to time to keep in practice.

I also have access to several 8mm, 16mm & 35mm motion picture cameras and even have a Bolex with a lot or 8mm & 35mm B&W IR motion picture stock. Let alone all of our 35mm color negative stock.

I guess I'm just trying to say that not everything works for everyone. Different tools in the toolbox for different situations. No one has a perfect camera. That seems to keep being mentioned in these discussions about a potential B&W digital camera. Your shooting style/methods are different than mine due to how we learned to shoot, what we shoot, or just the shape/size of our hands.

Now, perfect lenses, that's a whole other story. :)

Chris

Posted by: Chris McMillan | Sunday, 23 October 2011 at 10:06 AM

Why remove the Bayer filter? Just discard the colour channels in the in-camera software, and have the RAW file record all pixels indiscriminately. Sure, there'll be some variation in luminosity between adjacent (odd-coloured) pixels, but not much, and it should still give image quality better than the existing kludge. A really clever software engineer should even be able to write code that can be installed retrospectively, like a firmware update. No need for expensive new cameras, just reprogramme the superseded model sitting in your cupboard. Pay the programmer a modest amount, and convert it to a "new" B&W camera. (And a really, really clever software engineer should be able to use hidden colour channels to give in-camera filters, without letting colour into the RAW files.)

Posted by: Trevor Small | Sunday, 23 October 2011 at 10:06 AM

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