



The View Finder



Catawba Valley Camera Club

Volume 1, Issue 12

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Should you be shooting RAW? by [Elliot Hook](#)

You can find many articles online discussing the benefits of shooting in RAW and probably an equal number full of counter arguments stating that it is possible to obtain equally good results shooting in JPEG. Whilst that is definitely true, I want to discuss the reasons that pushed me to exclusively use RAW in the hope that it can persuade others to do the same. I liken RAW processing to taking the camera off 'auto' and shooting in 'manual' mode. When people are starting out in digital photography, it can seem like another area full of technical jargon that forms a barrier preventing its uptake. However, once you have a small understanding of the processes involved and how different settings can impact your results, you will find that letting your camera do the processing can be the limiting factor in achieving your photographic vision.

What is RAW?

A RAW file is an uncompressed image file that records the data from the sensor 'as is', with minimal processing. Depending on your camera, this file will most likely contain either 12-bit or 14-bit data. When shooting in JPEG, the camera will take the RAW file, process it with a number of generic actions (typically contrast/saturation adjustments, correcting for white balance and sharpening) before compressing the image down to an 8-bit JPEG file.

That difference in 'bit depth' is the key here. The 12-bit image will contain $2^{12}=4096$ tones per channel. Given that there are three channels per pixel (red, green and blue), that equates to $4096 \times 4096 \times 4096 = 69$ billion possible tones per pixel. If we compare that to the other bit depths, you will see the difference:

Bit Depth	Tones per Channel	Possible Tones per pixel
8-bit	$2^8 = 256$	16.8 million
12-bit	$2^{12} = 4096$	68.7 billion
14-bit	$2^{14} = 16384$	4.4 trillion

Now those numbers are almost too large to comprehend, however it is quite simple to consider in context. When you take a JPEG file from your camera into Photoshop to process, there are only 256 possible tones to define the color for each red, green or blue channel, which means that when you start applying changes to contrast or brightness, there are a very limited number of possible tones for each pixel, which can result in obvious image degradation if pushed too far. With a RAW image, the number of possible tones is that much greater that more significant changes to can be made without any impact on the final image quality. This doesn't come without a cost though. Due to the increased bit depth of RAW files, they are anywhere from 2-6 times larger than the corresponding JPEG when

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Although F rules are very convenient when you don't have a light meter or other tools on hand, you run the risk of sacrificing one very important thing—control over your aperture.

Are There More Rules Other Than The Sunny 16 Rule?

by David Peterson

The sunny 16 rule is a handy reference for beginner and pro photographers alike. It's a guide you use to get the right exposure (a.k.a. brightness) when you want to use manual mode and don't have a light meter or other diagnostic tools on hand with you. I've had a lot of readers asking me if there are any other similar rules. You bet there are! Let's have a look at a few of them.

Before we start, I need to mention that the Sunny 16 rule was developed in the days of film cameras before we had the wonderful immediate feedback that LCD screens provide. Before digital, there was no way to know before you had your film developed if your shot was correctly exposed. The Sunny 16 rule helped you know the approximate settings to use on your camera to get an image that wasn't too dark or too bright.

These days, we can see immediately on the

screen if the image isn't correctly exposed, and can make adjustments as we go. This is definitely the way to go when taking photos these days. There is no longer a need to remember the Sunny 16 rule (or any other exposure rule).

However, it's handy to look back over these older rules to give a better understanding of how cameras work. With a clearer understanding of 'why' your camera does what it does, it helps us know what to change to change what could be an ordinary shot into a superb one.

With the Sunny 16 rule, all you need to know is that it's a bright day and nothing else. If you set your aperture to F/16, your shutter speed to 1/200s, and your ISO speed to 200, you'll get an exposure that is neither too bright nor

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Calendar of Events



- Dec 5 **Image Critique Night (3 images) Open, 7:00 p.m.**
- Dec 19 **Dinner & Awards presentation**
- Dec 25 **Christmas**
- Jan 2 **Instructional - Masking/Overlays Robert Dant**
- Jan 11 **Image*nation Contest Reception Hickory Museum of Art**
- Jan 19 **Field Trip - John Hildebran's Studio John Hildebran**
- Feb 6 **CVCC Student Portfolio Critique**
- Feb 20 **Instructional - Lighting on Location John Hildebran**
- Feb 23 **Field Trip - Daniel Stowe Botanical Gardens**



County Superlatives Quiz

From west to east, almost every North Carolina county has something to brag about.

1. Mecklenburg County is home to more people than any other county in the state. About how many people live there?
 - A. 550,000
 - B. 800,000
 - C. 944,000
2. More than 13,000 bridges support motorists in North Carolina. What county, whose seat is Asheville, has the greatest number of bridges with 461?
 - A. Jackson
 - B. Burke
 - C. Buncombe
3. Nicknamed the Land of Waterfalls, what western North Carolina county contains more than 25 waterfalls, including the highest falls east of the Rocky Mountains?
 - A. Avery
 - B. Transylvania
 - C. Henderson
4. Yancey County has the highest average elevation of any county in the state. What mountain, whose peak rises to 6,684 feet, sits within the county's borders?
 - A. Mount Mitchell
 - B. Cold Mountain
 - C. Grandfather Mountain
5. Mitchell County recorded the state's highest amount of rainfall in a 24-hour period: 22.22 inches on July 15 and 16, 1916. What Mitchell County community was the site of this deluge?
 - A. Altapass
 - B. Cherokee
 - C. Boone

[Answers on page 8](#)

Web Sites to try

- <http://500px.com/popular>
- <http://digital-photography-school.com/>
- <http://photonaturalist.net/>
- <http://www.digital-photo-secrets.com/tip/>
- <http://www.steeletraining.com/>

Click on the links above

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“The handle on your recliner does not qualify as an exercise machine.”

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“My doctor told me to start my exercise program very gradually. Today I drove past a store that sells sweat pants.”



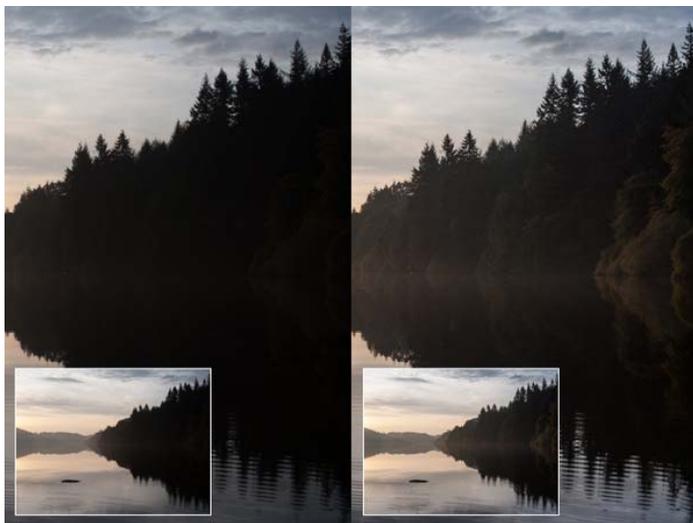
Continued from page 1 **Should you be shooting RAW?**

recorded in camera. This will make your vast memory card seem very limited. Additionally, where as a JPEG is typically printer-ready straight out of the camera, a RAW file will need to be manually processed in your digital dark-room. So, to answer the obvious question of ‘is it worth it?’, lets consider the benefits...

The benefits of RAW

As mentioned above, when shooting JPEG, the camera processes the image internally, before compressing it to a lower bit depth. The processing applied by the camera is generic, and uniform across the entire image. In contrast, when you capture RAW images, you have full control over how much processing is applied to an image, and where in that image you apply it.

Given the increased bit depth of the RAW files, any image you capture is much more forgiving than the corresponding JPEG would be. For example, if you didn’t nail your exposure, and you over-exposed the sky of a landscape photograph, leaving it nearly white, you will be able to recover much more tonal data in the RAW file and potentially save what, otherwise, may be an image destined for the recycle bin. Similarly for shadow data, much more information is retained meaning under-exposed regions of an image can be recovered to show detail that would otherwise



wise have been lost.

On the left is the image presented straight out of camera. Exposing to contain the bright sky caused the trees to be under-exposed, and appear and a dense block of dark col-

or. The image on the right shows the same image processed to boost the shadows to reveal detail that may otherwise have been lost.

Similarly, one image can contain enough tonal detail to create an HDR-style image from one file. The exposure of the image can be increased/decreased during post processing to give 3 images, as if bracketed, and can be combined to give that effect of increased dynamic range, but all from just one image.

When shooting in RAW, you no longer need to set your white balance in camera. The increased bit depth of RAW files means that the white balance can be defined, by precise colour temperature (in Kelvin), during post processing rather than by a limited number of defined presets in camera before the shutter is pressed. Due to the increased bit depth, significant white balance shifts do not have a negative impact on the final image quality. No longer do you fire off a few frames before remembering that you left the white balance on ‘incandescent’ even though you are now outdoors.

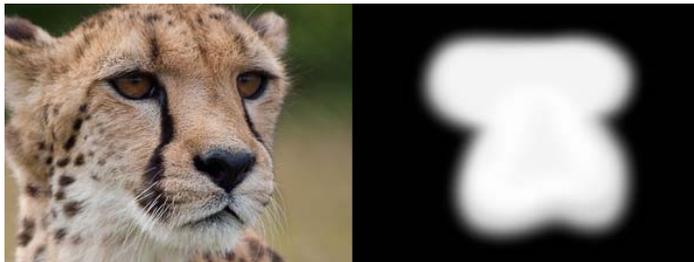


The top image shows Bruges, captured at night, straight out of camera. The white balance of the bottom image has been processed to reduce the color temperature in order to give a more realistic representation for the color of the stone buildings, without any impact on the image quality.



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Sharpening can be applied as much as you want and even where you want, without over-sharpening a pre-sharpened JPEG image. This can be used to emphasize details in one section of an image, or just generally give you control over the final image output.



This image on the left shows a cheetah that has undergone some sharpening to increase detail. The image on the right is the mask applied to the sharpening effect. Imagine that black and white image superimposed over the top of the cheetah; the area of white represents the portion of the image to which the sharpening effect has been applied and the area of black represents the portion of the image to which the sharpening effect is not applied. Therefore, in this instance, the sharpening has been applied only to the eyes/nose of the big cat, to further emphasize the sharp focus in this area, and increase the impact of the close portrait.

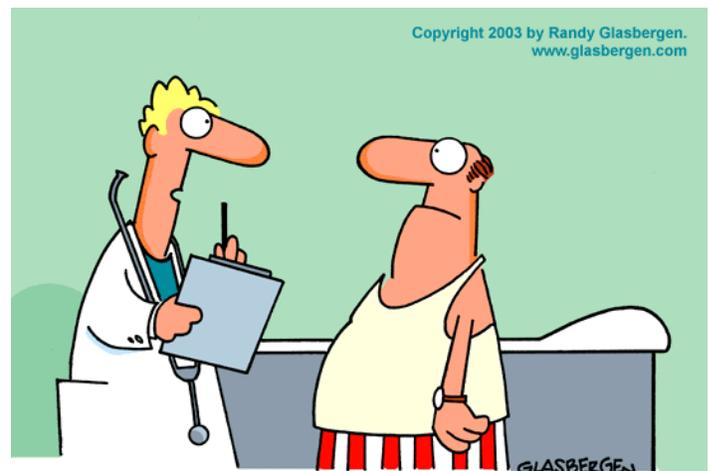
The added bonus

As if the above points weren't enough, what has to be one of my favorite reasons for shooting in RAW is that all image editing is non-destructive. Unlike a JPEG file, where any changes made to the image are permanent, all changes made to a RAW image are stored in a metadata file associated with the RAW file, leaving the original file untouched. This means you can never irreparably ruin an image by saving some mistaken changes and also you can go back to an image a few weeks, months or years later and reprocess it, from the original RAW, as your processing skills improve.

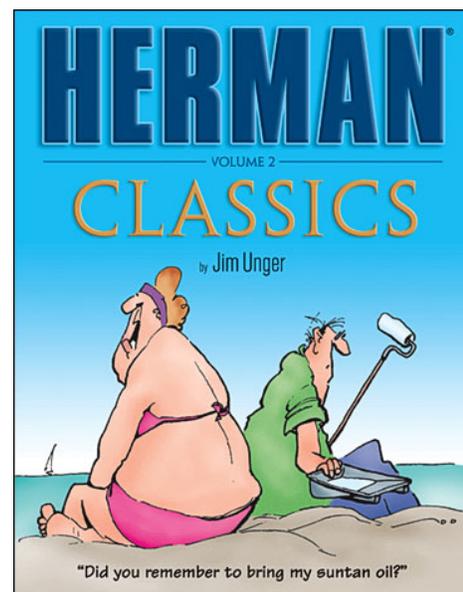
Now, I would be lying if I said there was not a learning curve associated with RAW processing. You will need dedicated RAW processing software to manipulate your images, but typically cameras that support shooting in RAW should ship with the manufacturers own software for

doing so. There are also a large number of alternative free programs out there, as well as software packages from well know image editing giants, such as Adobe. With a little bit of research, you will see how easy it is to squeeze the most out of your images, and you will soon wonder why you weren't shooting in RAW sooner.

Given that most cameras should give the option of shooting in 'RAW+JPEG', where the camera records both the RAW file and processed JPEG file to the memory card, you haven't got an excuse to not give it a go the next time you are out with your camera.



"What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?"





Continued from page 2 **Are There More Rules Other Than The Sunny 16 Rule?**

too dark.

Here are some other 'rules' to help when you aren't in a sunny day.

The Snowy / Sandy F22 Rule

When you're shooting on a bright day in snowy or sandy conditions, change your aperture to F22. Then, pick any shutter speed or ISO speed as long as both are the inverse of one another.

Example: You're out in the Kalahari desert, and you spot a fairly slow-moving camel. You figure 1/100s for a shutter speed will work just fine. You've already set your aperture to F22 because of the snowy/sandy F22 rule. Now you simply need to switch your ISO speed to 100, the exact inverse of 1/100 which is the shutter speed you picked.



Here's a quick table of matching ISO speed and shutter speed values to use with these rules:

ISO 100 with Shutter speed 1/100s

ISO 200 with Shutter speed 1/200s

ISO 400 with Shutter speed 1/400s

ISO 800 with Shutter speed 1/800s

The Overcast F8 Rule

When it's medium overcast outside, change your aperture to F8 and pick your shutter speed and ISO speeds

from the table above.

Example: It's an overcast day, and you see a beautiful mural on the wall. You set your aperture to F8, your shutter speed to 1/100s, and your ISO speed to 100 because there is no action in the shot.

The Slightly Overcast F11 Rule

When it's mostly sunny but there's a high cloud in the sky blocking out some of the light, you can use the slightly overcast F11 rule to get the right exposure. Just set your aperture to F11 and pick your ISO and shutter speeds from the table above.

Example: You're watching your kids playing soccer when the sun dips behind a high cloud. You set your aperture to F11, and you pick a shutter speed of 1/800s with an ISO speed of 800 because you want to freeze the action.



The Heavy Overcast F5.6 Rule

A nice rule that goes with garden photography on overcast days. Just set your aperture to F5.6, and pick two corresponding shutter speed and ISO speed values from the table above.

Example: It's a foggy day, and you're doing some garden photography. You set your aperture to F5.6 on your macro lens, and then you pick an ISO speed of 100 to get the best color and sharpness from the shot. You also pick a shutter speed of 1/100s to correspond with the ISO speed you picked. You are using a tripod for this shot.

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The Sunset F4 Rule

Whenever you're taking a picture while the sun is going down, you'll want to use F4 and one of the shutter speed and ISO speed combinations listed above.

Example: The sun is going down, and you want to get a closeup portrait of your friend. You set the aperture to F4, the shutter speed to 1/200s, and the ISO speed to 200. You take the photo without using a flash.

Disadvantages to using F Rules

Although F rules are very convenient when you don't have a light meter or other tools on hand, you run the risk of sacrificing one very important thing – control over your aperture. By controlling your aperture, you can decide how much of the scene is in focus, something that is essential to photography.

You'll notice that most of the examples I've picked work on their own without any changes to the aperture. In other words, the aperture corresponds to the kind of photo taken. The sunset F4 example talks about taking a portrait at F4. That makes sense because you usually want to limit the area in focus (a.k.a. depth of field) in a picture like this.

But what if you suddenly realize you want to take a landscape picture at sunset using the same F4 rule? You'll take the photo using the "right" aperture, shut-

ter speed, and ISO speeds but not all of the photo will be in focus. Only some of it will be. Back to the drawing board. To get it right, you'll need to increase the F-number and decrease the shutter speed.

There is a way around this problem, but it's not exactly a quick fix. Every time you increase your aperture by one full F-stop, you can decrease your shutter speed by one full stop, and you'll get the exact same exposure.

Example: It's sunset, you've got a tripod, and you want to get a picture of the purple landscape in the distance. You start at F4, and you pick a shutter speed of 1/100s with an ISO speed of 100. To get the picture you want, you'll need to use F22, so you slowly increase your aperture while decreasing your shutter speed. You go from...

F8, shutter speed 1/25s, ISO 100

F11, shutter speed 1/13s, ISO 100

F22, shutter speed 1/3s, ISO 100

Now just stop and think about that. Does it fit into the ballpark of what we'd normally expect? I'd say it does. When there isn't a lot of light, and you're shooting at F22, you should expect the exposure time to be rather long.



So it's possible to change your aperture when using any one of these handy F-rules. It just takes awhile. You have to slowly ratchet the shutter speed up/down as you adjust the aperture.



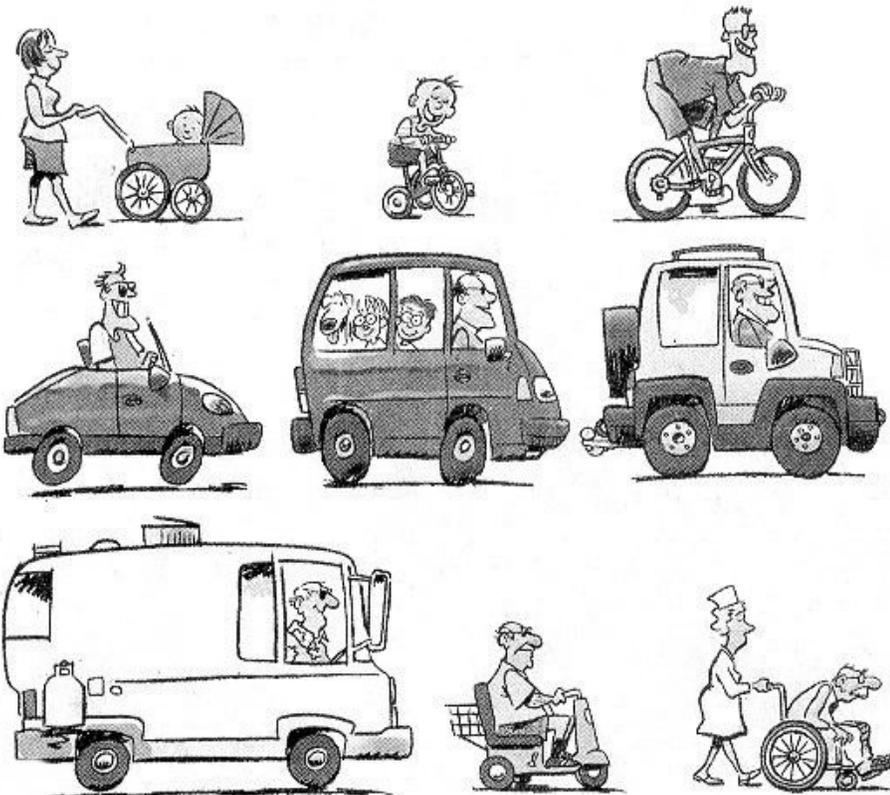
Continued from page 7 **Are There More Rules Other Than The Sunny 16 Rule?**

Wouldn't it be nice to have a light meter on hand, so you could pick everything more quickly and precisely?
Now you know why those tools exist.

County Superlatives

1. C. 944,000
2. C. Buncombe
3. B. Transylvania
4. A. Mount Mitchell
5. A. Altapass

The Wheels of Life





From the Editor

Thanks to the club officers that have served so well for the past two years. Last week a new slate of officers were elected and will begin their term in office this January. Without members that are willing to serve our club would not exist. Thanks again to those leaving office.

Club Officers

President:	Rick Bell	<u>majrbell@gmail.com</u>
Vice President:	Donny Teague	<u>donnyt@huntingtonhouse.com</u>
Secretary:	Richard Griffin	<u>gmo@twave.net</u>
Treasurer:	Robert Dant	<u>robert@hickoryphotography.com</u>
Image Coordinator:	Ed Lane	<u>elane28601@charter.net</u>
Webmaster:	Scott M. Powell	<u>smpimages@gmail.com</u>

We're on the Web

<http://cvclub.wordpress.com>

Presidents Report

Once, years ago, I stood in Key West and read the sign that said, "End US 1 South". Some time later I stood and read the sign that said, "End US 1 North". The point is that all roads (and all journeys) come to an end somewhere. I am at the end of my journey as President of the Catawba Valley Camera Club. It's been an interesting and enjoyable two years. It's appropriate (and prudent since I might forget at the awards banquet) in this last President's Article that I express my thanks to those who have helped me on this road. First to Donny Teague for serving as Vice President and ably filling in for me on a couple of occasions and especially for his initiative and skill in starting our outstanding Newsletter. Secondly to Robert Dant for serving as our treasurer (and for not running off to Mexico with the proceeds). Then to Richard Griffin for serving as our Secretary and keeping track of attendance and field trip participation. Also thanks to our primary committee chairpersons: Robert Hambrick for setting up or year's calendar and keeping it straight, Wink Gaines for all the work involved in the Membership and PR committee. We also had some able help from temporary committee chairpersons: Judy Young in

organizing and managing our Help Portrait project. To Scott Powell for taking care of our Website. Special thanks to Ed Land for serving as our image coordinator and to Denny Hacker for serving as liaison with the Art Museum. There were some folks who volunteered to rewire our lights when that became necessary and many others who helped out through the years; volunteering to head up short term projects and to lead field trips and so many other things.

There are two things that make this club special: first is the overall level of excellence displayed in the images presented (Ed told me Saturday of a person who had been a presenter at Grandfather on at least one occasion who was proudly displaying an image on their website which, when Ed looked at it, he realized it wouldn't even have placed with an honorable mention in the last contest) and second is the way there are always people willing to step up and help out the club and one another.

Let's keep those traits going in the upcoming term. By the way, for those of you who weren't at the meeting when we elected next years officers, you'll be seeing many of the names I mentioned above in leadership rolls in January.

Let's continue to have fun as we grow in our art and craft.



Application for Membership

NAME _____ **DATE** _____

ADDRESS _____

CITY _____ **STATE** _____ **ZIP** _____

E-MAIL _____

Please print clearly as our club correspondence is conducted via e-mail.

PHONE: HOME _____ **WORK** _____ **CELL** _____

Dues are \$35 per year. Meetings are the first and third Wednesday of each month.

Students: \$15 per year

CLUB USE ONLY: Date Received _____ **Cash** _____ **Check** _____

