

RESOLVING RESOLUTION — PART ONE

Low Resolution.... High Resolution... What Really Is the Difference?

by Richard Gross

I met a fellow a few weekends ago who runs an antique camera store. Antique, in this case, means a camera that uses film. We had a nice conversation about a very old model 35mm rangefinder camera that we had both used in bygone years and about which we agreed the optics were truly excellent. Sometimes, I really miss loading film, the smell of developer chemicals, and the sound of an actual motor drive as it advances the frame.

I don't miss the expense, though, of buying film, and I don't miss the cost of developer and paper. I don't miss the fact that a brick of film gave you around 900 frames, whereas a few eight-gigabyte memory cards will let you shoot thousands of frames.

When I studied photojournalism at Western Kentucky University, we didn't really discuss things like resolution. There were early digital cameras then, but they were absurdly expensive and not terribly portable. We learned to use 35mm film, because that is what was used in publications, and we were learning to shoot pictures for newspapers and magazines.

How times change.

Today, photographers who want to take pictures for publication have to know about things like resolution. They have to understand that just because a picture looks good on the screen does not mean it will look good in print or even that it can be printed. They also have to understand that there are vast differences between printing on an inkjet printer and printing on a printing press.

Cameras have advanced to the point that a photographer pretty much can set everything on automatic, point the end of the camera that most resembles a lens at the subject, lob a quick prayer in the direction of Heaven, press the button, and get an acceptable result. With the simple use of a tripod, you might even

get a good result using that method. Great results take a little more know-how, and one of the things that needs to be understood is resolution.

The point of this article is not to offer a complete treatment of resolution for the professional photographer. The point is to demystify the topic a little bit for the artist who wants to photograph his or her own work. Those of us who remember back when *Shutterbug* was called *Shutterbug Ads* can argue the finer points of finer pixels later.

As a general rule of thumb: the higher the resolution, the better off you are. Every photograph I take is taken at the highest resolution that the camera offers. I can always lower the resolution later; I can't (for the most part) increase it successfully.

There is no universal name for the highest resolution setting on all models of camera; "superfine" is commonly used, but there are others. The best advice is to find out what your particular camera calls its high-resolution setting and always use that.

Obviously, the highest resolution setting on a three-megapixel camera is still a lower resolution than the second-highest setting on a 12-megapixel camera, and there are a number of hairs that can be split when discussing resolution. If you're taking a pictures that you would like to see one day appear in print, you should be using a camera in the ten- to twelve-megapixel range.

If you take a photograph on the highest resolution camera setting on a 12-megapixel camera, you will have a high-resolution image suitable for publication. Maybe.

Unfortunately, your software might sabotage you. Since there are many hundreds of possible software programs and combinations of programs that can be used — some of them *inflicted* — on a photo-

graph once it is taken, no attempt will be made here to cover them all. Suffice it to say there are some caveats that must be observed. Do not let your software resample your high-resolution image; some of them take a very cavalier approach to resampling and will — without much warning — turn a high-resolution image into a screen-resolution image. They think they're doing you a favor.

Common resolutions are measured in "dots per inch" and are 72 dpi, 150 dpi and 300 dpi. However, these ratings do not actually give enough useful information to tell you anything. A 300 dpi image is not necessarily high resolution any more than a 72 dpi image is necessarily screen resolution. In addition to knowing how many dots (pixels) there are per inch, you also have to know how many inches of pixels are in the image.

Say, for example, you have an image that is 1024 pixels wide by 768 pixels tall. (1024 x 768 is a common monitor-screen resolution size.) That image size would fill a normal computer monitor, because the monitor needs only 72 pixels per inch. However, in print, the press needs 300 pixels per inch, so that same image would be only three-and-a-half inches wide by two-and-a-half inches tall. To further confuse matters, it would print nicely at almost seven inches wide on an inkjet printer, where the printer needs only 150 pixels per inch to produce a good image.

On the other hand, an image that was 3600 pixels wide would print nicely on a printing press at 12 inches (more than a page) wide.

In the next issue, we'll look at how you can tell what the resolution of a given image is and how to put that knowledge to work for you, plus a few dangers (and advantages) of emailing photographs at any resolution.

