TECHNOLOGY

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PHOTOS PROVIDED

The image at left was taken with the camera's ISO set at 80, producing a nice smooth image even when enlarged as shown in the inset in the corner. The image at right was taken at ISO 1600. It may look similar as small image but the inset showing magnification shows very noticeable digital noise.

Limitations of digital technology can be seen in image 'noise'

Bits & BYTES

WAYNE PALMER

Back in the old days of film when cameras were more manually controlled, there was a dial to adjust the ASA or DIN setting of the camera. The ASA, an abbreviation for the American Standards Association, was a rating given to film based upon its sensitivity to light. The higher the number, the more sensitive it was, meaning you could take pictures with less available light. When film was loaded into the camera you made sure you set the ASA setting to match that of the film. This setting told the camera's light meter what range of light the film would work. Over time the ASA rating was called ISO, which stood for the International Standards Organization and the numbering system for film sensitivity remained the same while the European counterpart referred to as DIN which had a different numbering system disappeared. As cameras developed, the dial for the ISO setting disappeared as the task of setting the ISO was done automatically with the camera reading a special bar code put on the film. This was very welcomed development as shooting a roll of film at the wrong ISO resulted in poorly exposed images.

Another challenge was picking the film with the best ISO for the lighting conditions you would be shooting under. For some this selection process was daunting when the ISO range of film ran from 25-1600. That coupled with film coming in three different exposure lengths sizes and being made by multiple manufacturers gave many a photographer a few things to consider before purchasing. After loading the film you were basically stuck taking pictures at that ISO for the whole roll. Experienced users could swap out films but it was a little risky, you lost part of the roll and it was an exercise often left to experienced users.

So what difference does it make what ISO you use? Well, there is a direct correlation to the quality of the pictures and the ISO used. Film is made of silver halide crystals that change when exposed to light. Larger crystals, which are used in higher ISO films, are more sensitive to light. This allows photography in low light scenarios but had has the trade off of creating a noticeable granular look to the picture referred to as grain.

And now that you have had a history lesson on film you may be wondering how this ties in with digital cameras. Well even though film use has diminished greatly over the last few years, the term ISO is still alive and well and is as equally relevant.

Instead of film, the digital camera has a CCD or CMOS sensor. This sensor is made up of thousands of photodiodes, which are comparable to the silver halide crystals in film. When you change the ISO setting in the digital camera, you do not change the size of the photodiodes, you just change how they respond to light. At a high sensitivity setting the photodiodes may record colored speckles instead of what was actually seen. These speckles which are called digital noise, first appear in darker areas of a picture, but can be present through out depending upon the ISO setting of the camera. The simple reason for noise is a limit of the current technology.

Many cameras have auto settings that bounce the ISO around in a range that will give acceptable results. Usually this is in the 100-400 range. Many cameras have the ability to go higher, but since there is a noticeable trade off in quality, the manufacturer makes you manually engage the higher setting. For some cameras the ability to change the ISO may be obvious with a dedicated knob or button. For others, you may have to root around in the submenus to find that option. Not all cameras are created equal. Some cameras handle the higher ISO well while others perform rather poorly. Each new generation of cameras seem to improve upon this feature.

So just like film, the choice of getting poorer quality images at the price of not being able to take the picture at all, is a decision that is still with us. Fortunately with digital cameras, you can immediately see the results and determine if the image quality is acceptable.

And in the toot your own horn department, Photoshop Restoration and Retouching, 3rd Edition, a book I co-authored back in 2005 is now in seven languages. The editors of Popular Photography, the world's largest imaging magazine, just credited this book as the best one to learn Photoshop as it "takes a refreshing grown-up approach."

And lastly, if you have ever seen the show Dirty Jobs on TV, you will probably recall the ending where host Mike Rowe pleads with his audience to send him ideas for future episodes. I would like to make the same request. If you have any thoughts for a topic for a future article, I would appreciate hearing from you. I can be reached at pmi@palmermultimedia.com.

Comcast plans to beef up Fancast entertainment site

PHILADELPHIA (AP) — Comcast Corp. has reached agreements with several major content providers to offer their shows on its entertainment Web site, Fancast.com.

The Philadelphia-based cable operator has inked deals with ABC, CW, Showtime, HBO and The Food Network to offer free ad-supported TV episodes and clips. The shows will start rolling out this weekend, except those from ABC, which went live last week.

In the race to grab video share online, Comcast recently added an online store to Fancast where consumers can buy or rent video — though some analysts see the moves as expensive distractions from the company's core mission as a cable service provider.

Over the next few weeks, customers in a few markets will be able to program their digital video recorders through Fancast. National rollout will start in 2009.

The moves signal Comcast's intention to claim online viewership, even at the risk of losing cable TV viewers.

"Our consumers were moving online with the rest of the world ... and we felt strongly that the Comcast experience should be a screen-agnostic experience," said Amy Banse, president of Comcast Interactive Media, in an interview with The Associated Press.