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## What is Natural in Photography

by: *Chong Ho Alex Yu*

### Is silk-like waterfall natural?

People tend to be very receptive to unnatural or surrealistic presentations of paintings, sculptures, and many other art media, but they are critical of “unnatural” photography when something on the picture does not seem “right”, because a photo is expected to represent the “real thing.” What is a natural representation of reality in photography? Rather than analyzing this question in a philosophical fashion, I would like to engage in this discussion by a story-telling approach.

Two years ago I hiked down to the bottom of the Grand Canyon and photographed those famous waterfalls in Supai Village, including Havasu Falls and Mooney Falls. My technique was typical: I mounted my camera on a tripod, reduced the incoming light through the lens using a neutral density filter, and connected a cable shutter release to the camera. After a long exposure, the waterfall showed a silk-like quality on the recorded image. Although I won two awards in the Phoenix Camera Club monthly contest by presenting these images, surprisingly, several of my friends do not like them. Their comment is: “The water looks like soap. It is unnatural.” At first I was puzzled by this feedback. To me the image looks very natural because it is exactly what it is supposed to be after continuous light hits the sensor. This is plain physics. This is *natural* science. After going through a reflection on this matter, I started to realize that what is perceived as natural varies from time to time. Today most cameras are capable of freezing an action by an ultra-high shutter speed, and this is what most people do with their cameras. But a century ago a photographer who used insensitive films had to take several minutes to make an exposure. As a result, all pictures of rivers and waterfalls created in this way display a smooth water texture. The moral of this story is: What is considered natural is conditioned by what we get used to seeing.



**Havasupai Falls**



**Money Falls**

## Is panning natural?

When I was majoring in mass communication, photojournalism was a compulsory course. One of my assignments was to capture an image of a fast-moving car in a street. Again, the usual technique was employed: I mounted a camera on a tripod. When I saw a car approaching, I panned the camera by following the movement of the vehicle. At the right moment, I pressed the cable shutter release. The resulting image is a sharply shaped automobile against a blurred background, and this combination of sharpness and fuzziness generates a sense of motion. Frankly speaking, as a beginner of photography at that time, the photo seemed unnatural to me. By far never in my life had I seen a car like that with my naked eyes. But because I learned the process of making a panned photo, I persuaded myself that it was physically natural for a moving car to have this appearance. In short, my cognition took over my sensory perception. What is treated as natural depends on what I know, not how I feel.



**Bird in motion (Panning)**

## Is HDR natural?

If you are still unconvinced by my stories, I would like to cite an example from an authority in photography. Utah-based photographer Tom Till is one of America's most published photographers. Since 1977 over 150,000 of his images have appeared in print. Recently Tom Till had started experimenting with High Dynamic Images (HDR).

In photography, the dynamic range indicates the dispersion of light from the brightest to the darkest. Human eyes are able to perceive a much wider dynamic range than a film or a sensor. On a sunny day we can still see the details of an object under direct sunlight, under the shadow, and everything in between. But our camera could be fooled by this high contrast of lighting. The image captured might be too bright or too dark, depending on which area of the scene is metered. As a remedy, today a photographer could bracket the exposures (over and under) by several f-stops, and later merge them together using a HDR software package, such as Photomatrix or HDR Expose. Those software packages are smart enough to select the best details from each exposure, and thus the final product has no black areas or white-out spots. Interestingly enough, quite a few people are resistant against HDR images for its "unnatural" look and feel.

Tim Till (2010) defended the merit of HDR by saying, "HDR images may even more accurately



reflect reality than a normal image, at least the reality we see with our eyes. Over decades everyone has seen thousands, perhaps even millions, of images in still and motion-picture photography. We expect a dynamic range that doesn't match our eyes to be normal in a photo. Now, when we see a more dynamic light range in an image, it may seem alien or strange" (p.46). In summary, our interpretation of an image is conditioned by what we are exposed to. As HDR images become more and more popular, eventually we might rate HDR images as more "natural" than non-HDR images. Indeed, this has already happened to me. Now whenever I see a landscape picture with a very dark shadow or a white area lacking details on a magazine, a book, or a website, I find it "unnatural" and unacceptable.



White Pocket, Page, Arizona (HDR Image)

### A higher dimension of reality unveiled by science

If you are still skeptical of my notion that a natural image should be defined by natural science instead of our limited perception, I would like to cite another authority. In 1999 Public Broadcasting System (PBS) released a documentary entitled *American photography: A century of images* (Hovde & Meyer, 1999). This documentary explores the impact of photography on America from 1900 to 1999. One of the interviewees in the documentary is Dr. Neil deGrasse Tyson. Those readers who are familiar with the history of American photography might notice that there is no well-known photographer named Neil deGrasse Tyson in the US history.

Indeed, Dr. Tyson is an astrophysicist, not a photographer. Currently he is the Frederick P. Rose Director of the Hayden Planetarium at the Rose Center for Earth and Space, and a Research Associate in the Department of Astrophysics at the American Museum of Natural History. Why did the producers include Dr. Tyson into the documentary? How is astrophysics related to photography? In the documentary Dr. Tyson illustrated many beautiful photos taken with scientific equipment, ranging from the subatomic world that is too small for our naked eyes, to the cosmic objects in the remote galaxies that are far beyond the reach of our sensory

mechanism. If we compare what we can observe with our naked eyes with the images taken by the Hubble Telescope, such as the Giant Hubble Mosaic of the Crab Nebula, and the Gas Pillars in the Eagle Nebula, all of them would be classified as unnatural images.

It is a common misconception that an optical telescope is just like a super-powerful zoom lens and both can bring the distant image closer to our eyes. Actually, one could never see what is registered on the Hubble Telescope. The truth is: the light emitted from the remote galaxies is extremely dim. Thus, it takes hours of exposure for the Hubble Telescope to record the light, and computing-extensive post-processing must be performed in order to enhance the details. In addition, the final image is generated by merging several photos together. As you can see, Hubble's long exposure approach is the same technique used in photographing waterfalls, and its photo merge technique operates on the same principle as that of HDR.

## Conclusion

Two important messages are conveyed in this essay. First, humans tend to stick to what we know. We assume that the natural way has some invariance essence, but do not realize that socialization plays an important role in our conceptualization. Besides photography, this tendency also happens in many other domains. For example, many people prefer St. John's Wort to drugs for curing depression because the former is considered natural. As a matter of fact, St. John's Wort contains hypericin. But when chemicals are prescribed by medical doctors to treat depression, people complain that it is unnatural. Take genetically modified food (GMF) as another example. Many people refuse to eat GMF due to their conviction that it is unnatural. It is important to point out that many so-called natural foods may contain harmful or cancer-inducing substances. Very often the demarcation of what is natural and what is unnatural is based upon our conventional beliefs. Hence, I am not resistant against chemical-based drugs, genetically modified food, or HDR images.

Second, we could harness the power of natural science to unveil a higher dimension of reality that is hidden from our naked eyes. This dimension of reality might look unnatural, but indeed it is very natural. One might argue that HDR images do not reveal any higher reality than Hubble's images did. HDR software simply amends the flaw of the camera sensor; it brings back the dynamic range that can be seen by our naked eyes in the first place. In actuality, a photographer could go beyond restoring the basic details in a HDR process. My Nikon D700 camera is capable of making 9 bracketed exposures, and this very wide dynamic range could easily exceed the limit of our naked eyes. Consider the picture of White Pocket as shown in the section of HDR discussion. I went to White Pocket last November when the weather was undesirable. The sky looked white and flat, and thus uninteresting. To tell you the truth, the dramatic pattern of the clouds in the photo was enhanced by Photomatix. Is it natural? My answer is a resounding "yes."

## References

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