

The Digital Eye/I Revisited

Spring 1988, Columbus, Ohio (USA). The Eminent Scholar in Art and Design Technology invited experts from around the world to a Symposium. Digital Photography: The Second Revolution. They came in droves: SONY, Kodak, Fujitsu, Agfa, professors and many students from all over. I showed them what the Mavica, the first electronic camera from SONY (video, of course) could do. But I did not convince the audience! I wanted to publish a book on the subject of the symposium. But the sponsors were not convinced that the digital would replace the quality of classic photography. Today, such a book would have been a hit.

Yes, technological innovation was clear enough for all to see, even in 1988. Take the picture and instead of processing the film chemically, apply digital methods in order to get the desired image. I wonder today how many professionals in photography understood at that time how electronic storage replaces film and how images are digitally processed. Later that year, the Olympics in South Korea supported my argument regarding the future of digital photography: from the arenas of competition direct to the pages of USA Today, the only daily national newspaper in the USA. Yes, the images circulated through slow modems (maybe 2400 bps), through wires almost directly to their final place in the paper. Articles published about this new photography were read with more interest than the results of the Olympic games. A year later, I assisted a Madison Avenue advertising company in setting up its first digital photography studio.

All this is history, but where was the revolution I promised for the symposium participants? Before starting work on this text, I checked the so-called Digital Camera Guide available via the Internet. Listed were 25 portable cameras ranging in price from 1000 DM to 40,000 DM; 19 Camera Backs and Larger Systems for professional use priced from 7,000 DM to over 70,000 DM, and even 3 still video cameras, like the Mavica we used in the symposium). While the prices are indicative of what you could expect for such cameras, here are some of the characteristics, which tell us how far a still young technology evolved. The lowest resolution is 320 x 240, the lowest image depth is 8 bit; highest resolution is 6000 x 7520; and the highest depth is 36 bit. What do these numbers mean? At the low end, they mean good test shots to serve as guides to an expensive final session. At the high end, they stand for photo-realistic quality: high resolution, rich color, many possibilities for manipulating images. These can be stored on various media, but the handy PCMCIA card (the size of a credit card) dominates. What else? Software to provide synthetic lighting: you can modify the lighting of a scene after you took the picture. Software for field depth control: you can combine several images to increase depth. And the ability to process image merging: you can create panoramic views from a sequence of



independent images. Add to these an almost unlimited control of contrast, color saturation, sharpness, and the ability to perform texture application – all without setting one foot in a darkroom! I should better stop.

Technologically, digital photography freed us from the many restrictions that came with the fundamental paradigm of photography as “mechanical drawing” or “writing with light” on a sensitive material. But is this a revolution? Is it the second revolution in picture taking?

Oculus mentis

The eye was traditionally considered the “organ” of our mind. The revolution I referred to in 1998 is not reducible to technological progress, no matter how spectacular this progress was and continues to be. What I am interested in is the cognitive revolution: a totally different way of conceiving communication and expression. And thus a new aesthetics of the image. Let me explain.

Almost without exception, the camera was accepted for documentation purposes but questioned in regard to artistic creativity. What was not visible – the sewer system in Paris is the example given in books on the history of photography – was brought to light through photographs. Words could only partially describe what the photographic image conveyed.

The camera introduced the monocular view of the world. Cyclopic space conventions emerged. Through sequences of images, a new time convention was introduced. The traditional camera raised in the minds of photographers – who were casual takers of pictures, such as photojournalists, scientists, artists – a simple question: What can I do with it? The Polaroid concept of almost instant delivery of prints triggered a different inquiry: What can the camera do for me? Compare the photographs of Ansel Adams to those of David Hockney and you have a clear image of how different these two attitudes are. With digital photography, images can be used as easily as words. Once upon a time, the miracle of voice traveling faster than sound, through telephone connections, fundamentally changed our relation to space. The remote was as near as the voice heard through the telephone receiver.

Now is the time of images that bring almost instantly here what is distant. In doing so, the question “What can I do with it?” combines automatically with the question “What can it do for me?” The complexity of the photographic effort moves from capturing the image (selection, lighting, perspective, contrast, etc.) to transmitting and viewing it. Image processing introduces elements of creativity that at the time of Talbot (who is associated with the beginning of educated photography) no one could see in the primitive one-eyed box.

Back to 3D

Monocular representation is in itself a testimony to how difficult it is to handle reality. The metaphor of the “one-eye,” which the photographic camera embodies, leads to a flat world. Cyclops see everything flat. This metaphor was taken over in computer graphics. Images on the computer screen are held together by the conventions of monocular vision. This is one of the reasons why they all look alike. This is also why our cognitive effort in the domain of computer

graphics is so different from the cognitive processes involved in our actions of painting, building homes, making sculptures, flying (in airplanes or experiencing the excitement of sky-diving).

The revolution I announced in the 1988 symposium integrates the miracle of technology, but on the premise of 3-dimensional images. Yes, what makes and will make digital photography more and more a revolution is that we can build 3D cameras, that is, technical beasts with two eyes! The first cameras with bi-ocular characteristics are already in use, even if they are prohibitively expensive. And although the process is still in its initial stages, I can see how the metaphor of computer graphics will change. This will give our 3D images not only a pseudo-Z axis, but also the possibility to express the spatial characteristics of real spaces. This will be another cognitive step.

Today we still emulate 3D spaces through a pair of monitors – the well-known goggles of virtual reality. Tomorrow? This article started with a prophecy that very few paid attention when it was first uttered. But I do not want to end this article with an exercise in cheap technological prophecy. My goal here is to help the reader understand the direction of change. Next time I check the Internet, I might already have access to results confirming that our digital eye effectively helps us define our I (identity) in ways different from those used in the age of the “camera lucida.”