

Time and the Camera

Taken from *Light and Lens: Photography in the Digital Age*, Robert Hirsch, p. 185-215

In Search of Time

We all know what time is until someone asks us to explain it; then, even physicists find the nature of time to be inexplicable. Time is more baffling than space. It seems to flow past us or we appear to move through it, making its passage seem subjective and incomprehensible. Yet a camera can purposely stop time and spatially add the aspect of physical dimension within a framed area of visual space, giving photographs exceptional properties that other visual media do not possess.

In his Theory of Relativity (1905), Albert Einstein proved that widely held concepts about time were not always true. For instance, Sir Isaac Newton's theory that time moves at a constant rate was proved erroneous after it could be demonstrated that time elapses at a slower rate for rapidly moving objects than it does for slowly moving ones. An example of this phenomenon would be an astronaut who goes on an extended space voyage. The returning astronaut would have aged only a few years while his earthbound counterparts would have gotten dramatically older. The belief that two events separated in space could happen at precisely the same time—simultaneity—has also been demonstrated to be incorrect. Whether two events appear to happen at the same time is contingent on the vantage point of the viewer, and no single observer has the inherent privilege to be such an authority. For Einstein, the concept of space as something that exists objectively and independent of things, including time, is a remnant of ancient, pre-scientific thinking.

Einstein's endeavors revealed even more extraordinary revelations about time. For instance, a clock will run faster at the top of a building than in the basement. In a nutshell, Einstein tells us there is no such thing as universal time and there is no master clock regulating the working of the universe. Time is slippery, relative, and subject to gravity and motion. Time and space are not simply "there" as a neutral, static setting for existence to unfold upon. Time and space are physical things, malleable and mutable, no less so than matter and subject of physical laws. In quantum theory, what is physically

real is said to be undefined until it is observed (interacted with). This quality of being undefined also applies to the 'reality' of the future and of past events. According to quantum theory, by observing an event the observer literally determines the course time has chosen. These same forces of physics were at work in the arts and can be seen in Pablo Picasso's Cubist works, which altered Western notions of time and space to produce a rift dividing past and future that led to the blooming of modern art.

The Perception of Time

We perceive our world through one or more of our senses. We see colors, hear sounds, and feel textures, but how do we perceive time? Could there be a special faculty, separate from the five senses, for detecting time, or is it that we notice time through perception of other things? And if so, how? What about the tension between organic time (nature) and mechanical time (culture) and the Western ideological associations attached to each?

How do such theories affect an imagemaker? If asked to imagine a photographic image, most of us would conjure up a small slice of frozen time that has been plucked from the flow of life with a frame (border) around it. Everything in the picture is stationary, there is no movement, and there will never be any change, as the brief capture remains permanently available for ongoing examination. This western convention of reality, based on Renaissance perspective, commands that photographs, like trial evidence, be clear, sharp, and to the point of the matter. In popular culture, a photographic image's value is determined by the abundance and readability of the details. In this scheme, the actions of a camera with its lens are supposed to emulate the human eye with its lens and retina. Critical thinkers and visual artists have realized that photographs do actually not reproduce human vision, but rather show us a particular moment frozen in time, from a specific vantage point, usually in a rectangle, in which our head is still, one eye closed, and seen through a specific image/color management system. Such a petrified Cyclopsian view actually reverses the original intent. Instead of a camera showing us what our eyes would see, which is more like an egg-shaped field of view, we are now confronted with the notion that if our vision worked like a photographic process, we would indiscriminately see the world devoid of interpretations, without bias or prejudice.

Controlling Camera Time

Although it has been mathematically demonstrated how the rate of time can fluctuate based on velocity, these equations do not explain why time can seem to pass more slowly, or more rapidly, depending on our mental attitude concerning an event. This article challenges image makers to take on the great enigmas of time that flummoxed even Einstein, such as the striking divergence between physical time and psychological or subjective time. The emphasis is on what can be done at the time of exposure with a camera. It is also possible to either enhance or replicate these techniques with imaging software (Photoshop).

Relativity also informs us that time is not a series of moments—some not yet having occurred—but rather a block in which we exist at a specific position, much in the manner we exist at one point in space. The inconsistency between the frozen “block time” of physics and the flowing subjective time of the human mind implies a need to rethink how we represent time. Most of us would find it difficult to surrender our impressions of flowing time and its accompanying every-moving present moment. It is so basic to our daily experience that we cannot accept the possibility that it is an illusion or misperception, based on the limits of our senses. During cinema’s infancy, the practice of ‘reversing’ (time), running the film backward, offered a unique photographic experience that altered a basic concept concerning how we are instructed to perceive our world. Since the time of Aristotle, logically minded people have demonstrated that personal experience and/or intuition is not a reliable guide to scientific understanding.

By diverging from customary imagemaking standards, we can start to include new ways of thinking about and depicting time using digitally based images. Once an image is digital, it can seep out of the confines of its frame and become capable of being woven together into a much larger tapestry. The net effect of this collective intelligence of images is our ability to see things we could not see in a single image. Of course, this upsets the traditional apple cart, but that has always been one of the effects of new technology. It further democratizes the practice and generates new makers and new audiences for their work. See how you can take advantage of the following starting points to use your camera to investigate new ways of representing time and space. In addition to

the camera-based methods, there are countless ways in which imaging software can be applied to manipulate a picture's time and space relations.

1. Explore Shutter Speeds and extend the action—a shutter speed of $1/125^{\text{th}}$ of a second will stop time. If you slow down the shutter speed, the image will blur.
2. Stopping the Action—a high shutter speed can halt an event at a critical point of the action providing viewers with new ways of visualizing and thinking about a subject.
3. Blur and Out of Focus Images—the blur does away with the concept of a discrete parcel of framed time depicting frozen time. The slower shutter speed produces more blur and more contrast between the moving and static areas of the composition. Determine whether it is more important to blur the subject or the background.
4. The Pan Shot—the camera can be intentionally moved to create a blur.
5. Panorama—take several pictures holding the camera on the same horizontal level while moving it across an expanse of 180 degrees or so. Take several pictures that overlap to reassemble in Photoshop. Have people move from one image to another or do something else to make us think about time.
6. Projection- project an image onto your subject and photograph both.
7. Multiple Images—take a number of pictures of the same subject with minor changes. Arrange in various ways.
8. Overlapping images—take a number of images and overlap them in Photoshop to create a sense of time passing.
9. Sequences—take a sequence of images and arrange in order or alter the order.
10. Post-Camera Visualization—there are things you do in Photoshop that make us think about time...altering positive/negative space, the interface between different aspects of the same event, the relationships between static and movement, and the exchange between viewer and object being viewed.
11. Using a Grid—gridded pictures invite audiences to spend more time looking because the sense of time is fluid and cannot be taken in all at once.

12. Contact Sheet sequence—use the contact sheet to create multiple images on one page.
13. Photomontage—layer more than one image together by overlapping and screening one or more images to see through them.
14. Photographic Collage—use more than one image to create a new photo. (masks and layers)